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Preface

It is with great pride and a sense of academic accomplishment that the Office of the Vice President for Research and International Relations (OVPRIR) presents this compendium of selected research works. This collection stands as a testament to the vibrant culture of inquiry and innovation being fostered among our student scholars and represents a significant contribution to the diverse fields of technology, business, and the social sciences.

The works contained within this volume were prominently featured at a research dissemination event held on July 24, 2025, at the Col. John C. Robinson American Center, located at St. Mary University. Organized by OVPRIR, this event provided a crucial platform for emerging researchers to showcase their findings, engage in scholarly dialogue, and receive valuable feedback from the academic community. Our commitment to hosting such forums underscores our unwavering dedication to nurturing research talent and promoting a robust ecosystem of knowledge creation and sharing.

This compilation captures the intellectual vigor and practical focus of the research presented. The six papers herein delve into a wide array of contemporary and critical issues: from developing technological solutions like a Smart Stack Management System for Ethiopian MSEs and an Event Management System, to exploring the potential of block chain technology for financial inclusion. The volume also includes insightful analyses of human resource planning challenges in a major corporation, an investigation into the psychological benefits of religious practices, and an assessment of social media marketing strategies in the real estate sector.

Each paper reflects a rigorous research process, demonstrating the authors' abilities to identify problems, apply appropriate methodologies, and derive meaningful conclusions with practical implications. The diversity of topics highlights the interdisciplinary nature of modern problem-solving and the broad impact of academic research on industry and society.

OVPRIR, in its role to promote and disseminate research, has undertaken the publication of these works to ensure their insights reach a wider audience. This volume will be made accessible to the academic community to inform future research, inspire innovation, and contribute to ongoing discourse in these respective fields.

Finally, we extend our deepest gratitude to all who contributed to the success of the dissemination event and this subsequent publication. Our sincere thanks go to the diligent student researchers whose scholarly efforts form the core of this collection, to the faculty advisors who provided invaluable guidance, and to the attendees and reviewers whose engagement enriched the process. It is through this collaborative spirit that we continue to advance our mission of fostering excellence in research and contributing to the broader knowledge economy.

Smart Calculator–Based Stack Management with Supply Chain and Payment Integration

Abel Gezahegn and Biruk Tadesse

Abstract

Micro and Small Enterprises (MSEs) in Ethiopia face critical challenges in managing their inventory, sales, supplier coordination, credit tracking, and payment collection processes. Manual approaches are prone to inefficiencies, inaccuracies, and a lack of visibility into business performance. This research introduces a Smart Stack Management System with Supply Chain and Payment Integration, a mobile-based solution designed to automate and streamline core operations for MSEs. Developed using Flutter and Django Rest Framework, the system supports real-time inventory tracking, credit sales handling, supplier–retailer interaction, payment via Chapa, and subscription-based access. Findings from testing and evaluation show that the system significantly enhances operational efficiency, reduces stock outs, and provides valuable insights to retailers. This paper presents the system architecture, development methodology, user flows, and potential impact on the Ethiopian business ecosystem.

Keywords: Inventory Management, Micro and Small Enterprises, Django, Flutter, Mobile App, Supply Chain, Payment Integration, Subscription System

Background of the Study

Micro and Small Enterprises (MSEs) serve as vital engines of economic development in developing countries like Ethiopia. Despite their contribution, most MSEs still operate using manual systems to manage their inventory, sales, payments, and credit records. This often leads to mismanagement of stock, delayed payments, data loss, lack of insights, and communication gaps between retailers and wholesalers.

To solve these challenges, this project introduces a **Smart Stack Management System**, a modern mobile-based solution that empowers MSEs with a suite of integrated tools for inventory control, supplier engagement, sales monitoring, and secure payment tracking.

Statement of the Problem

Retailers and wholesalers in Ethiopia suffer from a lack of centralized systems to:

- Track inventory levels in real-time,
- Automate credit and sales management,
- Collect timely payments,
- Connect efficiently with suppliers, and
- Monitor performance through analytics.

This often results in:

- Stock discrepancies,
- Missed sales opportunities,
- Delayed or forgotten credit payments, and
- Poor business decisions due to lack of reporting.

Objectives

General Objective

To develop a mobile-based Smart Stack Management System that integrates supply chain and payment features to help MSEs in Ethiopia improve operational efficiency.

Specific Objectives

To develop bilingual (Amharic/English) user interfaces for retailers and wholesalers.

- To implement authentication, inventory tracking, and credit handling.
- To integrate payment functionality using Chapa.
- To generate real-time sales and inventory reports.
- To enable subscription management for scalable access.

Significance of the Study

This study addresses core operational inefficiencies faced by MSEs. By digitizing inventory and payment management, businesses will:

- Reduce manual errors and time wastage.
- Improve supplier–retailer coordination.

- Access real-time data for better decisions.
- Ensure financial inclusiveness via digital payments.

Research Approach

This project follows an **Agile Development Model**, allowing iterative design, development, testing, and refinement. It emphasizes rapid prototyping and user feedback to deliver a working system aligned with user needs.

Tools and Technologies

- **Component** **Technology Used**
- Frontend (Mobile) Flutter
- Backend API Django Rest Framework (DRF) Database PostgreSQL
- Image Storage Local server (during dev) Payment Gateway Chapa API
- Token Management J W T (Access + Refresh)

Data Collection

Primary data was collected through:

- Informal interviews with local retailers
- Observations of manual inventory processes

Functional Components

Retailer App: Handles login, inventory CRUD, sales recording, credit tracking, payment initiation, and subscription management.
Wholesaler App: Enables product listing, viewing stock levels, and interacting with retailers.
Admin Dashboard (via Django Admin): Manages users, subscription plans, and monitors transactions.

Development Stage

- Requirements Analysis – Identified core challenges from local businesses.
- System Design – Designed ER diagrams, UML diagrams, and API contracts.
- Implementation – Used Django for backend and Flutter for mobile UI.
- Testing-Conducted unit tests, UI tests, and integration tests.
- Deployment – Hosted backend server on local Ubuntu environment

Results and Discussions
Authentication & Account Management

The system enables retailers and wholesalers to register and log in using a phone number and password. JWT tokens secure authenticated API requests. Deep linking is used for password reset via email.

Inventory Management
Retailers can:

- Add products with name, description, price, stock, and image,
- View current stock levels,
- Update or delete items, and
- Track stock-out trends via reports.

Sales and Credit Handling

Sales are categorized into:

- **Cash Sales:** Recorded instantly and reported.
- **Credit Sales:** Linked to customers, due date recorded. All transactions are stored and visualized with filters.
- **Payment Integration:** Payments are handled using the Chapa API in **test mode**. After initiating payment, users are redirected to Chapa, and the backend listens for payment confirmation via web hook and status polling.
- **Subscription Management:** Retailers are required to subscribe to access core features. Upon login, the subscription status is checked, and if expired, users are redirected to the subscription screen. Otherwise, they access the dashboard. Plans are managed via Django Admin, and payments go through Chapa.
- **Reporting and Insights:** Visual graphs and tables display: Best-selling products Credit due balances Monthly revenue trends Inventory movement.
- **Bilingual Support:** All forms, buttons, and alerts support both English and Amharic, ensuring accessibility for Ethiopian users.

Conclusion and Recommendations

Conclusion

This study demonstrates the feasibility and impact of a smart inventory and payment solution tailored for Ethiopian micro and small enterprises. By automating the supply chain, sales, and subscription processes, the system empowers retailers with control, visibility, and financial discipline. The seamless integration of payment and bilingual support further enhances adoption and usability.

Recommendations

- Expand the platform to support **multi-store** inventory tracking.
- Integrate **SMS notifications** for due credits and low stock.
- Add **barcode scanning** for quicker stock handling.
- Deploy the system on **cloud infrastructure** for wider access.
- Promote adoption through **training workshops** for MSEs.

Chapa API Documentation. (2025). https://chapa.co/docs
Django Rest Framework. (2025). https://www.django-rest-framework.org/
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An Assessment of the Practices & Challenges of Human Resource Planning: The Case of Ethiopia Construction Works Corporation Birhan Asnake

Abstract

Human resource planning is crucial in an organization's human resource management. This study focuses on the assessment of Human resource planning practice and challenges at Ethiopia Construction Works Corporation. To accomplish the study's objectives, a combination of qualitative and quantitative research approaches was used. In this study, a questionnaire was used as the primary data collection instrument, aiming to assess the practice and challenges of human resource planning practice from the perspective of line managers. Additionally, an interview was conducted withthe HR director to further enrich the research findings. Data was collected from 97 participants. The findings indicate a significant gap between HRP practices and the organization's strategic objectives and a lack of effective alignment between HR planning practices and the organization's strategicplan. While there was consideration given to internal and external factors, there were deficiencies in human resource demand and supply forecasting, as well as implementation and evaluation. Recommendations include establishing a well-defined process for implementing the human resource plan and fostering collaboration between the human resource department and other departments to enhance effectiveness.

Keywords: Human Resource Planning (HRP), HRP Practices, HRP Challenges, Strategic Alignment, Workforce Forecasting, Ethiopian Construction Works Corporation

List of Abbreviations

CEO: Chief Executive Officer
ECWC: Ethiopian Construction Works Corporation
ERP: Enterprise resource planning
HR: Human Resource
HRIS: Human Resource Information System
HRP: Human Resource Planning
HRM: Human Resource Management

Background of the Study

Human resource management is the strategic approach to managing an organization's workforce to maximize employee performance. HRM plays a crucial role in helping organizations survive, grow, remain competitive, and achieve profitability (Werner et al., 2012). In developed countries, human resource planning practices are characterized by strategic and forward-looking approaches. These companies use systematic methods to anticipate and manage workforce needs, implementing robust strategies for talent acquisition, retention, training, development, succession planning, and diversity promotion. The goal is to align HR with organizational objectives to maintain a competitive edge in a constantly evolving business environment (Cassio, 2018).

In contrast, HRP practices in developing countries, including Ethiopia, often focus on addressing challenges arising from socio-economic conditions and limited resources. Developing nations prioritize workforce development, capacity building, and talent acquisition as part of broader strategies for economic growth and industrialization. Challenges such as skill gaps, restricted access to education and training, and the need to balance workforce supply and demand are prevalent. HRP in these contexts involves enhancing education and skills development, encouraging entrepreneurial initiatives, and fostering public-private sector partnerships to effectively meet labor market needs (Schuler & Tarique, 2017; Kim & Kang, 2019). By aligning HR with national development objectives, developing countries aim to boost productivity, competitiveness, and sustainable economic growth.

In African nations like Ethiopia, implementing strategic HRP is crucial due to the unique challenges and opportunities of the local environment. Ethiopia recognizes the importance of HRP in fostering job creation, improving skill acquisition, and managing talent effectively (Alemu et al., 2019). This involves forecasting future employment needs, identifying skill shortages, implementing comprehensive training and development programs, and establishing performance management systems. The country also emphasizes aligning HR with national development goals to drive economic growth, increase productivity, and reduce unemployment.

Statement of the problems

The Ethiopian Construction Works Corporation faces numerous challenges due to ineffective HRP practices, as indicated by a preliminary survey conducted by the researcher. HRP is crucial for any organization, and the lack of proper planning can significantly hinder a company's ability to provide high-quality services to customers and meet its business obligations.

One major issue stemming from inadequate HRP practices at the ECWC is the lack of accurate and reliable workforce data. Unfortunately, the company does not have a precise and comprehensive database that includes essential information about employees' skills, competencies, and performance. This lack of data creates significant challenges for the company in accurately forecasting its future HR needs. Consequently, this discrepancy results in a mismatch between the company's workforce requirements and the actual skills and capabilities of its employees. This misalignment has ultimately hindered the company's ability to deliver high-quality services to its customers.

Another challenge faced by the ECWC is the poor coordination between the HR department and other departments, which severely limits the effectiveness of the organization's HRP efforts. This problem arises from the company's reactive approach to workforce planning, which fails to take into account the evolving needs of the business. As a result, there is a significant misalignment between the company's workforce and its business plan, which ultimately hampers

Therefore, it is essential to assess and investigate these issues using a preliminary survey to determine how well the HRP practices are being implemented within the organization. Additionally, it is important to understand how employees perceive the challenges posed by these practices and their impact on performance. Consequently, this study has evaluated the current state of HRP practices and the associated challenges from the perspective of line managers at the headquarter, with the aim of aligning these practices with the organization's objectives.

Research Questions

To address the above problems, this study attempted to answer the following researchquestions:

- What are the current practices of HRP in the ECWC?
- What are the major challenges faced by ECWC in implementing effective HRP?
- How can ECWC improve its HRP practices to address the challenges and support the organization's strategic goals?
- How does ECWC assess HR supply forecasting during the HRplanning process?

Objectives of the Study

The following sections comprise general and specific objectives.

General Objective

The general objective of this study is to assess the practice and challenges of HRP in Addis Ababa, Ethiopia

Specific Objectives

The specific objectives of the study were to:

- Investigate and document the current HRP practices employed by ECWC.
- Identify and analyze the major challenges encountered by ECWC in effectively implementing its HRP strategies.
- Propose specific recommendations for improving HRP practices of ECWC to overcome identified challenges and align HR strategies with the organization's strategic goals.
- Examine and evaluate the methods used by ECWC to forecast HR supply during the HRP process.

Significance of the Study

- According to Rothwell (2017), Human Resource Planning (HRP) is an essential strategic tool for organizations to effectively align their workforce requirements with their organizational objectives.
- HRP proves to be highly advantageous in industries such as the ECWC sector. The forthcoming study aims to investigate the HRP practices within ECWC, evaluate its present status, and identify the challenges it encounters. This study holds significant value in terms of its contributions, which can be summarized as follows:
- It provides valuable insights into how the organization strategically manages its workforce, ensuring optimal utilization of human capital in ECWC.
- It helps identify potential gaps in the planning process, allowing for proactive measures to address them.
- Motivating ECWC to revisit and reexamine its existing HRP and management system, as well as the opportunities that exist, and to make improvements in its HRP system.

initiatives to be aligned with the company's strategic direction, fostering synergy and cohesion.
- ♦ Understanding the link between HRP and the organizational strategy at ECWC enables HR initiatives to be aligned with the company's strategic direction, fostering synergy and cohesion.
- ♦ This study can be beneficial for other researchers studying HR planning in different industries or contexts, allowing for comparative analysis and the identification of commonalities or differences.

Scope of the Study

ECWC conducts an annual HRP exercise. However, the main focus of this study is to delve into the specific HR planning process during the period of 2015-2016 E.C. Given the vast scope of HRM, it is not feasible to comprehensively cover all its aspects and processes within a single research paper. Therefore, this research paper excludes other HRM functions and narrows its focus specifically to the assessment of HRP practices and challenges at ECWC. Geographically, the study is limited to the headquarter office of ECWC in Addis Ababa, Ethiopia, with line managers serving as the designated respondents because they clearly know how the company operates.

Limitation of the Study

This study encountered several limitations. Firstly, the limited timeframe for data collection posed a significant constraint, impacting the ability to gather comprehensive data from all intended respondents. Respondent scheduling challenges and limited availability of key personnel, including the CEO, further hindered data collection efforts. These time constraints may have inadvertently influenced the depth and breadth of the research findings. Furthermore, the accuracy and completeness of the data may be limited by potential social desirability bias, where respondents may have provided information that they perceived as socially acceptable or desirable, rather than entirely truthful and candid.

Organization of the Study

The research is organized as follows. Chapter one contains the introduction, background of the study, statement of the problem, research question, objective of the study, significance of the study, research design, and methodology, limitation of the study and organization of the study. Chapter three is about the analysis and interpretation of data. The fourth chapter is about summary, conclusion, and recommendation.

Research Design and Methodology

Research Design

Research design, as discussed by Saunders et al. (2016), is the blueprint for conducting research, involving a sequence of steps that guide how data is collected, measured, and analyzed. For this study, a descriptive research design was selected, aligning with the approach outlined by Bhattacherjee (2012), who explains that descriptive research is well-suited for studies that aim to systematically describe a situation, problem, phenomenon, or the characteristics of a group.

In this study, the descriptive research design was implemented to provide a comprehensive analysis of the practices and challenges related to HRP within the ECWC. The design facilitated the collection of detailed insights from individuals in managerial positions, particularly line managers, who are directly involved in HR planning. To address the research objectives and questions, the study employed descriptive statistical methods, such as frequency, percentage, mean, and standard deviation, to quantitatively assess the existing HR practices and challenges within ECWC. These methods enabled a clear and precise depiction of the HR planning corporation.

Population and Sampling

Target Population

Cooper and Schindler (2003) define population as the complete set of elements from which individuals are selected to draw conclusions. A total population of 128 individuals from the headquarters located in Gurd Shola, Addis Ababa, Ethiopia, was considered. From this population, sample sizes of 97 line managers were selected to participate in the study.

Sampling Size

Israel (2012) outlines various strategies for determining sample size. These strategies encompass utilizing a census approach for small populations, adopting a sample size from a similar study, consulting published tables that provide predetermined sample sizes based on the population size, or employing a formula to calculate the sample size.

In this particular research, the researcher followed the formula proposed by Israel (2012) to determine the sample size.

Using a formula to calculate a sample size

A simplified formula for proportions:Yamane (1967:886) provides a simplified formula to calculate sample sizes.

$$n = \frac{N}{1+N\,(e^2)}$$

n = the sample size

N = the study population

e = the level of precision = 0.05 (level of confidence 95 %)

1 = designates the probability of the event occurring

$$n = \frac{128}{1+128*(0.05)^2} = \frac{128}{1+128*0.0025}$$

$$n = \frac{128}{1+0.32} = \frac{128}{1.32} = 96.96 \approx 97$$

Sampling Techniques

The data collection process used a combination of probability and non-probability sampling techniques. As noted by researchers in the field of statistical methodology, probability sampling is a fundamental approach that allows investigators to estimate population parameters with known accuracy and precision, enabling the generalization of findings to the broader population (Smith & Jones, 2023).

Simple random sampling, a probability technique, ensures that each member of the population has an equal chance of selection, providing an unbiased opportunity for inclusion in the sample. Additionally, non-probability sampling approaches, such as purposive sampling, were employed to deliberately select individuals for the questionnaire based on specific criteria or characteristics deemed relevant to the research objectives. This combination of sampling strategies facilitated a comprehensive and targeted approach to data collection.

Types of Data

Primary Data

The information-gathering methods followed by the researcher in collecting information for this research were both qualitative and quantitative. In collecting the primary data, the researcher obtained by the researcher through a well-structured questionnaire. The questionnaire was both close-ended and open-ended, and thus it was distributed to the ECWC personnel, obtaining information on how HRP processes are being applied and the problems associated with such applications. These questionnaires were collected directly from the respondents.

Secondary Data

Secondary data refers to reports or data that have already been collected by other researchers or academic sources, often for different research purposes (Blumberg et al., 2008). Utilizing secondary data allows researchers to position their study within the existing knowledge base and expand their understanding of the research topic. In the context of this study, secondary data sources include the organization's website, relevant articles, research, and books.

Methods of Data Collection

As described by Saunders et al. (2019), research approaches encompass the fundamental strategies and methodologies that shape how a study is conducted, including the processes of data collection, analysis, and interpretation. Among the most common approaches are the quantitative approach, which relies on numerical data and statistical analysis to reach conclusions, and the qualitative approach, which seeks to explore deeper, more subjective insights through techniques like observations and document reviews.

This research employed a mixed-methods approach, integrating both quantitative and qualitative strategies. The rationale for this combination was to enhance the validity and reliability of the findings by cross-verifying data from multiple sources. The quantitative approach was used to analyze responses from structured questionnaires distributed to line managers at the ECWC, enabling a systematic examination of the numerical data.
In contrast, the qualitative approach was applied to capture and interpret insights from interviews with the HR department director, along with the researcher's observations. By integrating these approaches, the study aimed to provide a comprehensive and balanced perspective on the HRP practices and challenges within the corporation.

Method of Data Analysis

The data obtained from the participants was analyzed using Microsoft Excel on Windows 10 to generate descriptive statistics. Descriptive statistics, such as frequency, percentage, mean, and standard deviation, were employed to investigate the practice of HRP and the associated challenges faced by the organization.

Data Presentation, Analysis, and Interpretation

This chapter provides an analysis and interpretation of the data collected from the questionnaires and interviews regarding the practices and challenges of HRP at ECWC. The study involved distributing 97 questionnaires, of which 90 were completed and returned, representing a 92.78% response rate. The responses are analyzed and interpreted in the following sections.

Research Questions and Responses

Table 3.1. Demographic characteristics of the respondents

Age Group	Frequency	Percentage (%)
25–35 years old	33	36.67
36–46 years old	27	30.00
47–57 years old	22	24.44
57 and above	8	8.89
Gender	**Frequency**	**Percentage (%)**
Male	53	58.89
Female	37	41.11

Education Level	Frequency	Percentage (%)
Associate Degree	15	16.67
Bachelor's Degree	45	50.00
Master's Degree	23	25.56
Doctorate / PhD	5	5.56
Other	2	2.22

According to the data presented in Table 3.1, out of the 90 respondents, with regard to the respondents' age, most line managers 33(36.67%), were 25-35 years old; 27(30%) of them were 36-46 years old; from 47-57 years old and 22(24.44%), the rest, 8 (8.89%) of the line managers were 57 and years old and above .

The gender composition of the line managers (58.89%) was male, while 37 (41.11%) were female. These findings highlight that male employees significantly outnumber their female counterparts in managerial positions (line managers) within ECWC.

It is evident that the educational levels of the respondents vary. The majority of the participants, accounting for 45 (50%), hold a bachelor's degree. Following closely behind, 23 (25.56%) respondents possess a master's degree and 5 (7.78%) have doctorate/PhD. Additionally, the findings indicate that 15 (16.67%) of the respondents have an associate degree.

These results imply that a significant proportion of employees working in the study area possess diverse educational backgrounds, with a notable emphasis on associate degrees and master's degrees. This level of qualification plays a crucial role in helping the organization achieve its mission, vision, and goals, while providing valuable insights for addressing the research questions.

Regarding work experience in the study area, the survey results revealed that the majority of respondents, comprising 35 individuals (38.89%), had 1-5 years of experience within the organization. Following closely behind, 30 respondents (33.33%) had worked in the organization for a period of 6-10 years. Moreover, 25 respondents (27.78%) reported having more than eleven years of experience. These findings suggest that employee tenure within an organization plays a significant role in enhancing worker efficiency and effectiveness.

Table 3.2. The corporation's formal process for succession planning and its effectiveness

Response	Frequency	Percentage (%)
Yes	60	66.67
No	30	33.33

Effectiveness	Frequency	Percentage (%)
Very Ineffective	4	6.67
Ineffective	10	16.67
Effective Enough	18	30.00
Effective	20	33.33
Very Effective	8	13.33

As indicated in Table 3.2. 60 (66.67%) of them said that the corporation has a formal process for succession planning, and the rest, 30 (33.33%) said no about the formality of the succession planning process. Based on the effectiveness of its succession planning, they describe it as follows: 4(6.67%) very ineffective, 10 (16.67%) ineffective 18 (30%) effective enough, the highest number of 20 (33.33%) of them describe it as effective, and 8 (13.33%) very effective.

Table 3.3. The adequacy rate of the corporation's budget for HR planning and development

Scale	Frequency	Percentage (%)
1	15	16.67
2	20	22.22
3	30	33.33
4	15	16.67
5	10	11.11

Table 3.3 indicates the adequacy rate of the corporation's budget for HR planning and development. 15 (16.67%) of them, scale it as 1 , 20 (22.22%) scale as 2, the highest number of them 30 (33.33%) scale it as 3 , 15 (16.67%) scale it as 4 , lastly the rest 10 (11.11%) scale it as 5.

Table 3.4 Formal process for forecasting future workforce needs

Response	Frequency	Percentage (%)
Yes	70	77.78
No	20	22.22

Table 3.4 shows the formal process for forecasting future workforce needs for more of them, which is 70 (77.78%) of them. Yes, and the other 20 (22.22%) said no.

What are the main challenges the corporation faces in attracting and retaining qualified employees?

The corporation faces a multifaceted challenge in securing and retaining top talent. Intense competition from other organizations offering attractive compensation packages significantly hinders their ability to attract new hires. Furthermore, limited career growth prospects within the company discourage employee development and retention. A weak employer brand further exacerbates these issues, making it difficult to attract and engage top talent in the first place.

of factors creates a significant obstacle for the corporation in building and maintaining a high-performing workforce.

What are the biggest obstacles to implementing effective HR planning within the corporation?

The corporation faces several significant hurdles in effectively implementing HR planning. Insufficient budget allocation for HR initiatives severely limits the resources available for crucial activities like talent acquisition, training, and development. A lack of alignment between HR planning and overall corporate strategic goals hinders the ability to effectively support the company's long-term objectives. Resistance to change from both management and employees can also impede the implementation of new HR strategies and initiatives. Limited availability of accurate workforce data creates significant challenges in forecasting future needs, identifying skill gaps, and making informed decisions about workforce planning. These interconnected obstacles create a complex environment that hinders the corporation's ability to effectively manage its human capital.

What recommendations do you have for improving HR planning practices at the corporation?

To enhance HR planning practices, the corporation should prioritize several key recommendations. Firstly, a significant increase in the budget allocated to HR initiatives is crucial to support critical activities like talent acquisition, training, and development. Secondly, investing in advanced HR management tools and technologies can streamline processes, improve data analysis, and provide valuable insights into workforce trends. Furthermore, providing ongoing training and development programs for employees is essential to foster continuous learning and improve employee engagement. Strengthening the alignment between HR planning and overall corporate strategic goals is paramount to ensure that HR initiatives directly support the company's long-term success. Finally, enhancing communication and engagement with employees at all levels is crucial to foster a culture of transparency, trust, and collaboration, which is essential for successful HR planning implementation.

By implementing these recommendations, the corporation can significantly improve its HR planning practices and build a more engaged, productive, and successful workforce.

Table 3.5 Frequency of the corporation updating its HR plan

Frequency	Frequency	Percentage (%)
Annually	50	55.56
Every two years	25	27.78
Rarely/Not updated	15	16.67

Table 3.5 indicates the frequency of the corporation updating its HR plan. More than half of them, 50 (55.56%), said annually; 25(27.78%) of them said every two years, and 15 (16.67%) rarely / not updated.

Table 3.6: The extent of the corporation's HR plan aligns with its overall strategic goals.

Alignment Level	Frequency	Percentage (%)
Fully Aligned	25	27.78
Mostly Aligned	40	44.44
Partially Aligned	20	22.22
Not Aligned	5	5.56

Table 3.6 indicates the extent to the corporation's HR plan aligns with its overall strategic goals; almost all of them describe it as it aligned: 25 (27.78%) fully aligned, 40 (44.44%) mostly aligned, 20 (22.22%) partially aligned, and only 5 (5.56%) of them respond that it is not aligned.

What other major challenges does the organization face related to HRP?

The organization faces several major challenges related to HRP, including high turnover rates among skilled employees, difficulty in forecasting future workforce requirements due to market fluctuations, and limited engagement and motivation among employees. These interconnected challenges create a complex environment that requires proactive and strategic HR planning to effectively address and mitigate their impact.

What tools or methods do you find most effective for forecasting workforce requirements at ECWC and what improvements could be made to enhance this forecasting process?

To forecast workforce requirements at ECWC effectively, current methods include utilizing workforce analytics software, conducting trend analysis, and gathering insights through employee surveys.

To enhance this forecasting process, it is recommended to adopt AI-driven predictive analytics, perform regular skills assessments to identify gaps, and align workforce planning with the overall organizational strategy for better integration and foresight.

Challenges Identified in HR Planning

The organization faces significant challenges in its HR planning efforts. These include difficulties in attracting and retaining top talent due to limited career growth opportunities and competitive compensation packages. Furthermore, accurately forecasting future workforce needs is hindered by inadequate tools and a lack of a clear HR strategy. Challenges also arise from a lack of strong promotion and succession planning, low salaries, and difficulty in finding candidates with the right skills for specific roles, further exacerbating the organization's HR planning difficulties.

Obstacles in Implementing HRP

The effective implementation of HRP faces significant obstacles. These include insufficient budget and resources, a misalignment between HR plans and strategic goals, and difficulties in analyzing current manpower needs and forecasting future requirements, often leading to manpower surpluses.

Inadequate information and data analysis, coupled with resistance to change and talent shortages, further complicate HRP implementation. The frequent shifts in organizational strategy also pose a challenge, particularly in maintaining the balance between workforce demand and supply.

Recommendations for Improvement

To improve HR planning, the organization must develop and implement competitive compensation strategies, regularly update HR plans to align with organizational goals, and invest in modern forecasting tools and workforce planning methods. Enhancing communication and clarity of HR processes within the organization is crucial. Conducting thorough job analyses and establishing an ongoing recruitment process to prepare for future talent needs are essential steps. Continuing to utilize and refine existing Enterprise Resource Planning (ERP) systems will further streamline HR processes and improve overall effectiveness.

Key Findings

- Succession planning exists but requires refinement for better effectiveness.
- Budget constraints and limited workforce forecasting tools remain significant challenges.
- A need to align HR strategies with the corporation's long-term objectives.
- Asses the effectiveness of HRP performance

Summary, Conclusion, and Recommendations

This chapter deals with the presentation summary of the finding, the description of the conclusion drawn based on the finding, and the presentation of the recommendation forward based on the conclusion drawn from the major finding.

Summary

Under this section, the major findings obtained from the research have been summarized as follows.

- Age Group: 36.67% of respondents are between 25-35 years old, 30% are between 36-46 years old, 24.44% are between 47-57 years old, and 8.89% are 57 and above, as it is observed. Investing in the development of younger employees is crucial to prepare them for future leadership roles and ensure a sustainable talent pipeline. Also more percentage is taken by younger people. The rapid pace of technological change can create skill gaps, especially among older workers. Organizations should invest in training and development programs to equip employees with the necessary skills to adapt to new technologies and remain competitive.
- Most of the respondents are male, which is described as 58.89% of respondents being male, and 41.11% are female. Organizations should actively promote gender diversity and inclusion in all aspects of HRP, from recruitment and selection to training and development and promotion.
- As confirmed by 66.67% of respondents, ECWC has a formal major succession planning process .But to mention its challenges indicated by 46.67% and 16.67% of respondents, the process as ineffective indicates potential areas for improvement like lack of clear objectives and strategies, lack of consistent implementation and make a change by establish clear objectives, measurable goals, and key performance indicators (KPIs) to track the effectiveness of the succession planning process.
- Major Challenges in Attracting and Retaining Employees: The Corporation faces significant challenges in attracting and retaining qualified employees. These challenges include difficulty in offering competitive compensation packages compared to other organizations, limited career development opportunities for employees, and a weak employer brand that fails to attract top talent.
- Obstacles to Implementing Effective HR Planning: Several obstacles hinder the effective implementation of HR planning within the corporation. These include insufficient budget allocation for HR initiatives, a lack of alignment between HR plans and the overall corporate strategic goals, resistance to change from both management and employees, and limited

- Aligning HR planning with organizational strategies is challenged by not being fully integrated with the overall strategy, rapid change, and poor communication. Measurements like strong leadership commitment, continuous improvement, and effective communication are recommended.
- Forecasting Workforce Requirements: The Corporation faces challenges in accurately forecasting future workforce requirements. This is due to various factors, including the dynamic nature of the market, which leads to unpredictable changes in demand, and the limited availability of reliable data and effective tools for forecasting.
- Other major challenges related to HRP include high turnover rates among skilled employees, which can significantly impact productivity and increase recruitment costs.
- Additionally, limited employee engagement and motivation can negatively impact overall performance and hinder the organization's ability to achieve its strategic objectives.

Conclusion

In conclusion, the analysis of HRP practices at ECWC reveals both strengths and areas requiring improvement. While ECWC has established formal processes for succession planning and forecasting workforce needs, these systems are not fully effective, and there is a clear need for refinement, particularly in aligning HR strategies with the corporation’s long-term goals. The budget allocated for HR planning is considered moderately sufficient, but there is room for increased investment to support more comprehensive and strategic HR initiatives.

Challenges such as attracting and retaining qualified employees, offering competitive compensation, and overcoming resistance to change from management hinder the effectiveness of HR planning. Additionally, obstacles like insufficient alignment between HR planning and corporate strategies and limited access to accurate workforce data exacerbate these challenges. However, respondents have provided clear recommendations, including increasing HR budgets, investing in modern HR tools, enhancing training programs, and improving communication between HR and other departments. Addressing these issues will not only improve HR planning practices but also contribute to ECWC’s long-term success by fostering a more efficient, effective, and strategic HR framework.

- Based on the findings, the following recommendations are proposed to enhance HR planning at ECWC:
- Increase Budget Allocation for HR Planning: Allocate sufficient resources to HR initiatives, including training, development, and succession planning programs.
- Invest in Modern HR Tools and Technologies: Implement AI-driven predictive analytics and workforce management software to improve forecasting and decision-making.
- Enhance Career Development Opportunities: Establish clear career paths and provide regular training to improve employee retention and motivation.
- Strengthen Alignment with Strategic Goals: Ensure HR plans are closely integrated with the corporation's strategic objectives through regular reviews and adjustments.
- Improve Succession Planning Processes: Develop structured and transparent succession plans to identify and nurture future leaders within the organization.
- Enhance Communication and Engagement: Foster open communication channels between HR and employees to promote transparency and address concerns effectively.
- Conduct Regular Workforce Assessments: Perform skills audits and workforce analytics to ensure the corporation can adapt to future workforce requirements.
- Lastly, the effective implementation of these recommendations will significantly enhance HRP practices at ECWC. By increasing budget allocation for critical HR initiatives, the corporation can invest in the development and retention of its most valuable asset – its people. Furthermore, leveraging modern HR technologies will empower data-driven decision-making, enabling proactive and informed responses to evolving workforce needs.

  Ultimately, these recommendations aim to create a high-performing and adaptable workforce that is fully aligned with the organization's strategic goals. By fostering a culture of continuous learning and development, promoting transparent communication, and ensuring a robust succession planning process, ECWC can cultivate a thriving and sustainable future.

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Event Management System

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Acronyms

APIs: Application Programming Interface
CSS: Cascading Style Sheets
EMS: Event Management System
ER: Entity Relationship
HTML: Hyper Text Markup Language
IDE: Integrated Development Environment
JS: JavaScript
JWT: JOSN Web Token
MVC: Model View Controller
NPM: Node Package Manager
OOA: Object-Oriented Approach
RAM: Random Access Memory
ROI: Return on Investment
SDLC: Software Development Life Cycle
SPAs: Single-page Application
UI: User interfaces
UML: Unified Modeling Language
URL: Uniform Resource Locator
UX: User experience
VS code: Visual Studio code
XP: Extreme Programming

Background of the Study

Event organization is one part of project management related to the creation and development of small- and/or large-scale personal or corporate events such as festivals, conferences, ceremonies, formal parties, concerts, or conventions (Allen, 2009). Event Planning: The Ultimate Guide to Successful Meetings, Corporate Events, Fundraising Galas, Conferences, Conventions, Incentives, and Other Special Events. Wiley & Silvers (2003). Strategic Event Planning: A Comparison of Current Theory and Practice.

The importance of event organizing is communication and collaboration for people to come together, exchange ideas, and communicate; they facilitate networking opportunities and exchanging skills and networking between individuals, individuals and firms, and firms with firms.

The earliest recorded event and gathering promoted peace and friendship between tribes and clans, and the first very well-known queen was Cleopatra. She hosted elaborate, lavish, sumptuous meetings in pursuit of potential lovers. (Goldsworthy, 2010). During Queen Cleopatra, the queen of Egypt, one of the events was organized on the Nile River. In world history, when it comes to our country, event organization started with organizing exhibitions and bazaars. Gradually big companies like Jorka Event and Promotion Services came into the business, starting in 2007.

The benefits of the event organizing service are for both the individuals and the organization: it creates networking opportunities with other firms on the same products or different products, brand exposure and awareness about an organization's brand, knowledge sharing and education transfer, lead generation and sales opportunities, community building, market research and feedback, personal and professional development, positive public relations, celebrating , achievements , and milestone, and fun and entertainment (Allen, 2009). Event Planning: The Ultimate Guide to Successful Meetings, Corporate Events, Fundraising Galas, Conferences, Conventions, Incentives, and Other Special Events (Wiley & Bladen, et al. 2012).

There are some constraints and challenges in the firm; some of them are budget constraints: Sticking to a budget is the major challenge when organizing an event, along with time management: numerous tasks must be completed in a given period of time, including vendor selection and management, logistics and coordination, attendee engagement and satisfaction, and technical and equipment issues. Marketing and promotion: this may create imbalance with the effort and the attendee or reachability to the society, risk management and contingency, stakeholder management, and government: there might be some issues with the government, like not giving the appropriate granting papers by the time or delaying the organizers.

Why are we interested in developing a webapp? The main idea behind designing a web-based event management system is that the user can plan and create the event according to the required needs and budget. The system we are going to design is very efficient, easily accessible, and simple to maintain.

It creates an interactive platform that reduces the communication gap between the event organizer and clients. Easy to historical dates, participants can register for any keeping event from everywhere. Event organizers can keep records of the participants. Customers can find the nearest events using the customer's current location, event type, date, and price with landmarks. It helps to define the search facility to users for search.

Problems of Statement

In the context of Ethiopia, the burgeoning population and the multifaceted engagement of individuals in various activities pose challenges in effective event management that is done by manual handwork. These challenges manifest in the form of time loss, resource misallocation, and organizational disarray, ultimately hindering smooth social interactions and distribution processes.

Moreover, the reliance on manual hand working within event organizer organizations exacerbates these challenges, leading to additional issues: Inefficiency in Communication: Manual handling of tasks may lead to delays and miscommunication among team members, resulting in missed deadlines and inadequate coordination of event logistics. Data Discrepancies: Relying on manual data entry increases the likelihood of errors and inconsistencies in attendee lists, financial records, and other critical information, potentially leading to logistical challenges during events.
Limited Scalability: Manual processes often lack scalability, making it difficult for event organizer organizations to efficiently manage large-scale events or accommodate rapid changes in attendee numbers or requirements.

Risk of Oversight: Manual workflows increase the risk of oversight and neglect of crucial tasks, such as obtaining necessary permits or adhering to legal regulations, which can result in compliance issues and reputational damage for the organization.

Inadequate Time Management: The manual allocation of tasks and scheduling may lead to poor time management, causing delays in event planning and execution, ultimately impacting the overall success of the event.

Difficulty in Reporting and Analysis: Manual data collection and reporting processes hinder the ability of event organizer organizations to gather accurate insights and analyze event performance, limiting their capacity for continuous improvement and strategic decision-making.

Limited Accessibility: Manual record-keeping systems may restrict access to critical information, making it challenging for team members to collaborate effectively and for stakeholders to obtain timely updates on event progress.

Our project emerges from the urgent need to address critical issues in event organization in Ethiopia. By leveraging technology, our web-based event organizing application aims to revolutionize traditional methods, streamline processes, improve efficiency, and ensure successful events of all scales. With automated solutions for communication, data management, resource allocation, and analytics, our platform empowers event organizers with scalable, accessible, and user-friendly tools to navigate the complexities of event planning. Through innovation and the power of the web, we are committed to modernizing event management practices and delivering exceptional experiences for organizers and attendees, marking a significant step forward in the evolution of event organization in Ethiopia.

Objective of the project
General objectives

The general objective of the project is to design and develop an area-based event management system that increases the efficiency and effectiveness of the service.

Specific Objectives

The following are the specific objectives of the project:

- To collect information regarding the event management system.
- To develop requirement analysis for the project as per the needs of the required.
- To design the database as per analysis.
- To implement the project.
- To validate the project as per the requirement set.

1.4. Methodology of the project

Methodology is the systematic, theoretical analysis of the methods applied to a field of study (project). It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Typically, it encompasses concepts such as the data collection paradigm, the theoretical model for analysis and design that follows, and the phases in software development, testing, and deployment. The methodologies that we have used to make this project are listed below.

Data collection

We have used different types of data collection mechanisms to get the necessary information about the project and to understand the nature and working conditions of the existing event organizer system of different event organizations. These are

Observation: Is a data collection method by which information on a phenomenon is gathered through observation. We have tried to observe and understand how many event organizations there were in our country and how much was effective.
Interview: a structured or semi-structured conversation conducted by a researcher with one or more participants to gather qualitative data and insights on a specific topic or research question**.** List of questionnaires that are open-ended to get relevant information for future development of the system.
Review of Existing Solutions: Existing event organizer web applications, software tools, and platforms are researched and analyzed to identify common features, functionalities, and user interface designs. Online reviews, user feedback, and case studies provide valuable insights into user preferences, pain points, and desired features.

Software development approach
Object-Oriented Approach

The Object-Oriented Approach (OOA) is a programming paradigm that organizes software design around objects and data, rather than actions and logic. In OOA, software systems are modeled as collections of objects, each representing a real-world entity or concept, and interactions between these objects are defined through methods and messages.

Pros of Object-Oriented Approach:

- Modularity: OOA promotes modular design, allowing complex systems to be broken down into smaller, more manageable components (objects). This modular structure facilitates code reuse, maintenance, and scalability.
- Encapsulation: Objects encapsulate both data and behavior, hiding internal implementation details and exposing only relevant interfaces. This abstraction enhances code maintainability, security, and flexibility.

- Abstraction: OOA enables the creation of abstract data types and classes, representing generalized concepts that can be instantiated into specific objects. Abstraction simplifies complex systems by focusing on essential features and ignoring irrelevant details.
- Inheritance: Inheritance allows objects to inherit properties and behaviors from parent classes, enabling code reuse and promoting a hierarchical organization of classes. This mechanism facilitates extensibility and promotes code efficiency by reducing redundancy.
- Polymorphism: Polymorphism enables objects to exhibit different behaviors based on their context or state. This flexibility allows for dynamic method dispatch, enabling the same interface to be used for different implementations, promoting code flexibility and adaptability.

Cons of Object-Oriented Approach:

- Complexity: OOA can introduce complexity, especially in large-scale projects with intricate class hierarchies and dependencies. Managing relationships between objects and ensuring proper encapsulation requires careful design and planning.
- Performance Overhead: Object-oriented systems may incur performance overhead due to dynamic dispatch, object creation, and memory management. This overhead can impact system performance, especially in resource-constrained environments.
- Learning Curve: OOA requires developers to understand and apply object-oriented principles effectively, which may pose a learning curve for those unfamiliar with the paradigm. Mastering concepts such as inheritance, polymorphism, and encapsulation requires time and practice.

Comparison with Other Models:

- Procedural Programming: In contrast to procedural programming, which focuses on procedures and functions, OOA emphasizes objects and their interactions. OOA offers advantages such as modularity, encapsulation, and code reuse, making it well-suited for large-scale, complex systems.
- Functional Programming: Functional programming emphasizes the use of pure functions and immutable data structures. While functional programming offers benefits such as referential transparency and declarative syntax, OOA provides additional features such as encapsulation, inheritance, and polymorphism, which are useful for modeling real-world systems and promoting code maintainability.

Why the Object-Oriented Approach Is Important?

- Modeling Real-World Systems: OOA aligns closely with real-world concepts and entities, making it intuitive for developers to model complex systems and relationships. This alignment enhances code readability, maintainability, and extensibility.
- Code Reusability: OOA promotes code reuse through features such as inheritance and encapsulation, allowing developers to leverage existing classes and components to build new functionalities. This reusability reduces development time and effort, enhancing productivity and scalability.
- Modularity and Scalability: OOA's modular design facilitates the development of scalable software systems by breaking down complex functionalities into smaller, reusable components (objects). This modular structure enables teams to collaborate effectively, manage complexity, and adapt to changing requirements over time.
- Abstraction and Encapsulation: OOA's emphasis on abstraction and encapsulation simplifies software design by hiding implementation details and exposing only relevant interfaces. This abstraction promotes code maintainability, security, and flexibility, enabling developers to focus on high-level design and problem-solving.

In our project, we prefer to use the Object-Oriented Approach (OOA) due to its inherent advantages. By leveraging OOA principles such as modularity, encapsulation, and inheritance, offers a structured and organized framework that facilitates code readability, promotes code reuse, and ensures flexibility in accommodating future enhancements and modifications. Therefore, OOA serves as the cornerstone of our development strategy, providing a solid foundation for delivering a high-quality software solution that meets the evolving needs of our users.

Software engineering model
Agile Software Development

Agile software development is an iterative approach to software development that prioritizes flexibility, collaboration, and customer feedback. It emphasizes adaptive planning, evolutionary development, early delivery of working software, and continuous improvement. Agile methodologies, such as Scrum, Kanban, and Extreme Programming (XP), promote self-organizing teams, frequent communication, and rapid response to changing requirements.

Pros:

- Customer Satisfaction: Agile methods prioritize customer collaboration and respond quickly to changing customer needs, resulting in higher customer satisfaction.
- Adaptability: Agile allows for frequent iterations and feedback loops, enabling teams to adapt to changing requirements and market conditions.
- Early and Continuous Delivery: Agile emphasizes delivering working software in small, incremental releases, allowing for early validation of features and faster time-to-market.
- Transparency and Visibility: Agile practices promote transparency and visibility into project progress, empowering stakeholders to make informed decisions based on real-time information.
- Team Empowerment: Agile encourages self-organizing teams and collaborative decision-making, fostering a culture of trust, ownership, and accountability among team members.
- Quality Focus: Agile methodologies emphasize continuous testing, integration, and refinement, resulting in higher software quality and fewer defects.
- Risk Mitigation: Agile practices such as iterative development and frequent feedback help identify and mitigate project risks early in the development process.

Cons:

- Requires Experience: Agile requires skilled practitioners and experienced team members who are familiar with Agile principles and practices.
- Documentation Challenges: Agile prioritizes working software over comprehensive documentation, which can lead to challenges in maintaining documentation and knowledge transfer.
- Scope Creep: Agile's emphasis on accommodating changing requirements can sometimes lead to scope creep if not managed effectively.
- Resource Intensive: Agile requires active involvement and collaboration from stakeholders, which can be resource-intensive, especially for large-scale projects.
- Dependency on Team Dynamics: Agile relies heavily on effective team collaboration and communication, making team dynamics critical to its success.

Comparison with Other Models:

- Waterfall Model: Agile is more flexible and adaptive compared to the Waterfall model, which follows a sequential, linear approach to development. Agile allows for iterative development and customer feedback, while Waterfall focuses on upfront planning and execution.
- Iterative Development: Agile shares similarities with iterative development models but places greater emphasis on customer collaboration, incremental delivery, and continuous improvement.

- Lean Development: Agile and Lean Development both prioritize delivering value to customers and minimizing waste, but Agile places more emphasis on iterative development and self-organizing teams.
- Traditional Project Management: Agile contrasts with traditional project management methodologies (e.g., PMBOK) by promoting flexibility, adaptability, and customer-centricity over rigid processes and extensive documentation.

Why Is Agile More Important?

- Flexibility and Adaptability: In today's rapidly changing business environment, Agile's flexibility and adaptability allow teams to respond quickly to changing requirements and market conditions.
- Customer-Centricity: Agile's focused on customer collaboration and delivering value to customers aligns closely with modern business practices that prioritize customer satisfaction and market responsiveness.
- Continuous Improvement: Agile promotes a culture of continuous improvement and learning, enabling teams to innovate, iterate, and refine their products and processes over time.
- Risk Mitigation: Agile's iterative approach helps identify and mitigate project risks early in the development process, reducing the likelihood of project failure or delays.
- Competitive Advantage: Agile enables organizations to deliver high-quality software faster and more efficiently, giving them a competitive edge in today's dynamic marketplace.
- For our project, agile software development is the ideal methodology. Its customer-centric approach ensures adaptability and continuous improvement, essential for meeting the evolving needs of event planners and attendees. By embracing agile principles such as collaboration and iterative development, we aim to create a solution that delivers incremental value while minimizing data redundancy.

System Development Tools
Software Tools:

- Node Package Manager (NPM) or Yarn: Used for managing dependencies and package installation.
- React App: Used for initializing and configuring a new React project with minimal setup.
- Viet: to enhance the react front end by adding enlist js.
- Express.js: Used for building robust and scalable server-side logic and APIs.
- Prettier: Used for code formatting to ensure consistency and readability.
- Thunder Client: Used for testing and documenting API endpoints during development.
- MongoDB: Used for visually exploring and managing MongoDB databases.
- VS Code: Text editor or IDE for writing code.
- Get and GitHub: Employed for version control and collaboration among project team members

Drawing Tools:

- Lucid: A versatile business technical diagramming tool employed for creating UML diagrams and UI prototypes, enhancing project documentation.
- Draw.io: An online diagramming platform used for creating diverse diagrams, enriching project documentation with visually engaging representations.
- Eraser.io: An online diagramming platform with enhanced diagram creation and modification with Plant UML and schema code.
- Figma: A collaborative interface design tool used for creating UI prototypes and design systems, facilitating seamless collaboration and iteration during the design process.

Hardware Tools:

- Development Workstation: A dedicated development workstation equipped with high-requirements. The workstation features a robust processor, ample RAM, and sufficient storage capacity to ensure smooth execution of development tasks.

- Peripheral Devices: Essential peripheral devices, including a keyboard, mouse, and monitor, provide ergonomic and efficient input and output interfaces for interacting with the development workstation. These devices contribute to a comfortable and productive working environment, facilitating focused and effective development efforts.
- Internet Connectivity: Reliable internet connectivity ensures seamless access to online resources, collaboration platforms, and software tools essential for project development and communication. A stable internet connection is crucial for conducting research, accessing documentation, and collaborating with project team members, thereby facilitating efficient project progress and communication.
- Printer: A high-quality printer is utilized for producing hard copies of project documentation, reports, and research materials. Printing capabilities enable the creation of tangible and portable documents for review, presentation, and archival purposes, ensuring comprehensive documentation of project progress and outcomes.

Programming Language

Programming language is important to complete the system in the best way and to make it good, easy, and interactive with the customer. The project includes both front-end programming languages and back-end programming languages.

Front-end:

- React.js: is a popular JavaScript library used for building user interfaces (UIs) and single-page applications (SPAs). We will use React because it offers a powerful and efficient way to build modern web applications with a focus on modularity, performance, and developer experience.
- HTML5: is the latest iteration of the standard markup language used to create and structure content on the World Wide Web.
- Tailwind CSS: a utility-first, low-level CSS framework.
- Figma: a collaborative design tool used for UI design.

Back-end:

- Node. Js: is a runtime environment that allows you to run JavaScript on the server-side. We use Node.js because it enables high concurrency, scalability, performance, and flexibility. Its asynchronous, event-driven nature, coupled with a rich ecosystem and strong community support, makes it an attractive choice for our project.
- Node mailer: a node package used to send messages to the users.
- Express.js: is a minimal and flexible Node.js web application framework that provides a robust set of features for building APIs and web servers.
- MongoDB: is a popular NoSQL document-oriented database management system known for its flexibility, scalability, and performance.

Required Resources

Hardware:

- Development machines (laptops/desktops) with adequate processing power and memory.
- Testing devices (smartphones, tablets) for cross-platform compatibility.

Software:

- Text editor or Integrated Development Environment (IDE) for code editing (Visual Studio Code).
- Node.js and NPM (Node Package Manager) for setting up the development environment.
- React.js library for frontend development.
- Express.js framework for backend development.
- Database management system (MongoDB) for data storage.
- Version control system (Git) for collaborative development and code management.
- Continuous integration/deployment tools for automated testing and deployment

Scope and limitation

Scope of the project

The scope of the project develops an event management system that supports user registration, event creation, a ticketing system, payment, and reporting of the event details.

Limitations of the project:

- Internet dependent
- Requires expertise
- Require wireless or wired environment
- Budget
- Security concerns

Significance of the project

The web-based event organizer application is very important for event organizers and customers.

For Event Organization:

- Streamlined Event Organization: The application simplifies the process of event planning, management, and promotion, providing event organizers with a centralized platform to handle various tasks efficiently.
- Time and Cost Savings: By automating processes such as ticketing, attendee management, and communication, the application reduces manual effort and eliminates the need for separate tools or systems, resulting in time and cost savings for event organizers.
- Improved Attendee Experience: The application enhances the overall experience for event attendees by offering easy online ticket purchasing, streamlined check-in processes, and timely event updates and notifications.
- Enhanced Event Promotion: The application enables event organizers to reach a wider audience through various promotional features, such as social media integration, email marketing, and event listing capabilities.
- Data-Driven Insights: The application provides event organizers with valuable data and analytics on ticket sales, attendee demographics, and event performance, empowering them to make data-driven decisions and optimize future events.

For Administrator:

- Administrative Control: The application provides administrators with tools to manage user accounts, monitor events, and perform system configurations, ensuring proper control and oversight of the platform.

For Customer:

- Efficient Communication: The application facilitates effective communication between event of queries or support requests.

- Accessible and Mobile-Friendly: The web-based nature of the application allows users to access it from any device with an internet connection, offering convenience and accessibility for both event organizers and attendees.
- Attendees: Attendees of events benefit from the application by having a user-friendly platform to discover and purchase event tickets, receive event updates, and have a smooth check-in experience.

Feasibility Study

A feasibility study is conducted to evaluate the viability of implementing an Event Organizer Management System web application. The study assesses various factors to determine if the system is feasible and beneficial. The key aspects considered in the feasibility study include:

Technical Feasibility:

- Assessing the availability of necessary technology and infrastructure to support the web application.
- Evaluating the compatibility of the system with existing platforms and software.
- Verifying if the required technical expertise is available for system development and maintenance.

2. Economic Feasibility:

- Analyzing the costs associated with developing, implementing, and maintaining the web application.
- Estimating potential returns on investment (ROI) and benefits derived from the system.
- Comparing the costs and benefits to determine the financial viability of the project.

3. Operational Feasibility:

- Evaluating if the system aligns with the operational requirements and objectives of event organizers.
- Assessing if the system can be easily integrated into existing event management processes.
- Considering potential changes in workflows and determining the impact on operations.

4. Legal and Regulatory Feasibility:

- Ensuring compliance with relevant laws, regulations, and industry standards related to data privacy, security, and copyright.
- Assessing any legal or regulatory restrictions that may affect the implementation and usage of the system.

5. Schedule Feasibility:

- Determining the project timeline and assessing if it can be realistically achieved.
- Identifying potential risks and constraints that may impact the project schedule.
- Considering any dependencies or external factors that could affect the implementation timeline.

6. User Acceptance:

- Evaluating the willingness of potential users (event organizers, attendees, etc.) to adopt and utilize the system.

- Identifying training requirements and potential resistance to change from users.

Risks, Assumptions, and Constraints

Risks

System Risks

Technical:

- System Instability (bugs, crashes, performance issues).
- Integration Complications (with existing software or third-party services).
- Scalability Challenges (handling increased users or data).
- API Dependence (reliant on external APIs, risk of downtime or limitations).
- Compatibility Issues (devices, browsers, operating systems).

Security:

- Data Breaches (unauthorized access to user/event information).
- Cyber-attacks (malware, phishing, targeting system or user data).
- Insecure Authentication (weak passwords, login vulnerabilities).
- Data Loss (accidental/malicious, hardware failure, software errors, inadequate backups).
- Compliance Issues (failure to comply with data privacy regulations).

Time and Resource:

- Project Delays (unforeseen issues, resource limitations, scope creep).
- Cost overruns (unexpected development or maintenance expenses).
- Resource Constraints (limited team size, expertise, and development infrastructure).
- Maintenance Challenges (ongoing maintenance strains resources and diverts focus from new features).
- Vendor Dependence (reliance on external vendors for critical functions or data storage).

User Risks
User Adoption:

- Steep Learning Curve (complex user interface deters users).
- Lack of Training and Support (inadequate training or support limits user capabilities).
- Resistance to Change (organizers hesitant to switch from existing workflows).
- Data Migration Issues (difficulty migrating data from existing systems cause adoption delays).
- Insufficient Value Proposition (lack of perceived value compared to existing solutions).

1.8.2. Assumption:

- Users might have modern technology knowledge. The system may require users to have a certain level of computer literacy in order to use it effectively.
- Users will be sure about our reliability. Event organizers will need to trust that the system is reliable and can be used to plan important events.

1.8.3. Constraint

- Users might need to have modern technology. This could be a problem for users who don't have access to up-to-date computers or the internet.
- Users might need to be sure about the system's reliability. Event organizers need to trust that the

- The system might not be finished at the intended time. This could delay the launch of events.

Time Schedules

Figure 1.1 Time Schedule Gantt chart

Requirement Analysis and Specification
Existing System
Overview

The existing system for event management is a manual process, which not only consumes excessive time and labor but also leads to a lack of coordination and follow-ups, resulting in manual errors. Additionally, the data collected through this method may be inconsistent and redundant, making it challenging to serve remote clients effectively. Organizing events at multiple locations becomes a bulky task, further burdening both the client and the employees and current system hinders the ability to efficiently track and manage the progress of various event-related tasks. This lack of streamlined coordination often results in missed deadlines and miscommunication, which can ultimately impact the success of the event (Shone, A., & Parry, B. (2013).

In addition, the reliance on manual processes limits the scalability of the event management business, as it becomes increasingly difficult to handle a growing number of clients and events. This can lead to missed opportunities and an inability to capitalize on potential business expansion. Moreover, the current system's reliance on personal interactions for client briefings and service explanations restricts the ability to efficiently engage with clients who may be located in remote or distant areas. This not only delays the potential for reaching a wider client base but also adds unnecessary logistical challenges for both the company and the clients. Overall, the limitations of the existing manual system for event management highlight the urgent need for a more optimized, efficient, and technologically advanced solution that can address these challenges and provide a more effective platform for managing events (Smith & Doe, 2020).

2.1.2 Drawbacks of the Existing System

The drawbacks of the existing system are

- Lack of utility of digital system,
- Difficulty in tracking attendee data,
- Limited customization capabilities,
- Abundant in labor and time,
- Challenges in managing numerous events,
- Limited integration with other systems,
- Poor security measures, and
- Most of the activities are done traditionally.

2.2 Business Rules

A business rule defines or constrains some aspect of business and always resolves to either true or false. Business rules are intended to assert business structure or to control or influence the behavior of the business (Adrian Walker, 1990).

User Registration and Authentication:

- Users must provide a valid email address and password to register.
- Users must verify their email address before their account is activated.
- Regular users can access more features than guest users.
- Users can update their profile information and change their password.

Event Listing and Search:

- Events must be approved by an Event Administrator before they are listed.
- Users can search for events based on various criteria (e.g., date, location, and category).
- Regular users can save favorite events or create a personal event calendar.
- Event administrators can update event details and manage event listings.

Event Management:

- An event can be a public event or a private event, and it should satisfy all appropriate

- An event must be approved by the event administrator to be hosted.
- An event can be requested from a user or created by the admin.

User Management:

- Users must have the appropriate permissions to access certain features or perform specific actions.
- The user must be validated before using the system, excluding searching and observing events.

Payment Processing:

- Regular users can purchase event tickets or make other payments through the platform.
- Payments must be processed securely and in compliance with financial regulations.
- Accountants can access payment records and generate financial reports.

Reporting and Analytics:

- The system administrator can generate reports and dashboards to analyze user behavior, event attendance, and other platform metrics.
- Reports can be customized and exported in various formats.
- User data must be handled in accordance with data privacy and security policies.

Proposed System
Overview

Our proposed system, which is going to be implemented, is expected to solve the drawbacks of the currently existing manual event planning systems used by many organizations. The existing systems, like those used by Joraka Events and Meilla Events, are largely carried out manually using spreadsheets, email, and other disjointed tools. This leads to a lot of inefficiency, errors, and frustration for the event organizers.

In contrast, our new proposed system is designed to smooth the entire event planning lifecycle. It will efficiently satisfy the needs of the users by providing an all-in-one platform for user registration, event and user management, vendor coordination, reporting, and more. Rather than juggling multiple papers and a labor force, event planner organizations will have access to a centralized system that integrates all the necessary functionalities.
Overall, our system will be designed to:

- Create a web-based app that is available for all users,
- Provide online registration facility,
- Create a user-friendly interface,
- Easily updating of information,
- Efficiently allocate resources,
- Improve customer satisfaction at low cost,
- Get report analysis,
- Avoid work overload,
- Reduce traditional paperwork and labor force,
- Maximize profit by reducing unnecessary costs,
- Better coordination of various departmental activities,
- Ensure timeline management, and
- Simplify the entire event management life cycle.

Functional Requirements

Functional requirements are product features or functions that developers must implement to enable users to accomplish their tasks.
The functional requirement of our web app is
User: Our web app will have two users, guest users and regular users.

Guest Users:

- Should be able to view events.
- Should be able to search an event.
- Should be able to register.
- Should be able to read comments and descriptions.

Regular Users:

- Should be able to log in and log out.
- Should be able to search events and give ratings.
- Should be able to attend an event by paying online or by reserving a seat.
- Should be able to comment on events.
- Should be able to request an event.
- Should be able to mark an event as a favorite.
- Should be able to get support from system admin.

System Administrator:

- Should be able to create, edit, and delete event admin.
- Should be able to update and manage the website.
- Should be able to generate reports.
- Should be able to give support.

Event Administrator:

- Should be able to approve an event before posting on the dashboard.
- Should be able to approve the contents of an event.
- Should be able to update event details and manage event listings.
- Should be able to log in.

Hence, we are using an agile software development lifecycle model to build the event planning system, which will allow us to prioritize and implement the key functionalities in an iterative manner; so some of the functions that our system provides might be changed during the process of implementing this documentation.

Non-Functional Requirements
Nonfunctional requirements describe aspects of the system that are not directly related to the functional behavior of the system. Nonfunctional requirements include a broad variety of requirements that apply to many different aspects of the system, from usability to performance (Bruegge & Dutoit, 2014).

Security: Our system should be ensuring that the user's personal information is confidential. As well as providing secure access to every user, the administrator can control the activities of users. When the user registers in the system, the admin should give privileges and give access to the specific users.

by using minimum memory storage, cost, time, and human power.

Portability: Our system will be more flexible and user-friendly for all the stakeholders involved. Event organizers should be able to manage event details, communicate with guests, and coordinate with vendors using the system, regardless of the device they have on hand. Similarly, users and vendors should be able to register, access information, and interact with the system conveniently, wherever they might be.

Performance: Performance requirements are concerned with quantifiable attributes of the system, such as response time (how quickly the system reacts to a user input), throughput (how much work the system can accomplish within a specified amount of time), availability (the degree to which a system or component is operational and accessible when required for use), and accuracy (Bruegge & Dutoit, 2014).

Our system shall be designed to handle a large number of concurrent users without compromising performance, providing a seamless experience for all its users. To ensure our system delivers a fast and efficient experience for users, we need to incorporate APIs that can enhance the overall performance and responsiveness of the site.

Availability and Reliability

Reliability is the ability of a system or component to perform its required functions under stated conditions for a specified period of time.
Our system must be available almost all the time, with at least 99.9% of the time working properly. This requires having backup parts and systems to prevent problems, so if one part breaks, the rest can keep working. There also needs to be a plan to quickly get the system working again if there is a major problem, like using saved copies of the data.

System Model

System models are abstractions of what the system does. The requirements analysis model, including the use case model, the class model, and the sequence diagrams, represents the behavior of the system from the user's point of view (Bruegge & Dutoit, 2014).

In documenting the system models for our event organizer web application, we have utilized various modeling techniques. These include use cases, class, sequence, activity, and a state diagram. Additionally, we have created a UI prototype to visualize the user interface. Given that we are following an agile methodology, some of these diagrams may be subject to change as we gather feedback from our advisor and refine the system during development. However, we have included them here to provide more clarity and context around the system's design and functionality.

Use Case: A use case is a concept used in software development, product design, and other fields to describe how a system can be used to achieve specific goals or tasks. It outlines the interactions between users or actors and the system to achieve a specific outcome. The use case technique is used to capture a system behavioral requirement by detailing scenario-driven threads through the functional requirement (Sommerville, 2011).

Actor: An actor can be a person, an organization, or an outside system that interacts with your application or system. The following are the actors of our system.

request events. Users can be regular or guest users. Regular users are users who already have an account. Guest users are users who are new to the system.

Precondition: A user must register to be a regular user, who is able to purchase tickets for an event or to make a request for it. A guest user doesn't have to be registered to view the list of events.

Post condition: A regular user can get access to purchase tickets or to appoint an event. A guest user can view and search events and read comments under them.

System Administrator
Description: A person that controls the activities like authenticating, validating, and giving roles for users. It also manages all accounts and features on the system (i.e. updates the system or rearranges policies).

Precondition: A system administrator should log in to control the above activities.

Post condition: A system administrator can perform any activities listed above.

Event Administrator
Description: may be an individual or organization that will manage and administrate all event organizing life cycles (i.e., from creating or receiving an event to approving and posting events).

Precondition: An event administrator should log in to his/her/their account to manage and approve the events.

Post condition: The administrator can review and approve events if they meet the required standards and criteria.

Database Server
Description: The server that stores all the data from all users in the database.

Precondition: The data that the users fill should be delivered by APIs or a back-end server.

Post condition: The database server should provide the necessary data when a user tries to retrieve it efficiently.

Use Case Diagram

A case diagram is a graphical depiction of a user's possible interactions with a system. It shows how different actors interact with the system to accomplish specific tasks. It serves as a blueprint for understanding the functional requirements of a system from a user's perspective.

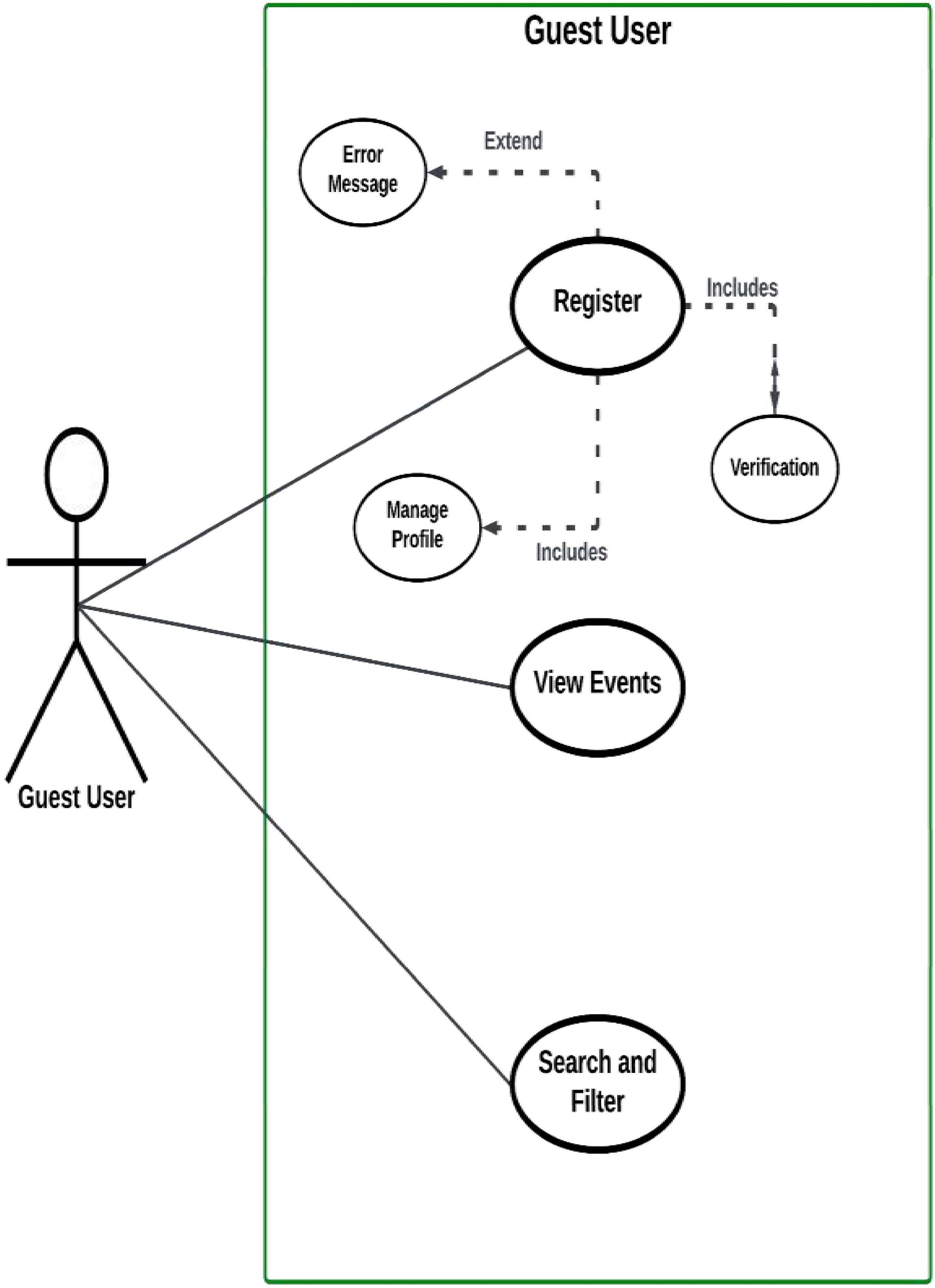


Figure 2.1 Guest User Use Case Diagram

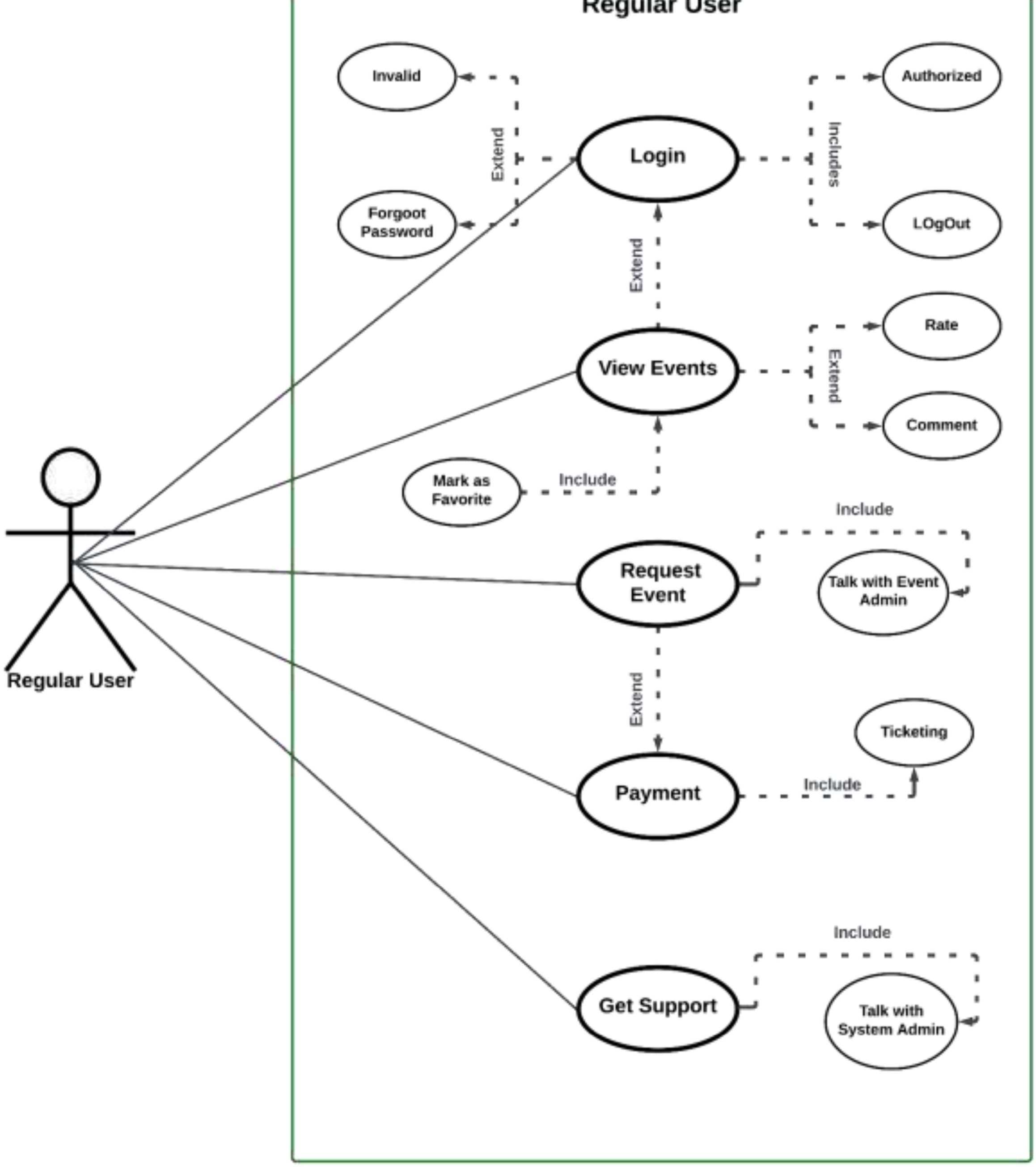


Figure 2.1. Regular User Use-Case Diagram

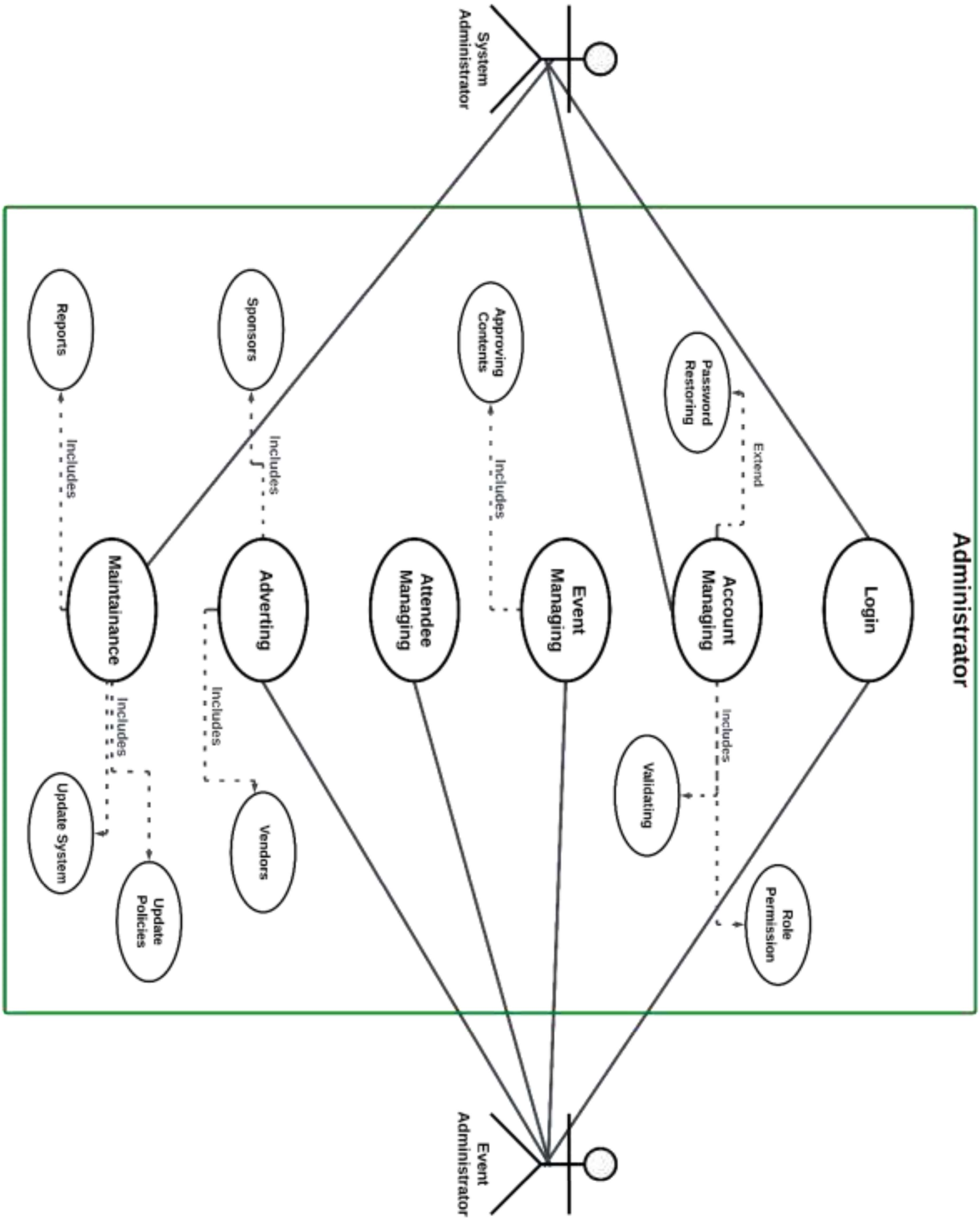


Figure 2.3. Administrator Use Case Diagram

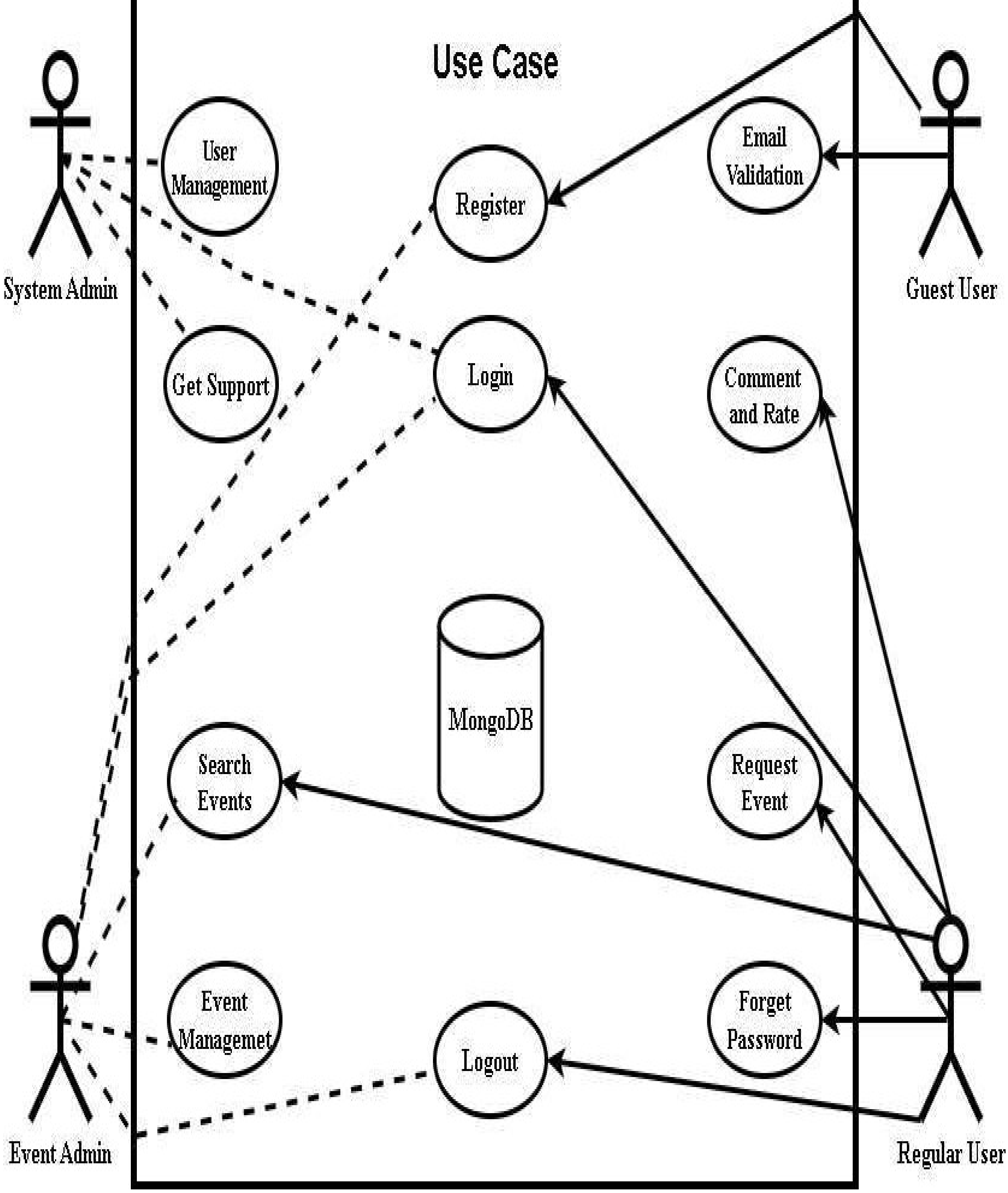


Figure 2.4. Use the Case Diagram

Description of Use Case Diagram

This part includes a use-case description. To illustrate the flow, we tried to group together related use case diagrams.

Use Case ID	EMSID-01
Use Case Name	Registration
Participating Actors	Guest Users, Event Admin
Goal	The guest user will create an account in the system.
Preconditions	The guest user must open the event management web application in a web browser.
Normal Flow	**For Guest Users** 1. The user access clicks on the “Sign Up” button. 2. The registration page loads on the web browser. 3. The user inserts data on the form. The user must enter a valid email address and a strong password whose digit is greater than 8 and click on the “Register” button. 1. The system checks the data. 2. The system sends verification code if the user inputs valid credentials. 3. The system asks to verify email. 4. The user verifies. 5. The system creates an account for the user. 6. The system sends a success message. **For Others** 1. The system admin creates an account for the event admin.
Alternate Flow	**For Guest Users** **1.** The system will display a form validation message for every invalid input and prompt the user to insert valid inputs. 2. The system will display an error message if the inserted user name and email address exist. 3. The user can click on the “Already Have an Account” link to log in if the email address exists.
Includes	Verification code email
Extends	None
Post-Condition	The page navigates to the verify email page.

Table 2.1 Registration Use Case Description

Use Case ID	EMSID-02
Use Case Name	Email validation
Participating Actors	Guest users
Goal	The guest user will validate their email.
Preconditions	The guest user must register first to validate his/her email.
Normal Flow	**For Guest Users** 1. After the user clicks on the “Sign Up” button, the page navigates to the “Validate Your Email” page. 2. The user must enter the validation code, which is sent to his/her email when he/she signs up. 3. The system checks if the inserted validation code has six digits. If the code is six digits, then the system checks the code from the database. 4. If the code is similar to the database, the system navigates to the homepage and sends a welcome email.
Alternate Flow	**For Guest Users** 1. If the code is less than six digits, the system doesn’t accept it. It will wait for the user to enter a six-digit code. 2. If the code is not correct (not in the database), the system asks the user to click the resend code button. 3. After the user clicks the resend code button, the system sends a new verification code for the user.
Includes	Welcome email
Extends	Verification code email
Post-Condition	The page navigates to the homepage.

Use Case ID	EMSID-03
Use Case Name	Login
Participating Actors	Regular users, event admin, system admin
Goal	The users and system admin will log in to their account.
Preconditions	The users must be registered on the system.
Normal Flow	1. The user clicks the login button. 2. The login page loads on the web browser and asks the user to insert a user name or email and password. 3. The user enters a valid user name or email and password. 4. The system checks from the token, which is stored in the cookie. 5. The token responds to the system, and the system verifies the user. 6. The system accepts the user.
Alternate Flow	1. The regular user clicks on the “Don’t have an account? Sign Up” link if the user doesn’t have an account. 2. The user clicks on “Forget Password” if the user doesn’t remember the password. 3. The system displays “Invalid Username or Password” if it doesn’t get the user’s information from the database.
Includes	Registration
Extends	Forget Password
Post-Condition	The page redirects to the home page.

Table 2.3 Login Use Case Description

Use Case ID	EMSID-04
Use Case Name	Forget password
Participating Actors	Regular Users
Goal	The users will restore his/her password if they forgot it.
Preconditions	The users must be registered on the system and on the login page.
Normal Flow	1. The user clicks the forget password button, and then the page redirects to the forget password page. 2. The user will enter his/her email in order to get a reset password token with 15 minutes of expiration time. 3. After the user gets his/her email, there will be a reset password button; after clicking it, the page will go to the reset password page.
Alternate Flow	1. If the user inputs an invalid email, the system prompts the user to insert a valid email. 2. If the reset password token expires, then the user must start the process again.
Includes	Reset password email, Reset password
Extends	None
Post-Condition	The page redirects to the home page.

Table 2.4 Forget Password Use Case Description

Use Case ID	EMSID-05
Use Case Name	User Management
Participating Actors	System Admin, Regular User
Goal	The system admin will manage all the users, and any regular user can manage itself.
Preconditions	The system admin and the user must log in to their account.

Normal Flow	**For System Admin:** 1. System admin opens the User management page by clicking the “Users” button. 2. The system admin clicks “Show Users” to list all users on the database. 3. The system displays all users from the database on the screen. **Search User:** 1. The system admin userID or name on the search bar. 2. The system Admin clicks on the search icon. 3. The system displays that specific user from the database. 4. System Admin selects one or multiple users from the list. **Delete User:** 1. The system Admin clicks on the Delete User button. 2. The system pops up a message to ensure the system admin really wants to delete the selected user/s. 3. The system admin presses “Yes” to delete the selected user/s. 4. The system accepts the response and deletes the user/s from the database. 5. Database updates. 6. A message pops up to indicate that the user/s successfully deleted. **For Regular Users:** 1. The user clicks or hovers over the profile image icon, and a drop-down menu will show up. 2. The user clicks the profile menu. **Update User:** 1. The user inserts the credentials that he/she wants to update. 2. The user clicks the update profile button, and the system will update the user information and save it in the database. **Delete User:** 1. The user clicks the delete account button. 2. The system shows a warning to ensure the user’s choice. 3. If the user clicks the “Yes” button, the system will delete the user from the database and clear its cookie and token.
Alternate Flow	**For System Admin** **Search User:** The system displays “User not Found” if the searched ID or name is not on the database **Delete User:** 1. System Admin clicks “Cancel.” 2. The system responds and goes back to the user list. **For Regular Users** **Update User:** 1. The system prompts the user to insert a valid email and the same password and confirmation password. 2. The system will show an error if there is poor internet connectivity or database failure. **Delete User:** If the user clicks “Cancel,” the system will discard any changes.
Includes	Login
Extends	None
Post-Condition	The database will be updated with new users.

Table 2.5: User Management Use Case Description

Use Case ID	EMSID-06
Use Case Name	Search and Filter Events
Participating Actors	Regular Users, Guest Users, Event Admin
Goal	The users will be able to search and filter events.
Preconditions	The user must open the event management web application in a web browser.
Normal Flow	1. The user clicks the search bar on the home page. 2. The user can use the search bar to enter keywords, event names, or host names to search for specific events. 3. The user can use filters, such as event type, date, location, and category, to narrow down the search results. 4. The system will display the filtered and/or searched events, showing relevant details like event name, date, time, and location. 5. The user can click on a specific event to view more detailed information about it.
Alternate Flow	1. If the user's search does not return any results, the system will display a message indicating that no events match the search criteria. 2. If the selected filters do not match any events, the system will display a blank page.
Includes	None
Extends	None
Post-Condition	The user has successfully searched and filtered events and can view the relevant event details.

Table 2.6 Search and Filter Use Case Description

Use Case ID	EMSID-08
Use Case Name	Request Event
Participating Actors	Regular Users, Event Administrators
Goal	The regular user will be able to request an event to be hosted on the event management web application, and the event administrators will be able to review and approve the requests.
Preconditions	1. The regular user must be logged in to the event management web application. 2. The regular user must have the necessary information to fill out the event request form.
Normal Flow	1. The regular user navigates to the "Request Event" section of the web application. 2. The regular user fills out the event request form, providing details such as event title, description, date, time, location, and any other required information. 3. The regular user selects the event type as "Public" and submits the event request form to make the event visible for all users. 4. The system receives the event request and notifies the event administrators. 5. The Event Administrators review the event request and check if it meets the criteria for hosting a public event on the web application. 6. If the event request meets the criteria, the Event Administrators approve the request. 7. The regular user who submitted the request is notified that their event has been approved and is now listed on the event management web application for other users to view and register for.
Alternate Flow	1. The regular user selects the event type as "Private," fills out the event request form, and gives it a code. 1.1. The regular user submits the event request form. 1.2. The system receives the event request and notifies the event admin. 1.3. The Event Administrators review the event request and check if it

	meets the criteria for hosting a private event on the web application. 1.4. If the event request meets the criteria, the event administrators approve the request. 1.5. The regular user who submitted the request is notified that their event has been approved and is now listed on the event management web application. Attendees can register for the private event by using a provided access code. 2. If the regular user does not provide all the required information or the information is invalid, the system will display an error message and prompt the user to correct the input. 2.1. If the event administrators determine that the event request does not meet the hosting criteria, they will reject the request. 2.3. The regular user who submitted the rejected request is notified, and the system provides them with the reason for the rejection.
Includes	Login
Extends	Payment, Approval Email
Post-Condition	1. The regular user's event request has been successfully submitted and reviewed by the event administrators. 2. If the event request is approved, the event is now listed on the event management web application for other users to view and register for (public event) or for attendees to register using a provided access code (private event).

Table 2.7 Comment and Rate Use Case Description

Use Case ID	EMSID-09
Use Case Name	Get Support
Participating Actors	Regular Users, System Administrators
Goal	The regular users will be able to request support from the system administrators for the event management web application, and the system administrators will be able to provide assistance.
Preconditions	1. The regular user must be logged in to the event management web application. 2. The regular user must have a question or issue that requires support from the system administrators.
Normal Flow	1. The regular user navigates to the "Support" section or page of the web application. 2. The regular user provides a detailed description of their issue or query, including any relevant information or screenshots. 3. The regular user submits the support request. 4. The system receives the support request and forwards it to the appropriate system administrator. 5. The system administrator reviews the support request and provides a response or solution to the regular user via support email. 6. The regular user receives the support email from the system administrator and is able to resolve their issue or inquiry.
Alternate Flow	1. If the regular user does not provide sufficient information in the support request, the system will display an error message and prompt the user to include more details. 2. If the system administrator is unable to immediately resolve the issue, he/she will provide the regular users with a timeline for when they can expect a resolution and keep them updated on the progress by sending appropriate email.
Includes	Login
Extends	Support email

Post-Condition	1. The regular user's support request has been successfully submitted and addressed by the system administrators. 2. The regular user has received the necessary support and guidance to resolve their issue or inquiry related to the event management web application.

Table 2.8 Request Event Use Case Description

Table 2.8 Get Support Use Case Description

Sequence Diagram

Use Case ID	EMSID-11
Use Case Name	Log out
Participating Actors	All Except Guest Users
Goal	To securely log out of the event management platform.
Preconditions	1. The user must be logged in to the event management platform. 2. The user must not be a guest user.
Normal Flow	1. The user clicks the "Logout" button or selects the logout option from the user menu. 2. The system prompts the user to confirm the logout action. 3. The user confirms the logout. 4. The system logs the user out of the event management platform by clearing its cookie and token. 5. The system redirects the user to the homepage.
Alternate Flow	The system doesn’t clear the cookie and the token if the user rejects to logging out.
Includes	Login
Extends	None
Post-Condition	The user logged out, and the user token cookie was cleared.

Table 2.9 Event Management Use Case Description

A sequence diagram is primarily used to model the interactions between the actors and the objects in a system and the interactions between the objects themselves. As the name implies, a sequence diagram shows the sequence of interactions that take place during a particular use case or use case instance (Sommerville, 2011).

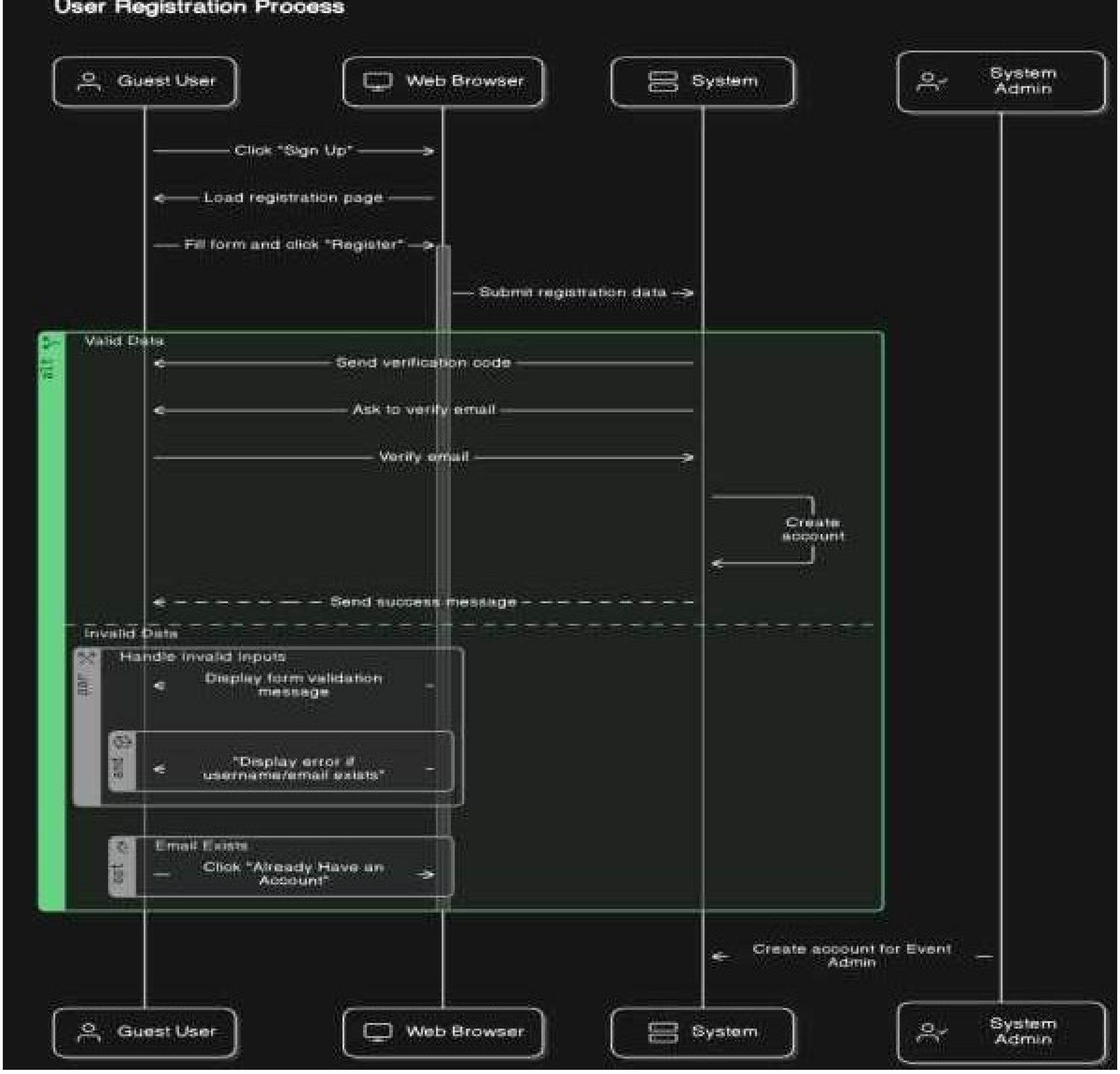


Figure 2.5 Registration Sequence Diagram

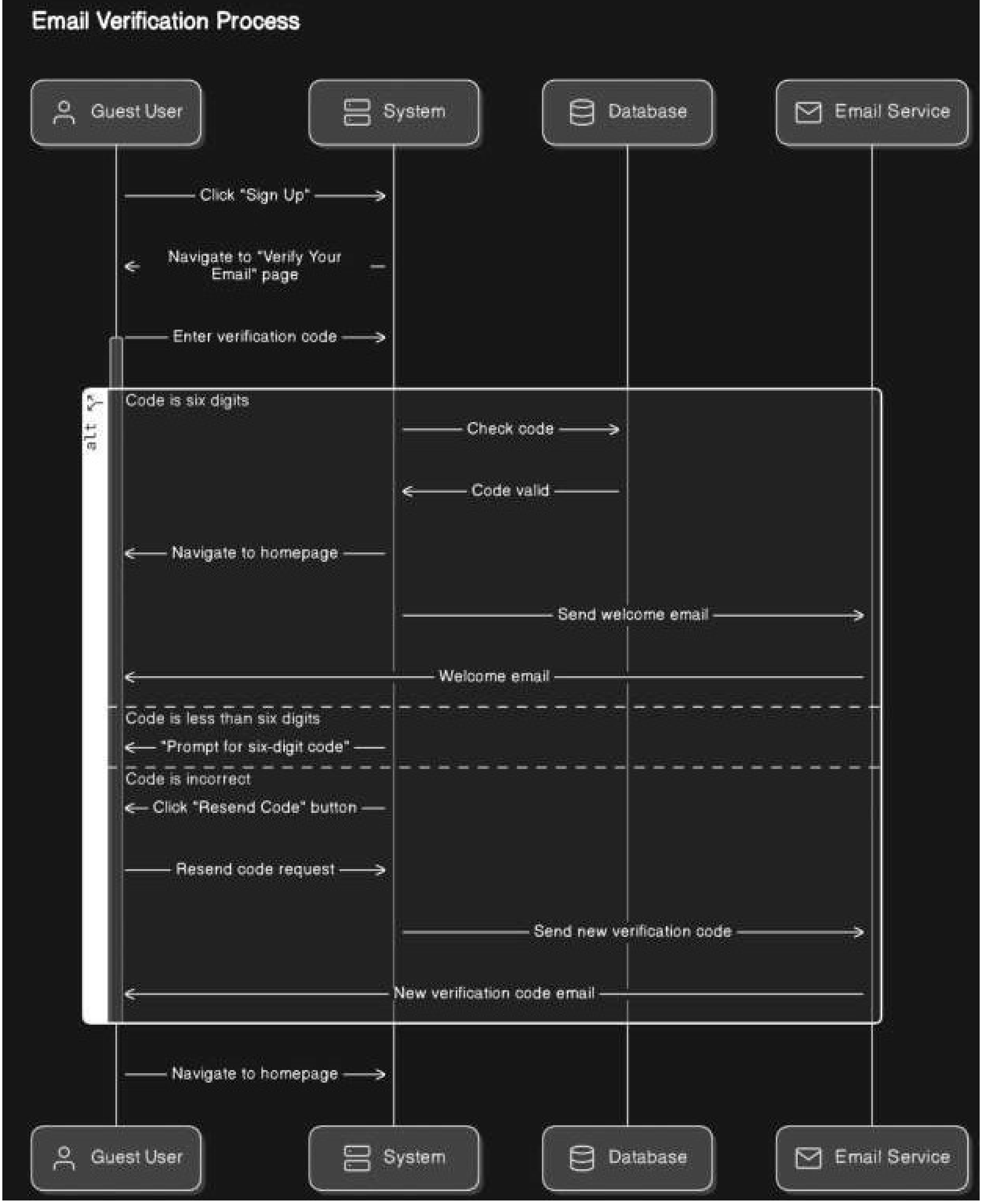


Figure 2.6 Verify Email Sequence Diagram

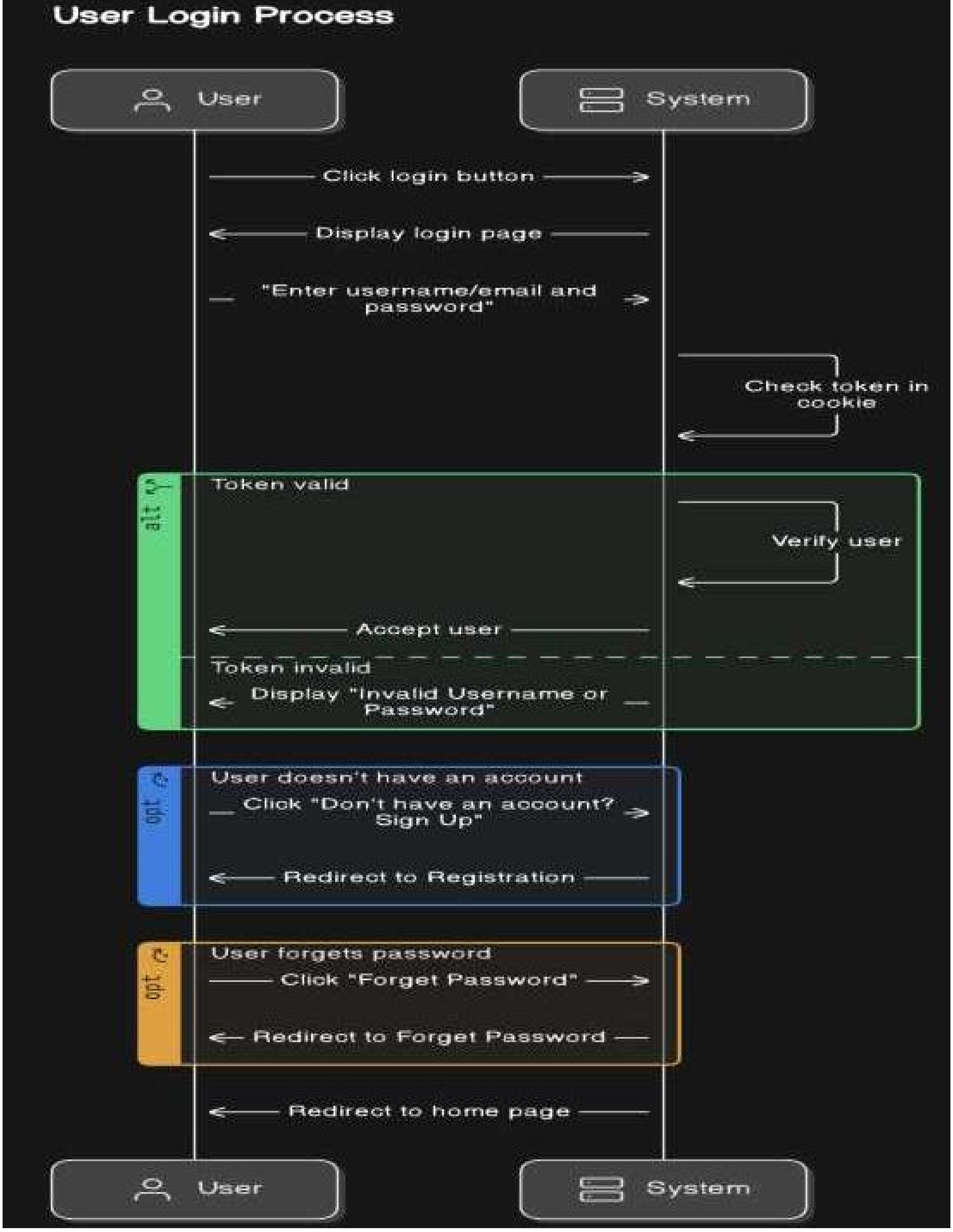


Figure 2.7 Login Sequence Diagram

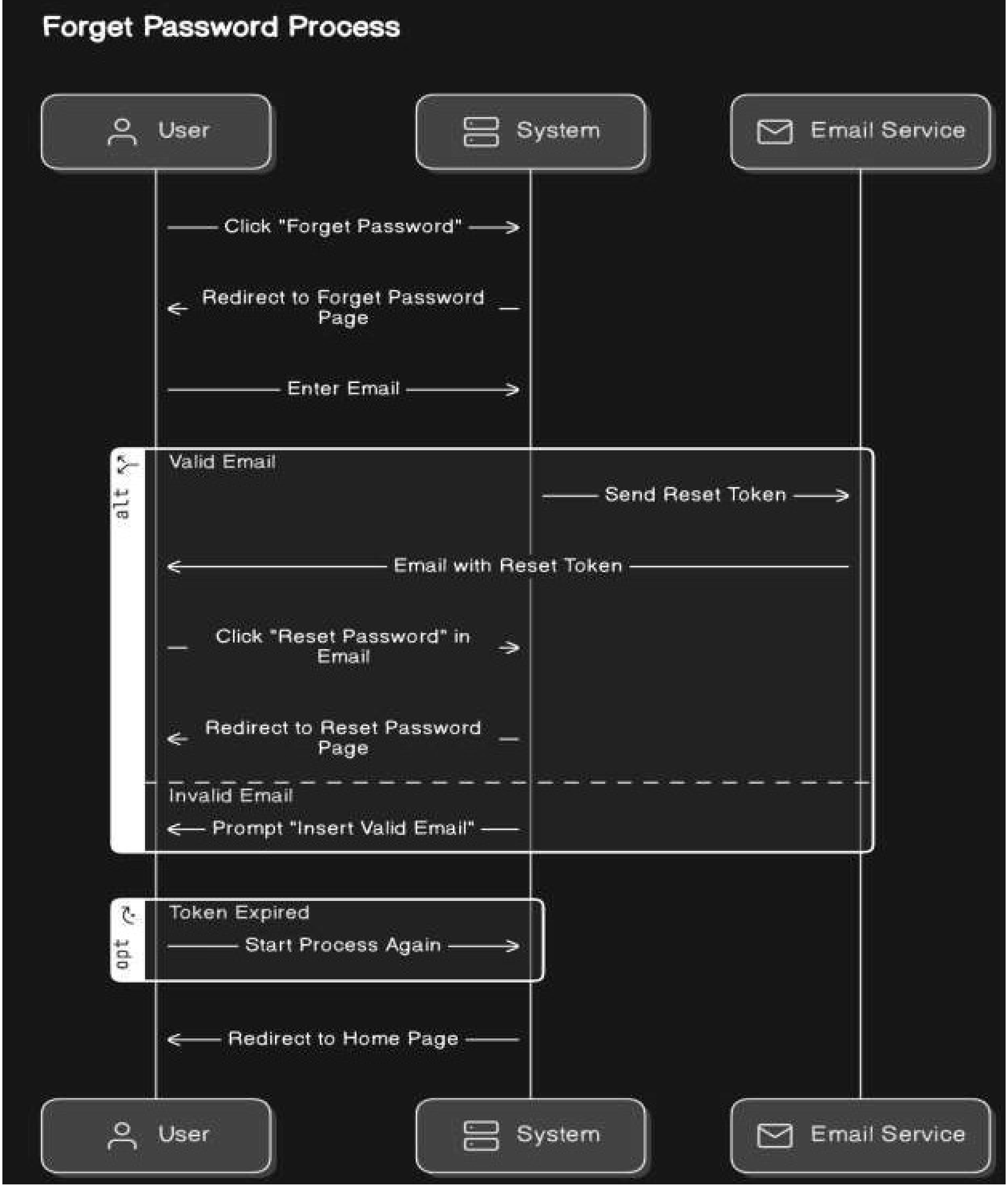


Figure 2.8 Forget Password Sequence Diagram

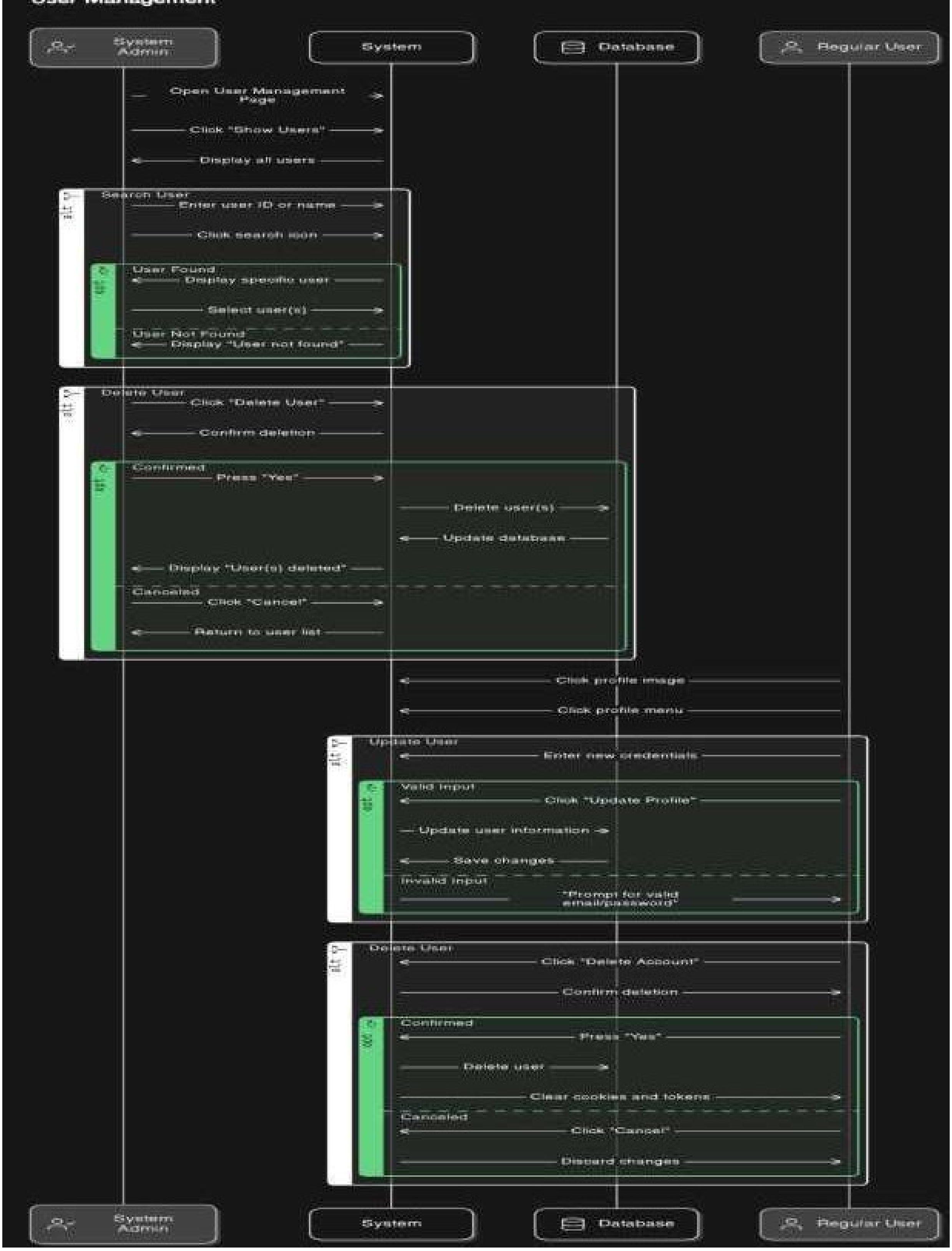


Figure 2.9 User Management Sequence Diagram

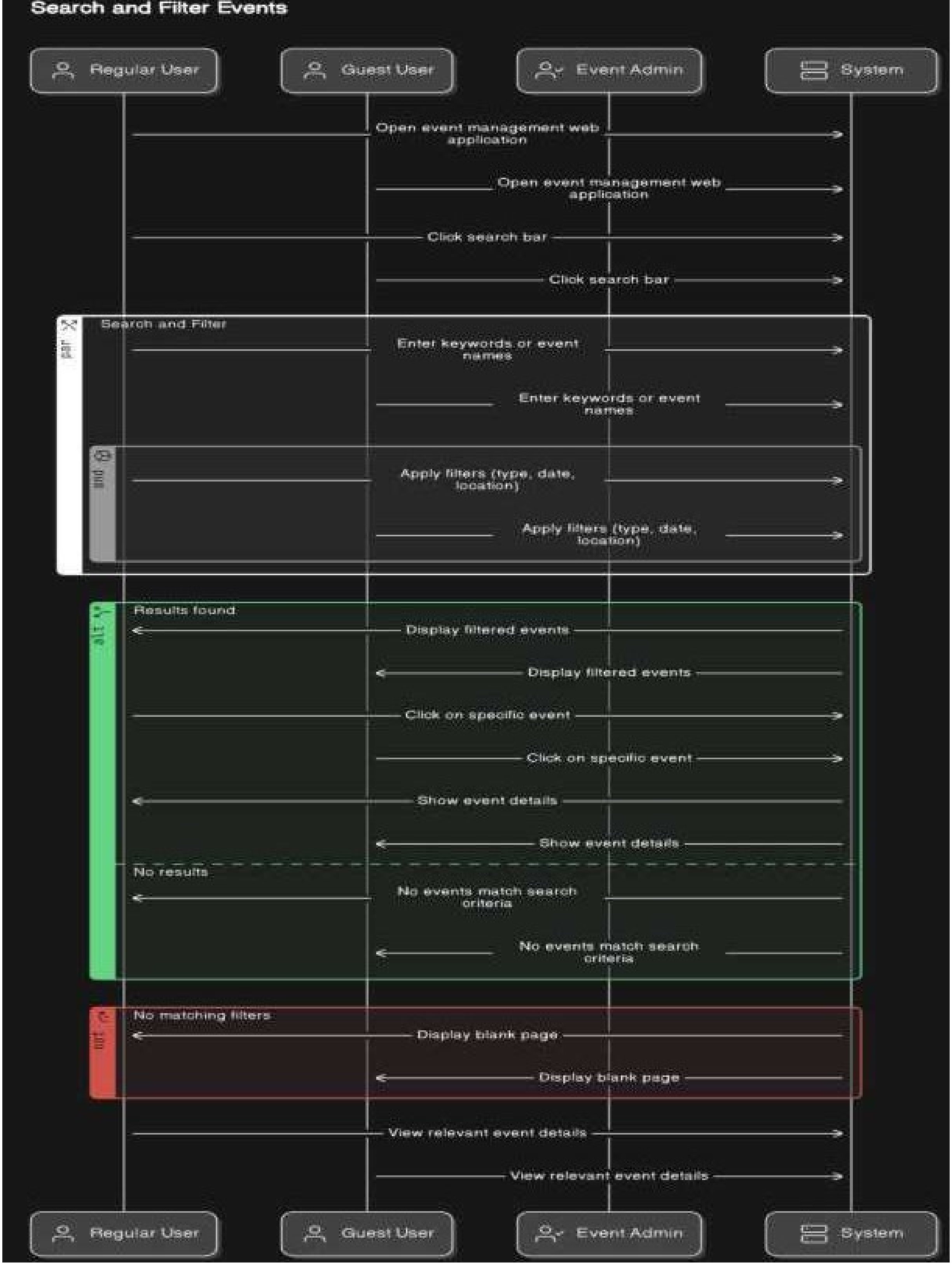


Figure 2.10 Searches and Filter Events Sequence Diagram

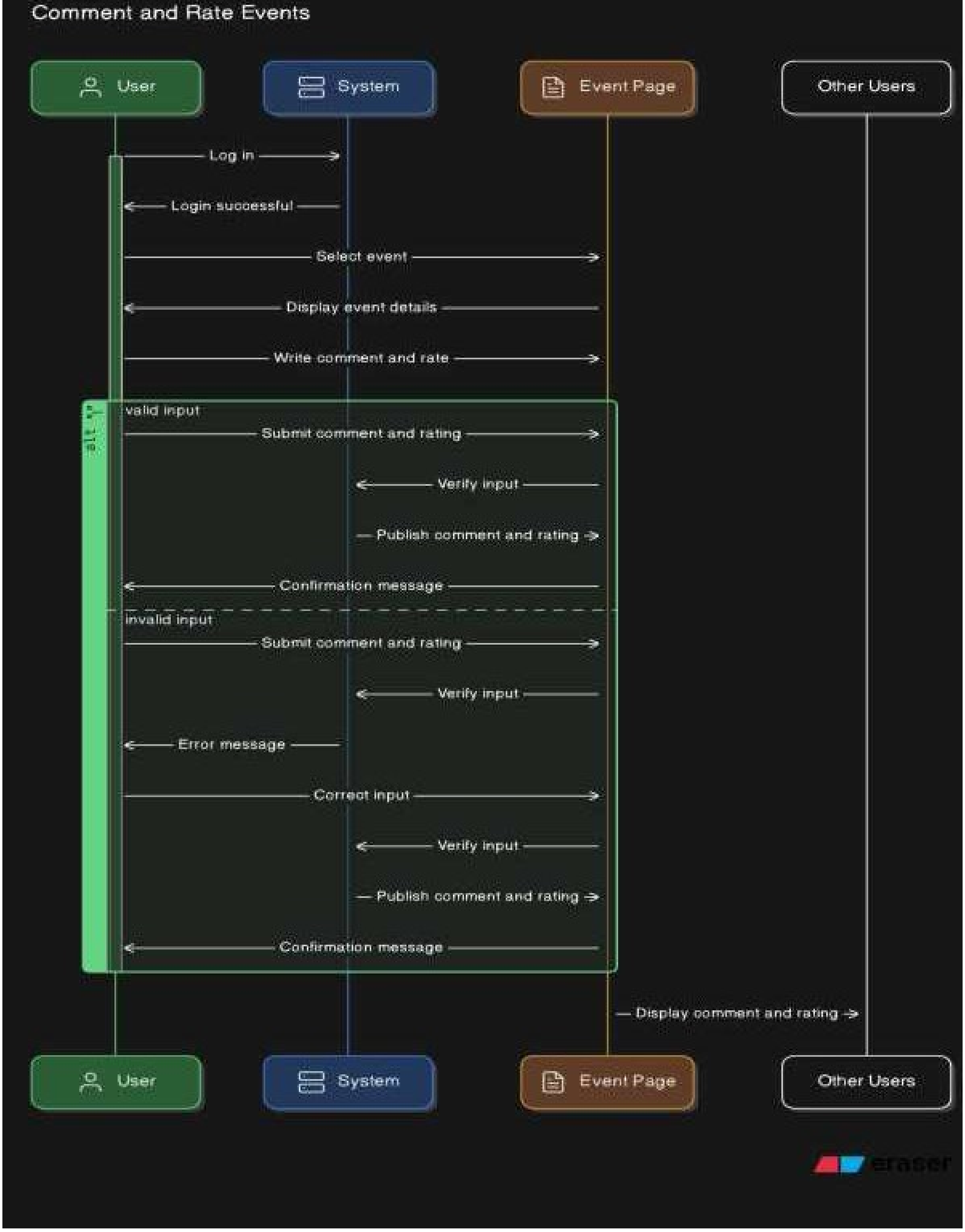


Figure 2.11 Comments and Rate Events Sequence Diagram

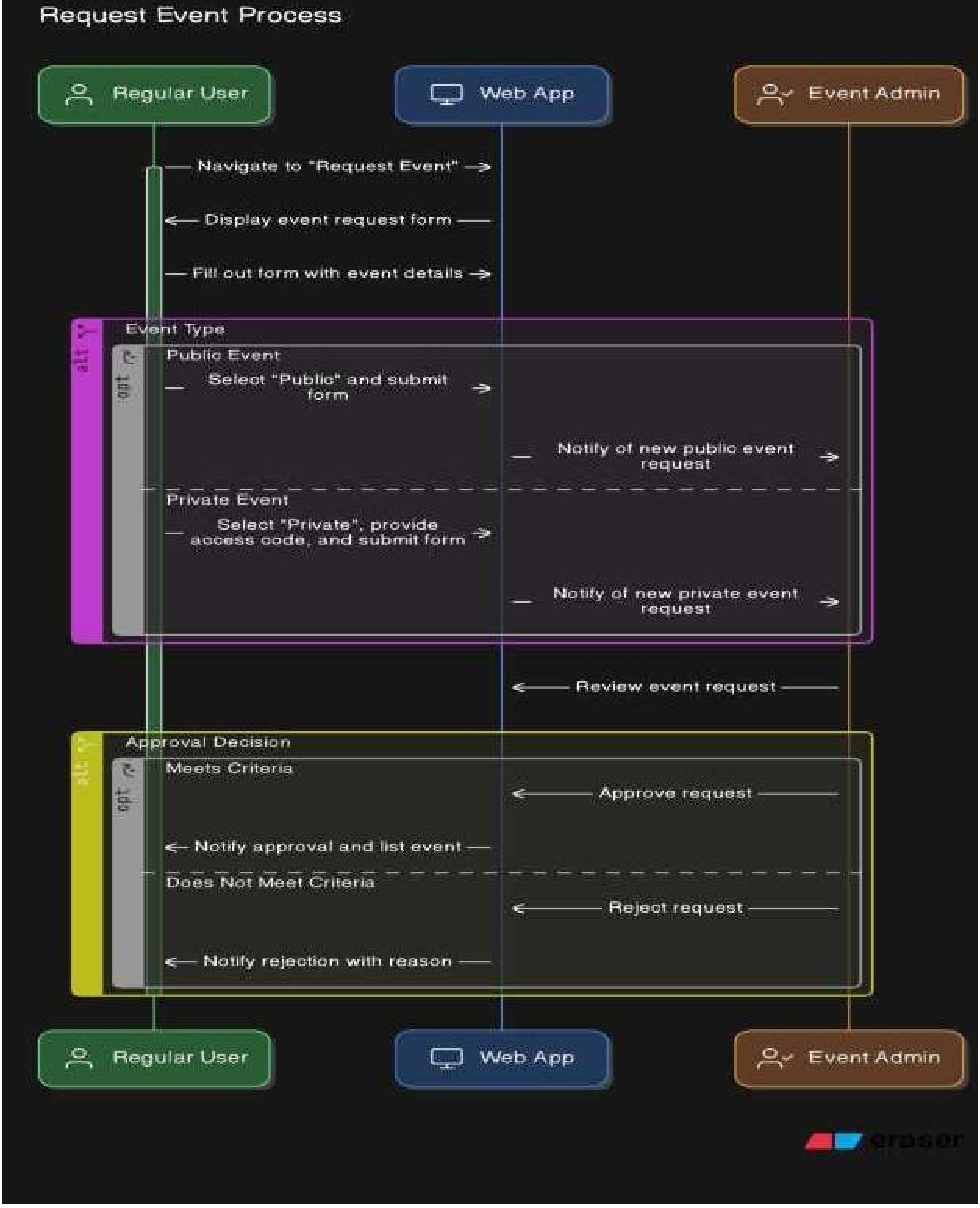


Figure 2.12 Request Event Sequence Diagram

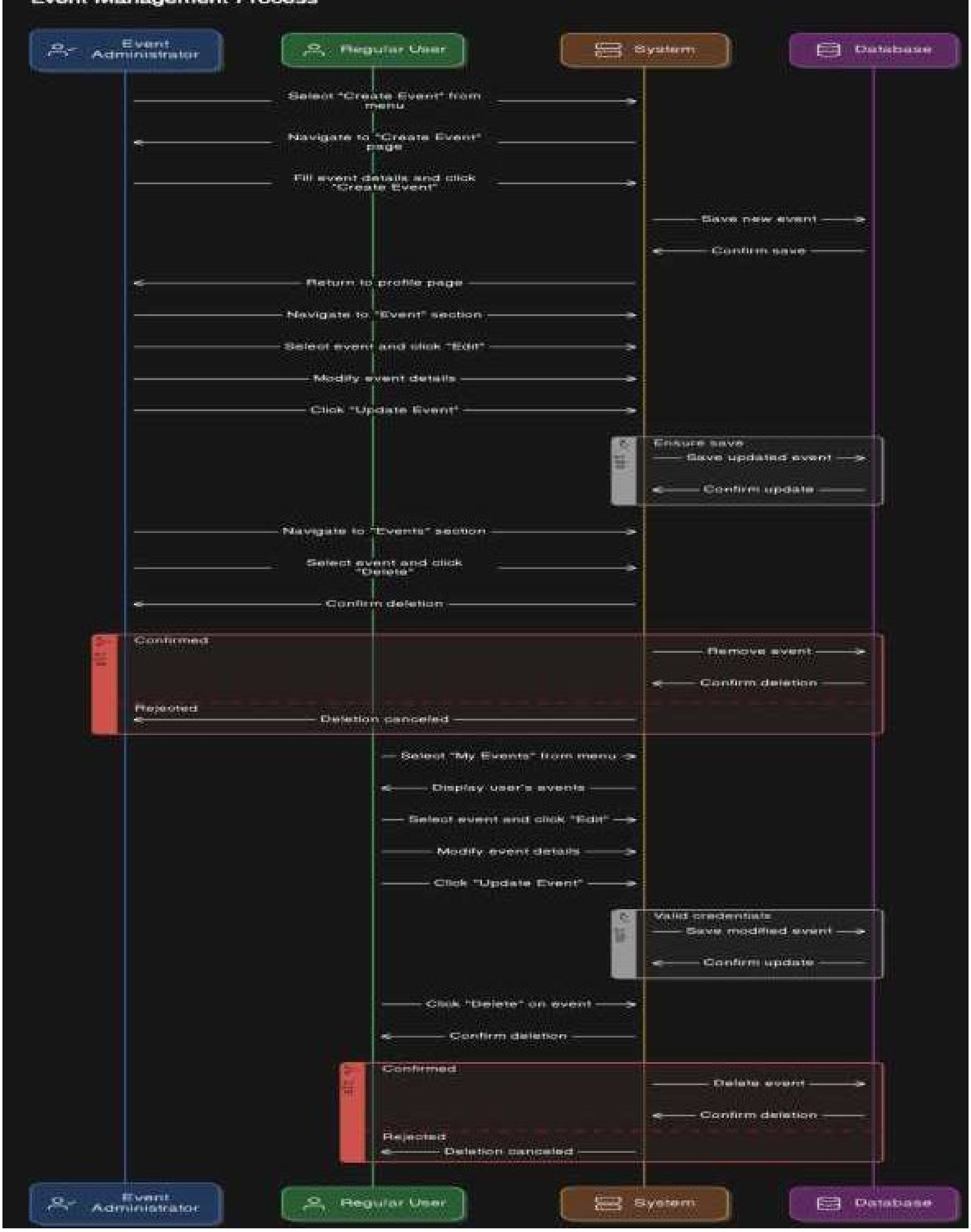


Figure 2.13 Event Management Sequence Diagram

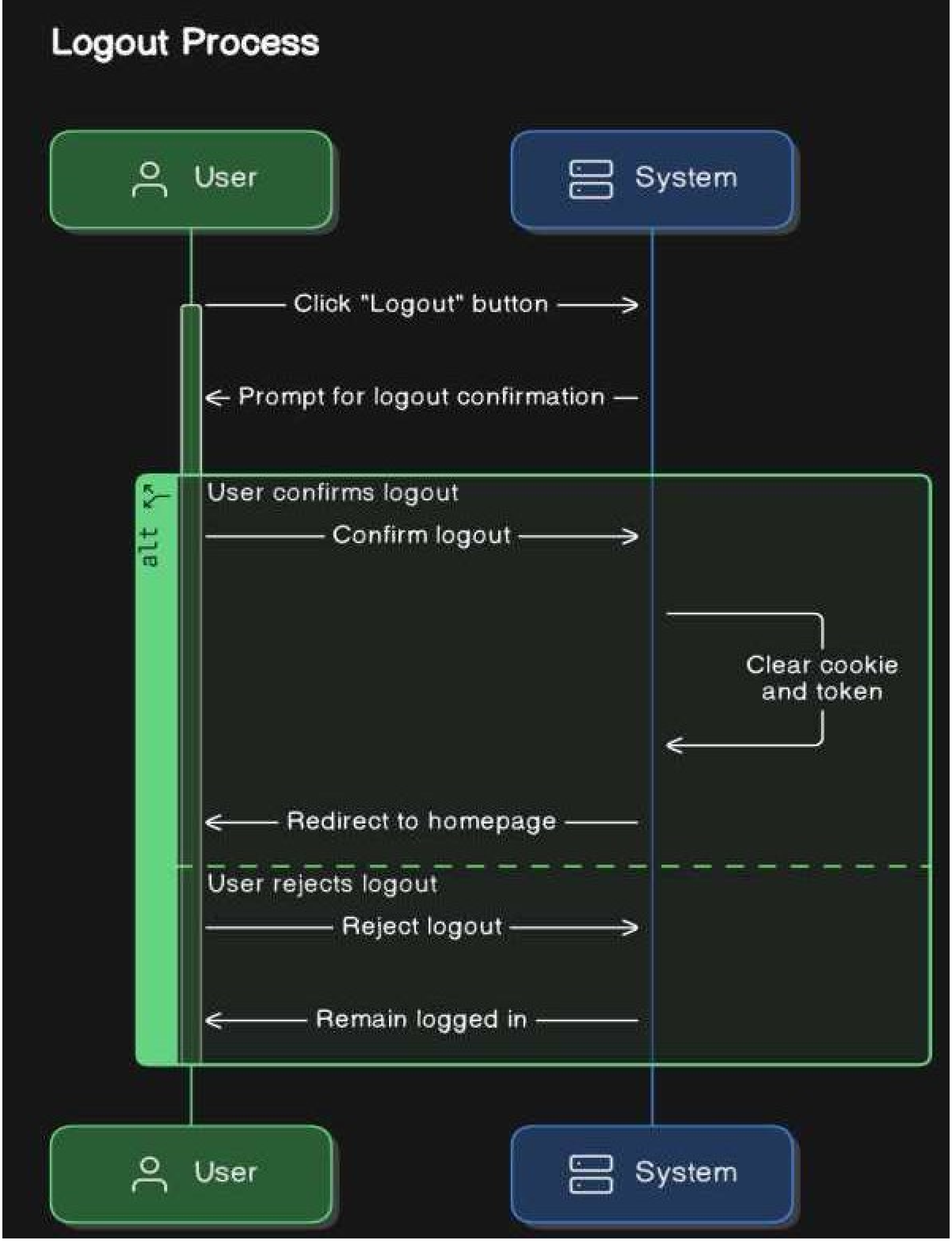


Figure 2.14 Logout Sequence Diagram

State Chart Diagram

A state chart diagram is a UML diagram type that shows the states of a system and the events that trigger a transition from one state to another. It is used to model a system's behavior in response to internal or external events (Sommerville, 2011).

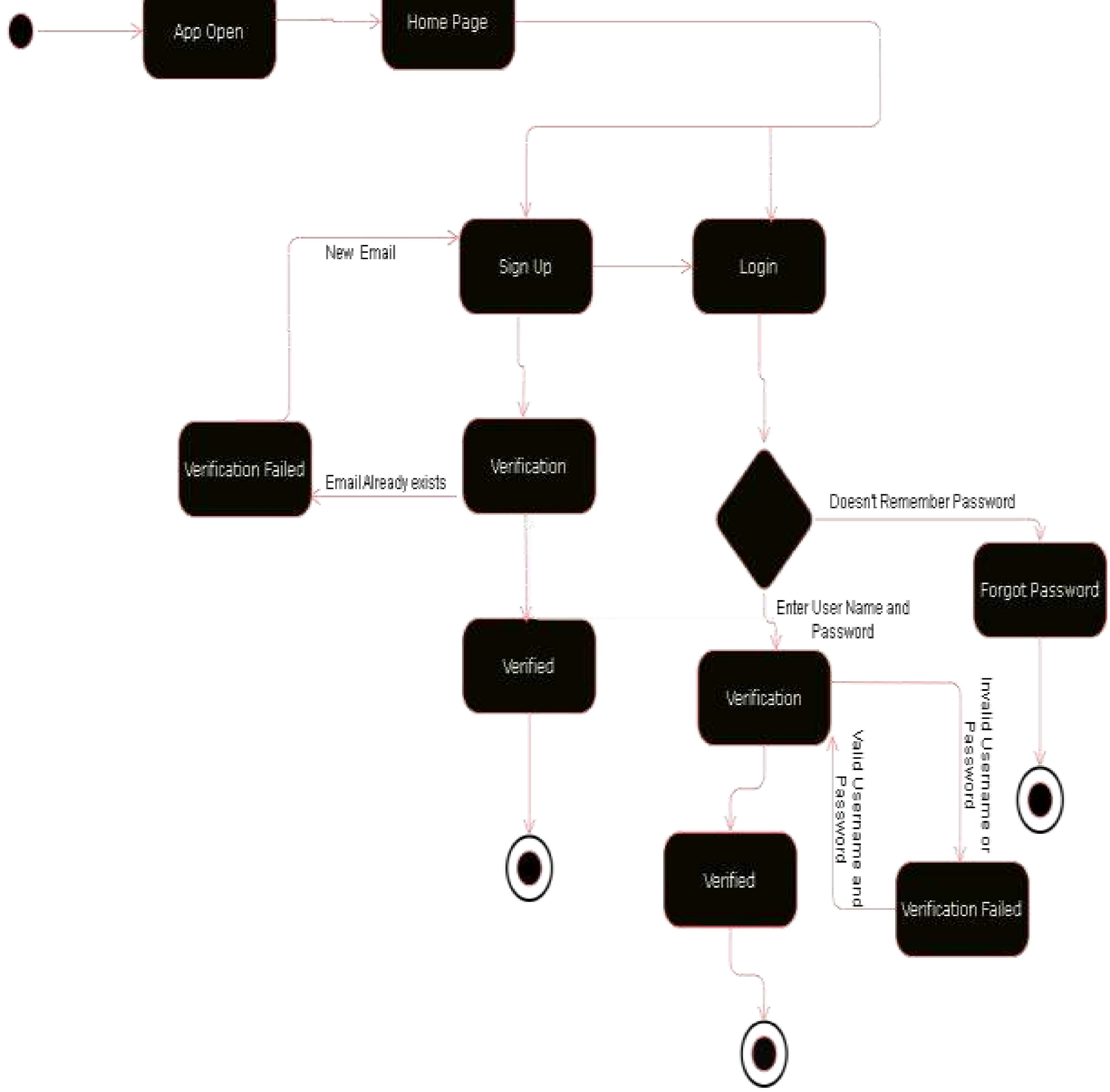


Figure 2.15 Login and Registration State Chart Diagram

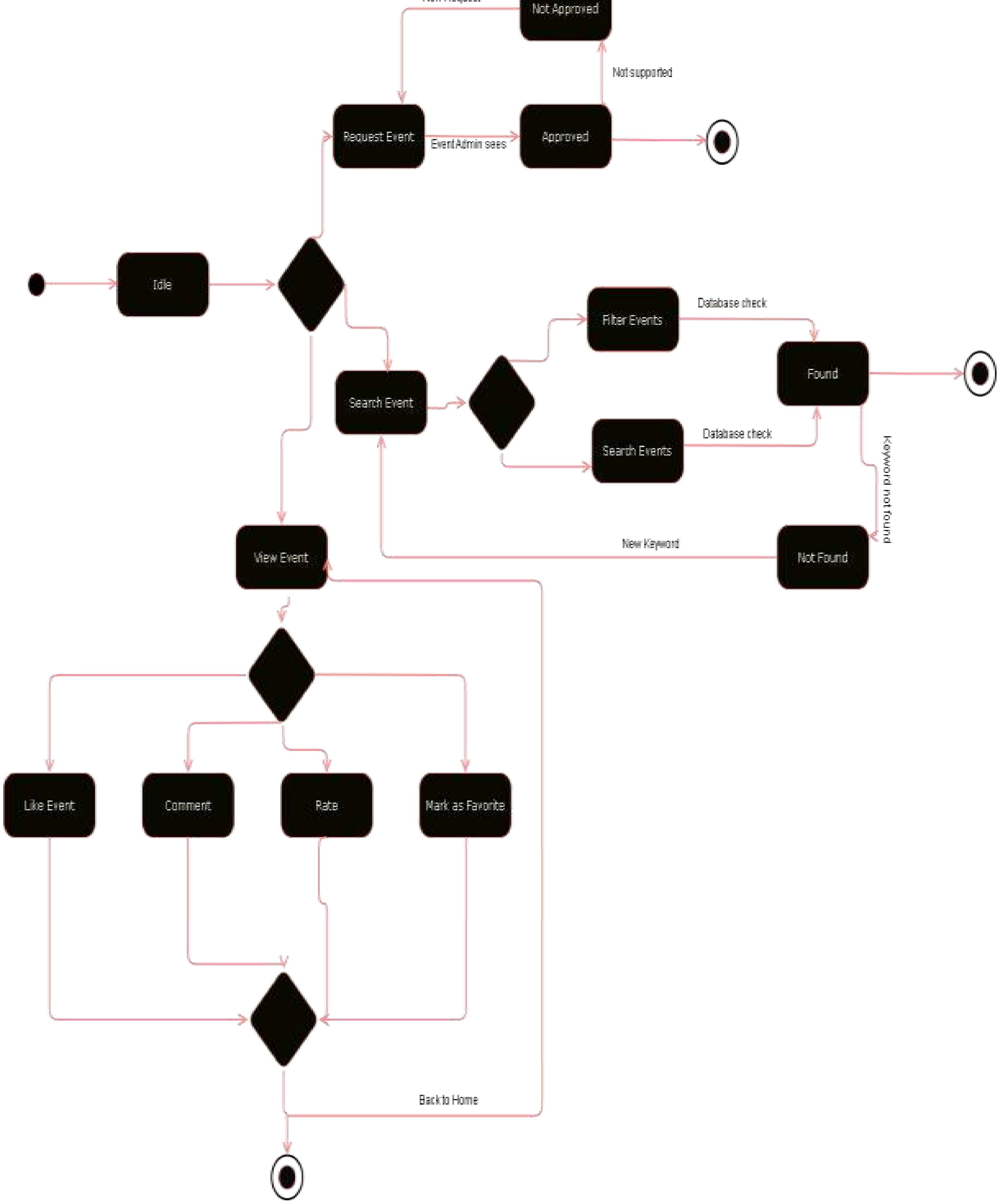


Figure 2.16 View Events, Request Event and Search Event State Chart Diagram

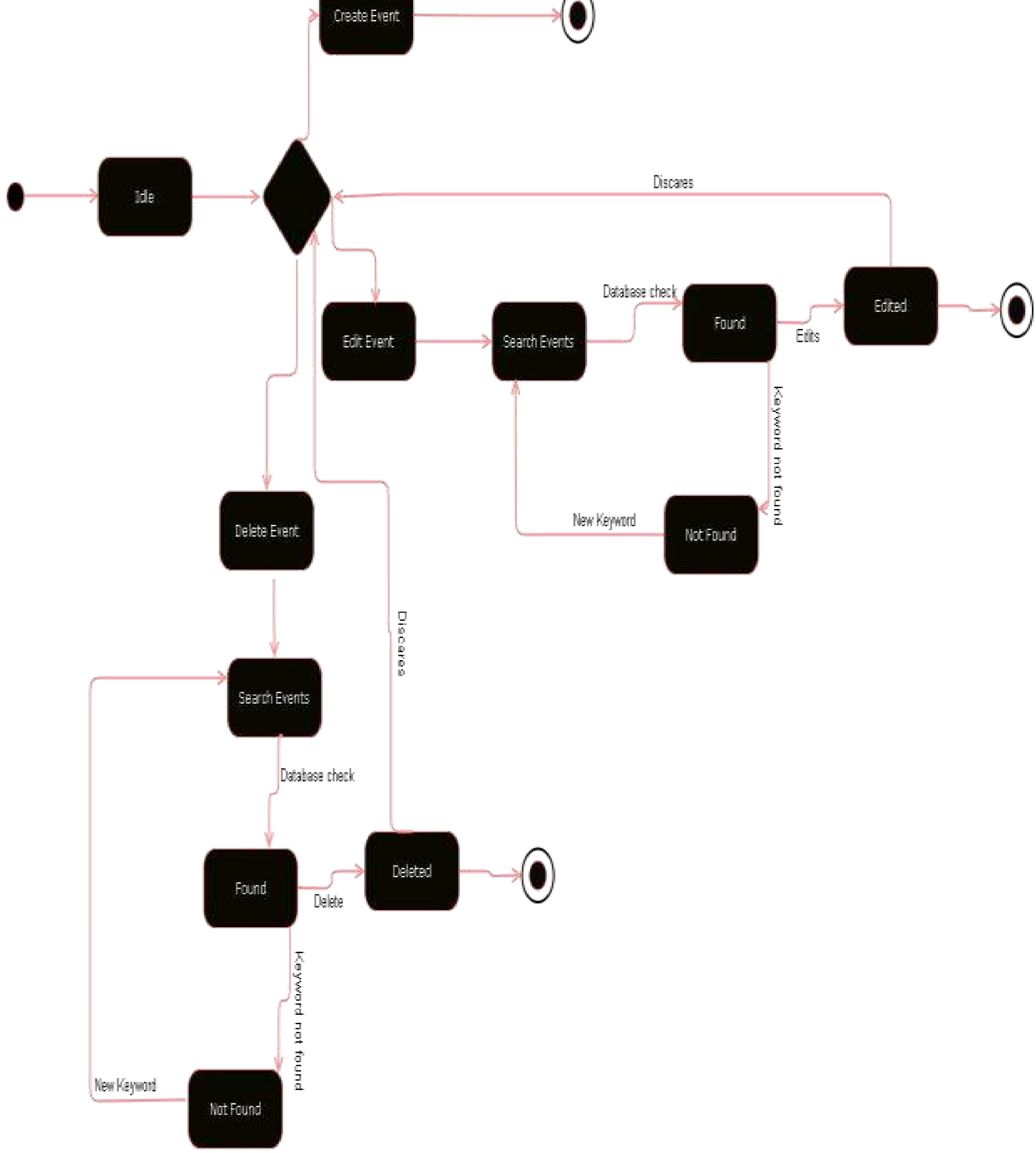


Figure 2.17 Event Management State Chart Diagram

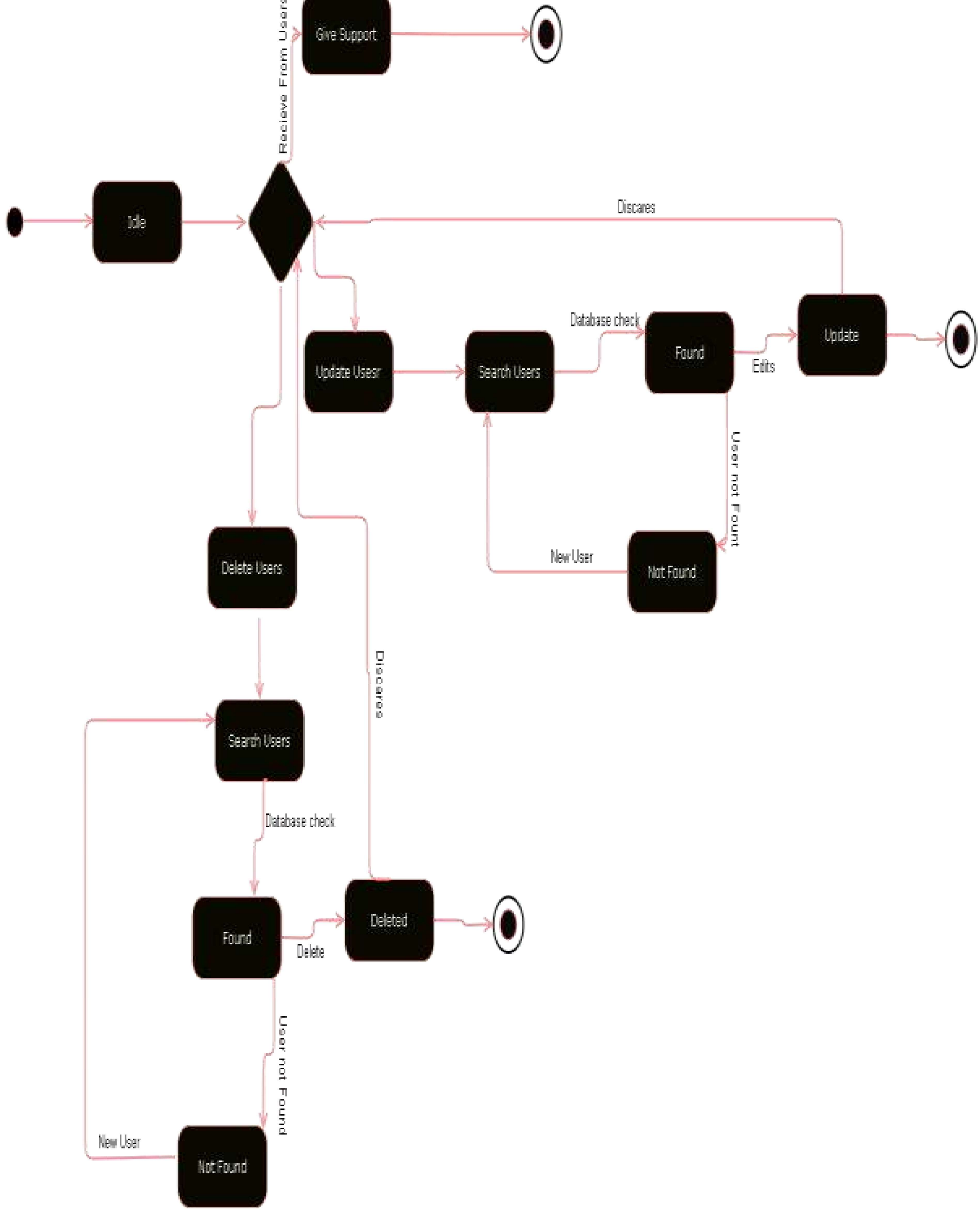


Figure 2.18 User Management and Give Support State Chart Diagram

Activity Diagram

An activity diagram describes the behavior of a system in terms of activities. Activities are modeling elements that represent the execution of a set of operations. The execution of an activity can be triggered by the completion of other activities, by the availability of objects, or by external events (Bruegge & Dutoit, 2014).

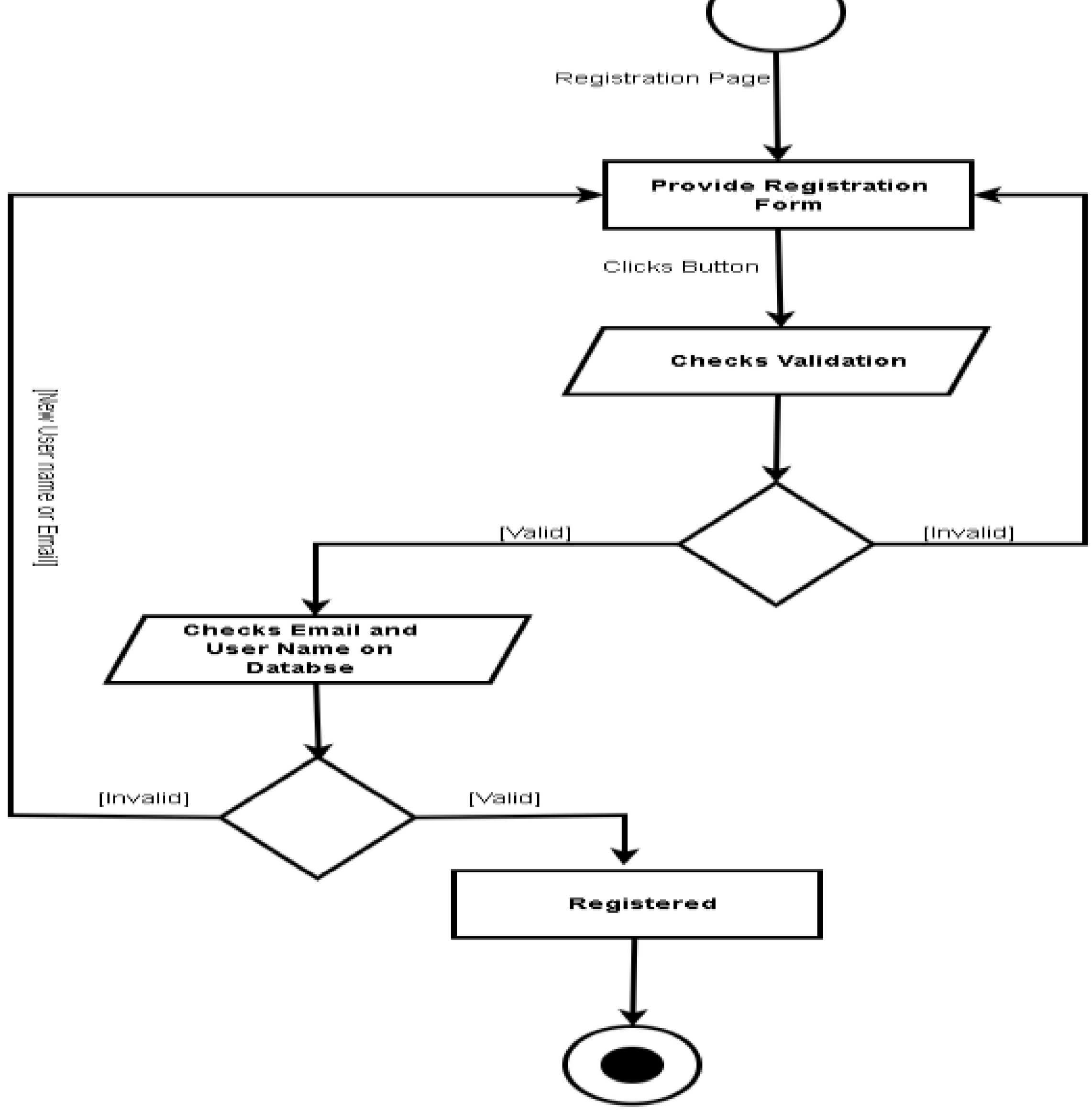


Figure 2.19 Registration Activity Diagram

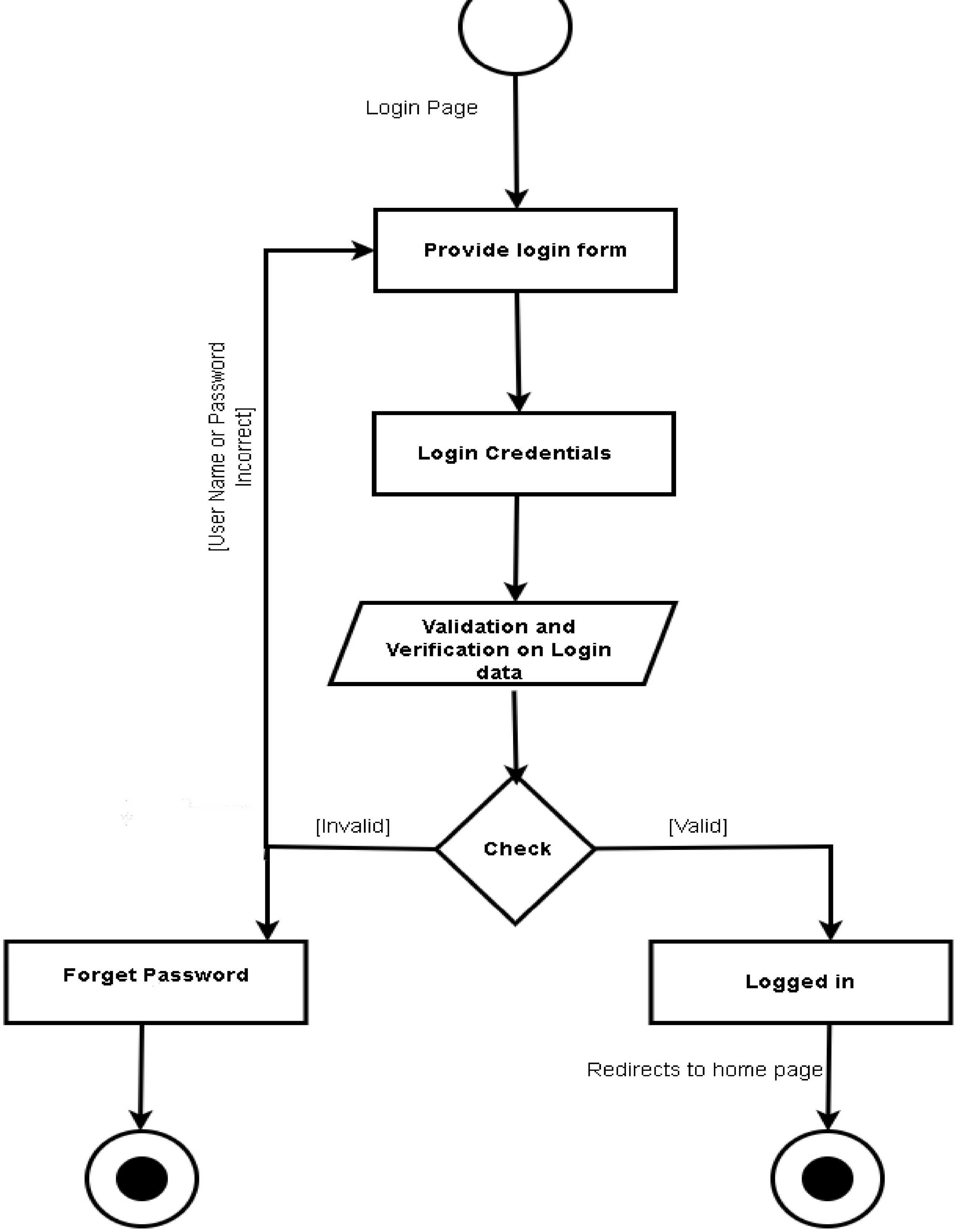


Figure 2.20 Login Activity Diagram

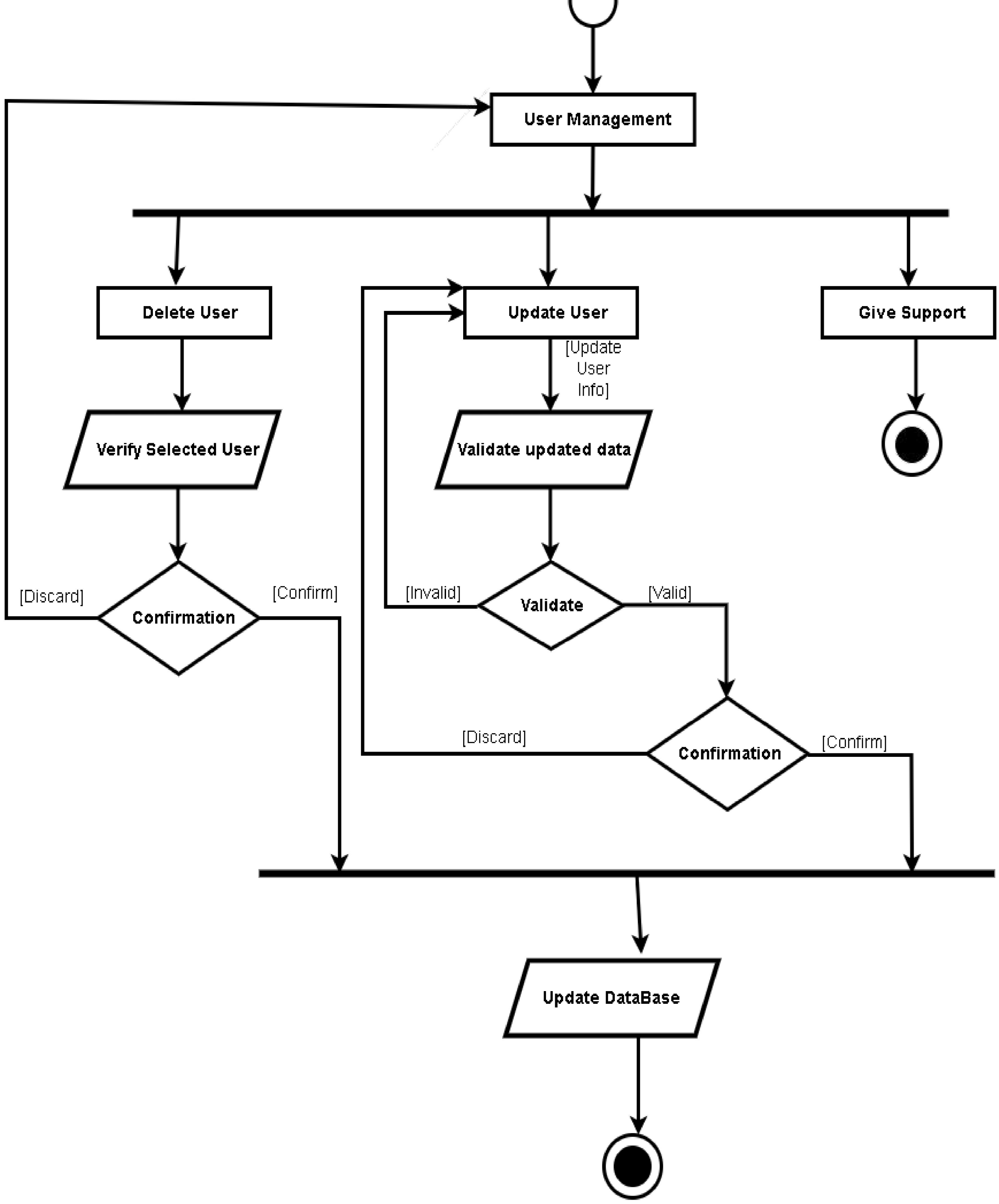


Figure 2.21 User Management Activity Diagram

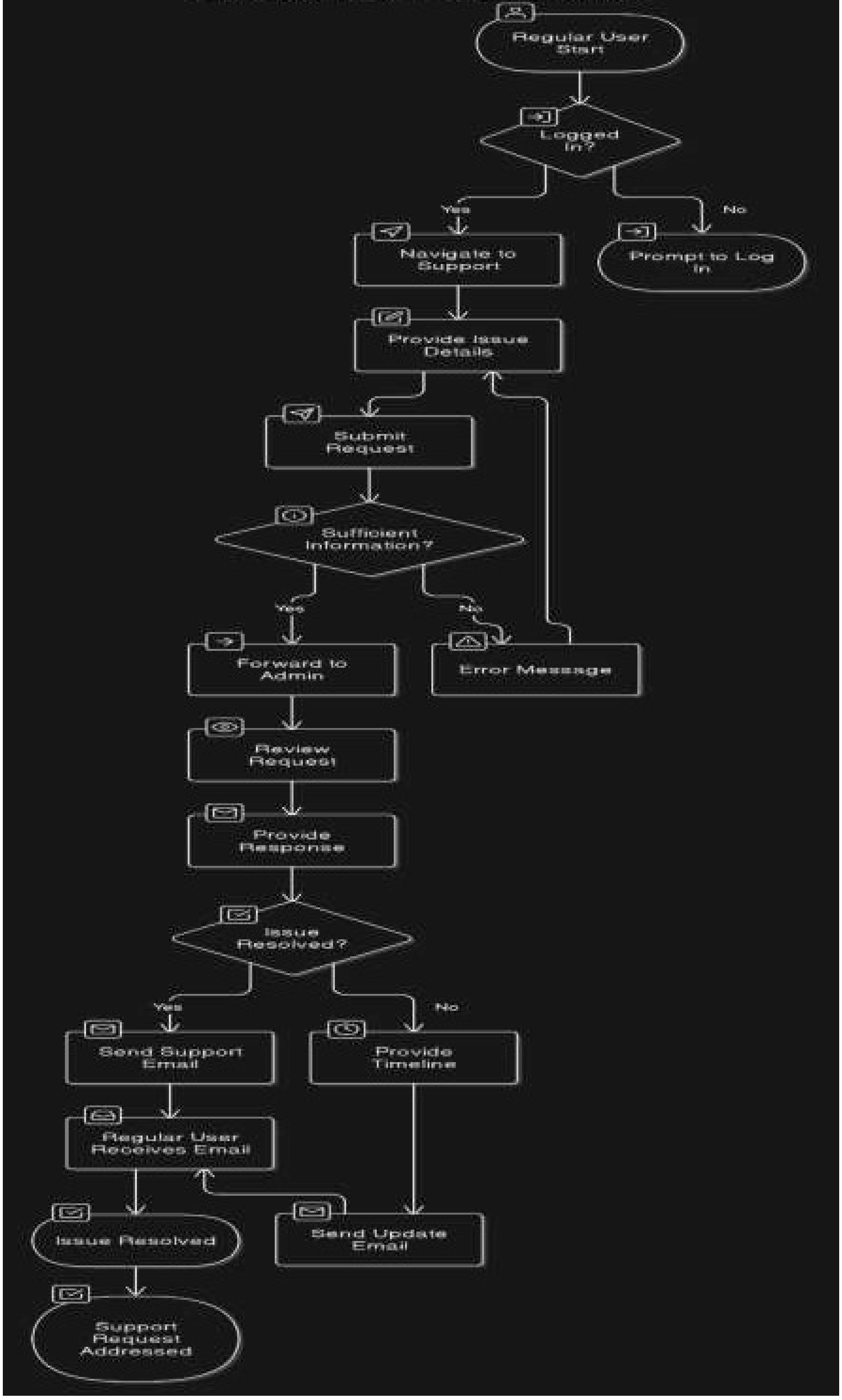


Figure 2.22 Get Support Activity Diagram

Class Diagram

Class diagrams are used to describe the structure of the system. Classes are abstractions that specify the common structure and behavior of a set of objects. Objects are instances of classes that are created, modified, and destroyed during the execution of the system. An object has a state that includes the values of its attributes and its links with other objects (Bruegge & Dutoit, 2014).

Lists of Class

User Management Classes

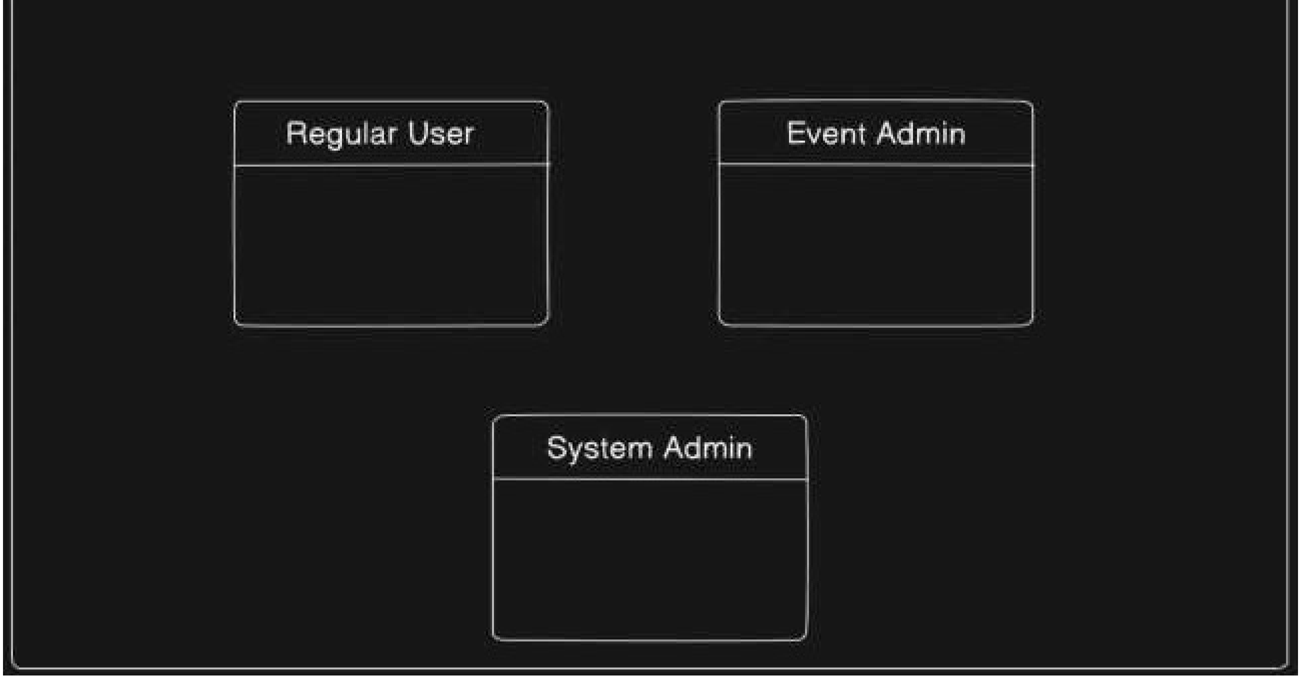


Figure 2.23 User Management Class

Event Management Classes

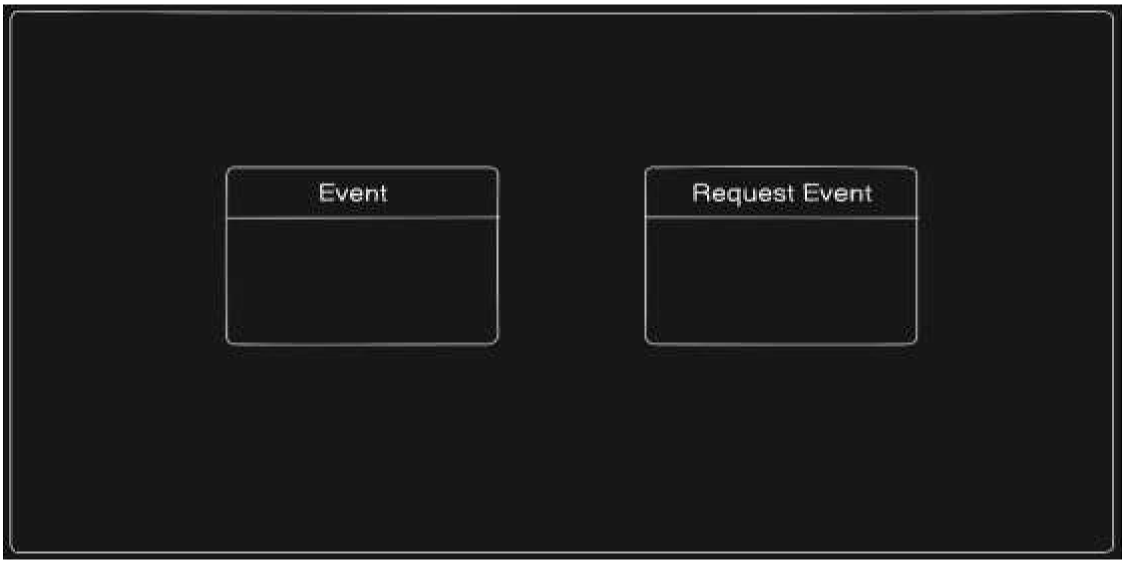


Figure 2.24 Event Management Class
Miscellaneous Classes

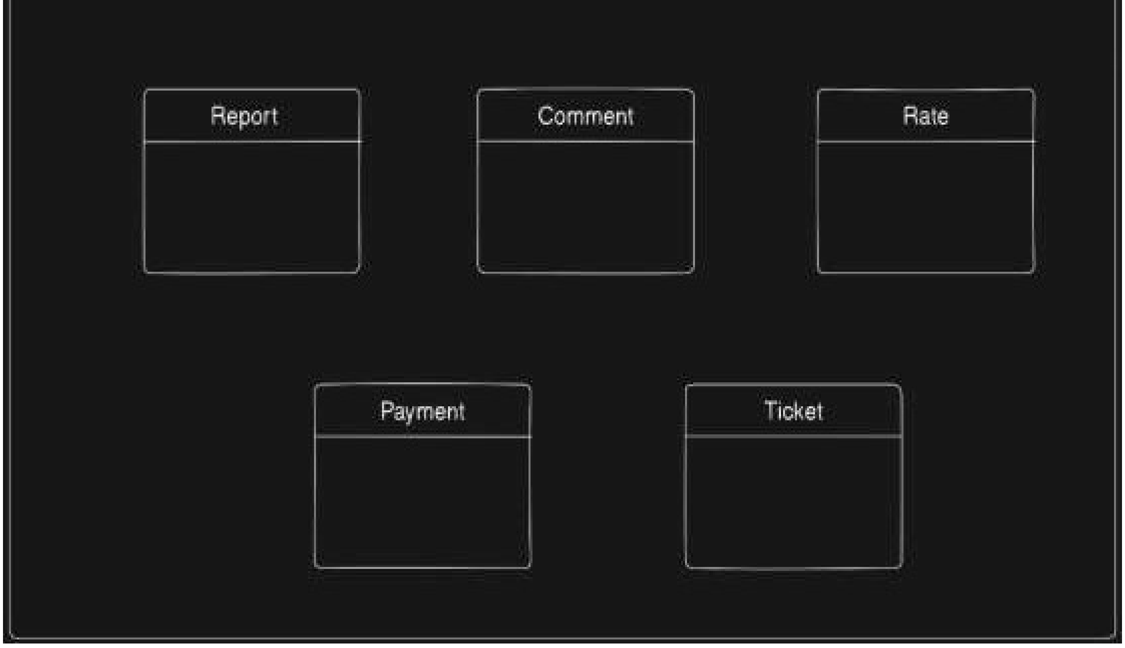


Figure 2.25 Miscellaneous Class

Class's Attributes and Methods

1. User
Attributes: user ID, full name, username, email, password, profile pic, role, is verified
Methods: register (), login (), logout (), update Profile (), search Events (), filter events(), request events (), payment ()
2. System Admin
Attributes: admin ID, full name, user name, email, password, role
Methods: manage Users (), generate reports (), update website (), give support ()
3. Event Admin
Attributes: event admin ID, full Name, username, email, password, profile Pic, role
Methods: approve Event (), manage attendees (), update event details (), manage events ()
4. Event
Attributes: event ID, event name, date, location, description, status, host name, image, event Type, event Category
Methods: create event (), update event (), delete event (), approve Event ()
5. Event Request
Attributes: request ID, requester ID, event Details, status
Methods: submit request (), update request (), cancel request ()
6. Payment
Attributes: payment ID, amount, date, payment method, status, attendee ID, event ID
Methods: process payment (), refund payment (), view payment details ()
7. Comment
Attributes: comment ID, user ID, event ID, content, date
Methods: add comment (), delete comment ()
8. Rating
Attributes: rating ID, user ID, event ID, rating, date
Methods: add rating (), update rating ()

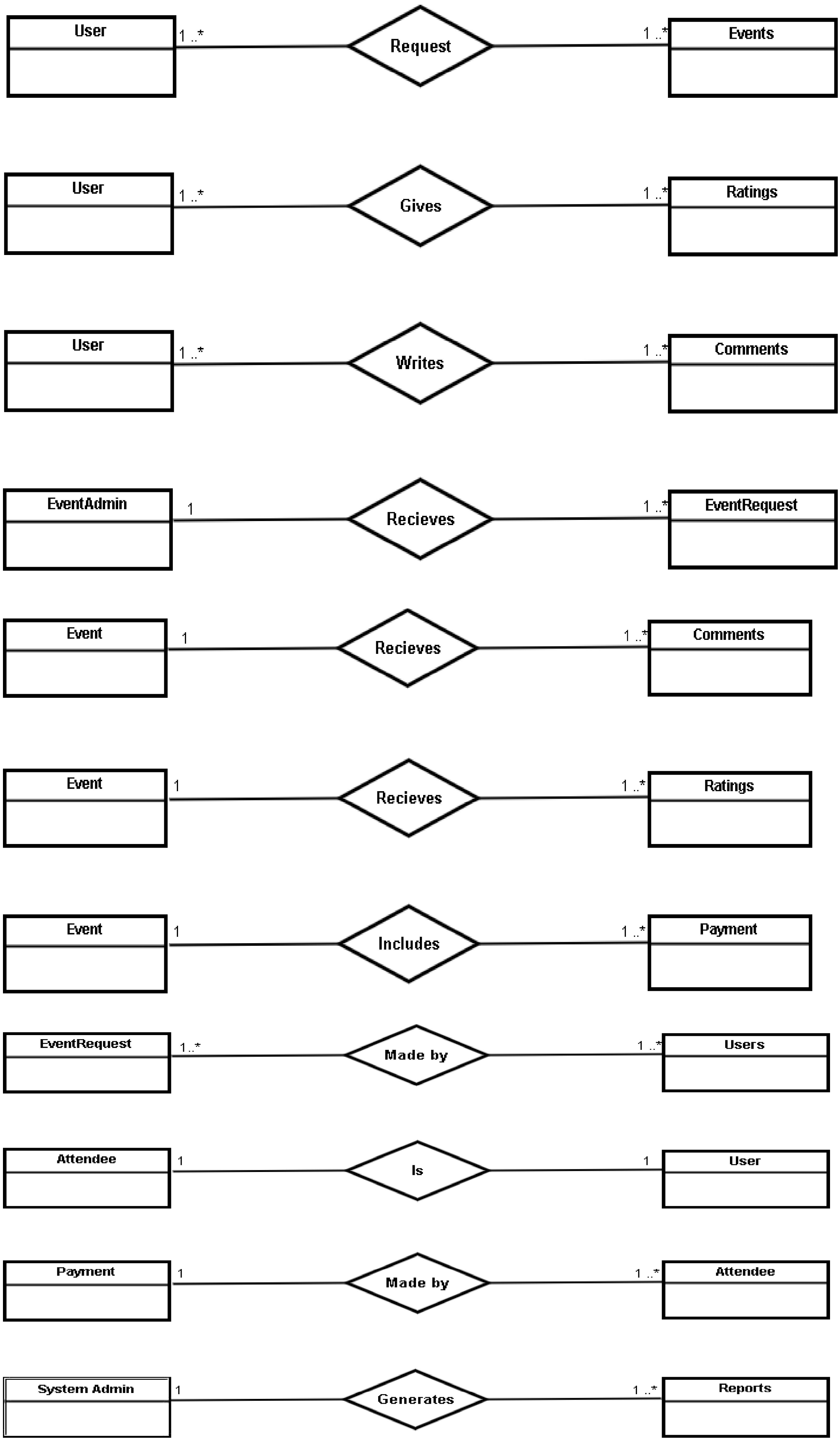


Figure 2.26 Class Relationships and Cardinality

Class Diagram

databases. Instead of tables, it uses collections to store documents, which can vary in structure and fields. Despite this, class diagrams can still be useful for MongoDB in defining a logical data model that outlines the structure of the collections, their fields, and relationships.

This provides clarity for developers and serves as a guide during implementation. In a class diagram for MongoDB, collections are represented as classes, and fields within each collection are the attributes of these classes. Relationships (e.g., one-to-many or many-to-many) are modeled conceptually, often with Object ID references between documents.

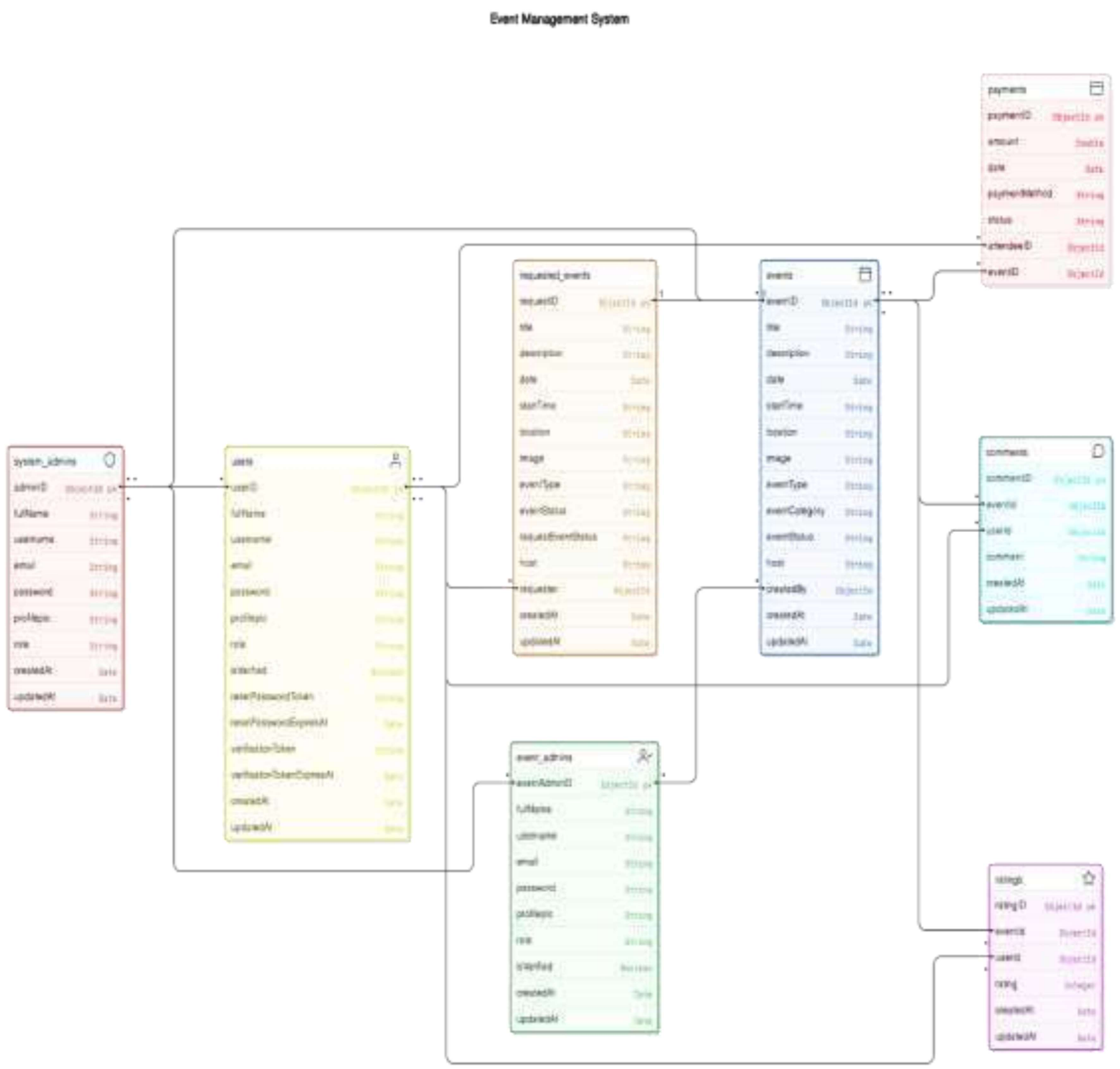


Figure 2.27 Class Diagram

User Interface Prototype

UI/UX Prototypes are an essential part of designing user flows and interfaces. They allow designers to show their design through an interactive and engaging product, resulting in a better understanding of the design for everyone involved.

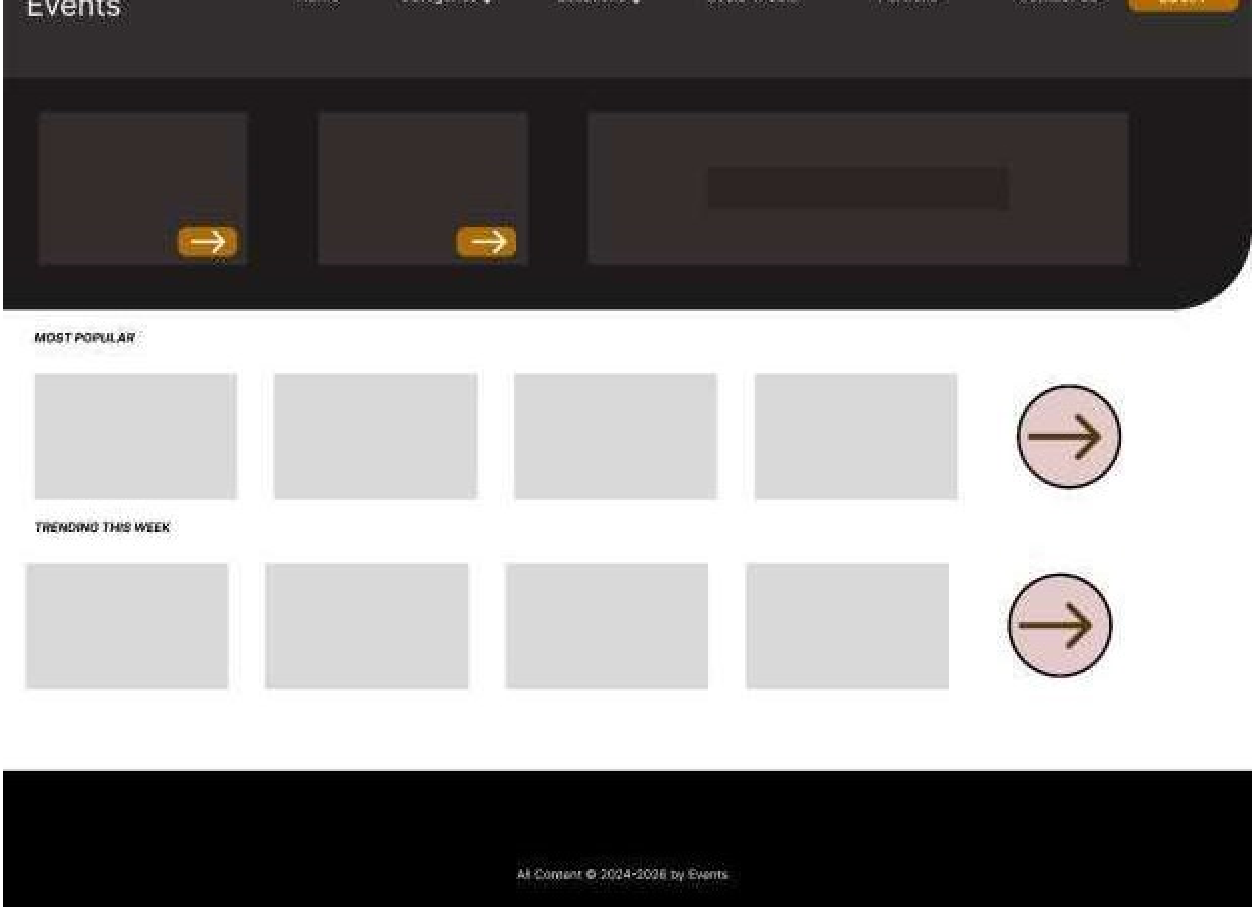


Figure 2.28 Home page User Interface Prototype

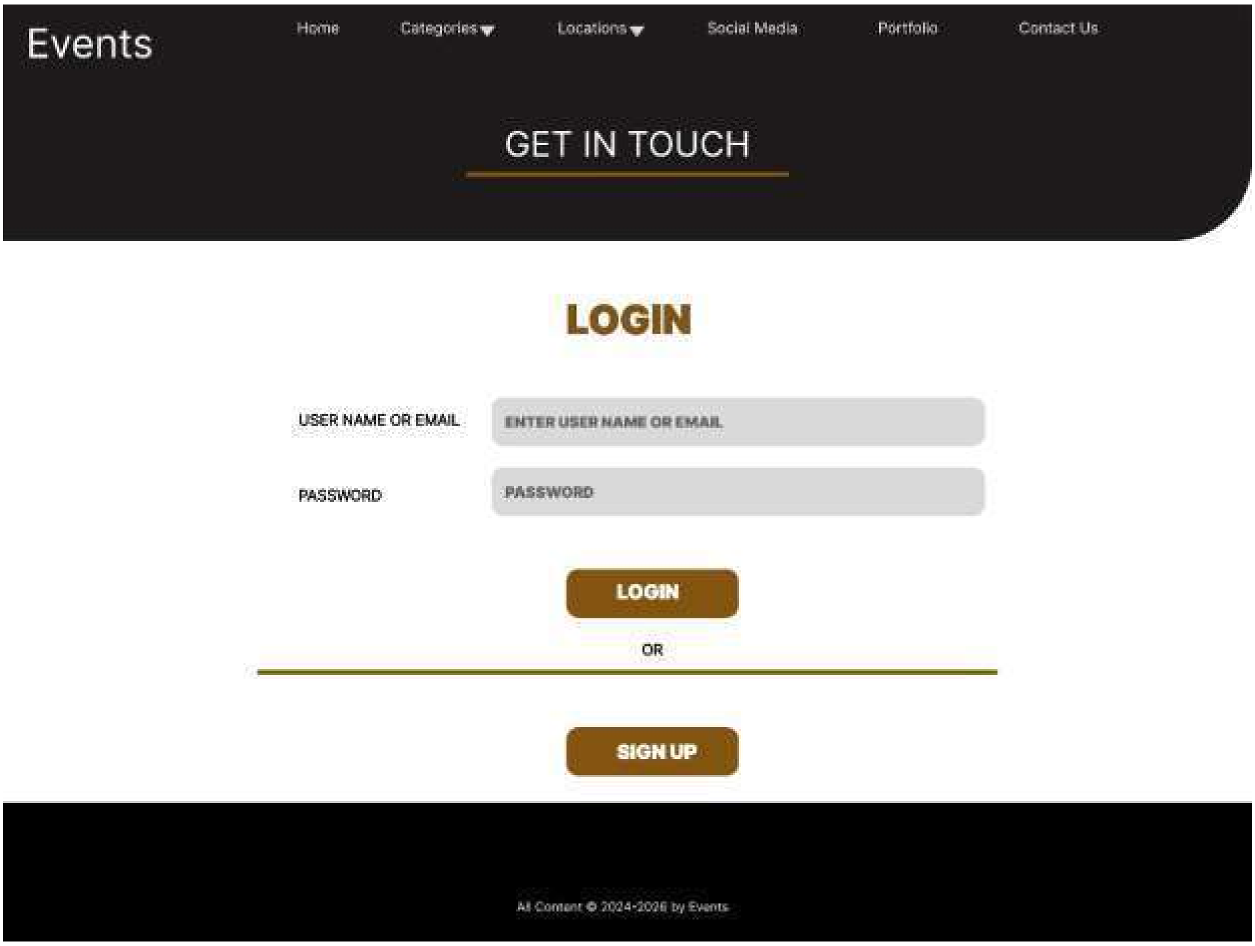


Figure 2.29 Login page User Interface Prototype

System Design
Overview

analysis model into a functional blueprint. The design objectives, suggested software architecture, subsystem breakdown, and other important system details are covered at length in this chapter.

An essential requirement in the dynamic world of event planning is having effective and intuitive tools. Conventional approaches to event management can be laborious and prone to mistakes since they frequently depend on manual procedures and unrelated technologies. From planning to execution and aftercare, an efficient Event Management System (EMS) provides a consolidated platform to streamline the whole event lifecycle. (Jones & Smith, 2018).
This chapter explores the design factors for our suggested EMS, providing an overview of its goals, features, and technical architecture capable of making it come to life. Our EMS seeks to empower event planners and improve attendees' experiences by utilizing contemporary software development concepts, hence cultivating a robust event management ecosystem.

Purpose and Design Objectives

The purpose of the event management system is to connect event organizers with the correct audience, and optimizing discoverability presents a big problem in the changing world of event organization. The purpose of this Event Management System (EMS) is to close this gap by offering a centralized venue for managing and promoting events. The EMS enables organizers to expedite event operations and reach a larger audience by providing them with easy-to-use tools for event design, registration, and communication. As a result, a vibrant event ecosystem is created, making it simple for attendees to find and take part in activities that interest them (Brown & Green, 2019).

- Make event planning and administration easier for organizers.
- Offer an easy-to-use platform so that guests can find and sign up for events.
- Simplify correspondence between attendees and organizers.
- Provide tools for handling money, tickets, registrations, and event planning.

Design Goals

The characteristics of the system that must be met and taken into consideration while designing it are outlined in the Design Goals. It comes from the following nonfunctional requirement:

- Scalability: As the number of events and users increases, the system should be able to manage them with ease.
- Security: Robust security measures are required to safeguard user data and event information.
- Performance: Quick response times for event browsing, registration, and other features should be provided by the system.
- Usability: The interfaces for attendees and organizers should be simple to use and intuitive.

Existing Architecture

Currently, the event management system in Ethiopia operates on a traditional basis, with many event organizers using isolated digital systems without a unified coordination mechanism. This fragmentation leads to inefficiencies, mainly because the systems cannot interlink and share information on events owing to the lack of a sound network infrastructure. Therefore, the planning of events, allocation of resources, and communication of organizers with each other are most often not harmonious and are tedious.

This proposal outlines the strategy for developing an integrated event management system that enhances communication and improves the coordination of events while optimizing the wherein the event information can seamlessly be shared across events for more efficient planning and execution. This initiative will seek to streamline current fragmentation. The event management process ensures a more cohesive and effective approach to organizing events in the nation.

Proposed System

We suggest applying the Model-View-Controller (MVC) architectural paradigm to our Event Management System (EMS). A popular design pattern that is ideal for web applications is MVC. By dividing the application into three independent parts, it encourages loose coupling and makes development more effective:

The components of MVC are:

Model: The model contains all of the system's essential data. It is a representation of user information, registrations, event details, and other pertinent things. Crucially, neither user interaction logic nor data display is handled by the model (Fowler, 2002).

View: The View component is in charge of showing the user the data from the Model. It consists of web pages, forms, and reports, among other user interface components. The View does not have business logic; instead, it communicates with the Model to retrieve data (Fowler, 2002).

Controller: In their capacity as a bridge connecting the model and the view. It communicates with the model to carry out the required activities after receiving user actions and requests from the View and interpreting them. After that, the controller gives the view instructions to update itself in light of the model's reply (Fowler, 2002).

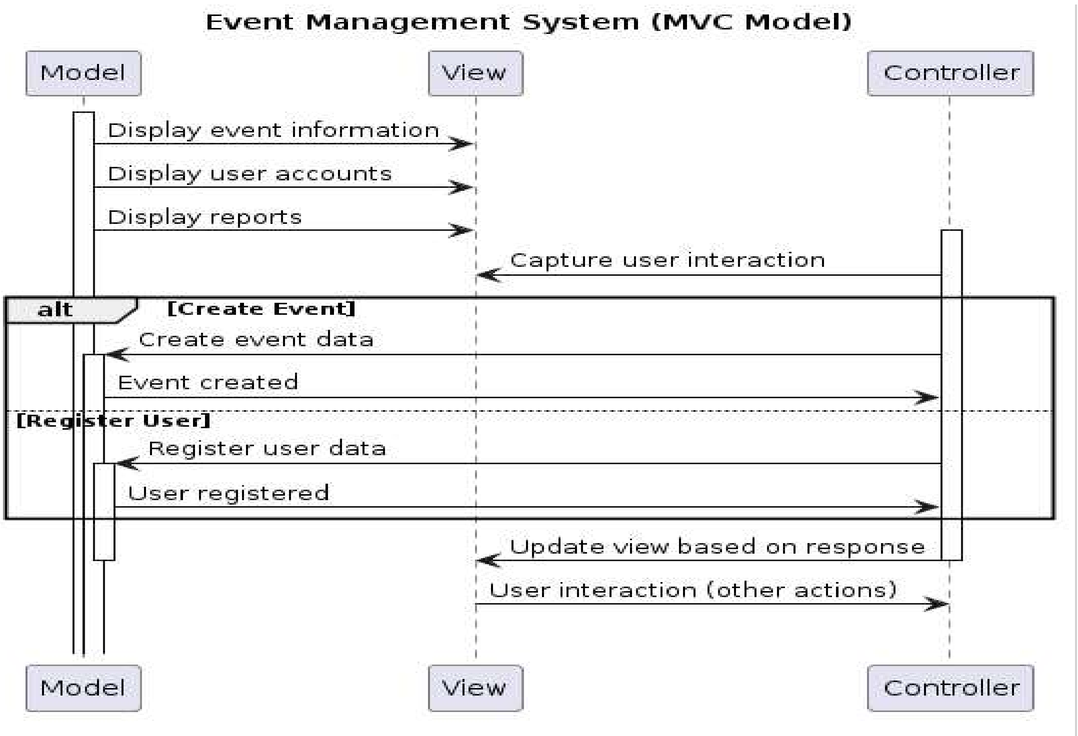


Figure 3.1 Event management system MVC model diagram
We selected MVC for the following reasons:

Flexibility and Clarity: MVC breaks up the issues into manageable chunks that are easier to comprehend and write. Developers are free to concentrate on particular elements (data, display, or control) without getting bogged down in intricate interactions.

We can simply scale the controller to handle more user interactions as the system expands the view to support more functionality and the model to handle more data.

Performance: MVC has the ability to increase efficiency by keeping data processing (Model) and presentation separate (View). Faster reaction times and more effective user action execution are made possible by this.

Decomposition of Subsystems

The following subsystems will be created when the system is broken down:

- User Management Subsystem: Handles the registration, authentication, and management of user profiles, encompassing both event organizers and participants (Kumar & Reinartz, 2018).

User Registration
Authentication
User Profiles
Role Management

- Event Creation and Management Subsystem

Enables event organizers to create, manage, and update events, including scheduling and resource allocation Getz, D. (2012).
Event Creation
Event Scheduling
Resource Management
Event Updates

- Registration and Ticketing Subsystem: Manages the registration process for events, including ticket sales and tracking (Shone & Parry, 2013).

Registration Forms
Ticketing System
Payment Processing
Confirmation and Receipt

- Communication and Notification Subsystem: Handles all communication between the system, organizers, and participants, including notifications and updates (O'Toole, Harris & McDonnell, 2010).

Email Notifications
SMS Notifications
Customer Support

- Content Management Subsystem: Manages all event-related content, including presentations and documents (Content Management Systems, 2020).

Content Upload
Content Organization
Content Sharing Facilitates Sharing

- Analytics and Reporting Subsystem: Provides tools for tracking and analyzing event performance, attendee engagement, and other key metrics (Davenport & Harris, 2017).

Data Collection

Report Generation
Feedback Collection

- Payment and Financial Management Subsystem

Handles all financial transactions, invoicing, and financial reporting related to event management (Peppard & Ward, 2016).
Payment Gateway Integration
Invoicing Generates and Manages Invoices
Financial Reporting

Component Diagram

To make a complex object-oriented system more manageable, its components can be divided into smaller ones using a component diagram. It simulates the internal workings of a system, including its executable files, libraries, and other contents (Sommerville, 2011).

It shows how the various parts of the system are arranged and related to one another. It assists in the creation of an executable system. A component is a single, replaceable, executable unit of the system. A component's implementation details are concealed, and an interface is required in order to carry out a function. It functions similarly to a "black box," with the necessary and supplied interfaces explaining its behavior.

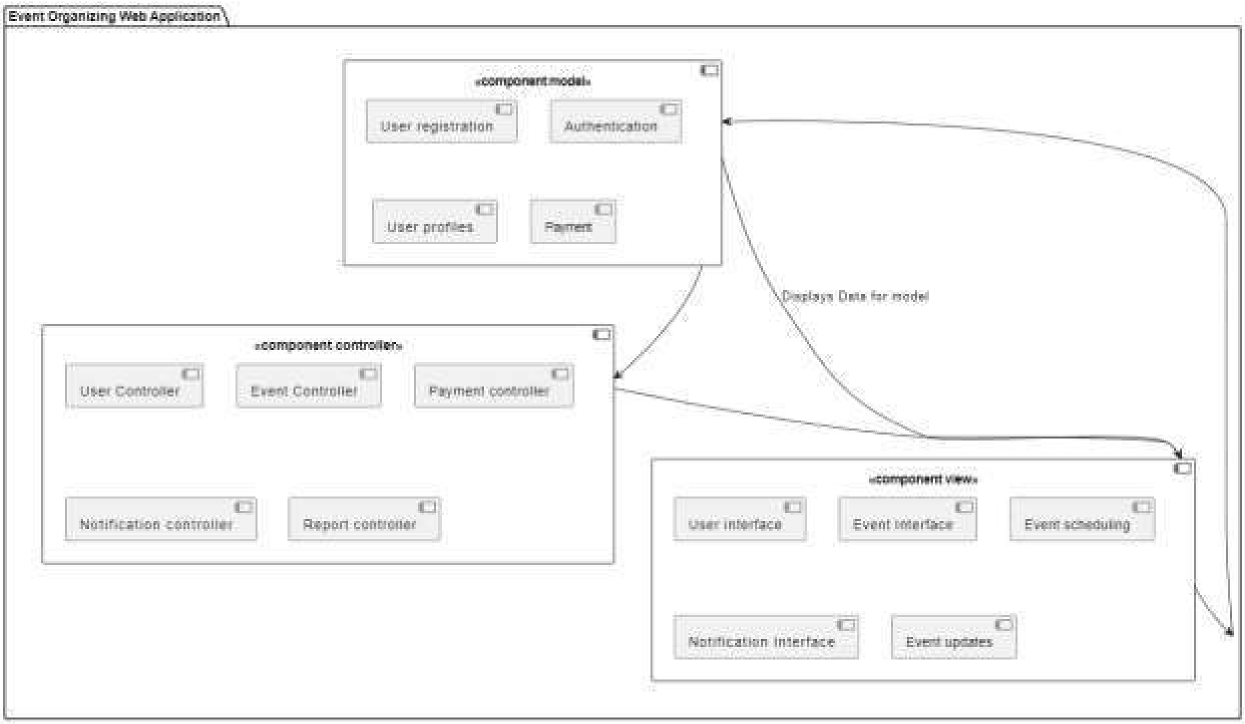


Figure 3.2 Component Diagram

Deployment Diagram

A deployment diagram is a type of diagram in Unified Modeling Language (UML) that shows the physical deployment of artifacts (software components, hardware nodes, etc.) on nodes (physical devices or execution environments). It helps in visualizing the architecture of the system by depicting where the components reside and how they interact in a networked environment. Deployment diagrams are particularly useful for understanding the system's infrastructure, including the hardware and software relationships and configurations (Booch,

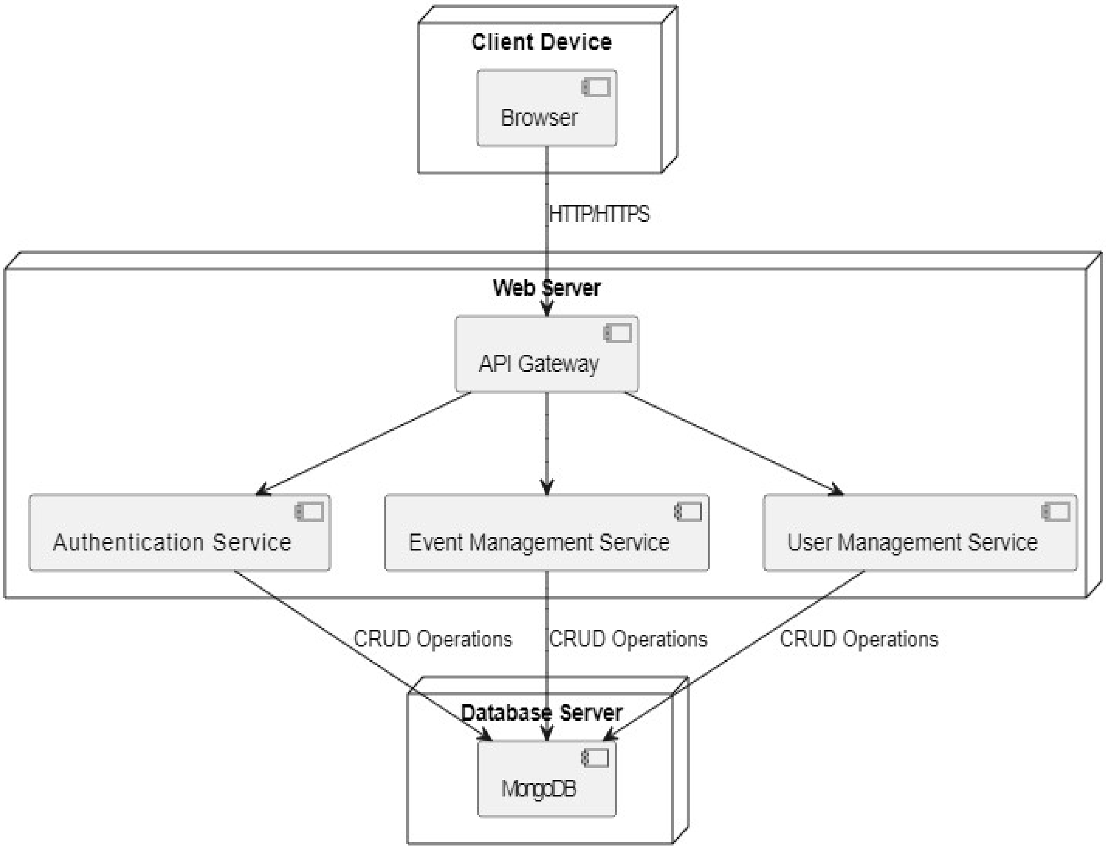


Figure 3.3 Deployment Diagram

Persistent Data Management

At the heart of an efficient event management platform lays the management of persistent data. It protects the event information, user registrations, and user accounts from loss while also enabling scale and device independence. That means you can analyze what past events have led to improve future experiences and have peace of mind with data integrity and security with robust backup, recovery, and security practices.

For efficient data management and storage, we utilize MongoDB, a powerful NoSQL database designed to handle diverse forms of data. MongoDB allows us to efficiently manage and organize various types of content, including text, images, and videos, which are essential for applications like advertising and digital content delivery. Its flexible, document-based structure ensures that we can adapt to the storage needs of different data formats without compromising performance.
While MongoDB supports the storage of paths for multimedia content like photos and videos, the actual files themselves are not directly stored within the database. Instead, only their file paths or URLs are saved, which helps reduce storage overhead and improve database performance. This approach allows us to retrieve and display the media files efficiently while maintaining the database's scalability and speed.

Lists of Schemas

In MongoDB, the traditional concept of tables, rows, and columns, as seen in relational databases, is replaced with collections and documents. Instead of rigidly defined tables, MongoDB stores data in flexible, JSON-like documents within collections. Each document can have a unique structure, which allows for greater flexibility and adaptability when handling diverse types of data. This schema-less nature of MongoDB makes it an ideal choice for applications that require frequent updates or dynamic data structures, such as user profiles, media storage, and content management systems.

User Schema:
Collection Name:
Fields:

- **Users ID**: A unique identifier for each document (automatically generated by MongoDB).
- **Full Name**: The user's full name (string, required).
- **User name**: The user's unique username (string, required, unique).
- **Email**: The user's email address (string, required, unique).
- **Password**: Encrypted user password (string, required).
- **Profile pic**: A path or URL to the user's profile picture (string, default: empty string).
- **Role**: The user's role in the system (string, required, default: "user", enum ("user", "Admin").
- **Is Verified**: Indicates if the user's email is verified (boolean, default: false).
- **Reset Password Token**: A token used for password reset (string, optional).
- **Reset Password Expires At**: Expiration date for the password reset token (date, optional).
- **Verification Token**: A token used for email verification (string, optional).
- **Verification Token Expires At**: Expiration date for the verification token (date, optional).
- **Created At**: The timestamp when the user document was created (date, automatically generated).
- **Updated At**: The timestamp when the user document was last updated (date, automatically generated).

Event Request Schema
Collection Name: Requested Events
Fields:

- **ID**: A unique identifier for each document (automatically generated by MongoDB).
- **Title**: The event's title (string, required).
- **Description**: A brief description of the event (string, required).
- **Date**: The event's date (date, required).
- **Start Time**: The start time of the event (string, required).
- **Location**: The event's location (string, required).
- **Image**: A path or URL to the event's image (string, required).
- **Event Type**: Specifies whether the event is private or public (string, required, enum: ["Private", "Public"]).
- **Event Status**: The current status of the event (string, required, enum: ["Active", "Pending", "Cancelled", "Ended"], default: "Pending").
- **Request Event Status**: Status of the event request (string, enum: ["Pending", "Approved", "Rejected"], default: "Pending").
- **Host**: Name of the event host (string, required).
- **Requester**: The user who requested the event, referenced by their User ID (ObjectId, required).
- **Created At**: The timestamp when the event document was created (date, automatically generated).
- **Updated At**: The timestamp when the event document was last updated (date, automatically generated).

Event Schema
Collection Name: Events
Fields:

- **ID**: A unique identifier for each document (automatically generated by MongoDB).
- **Title**: The event's title (string, required, unique).

- **Description**: A detailed description of the event (string, required).
- **Date**: The date on which the event will take place (date, required).
- **Start Time**: The time at which the event starts (string, required).
- **Location**: The event's venue or location (string, required).
- **Image**: A path or URL to the event's image (string, required).
- **Event Type**: Specifies whether the event is private or public (string, required, enum: ["Private", "Public"]).
- **Event Category**: Specifies the category of the event (string, required, enum: ["Concert", "Wedding", "Party", "Conference", "Others"]).
- **Event Status**: The current status of the event (string, required, enum: ["Active", "Pending", "Cancelled", "Ended"], default: "Pending").
- **Host**: The name of the event host (string, required).
- **Created**: The user who created the event, referenced by their User ID (ObjectId, required).
- **Created At**: The timestamp when the event document was created (date, automatically generated).
- **Updated At**: The timestamp when the event document was last updated (date, automatically generated).

Rating Schema
Collection Name: Ratings
Fields:

- **ID**: A unique identifier for each document (automatically generated by MongoDB).
- **Eventide**: The ID of the event being rated, referenced by its Event ID (ObjectId, required).
- **User ID**: The ID of the user who gave the rating, referenced by their User ID (ObjectId, required).
- **Rating**: The numerical rating given to the event (integer, required).
- **Created At**: The timestamp when the rating was created (date, automatically generated).
- **Updated At**: The timestamp when the rating was last updated (date, automatically generated).

Comment Schema
Collection Name: Comments
Fields:

- **ID**: A unique identifier for each document (automatically generated by MongoDB).
- **Event ID**: The ID of the event the comment is related to, referenced by its Event ID (Object ID, required).
- **User ID**: The ID of the user who posted the comment, referenced by their User ID (objects ID, required).
- **Comment**: The text content of the comment (string, required).
- **Created At**: The timestamp when the comment was created (date, automatically generated).
- **Updated At**: The timestamp when the comment was last updated (date, automatically generated).

Event Admin Schema
Collection Name: Event Admins
Fields:

- **ID**: A unique identifier for each document (automatically generated by MongoDB).
- **Full Name**: The full name of the event admin (string, required).
- **Username**: The event admin's unique username (string, required, unique).
- **Email**: The event admin's email address (string, required, unique).

- **Password**: Encrypted password for the event admin (string, required).
- **Profile pic**: A path or URL to the event admin's profile picture (string, optional).
- **Role**: The role of the user, defaulted to "Event Admin" (string, required, enum: ["Event Admin"]).
- **Is Verified**: Indicates if the user is verified (boolean, default: true).
- **Created At**: The timestamp when the event admin document was created (date, automatically generated).
- **Updated At**: The timestamp when the event admin document was last updated (date, automatically generated).

System Admin Schema
Collection Name: System Admins
Fields:

- **ID**: A unique identifier for the system admin (automatically generated by MongoDB).
- **Full Name**: The full name of the system admin (string, required).
- **Username**: The system admin’s unique username (string, required, unique).
- **Email**: The system admin’s email address (string, required, unique).
- **Password**: Encrypted password for the system admin (string, required).
- **Profile Pic**: A path or URL to the system admin's profile picture (string, optional).
- **Role**: The role of the user, defaulted to "System Admin" (string, required, enum: ["System Admin"]).
- **Created At**: The timestamp when the system admin document was created (date, automatically generated).
- **Updated At**: The timestamp when the system admin document was last updated (date, automatically generated).

ER Diagram

An ER diagram can be useful for MongoDB, especially during the design phase of a database. While MongoDB uses a flexible schema, planning relationships and structure visually is crucial for understanding how data is connected and queried. However, it's essential to note that MongoDB's schema-less nature allows embedding and renormalization, making ERDs less rigid than those for relational databases. Relationships such as one-to-many or many-to-many can be handled through either embedding documents (for performance) or referencing collections (for scalability).

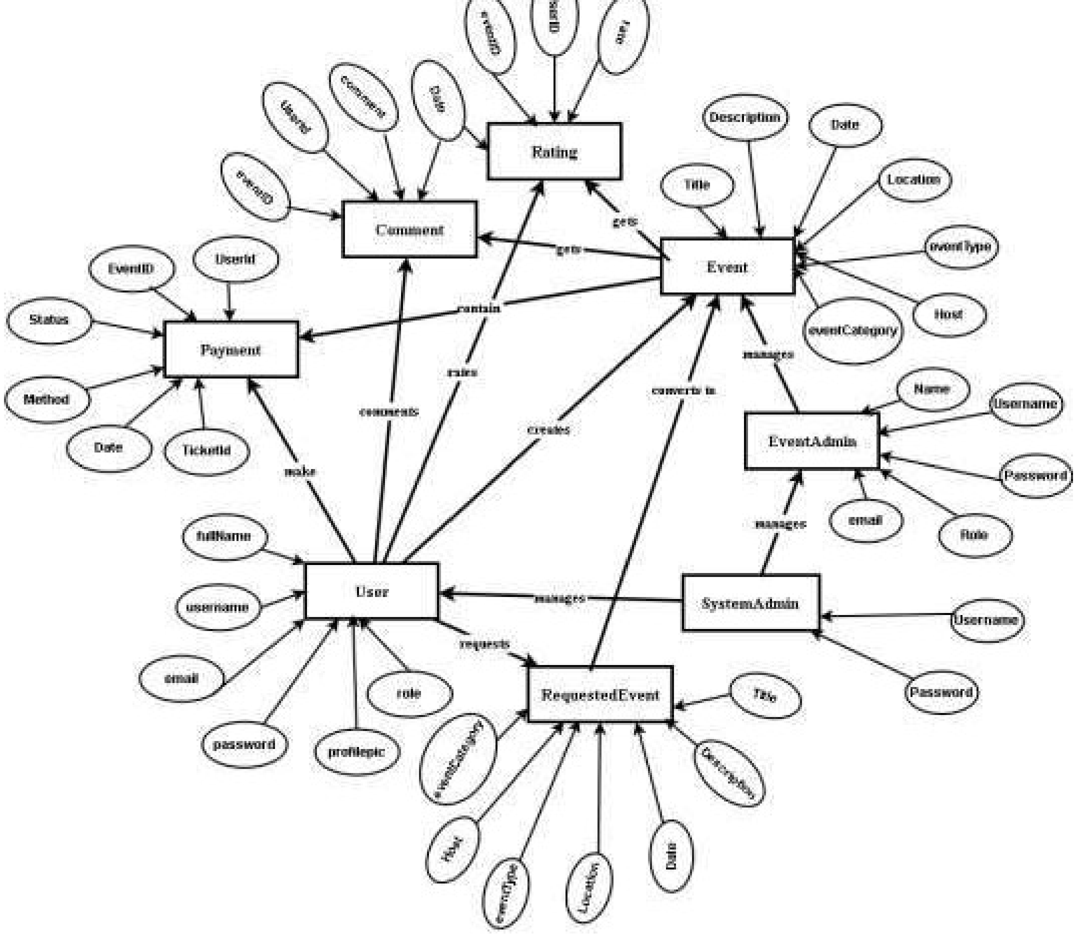


Figure 3.4. ER Diagram

Access Control and Security

Our event management system for providing secure event services (per seat). Our event management system provides per seat or service (e.g., access control blocks) to secure trustworthy event experiences. This is used to define who can access (and in some cases view/edit) parts of the system based on roles (attendees, organizers, vendors); common data, like user data, are sent across using some form of encryption (e.g., encryption of attendee details, credit card numbers, and other sensitive information), and a set of access control decisions (i.e., policies) is used to prevent unauthorized access. A clear-cut security plan ensures uninterrupted event data integrity and makes all stakeholders feel secure.

Entity	System Admin	Event Administrator	User
User	CRUD	R	R
System Admin			
Event Administrator	CRU		
Event		CRUD	R
Event Request		RU	CRUD
Attendee	R	CRUD	
Payment	R	CRU	RU
Report	CRUD	R	R
Comment		R	CRUD
Rating		R	CRUD

Table 3.1 Access Control for EMS

- C: Create
- R: Read
- U: Update
- D: Delete

3.5.6. Global Software Control

Although 'Global Software Control' might be a bit too heavy-handed for our event management system project, I think solid access control is going to be key. The system will set user roles such as attendees, organizers, vendors, and accordingly grant permissions. Therefore, only authorized users are permitted to move or edit important particulars about an event, attendee, or transaction. With greater than ever control, this helps protect confidential information and more importantly, keeps the integrity of the event data, which builds trust between event parties.

Boundary Conditions

Our event management system will be taking care of the operation of the system for the unexpected situations. Our use cases will describe the ways the system starts, stops, and behaves in the face of events like data corruption or network loss. We will break down the critical use cases that we need to support, such as managing configuration data (event details, attendee information), component startup/shutdown (web server, database), and exceptional operations related to hardware/ephemera (hardware failures, power outages, software errors). Anticipating future possibilities for mistakes and placing safety nets (error messages), our system will be a safe place to manage events.

Implementation

Development Tool

The development of the Event Management System (EMS) utilized a combination of modern tools and frameworks to ensure efficiency and performance. The system's database was implemented using MongoDB Atlas, while the server-side operations were handled with Node.js, leveraging Express and various Node dependencies for backend functionality. On the frontend, React integrated with Vite provided a fast and scalable interface, enhanced by Redux and other supporting libraries. This cohesive stack enables the system to be highly responsive, reliable, and capable of delivering an intuitive user experience, streamlining event management processes effectively.

Server

The server for the Event Management System (EMS) was developed using Node.js, a versatile JavaScript runtime. It integrates seamlessly with MongoDB Atlas, enabling efficient real-time data handling and database operations. Express, a lightweight framework for Node.js, simplifies backend development with robust routing and middleware support. This setup ensures smooth communication between the backend and frontend, maintaining consistent data flow and fast response times. With its ability to handle asynchronous operations, the server enhances responsiveness, providing a reliable foundation for efficient and seamless event management.

Server Setup and Configuration

The backend was built using Node.js, optimized for handling asynchronous operations and high concurrency. Express simplified route management and middleware integration, making API development efficient. Configuration settings were managed using environment variables, performance and smooth communication with the frontend.

To set up Node.js for the Event Management System (EMS), we installed Node.js and initialized the project with *npm init* to manage dependencies. Express and other necessary packages were added to streamline backend development. The directory was structured for maintainability, and configuration settings like server ports were managed using a *.env* file. The setup ensures efficient API handling and smooth backend-frontend communication. The configuration is shown in the figure below.

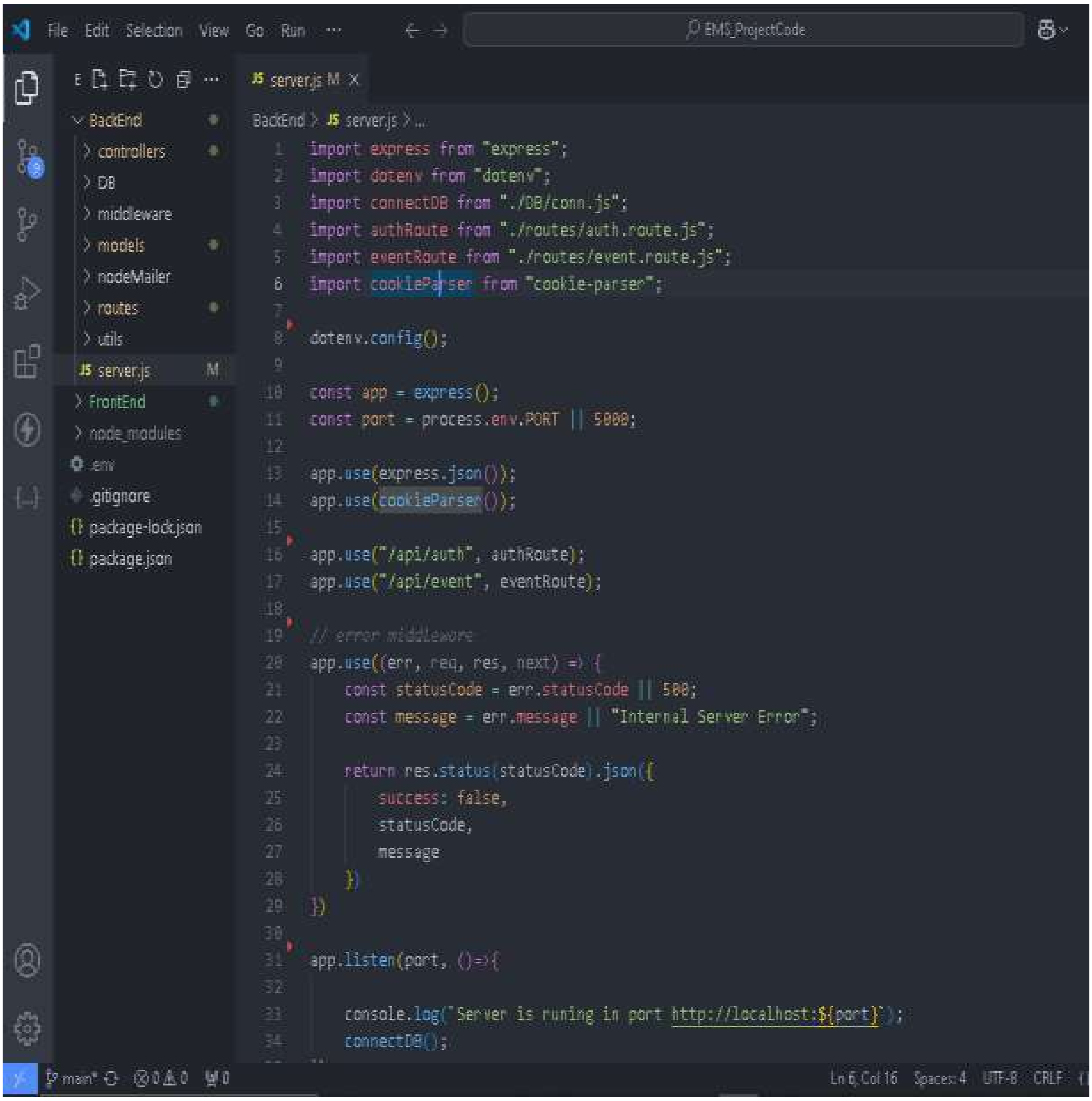


Figure 4.1. Server Configuration and Setup (Server.js)

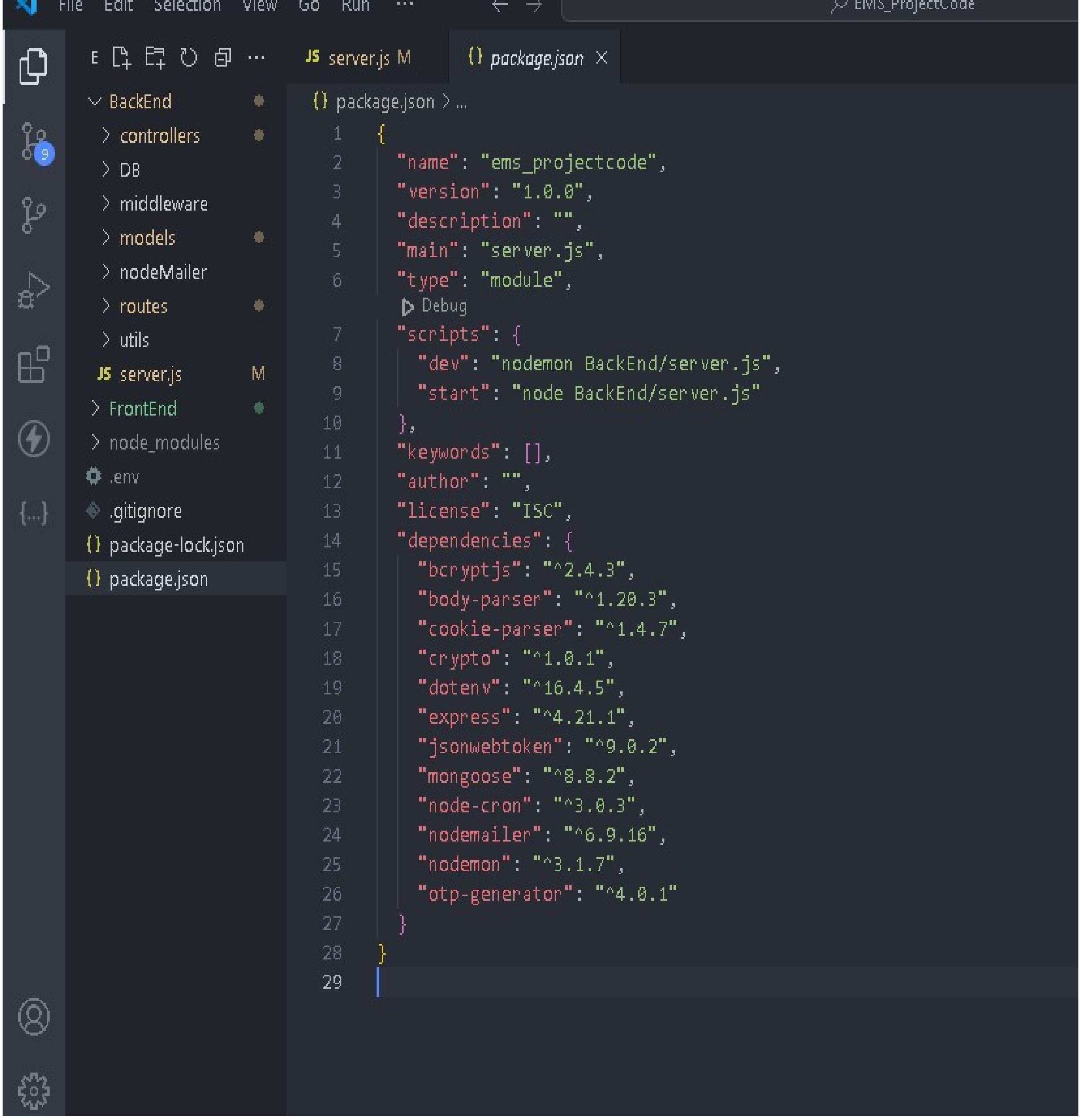


Figure 02 Packages and Dependencies for the Backend and Server

The *env* file is where the environment variables are stored, providing a secure way to manage sensitive information like API keys, database credentials, and server ports. This file helps keep critical data hidden from the codebase, ensuring better security and maintainability. By using environment variables, the system becomes more flexible, allowing configurations to be easily adjusted without modifying the source code. This approach enhances the overall reliability and scalability of the system.

Database

Data Storage and Retrieval

The Event Management System (EMS) uses MongoDB Atlas, a cloud-based NoSQL database, for data storage and retrieval. MongoDB Atlas offers flexibility in managing unstructured data, allowing the system to store and process complex event-related information such as user details, event schedules, and attendee lists. Data retrieval is efficient, with the system performing quick queries and aggregations, ensuring smooth and fast access to relevant information. The cloud-based nature of MongoDB Atlas also ensures high availability and scalability, allowing the system to handle increasing data demands as the number of users grows.

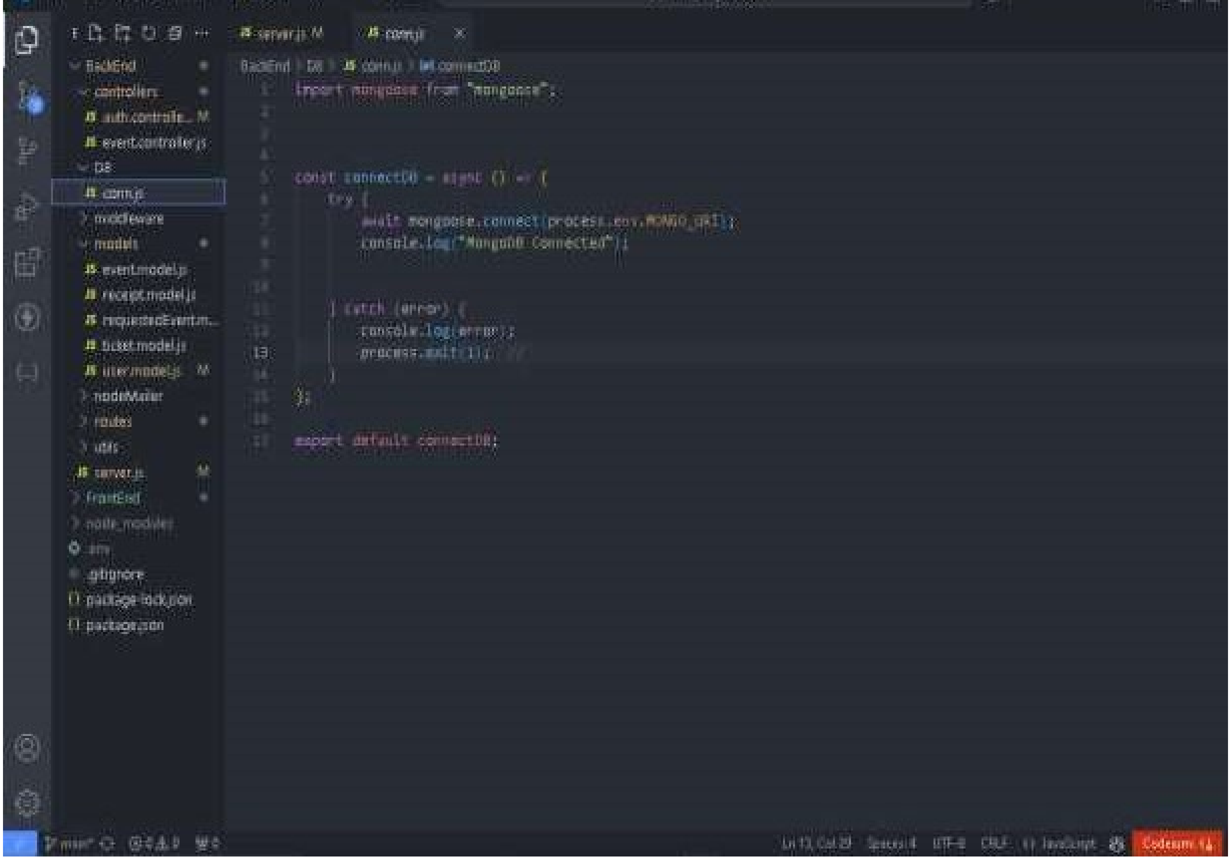


Figure 03 Setup and Configuration

The *MONGO_URI* variable contains the database connection string in the *.env* file, which is essential for hiding sensitive information. By utilizing the *.env* file, such data is concealed from the source code, ensuring that critical credentials, like the database connection details, are protected.

MVC Design

The EMS follows the Model-View-Controller (MVC) design pattern to structure the backend and manage the flow of data between the database, server, and user interface. In this pattern, the "Model" represents the database schema, which interacts with MongoDB Atlas for data storage and retrieval. The "View" is the frontend, responsible for presenting the data to users, while the "Controller" handles the logic and processes between the database and the frontend. This approach ensures clear separation of concerns, making the system easier to maintain and scale.

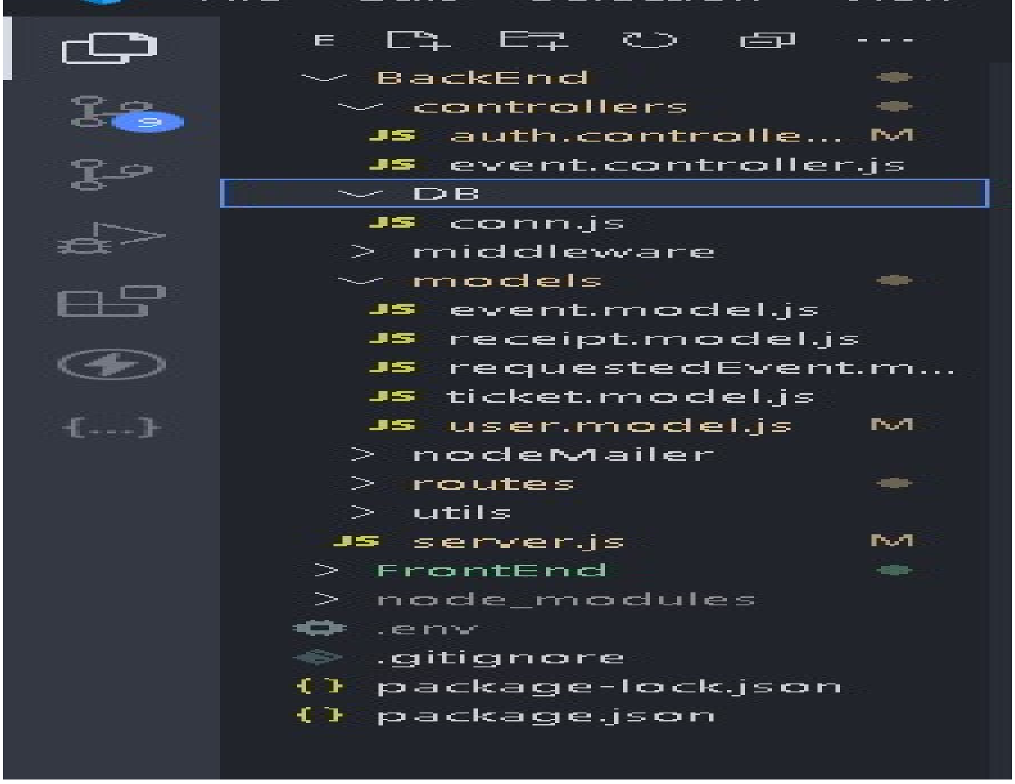


Figure 04 MVC Design

Back End

The backend of the EMS is powered by Node.js and Express, which handle communication with MongoDB Atlas and manage API requests. MongoDB's flexible schema structure allows the backend to store diverse data types without rigid data definitions, which is ideal for managing dynamic event information. The backend is responsible for interacting with the database, performing CRUD operations, and sending the appropriate data to the frontend. Additionally, the backend ensures secure and efficient handling of user requests, maintaining a seamless connection between the database and the user interface.

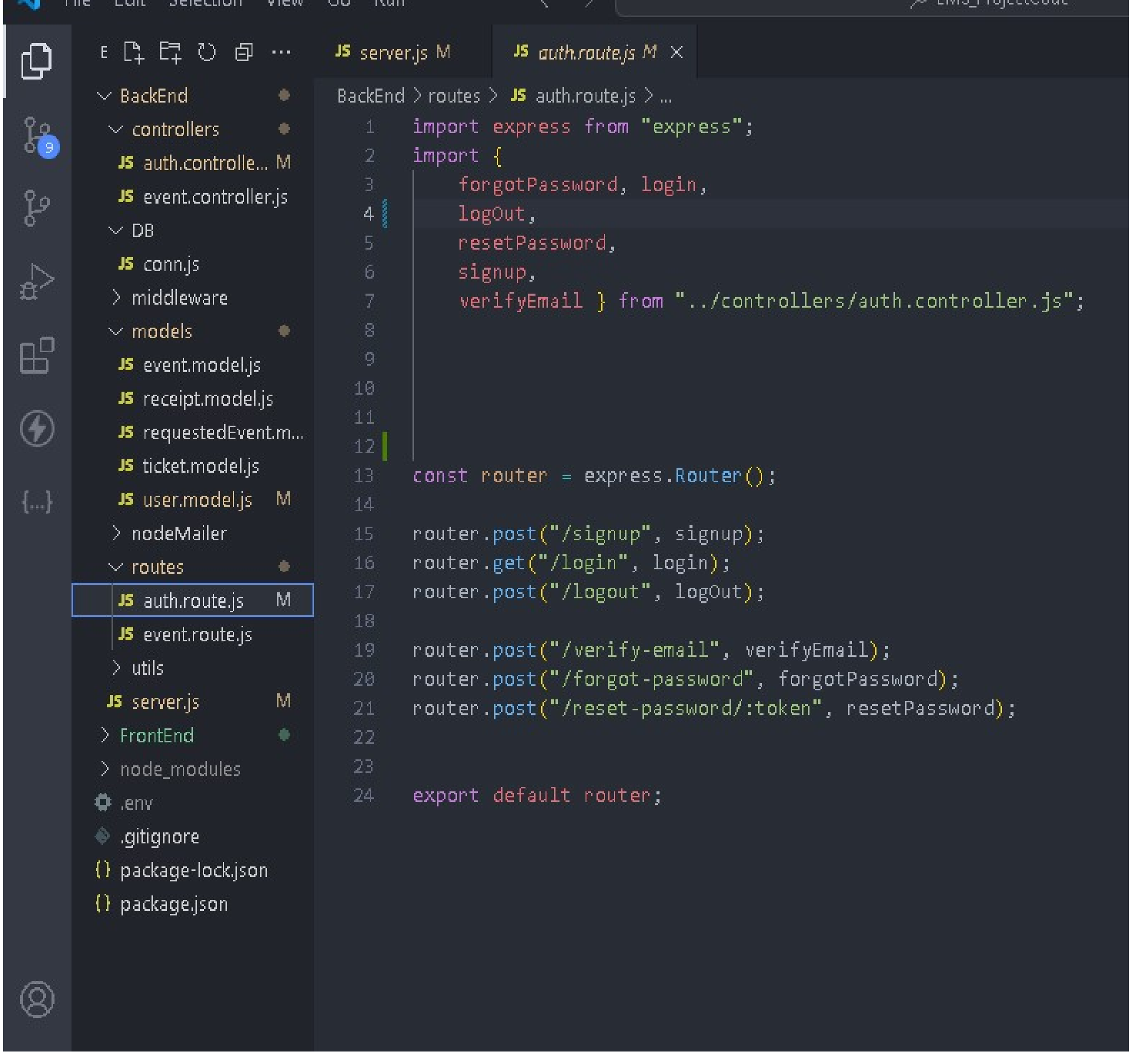


Figure 05 Some Backend Routes and Endpoints

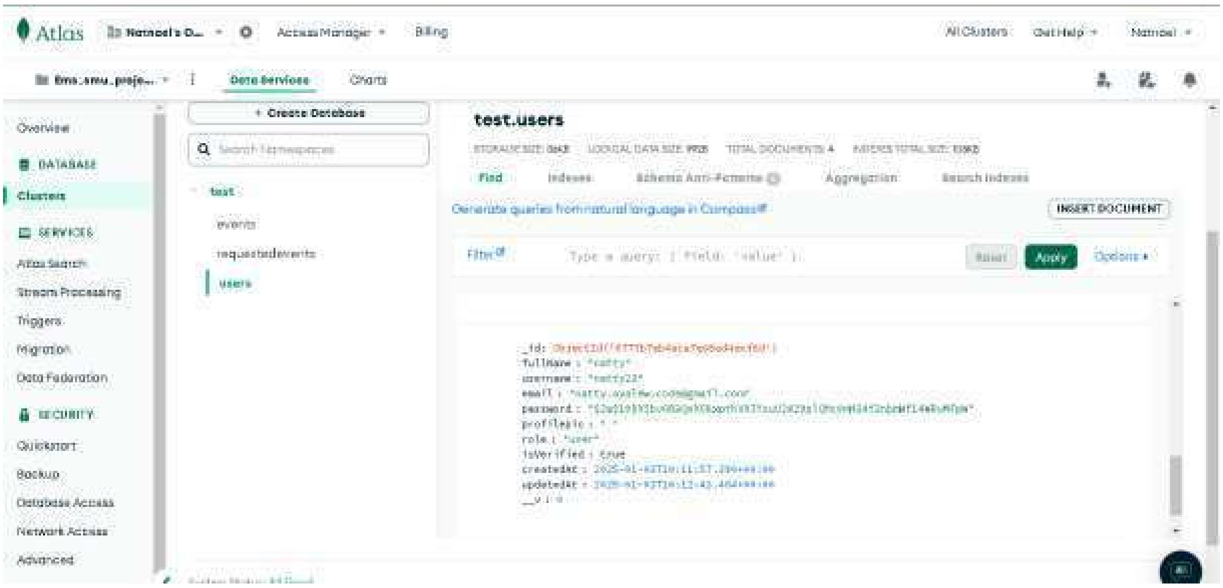


Figure 4.2. MongoDB Users Collection

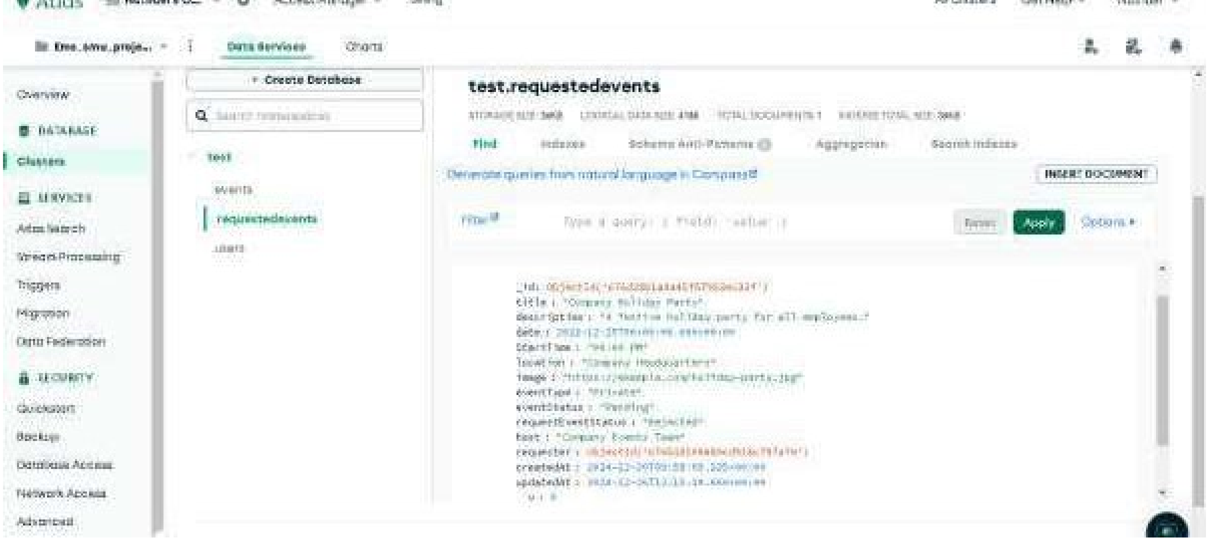


Figure 4.7 Requested Events Collection

API Development

The Event Management System (EMS) uses RESTful APIs to handle communication between the backend and frontend. These APIs are built using Node.js and Express, providing endpoints for managing events, users, and other system data. The API endpoints allow for CRUD operations, ensuring efficient data handling and updates. The system supports JSON format for data exchange, ensuring smooth integration with the frontend.

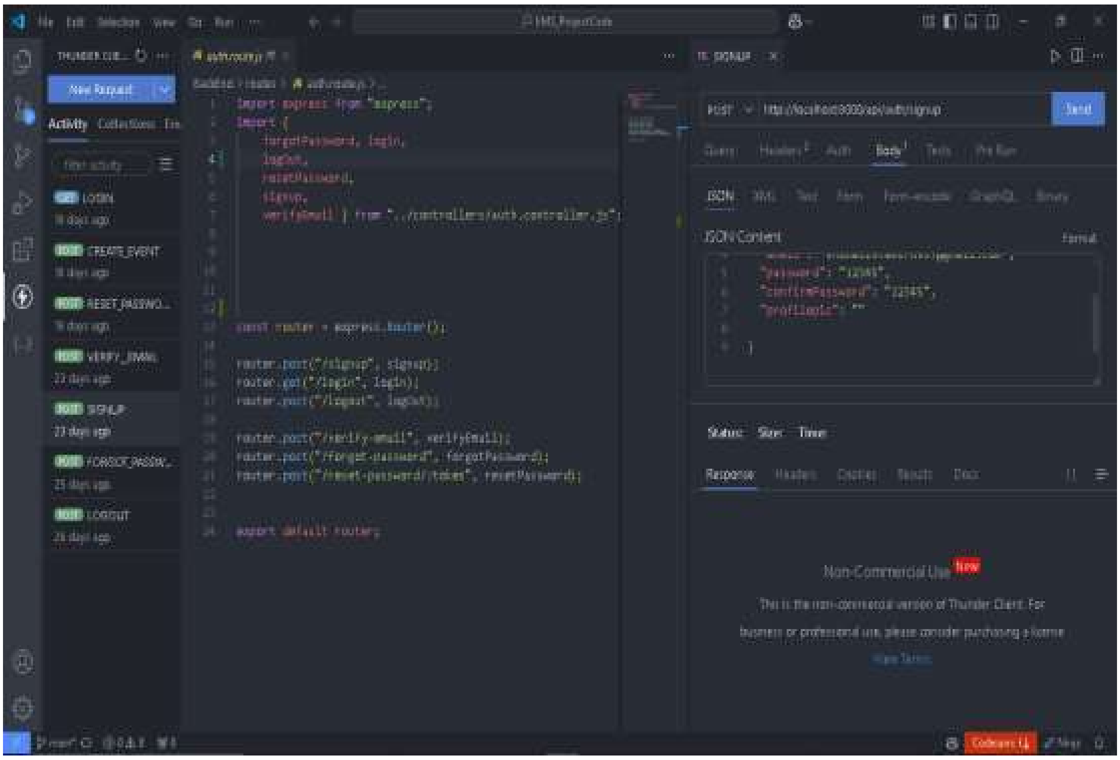


Figure 08 Some REST API and HTTP request to Signup

Database Interactions

The backend interacts with MongoDB Atlas to perform CRUD (Create, Read, Update, Delete) operations on event data. MongoDB's flexibility allows for efficient handling of dynamic and complex event-related information. The system can create new event entries, retrieve existing event data, update details, and delete events when necessary. Data handling is optimized through indexing and aggregation, ensuring quick access and manipulation of data.

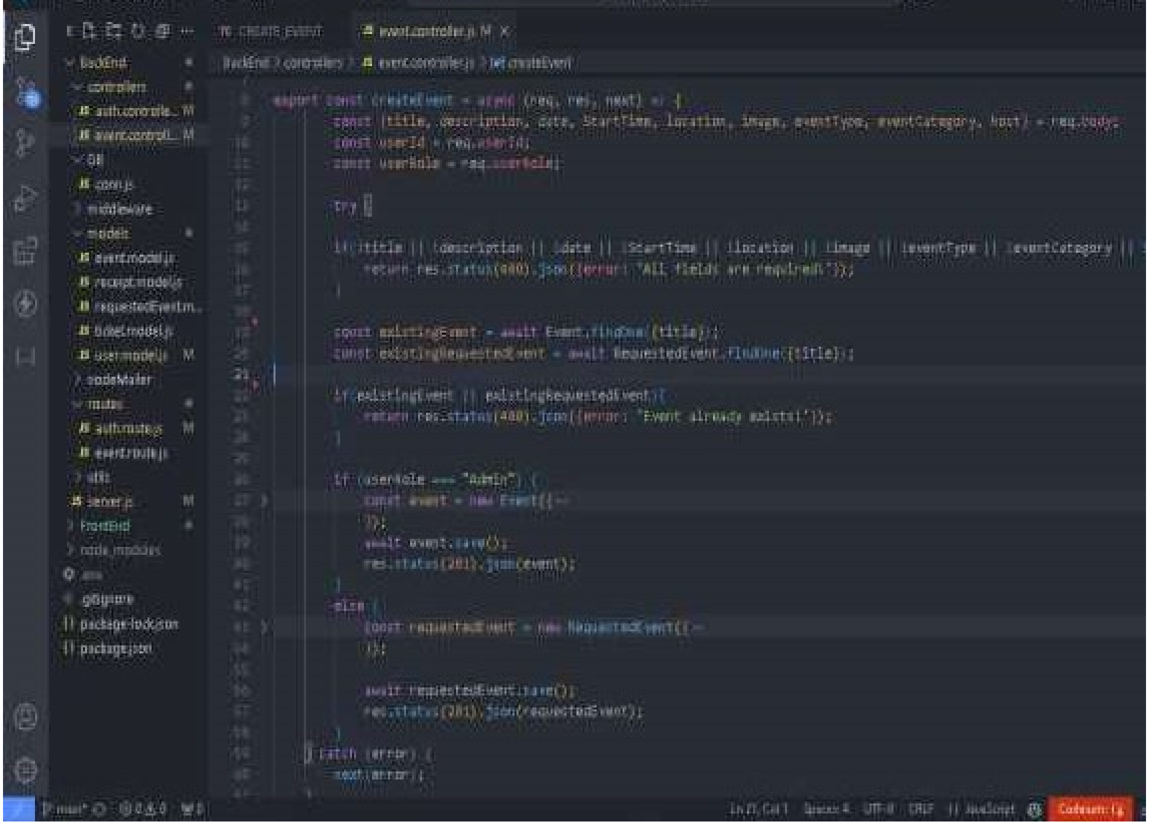


Figure 4.19. Event Controller (Create Event)

ORM

The Event Management System does not use an Object-Relational Mapping (ORM) tool, as MongoDB is a NoSQL database that does not follow the relational model. Instead, Mongoose is used to model and interact with MongoDB, providing an abstraction layer to define schemas, validate data, and perform database operations in a more structured way.

Authentication and Authorization Mechanisms

The EMS employs JWT (JSON Web Tokens) for user authentication and authorization. Upon successful login, users receive a token that is used to authenticate their requests to protected API endpoints. This ensures that only authorized users can access or modify sensitive data, such as event details and user information. User roles (system admin, organizer, and user) are defined to control access to specific features within the system.

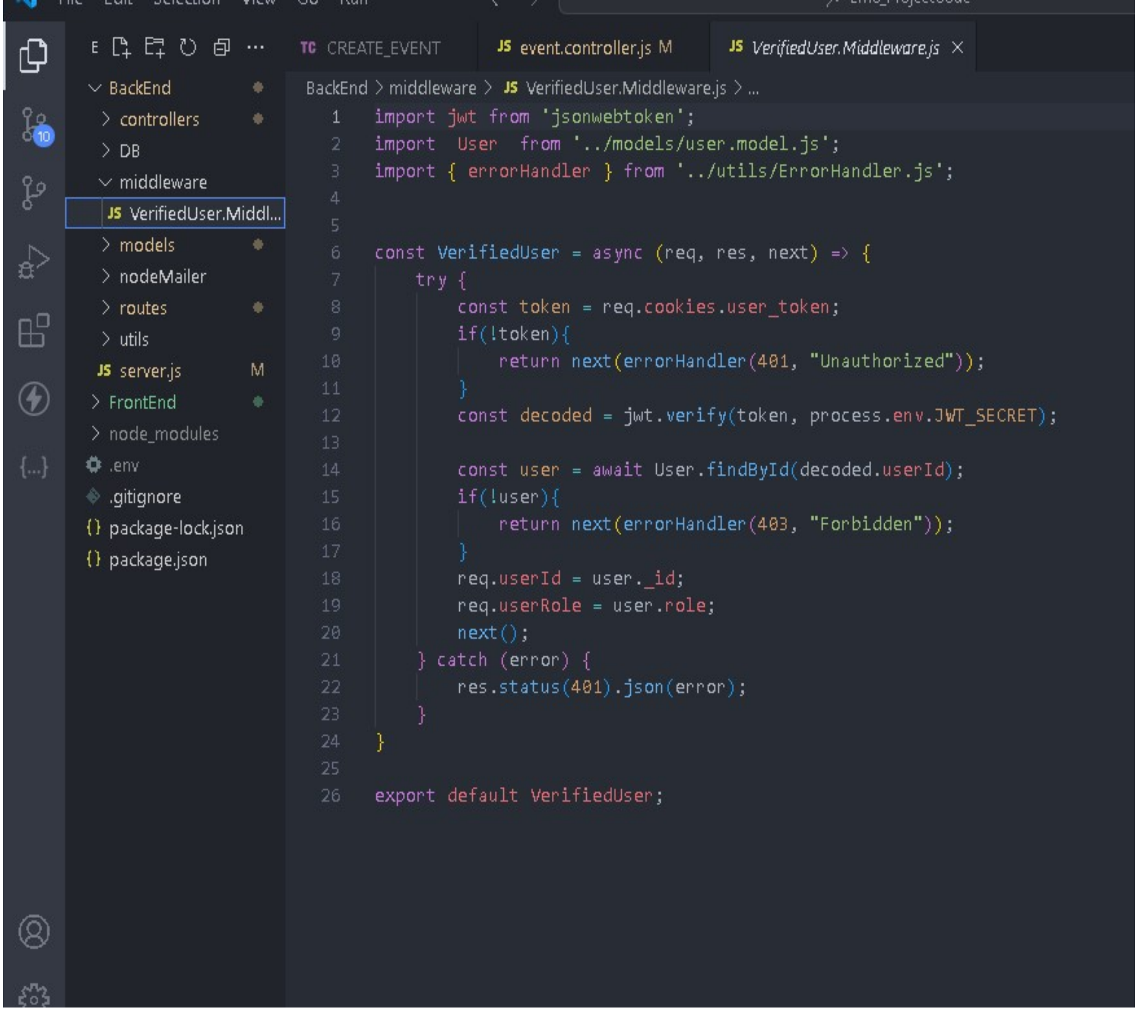


Figure 010 Authentication using JWT

Tokens and Cookies

The EMS utilizes JWT tokens for maintaining session state across client requests. These tokens are stored securely in HTTP-only cookies, which helps prevent cross-site scripting (XSS) attacks by ensuring that the token is not accessible via JavaScript. Each time a request is made, the token is sent along to authenticate the user, guaranteeing a consistent and seamless session experience across different pages or endpoints. This method of token-based authentication eliminates the need for traditional session management, offering a more secure and scalable solution that enhances both security and user experience.

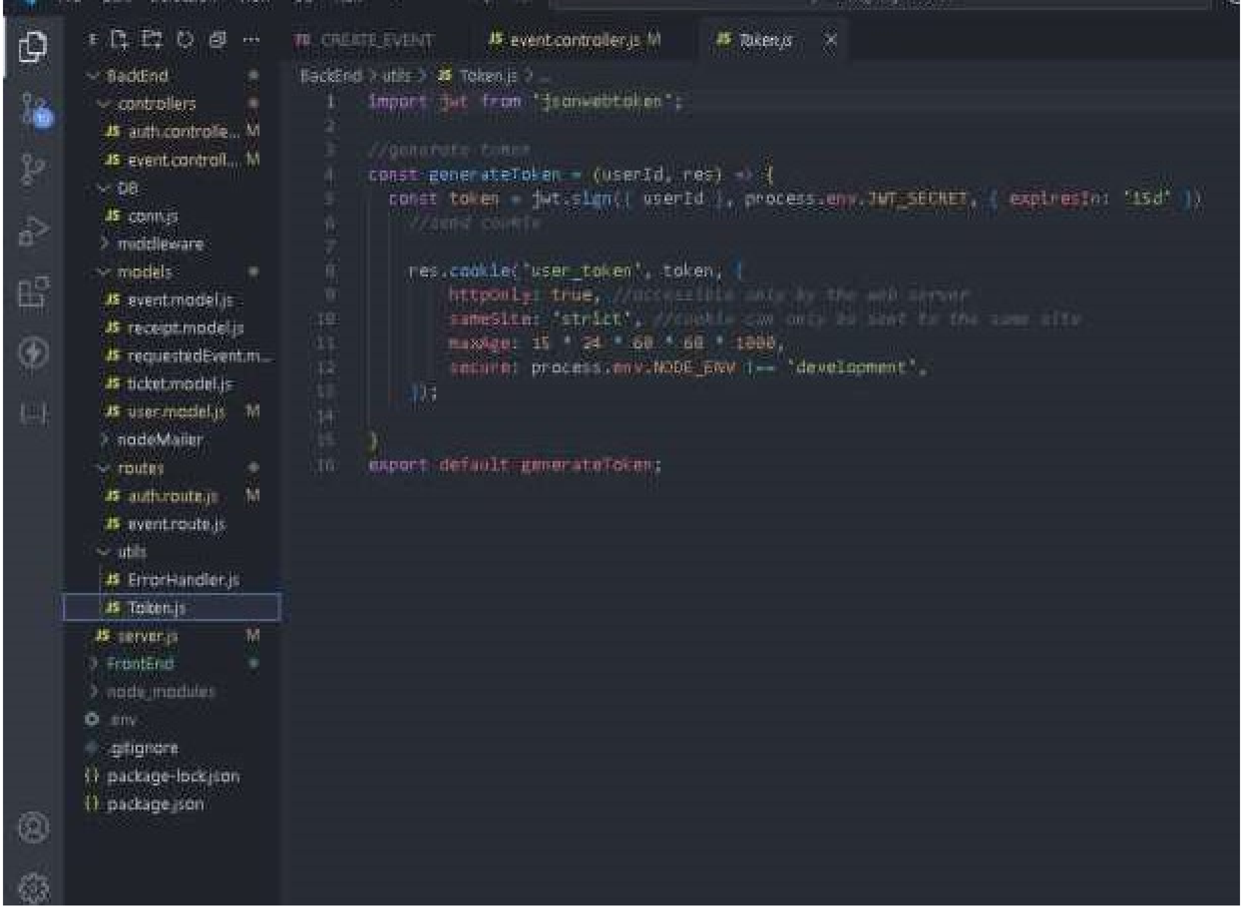


Figure 4.1.1.1. JWT Setup

Security

To enhance security, the EMS uses industry-standard practices such as HTTPS encryption for secure communication between the client and server. Passwords are stored securely using *bcryptjs*, which applies a cryptographic algorithm to hash passwords along with a random ***salt***. This ensures that even identical passwords produce different hashes, making them difficult to crack. The use of *bcryptjs* and salt adds an extra layer of protection for sensitive data. Additionally, input validation and sanitation are implemented to prevent injection attacks, and proper authentication mechanisms, like JWT, are enforced to safeguard user data.

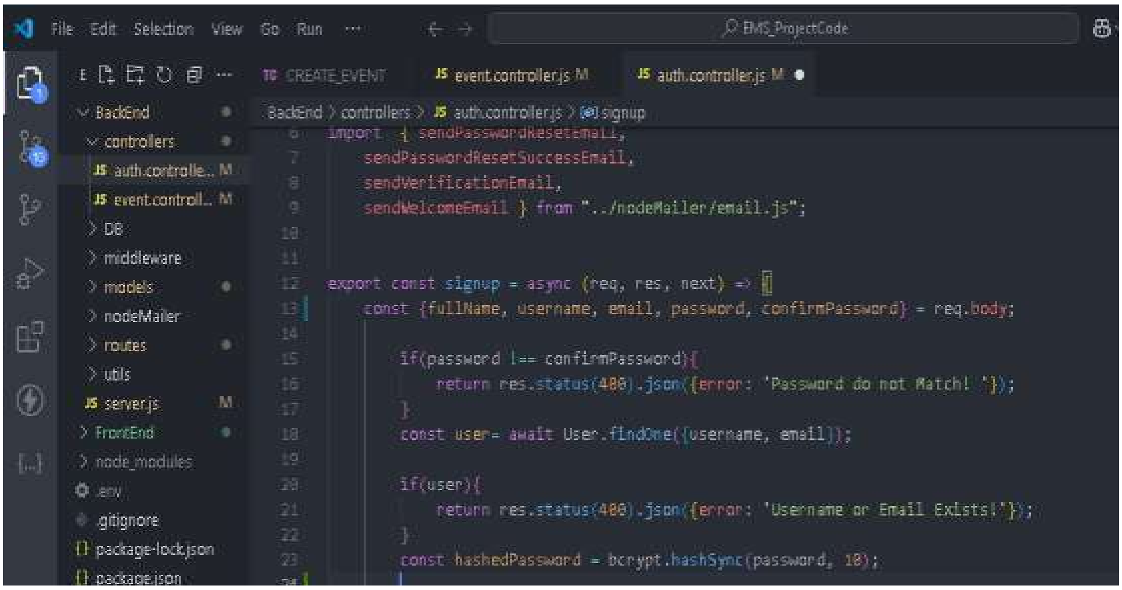


Figure 02 Bcrypt.Js to Encrypt User Password

The EMS implements algorithms for efficient data retrieval and sorting, such as searching and filtering events by date, location, and category. Additionally, algorithms for calculating event statistics (e.g., attendee counts, ticket sales) are used to provide real-time insights. These algorithms ensure that users can access relevant data quickly and in an organized manner.

Third-Party API Integration

The EMS can integrate with third-party APIs like Map box for mapping and geo-location features. Map box offers free tiers with a variety of functionalities, such as displaying interactive maps and providing geo-location data. Hence, we don't buy an API key we will add just the prototype code.

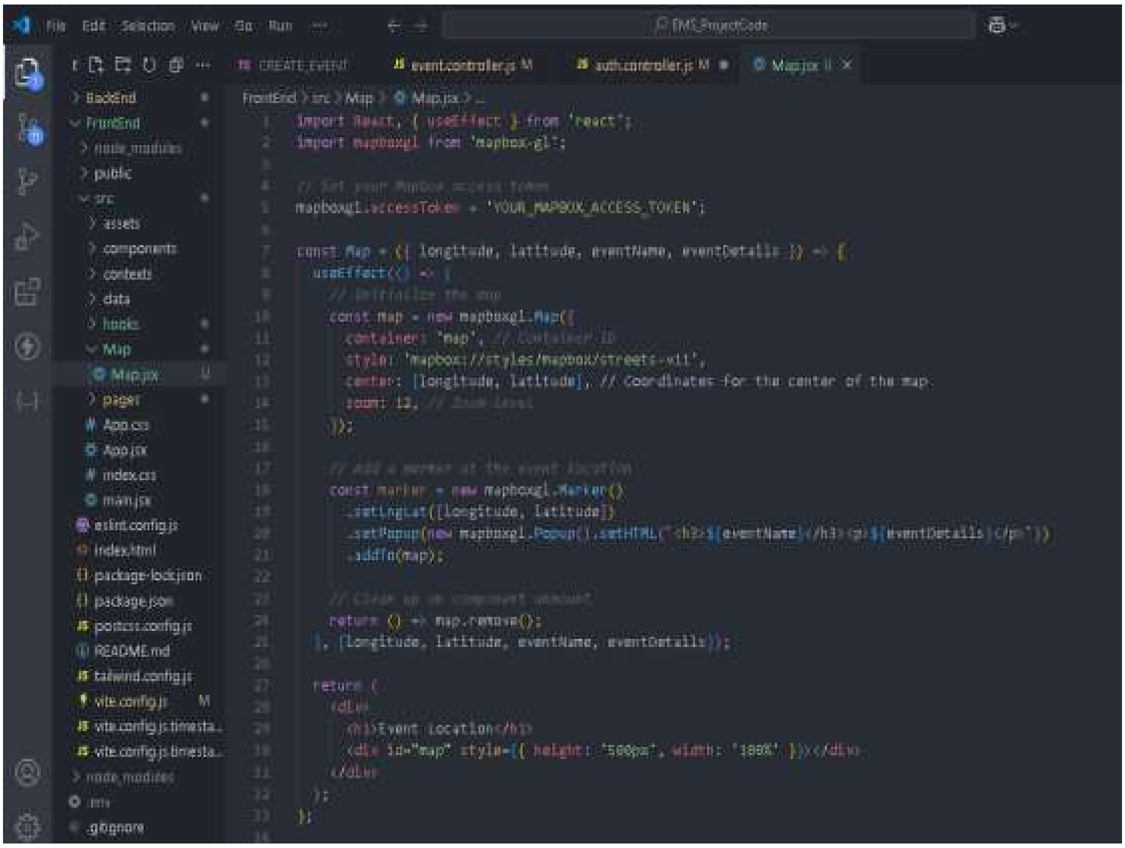


Figure 03 Map Box Map API Page

Payment Service

For ticketing and event requests, we recommend integrating the EMS with payment service providers like Chapa or SantimPay. These payment gateway APIs enable secure processing of payments, allowing users to request events and make payments directly through the system. The integration would support features such as transaction tracking and confirmation notifications, improving the overall user experience. Adding a payment system would provide a more complete solution, offering secure and efficient payment handling for event organizers and attendees.

Email

The system uses email integration for various notifications, including user sign-up verification; welcome emails, password recovery, and event request approvals or disapprovals. *Nodemailer* is used to send emails through Gmail's SMTP servers, ensuring users receive timely and relevant information. For sign-up, a verification email with a code is sent to confirm the user's identity. Upon verification, a welcome email is triggered. In the case of forgotten passwords, a recovery email is sent to reset the password. Additionally, when an event is requested, users are notified of user actions and system events.

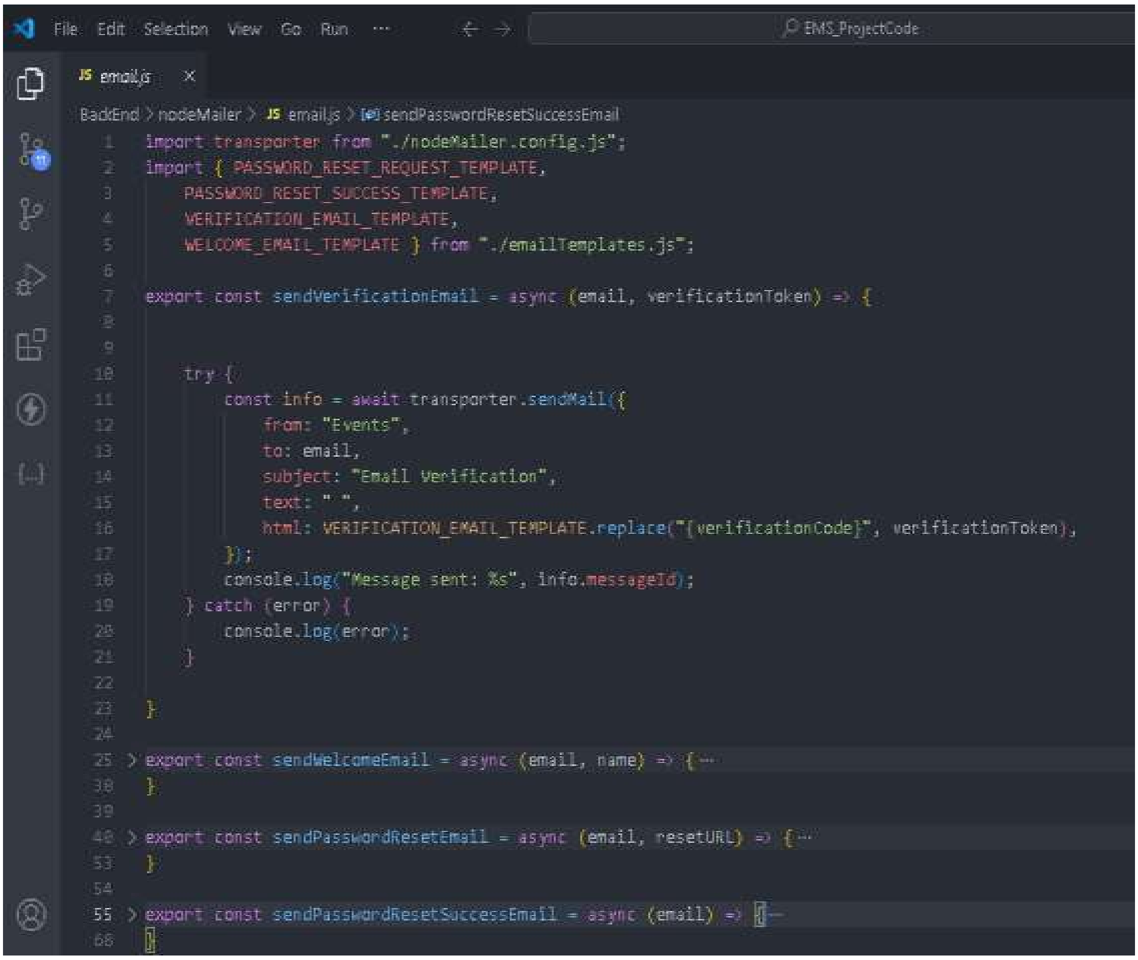


Figure 04 Emailing Users

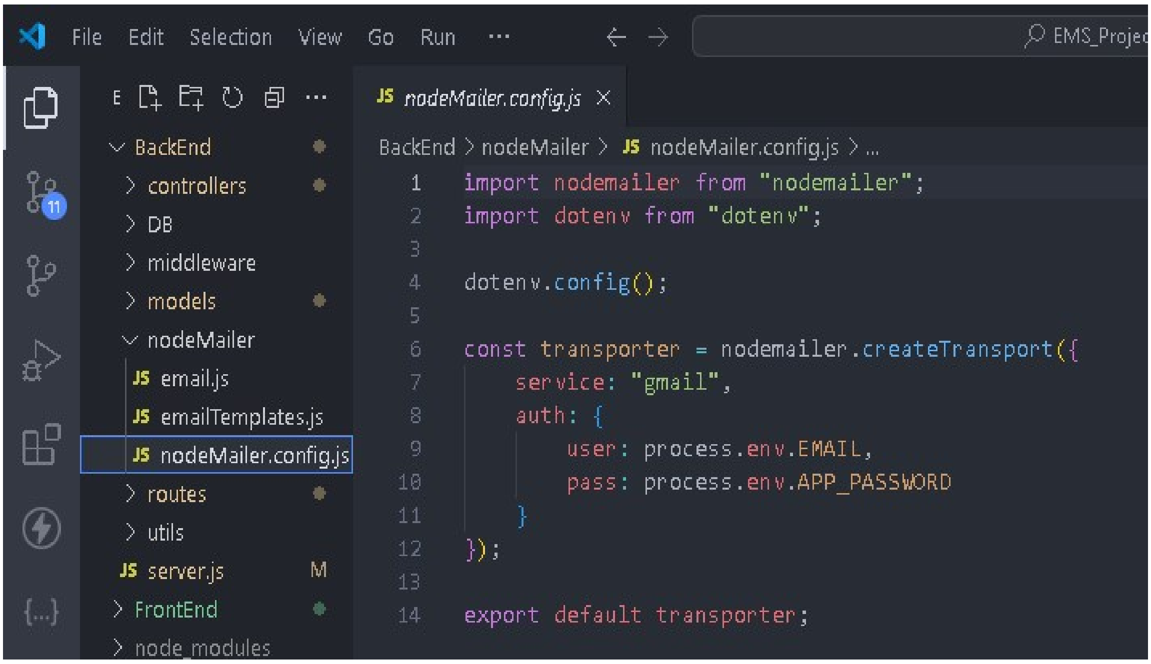


Figure 05 Node Mailer Setup and Configuration

Frontend

The frontend of the EMS is developed using *React* integrated with *Vite*, providing a fast and responsive user interface. Redux is used to manage the state of the application, ensuring that data is efficiently shared across components. The frontend communicates with the backend via API requests, allowing users to view, register for, and manage events in real time. The design is responsive, ensuring optimal display across different devices and screen sizes.

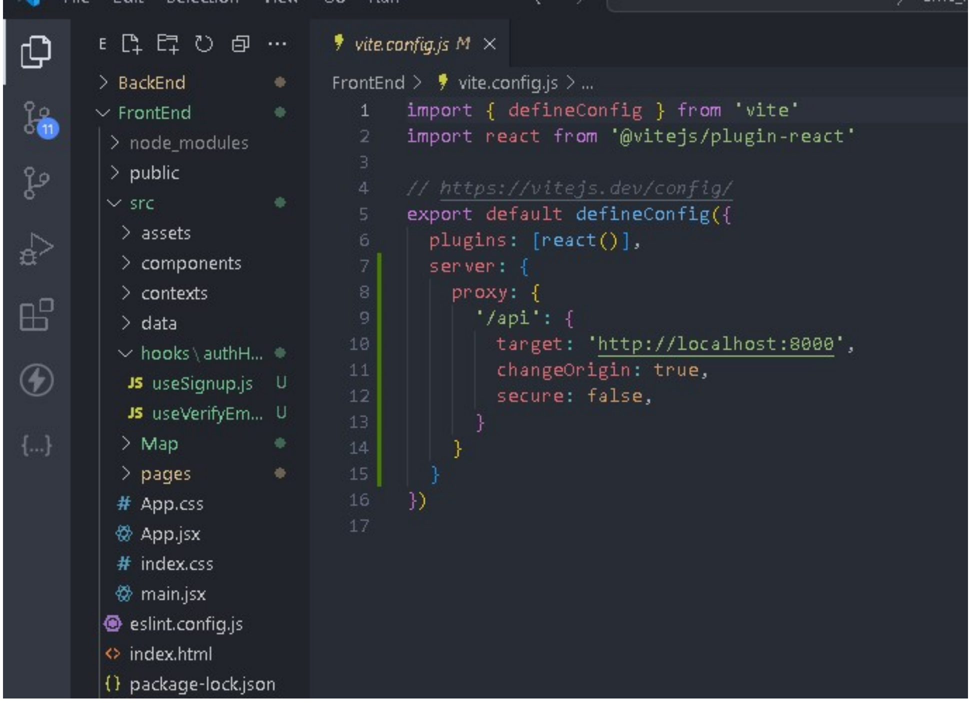


Figure 06 Vite Configuration to enable Backend Connection

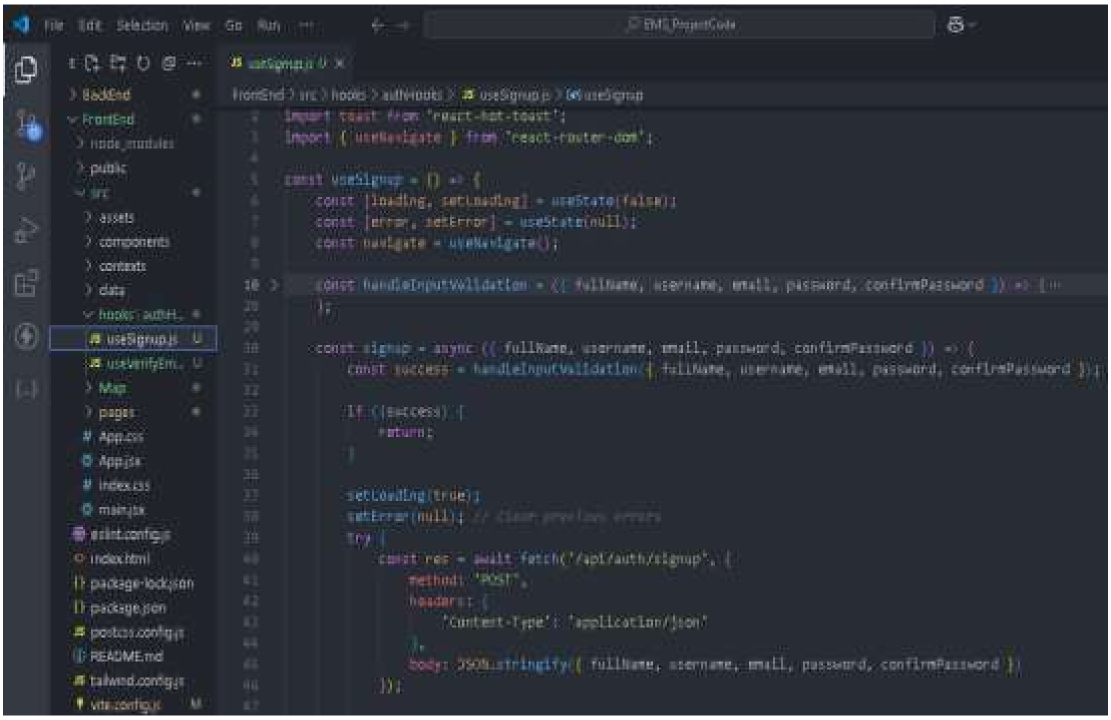


Figure 07 Backend connection for Signup endpoint

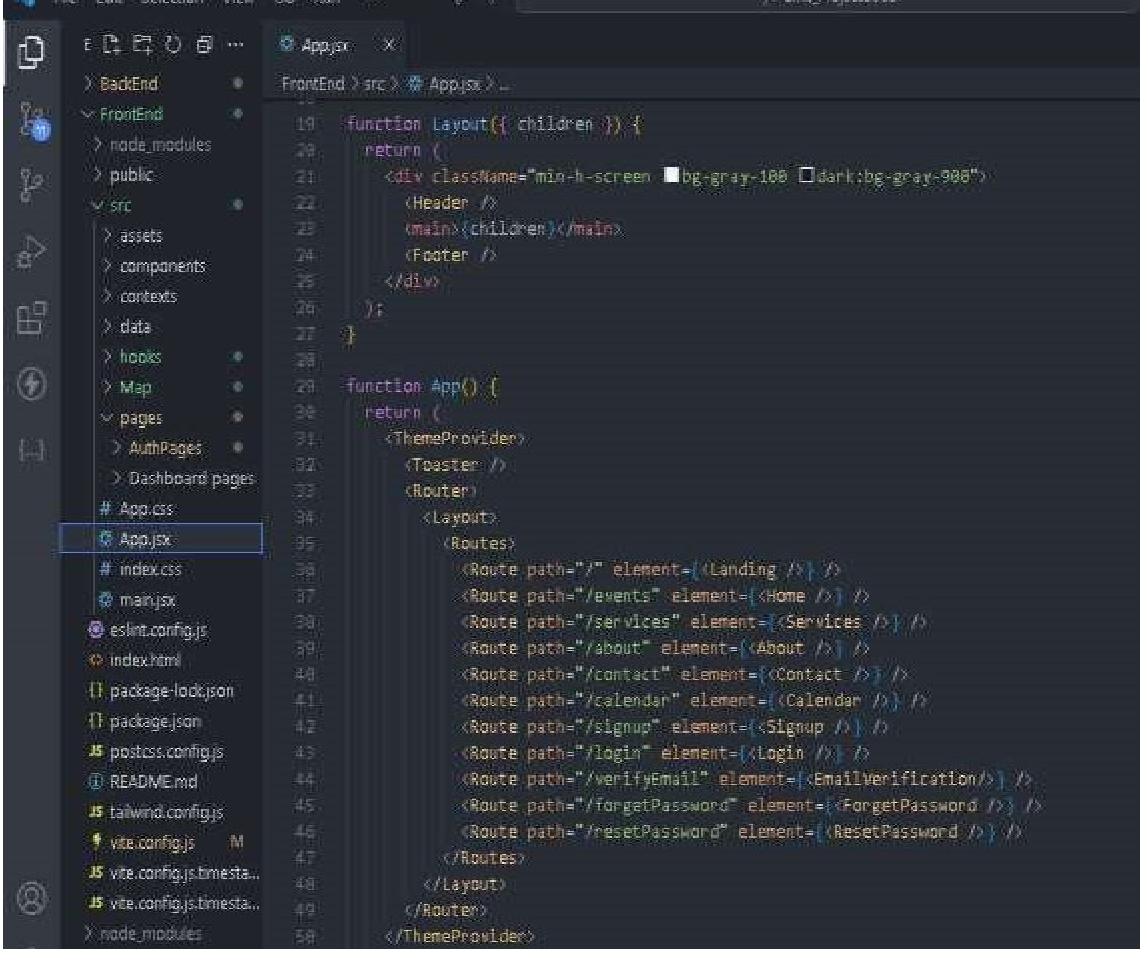


Figure 08 Frontend App.JSX file

Frontend Example

Signup page Component

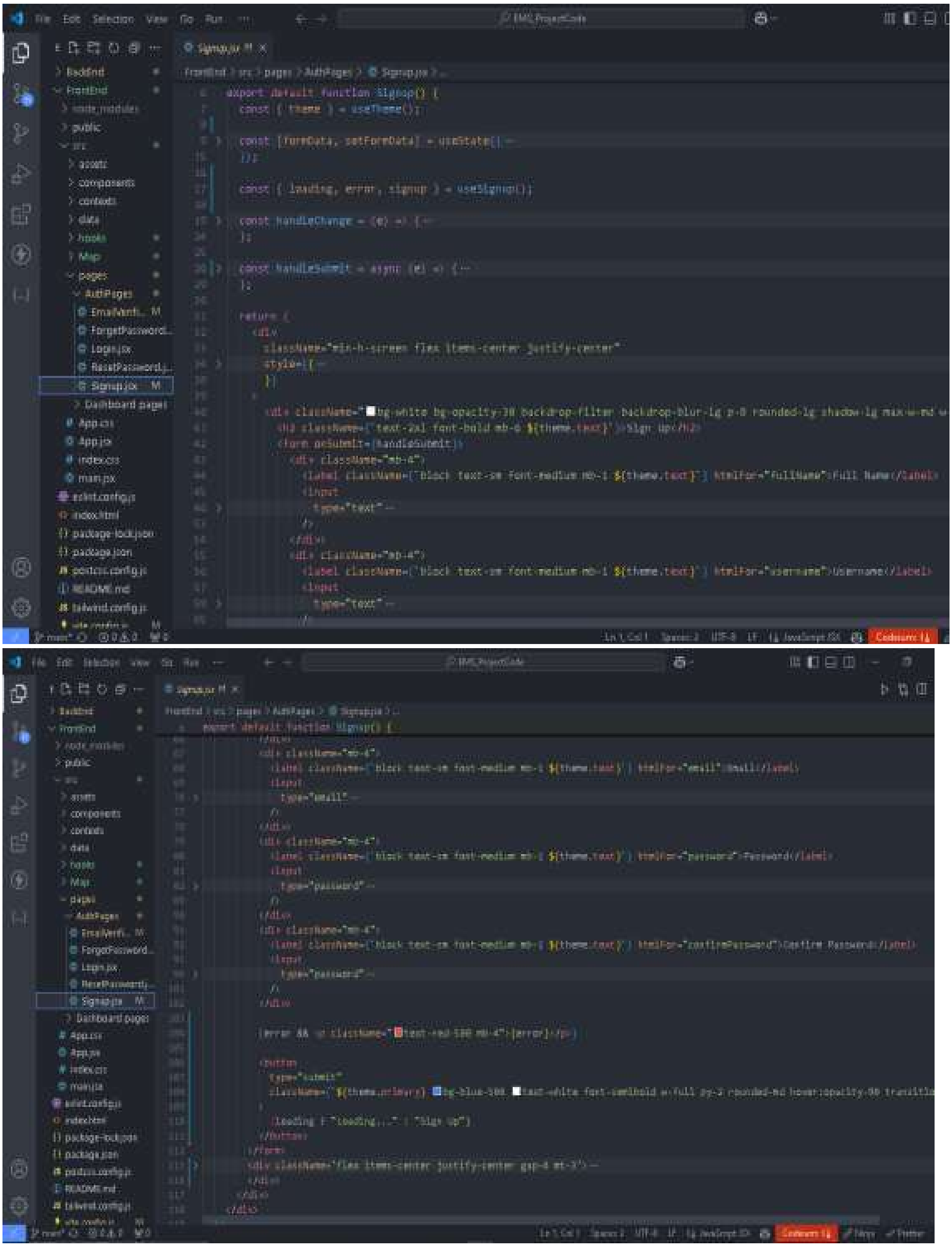


Figure 09 SignUp page

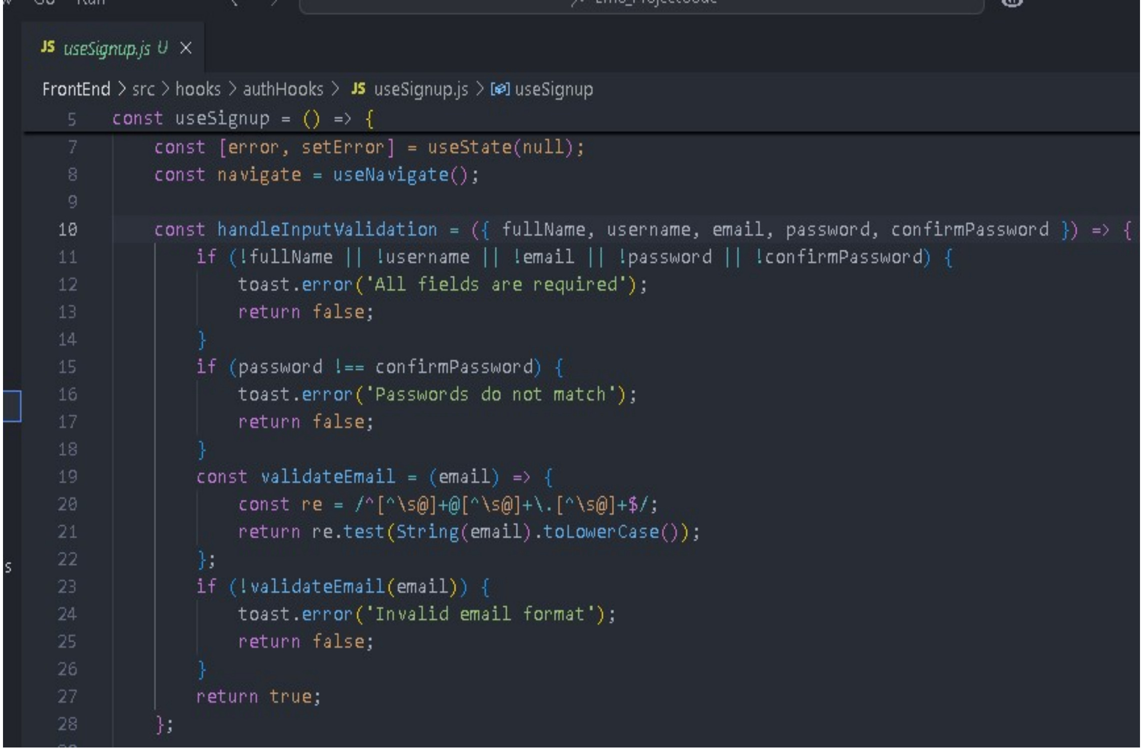


Figure 4.20 Input Validation from use Signup Hook

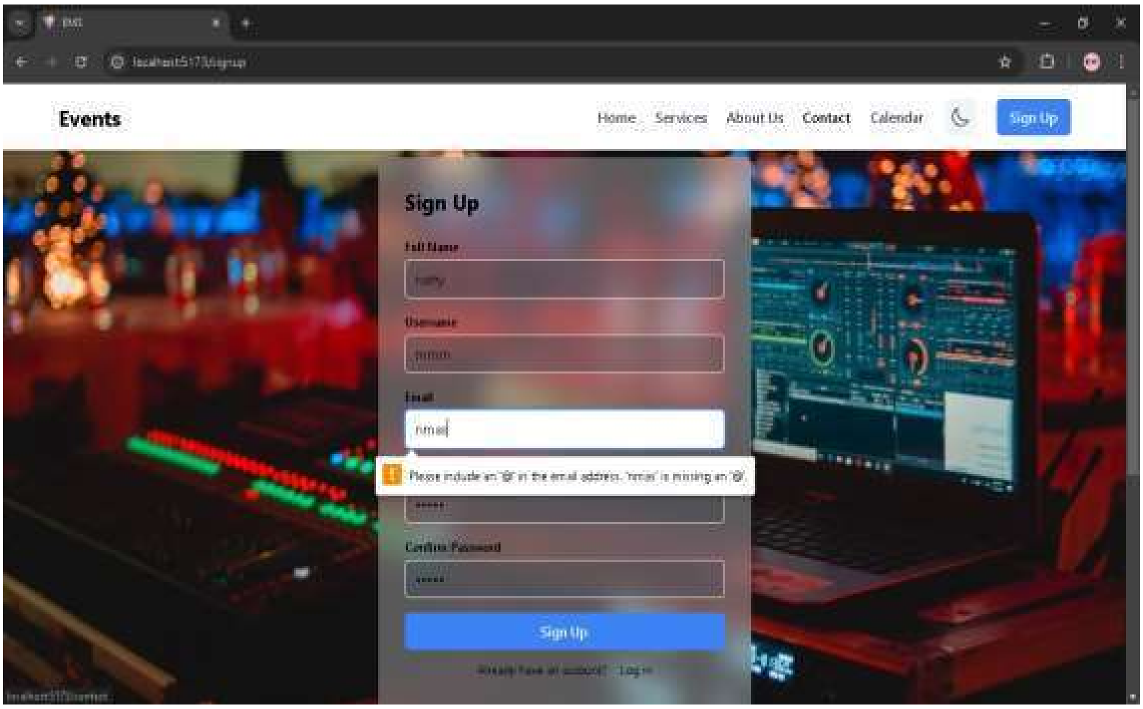


Figure 0 Signup webpage

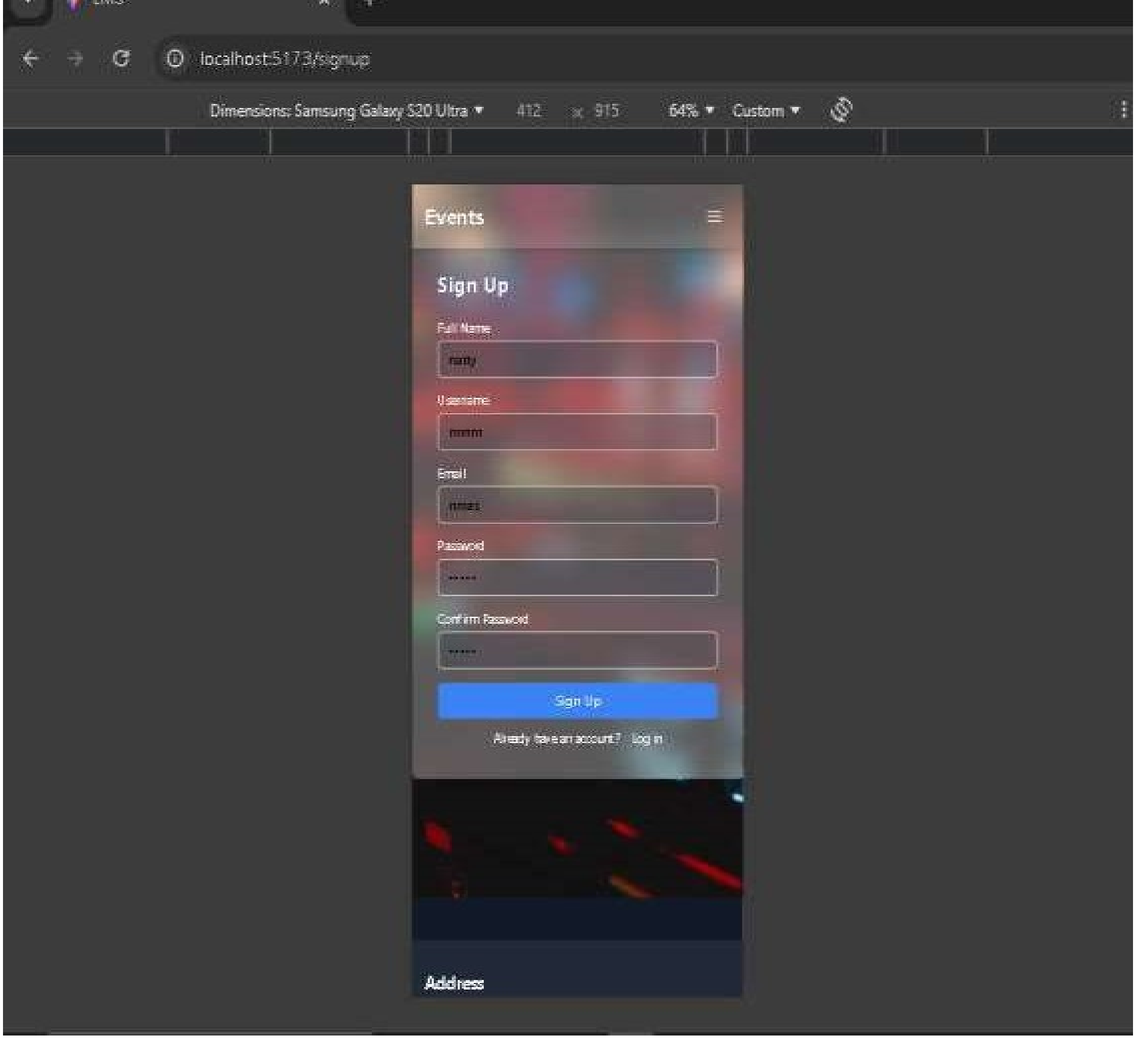


Figure 4.22 Signup page on Samsung Galaxy S20 Ultra

Prototypes of the system

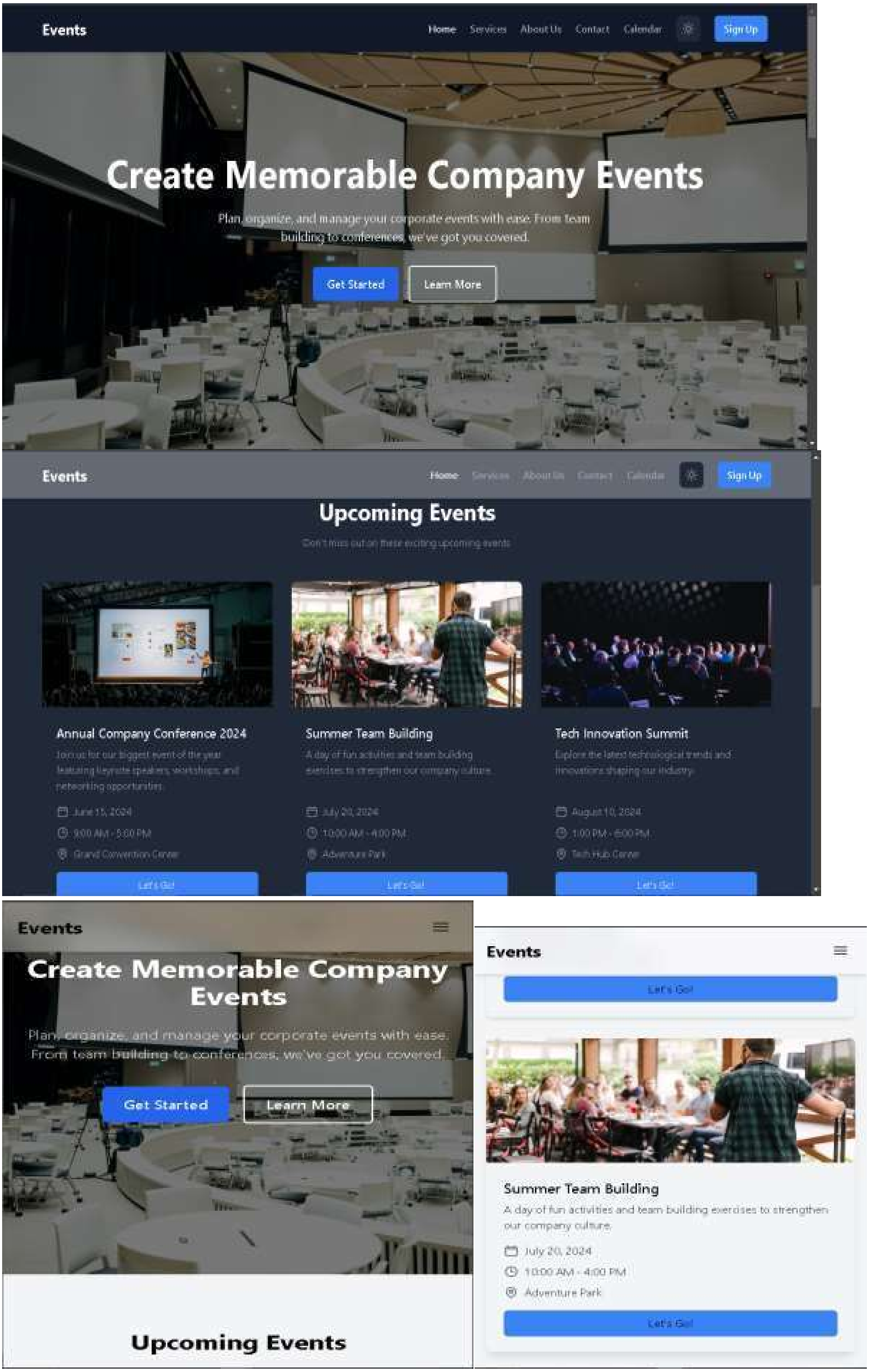


Figure 4.23 Home page

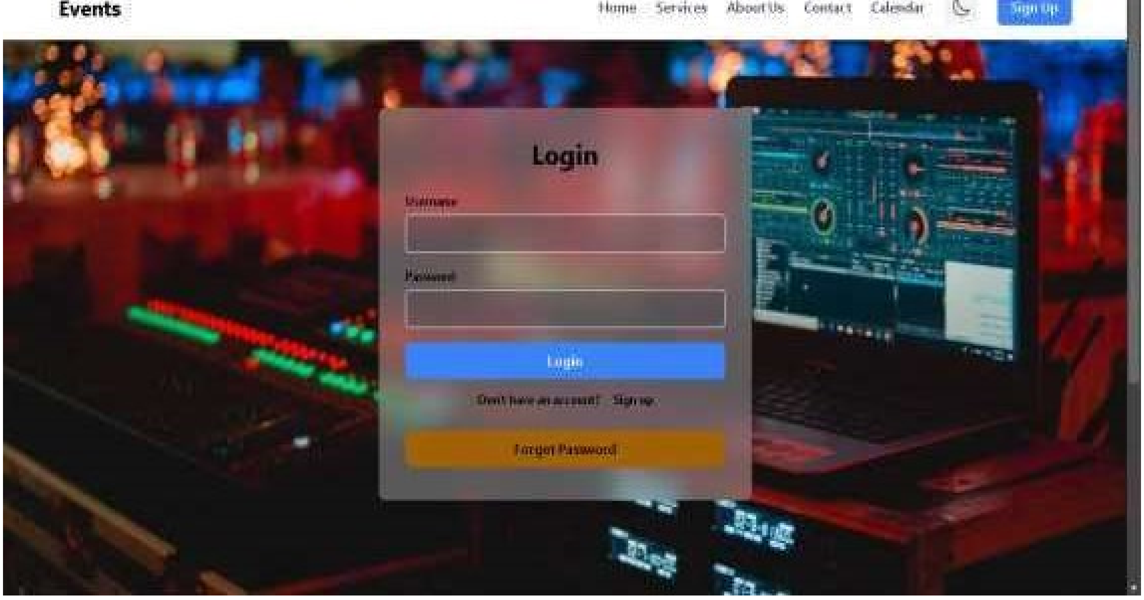


Figure 4.24 Login Page

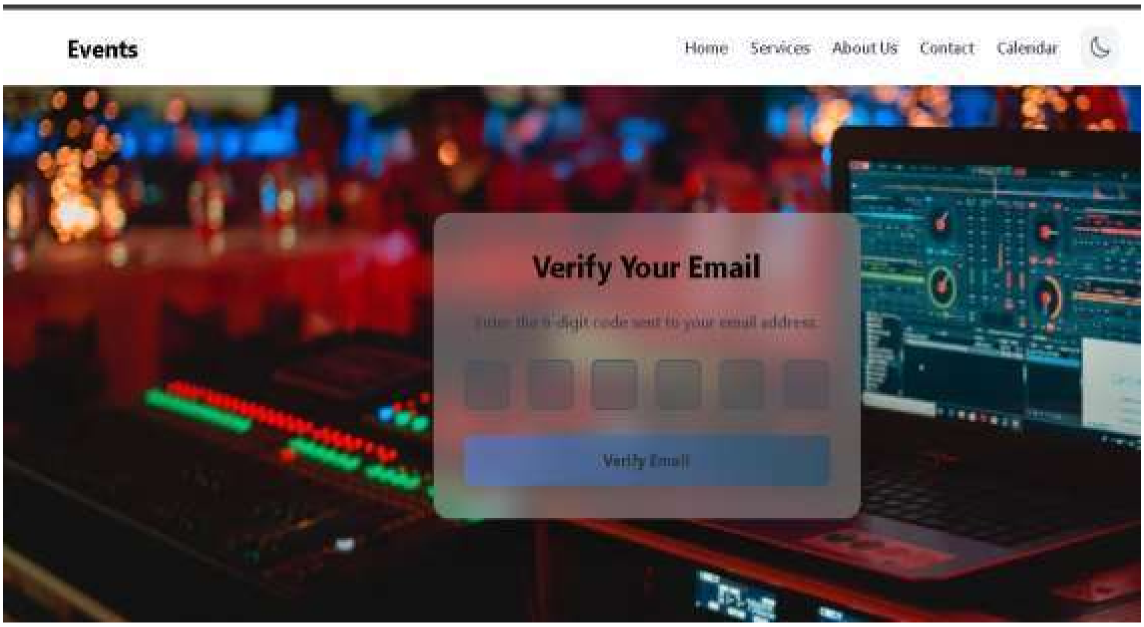


Figure 4.25 Email Verification page

Integration Testing

Integration testing is a type of testing where individual units of a system are combined and tested as a group to identify issues with the interaction of these components. (Bond, 2010, p. 72).
Integration testing is a software testing practice that focuses on evaluating the interaction between different modules or components of a system to ensure that they work together as expected. The goal is to identify issues that might arise when these individual parts, which were previously tested in isolation, are combined.

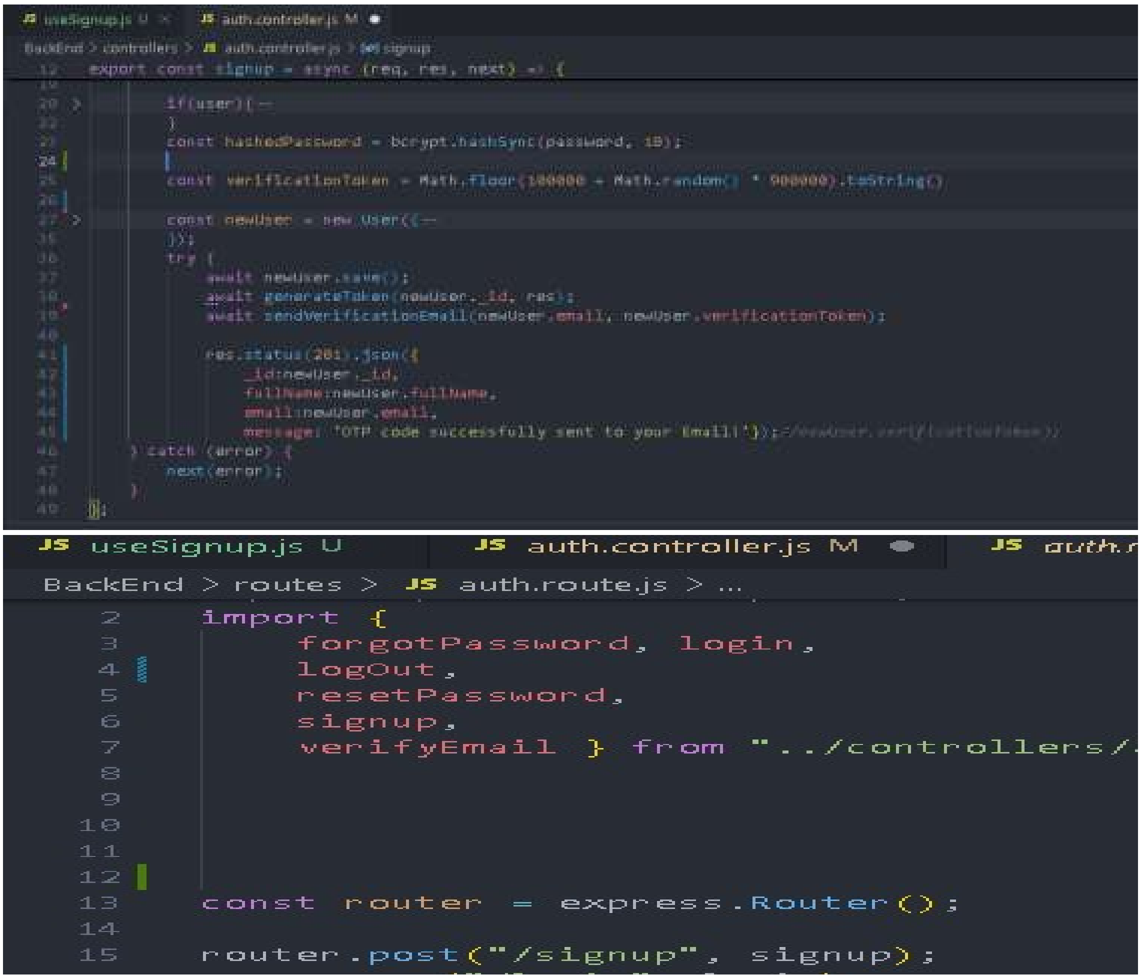
Integration Points

Here are some integration points between the frontend and the backend.

```
FrontEnd > src > hooks > authHooks > JS useSignup.js > useSignup > signup
const useSignup = () => {
    const signup = async ({ fullName, username, email, password, confirmPassword }) => {
        setLoading(true);
        setError(null); // Clear previous errors
        try {
            const res = await fetch('/api/auth/signup', {
                method: 'POST',
                headers: {
                    'Content-Type': 'application/json'
                },
                body: JSON.stringify({ fullName, username, email, password, confirmPassword })
            });

            const data = await res.json();
            if (data.error) {
                throw new Error(data.error);
            }
```

Figure 4.26 Signup Integration point Frontend



```
JS useSignup.js U    JS auth.controller.js M
BackEnd > controllers > JS auth.controller.js > signup
export const signup = async (req, res, next) => {
        if(user){…
        }
        const hashedPassword = bcrypt.hashSync(password, 10);

        const verificationToken = Math.floor(100000 + Math.random() * 900000).toString()

        const newUser = new User({…
        });
        try {
            await newUser.save();
            await generateToken(newUser._id, res);
            await sendVerificationEmail(newUser.email, newUser.verificationToken);

            res.status(201).json({
                _id:newUser._id,
                fullName:newUser.fullName,
                email:newUser.email,
                message: 'OTP code successfully sent to your Email!'});//newUser.verificationToken})
    } catch (error) {
        next(error);
    }
});
```

```
JS useSignup.js U    JS auth.controller.js M    JS auth.r
BackEnd > routes > JS auth.route.js > ...
import {
        forgotPassword, login,
        logOut,
        resetPassword,
        signup,
        verifyEmail } from "../controllers/.




const router = express.Router();

router.post("/signup", signup);
```

Figure 4.27 Backend signup Integration Point and Endpoint

API Testing

API testing is the process of testing the interfaces between different software components to ensure that they interact correctly and produce the expected results. (Kumar, 2018, p. 115)
API testing is a type of software testing that focuses on verifying the functionality, reliability, performance, and security of application programming interfaces (APIs). It involves testing the API's endpoints to ensure that they handle requests correctly and return the expected responses.

Tools Used
Thunder Client is a lightweight API testing tool integrated into *Visual Studio Code*. It's used to send *HTTP* requests to your APIs (typically *REST APIs*) and examine the responses. It allows

editor, making it a convenient tool for testing APIs in a development environment.
Let's log in as "natty" from Figure 4.6.

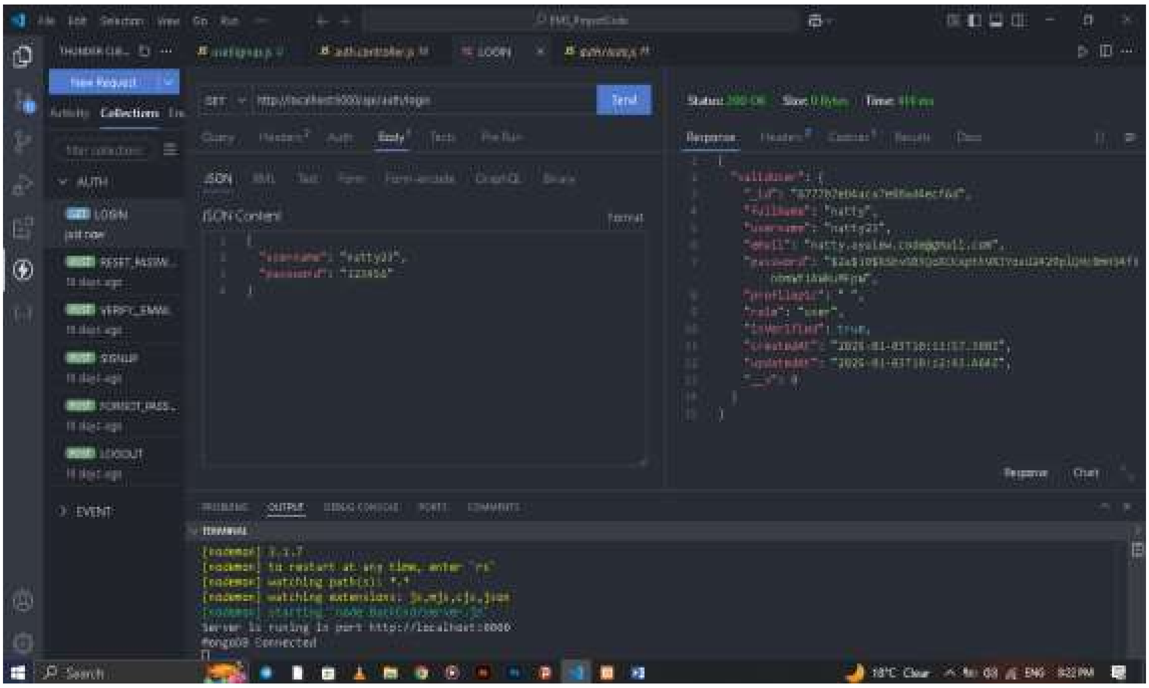


Figure 4.28 Login API test using Thunder Client

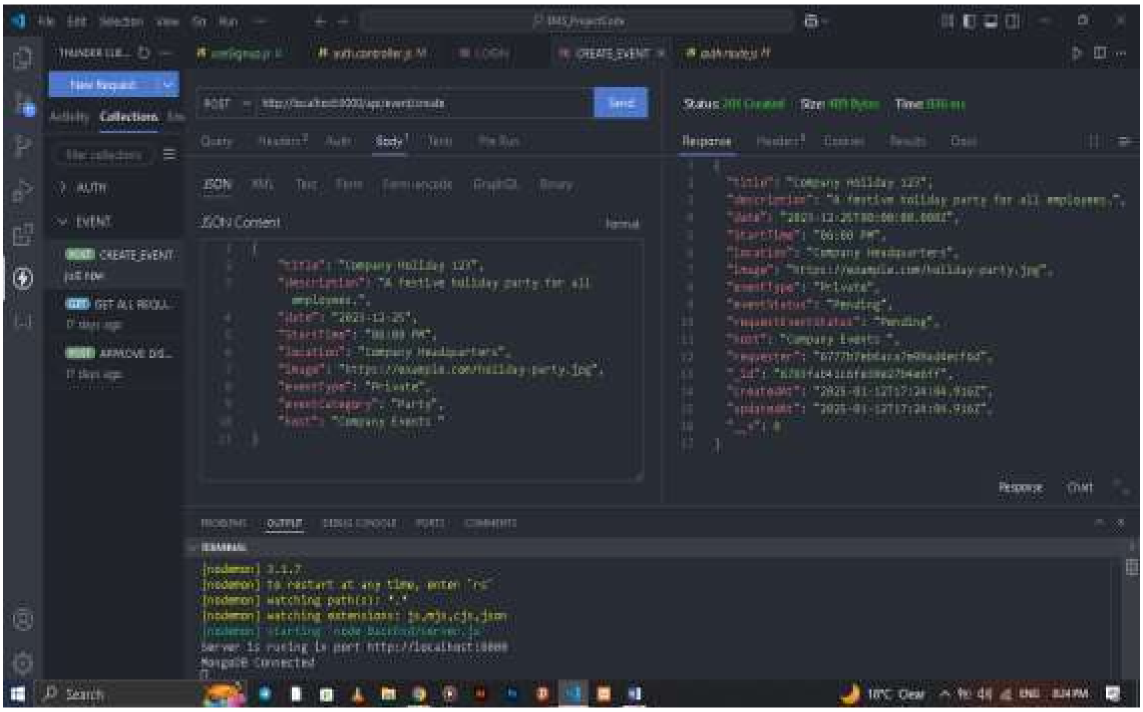


Figure 4.29 Create an Event API test.

In Figure 4.29 the user "natty23" created an event, but the event is stored in request events collection because the user role is "user." Hence, in our business rule, a user must request an event and that event should be approved by the event admin. So until the event admin approves the user event, the event will be stored in the requested event temporarily.
Now let's log in as an admin and see the difference.

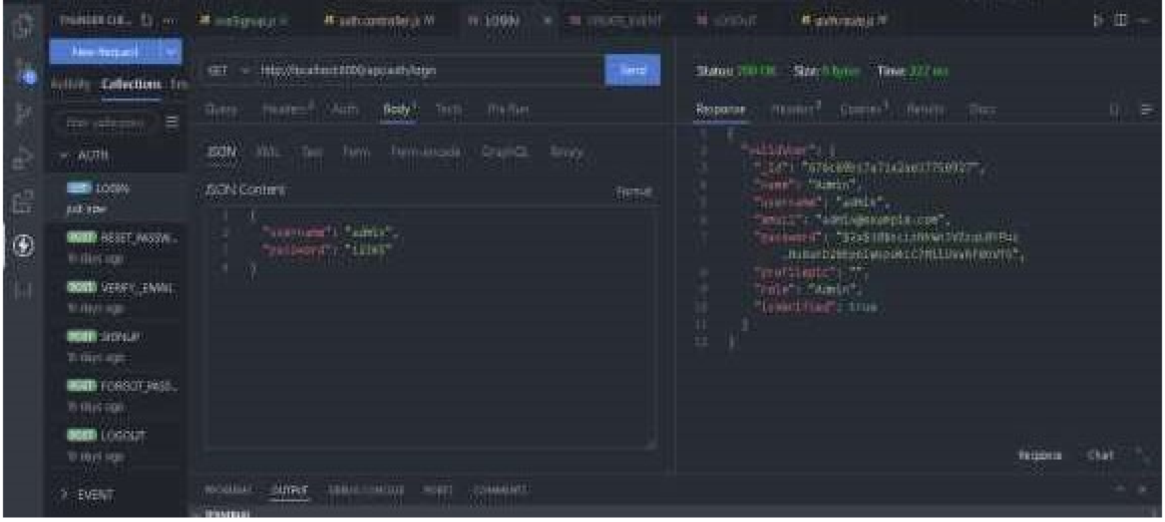


Figure 4.30 Admin login API test

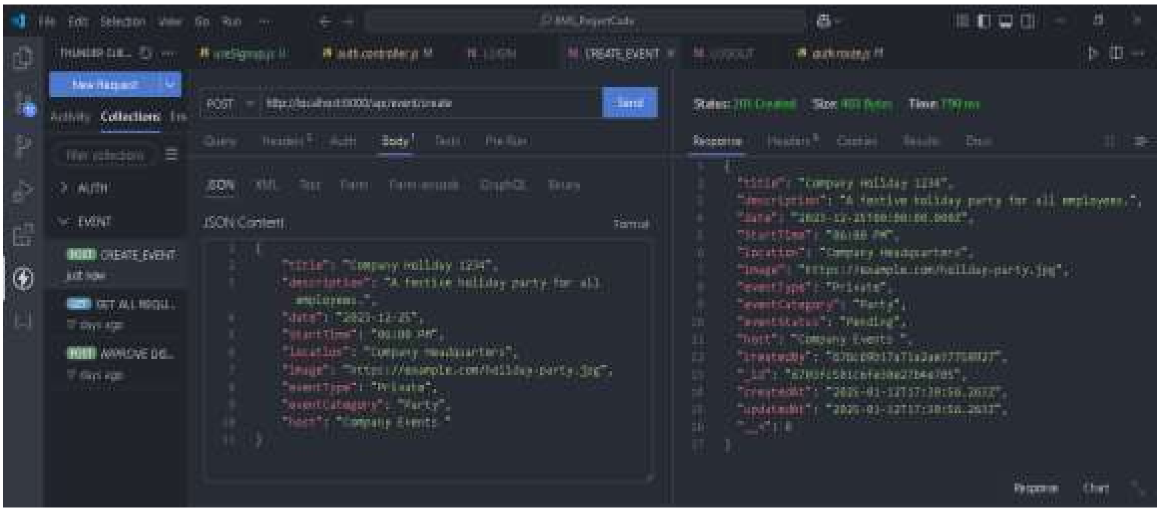


Figure 4.31 Create Event with Admin API test

As we can see in figure 4.31, the created event is now stored in the events collection. We can see the attributes event Type, event Category and the event Status (which are the attributes of event document). But in figure 4.29 the attributes are request Event Type, request Event Category and request Event Status.

Unit Testing

Unit testing is a software testing technique where individual components of a software system, typically functions or methods, are tested in isolation to ensure that they work as intended. The goal of unit testing is to validate that each unit of the software performs correctly in isolation, ensuring that the smallest parts of the application work as expected before integrating them into larger systems (Kent Beck, 2002).

To demonstrate unit testing, we can provide specific test cases that validate different scenarios or inputs for a given function. A test case typically consists of a description of the test, the input data, and the expected output. By running these test cases, we can identify any potential issues early in the development process. Each test case focuses on a particular condition, such as valid or invalid inputs, boundary values, or edge cases.

TC-01				
Test Case	**Description**	**Input**	**Expected Output**	**Status Code**
Missing fields	Test when required fields are missing in the request body.	{}(Empty object)	All fields are required! error message	400
The Event already exists.	Test when an event with the same title already exists.	{Title: "Sample Event", description: "Test” ...} (Existing event title)	The event already exists! error message	400
The user role is an Admin.	Test when the user role is an "Admin" and creates a valid event.	{Title: "New Event", description: "Test Event” ...} (Valid input for Admin)	A newly created event object	201
The user role is not an Admin.	Test when the user role is not an "Admin" and creates a valid event.	{Title: "New Event", description: "Test Event” ... (Valid input for non-Admin)	A Newly created requested event object	201

Table 4.1 Create an Event Test Case

TC-02				
Test Case	**Description**	**Input**	**Expected Output**	**Status Code**
The user is not an Admin.	Test when the user role is not an "Admin".	No specific input (just user role)	Access Denied. Only Admins can view all requested events! error message	403
The user is an .Admin	Test when the user role is an "Admin" and the request for all requested events is successful.	Valid user with role "Admin"	List of all requested events	200
Database error	Test when there's an error fetching events from the database.	Database issue (simulate by mocking DB failure)	Internal server error message	500

Table 4.1 Get Requested Events Test Case

Test Case	Description	Input	Expected Output	Status Code
User is not Admin	Test when the user role is not an "Admin" attempting to approve an event.	No specific input (just user role)	Access Denied. Only Admins can approve requested events! error message	403
Requested event not found	Test when the requested event is not found in the database.	Invalid event ID	Requested event not found! error message	404
Approve action	Test when an event approval action is taken and the event is created.	Valid event ID and action "approve"	Newly created event object and approval success message	200
Reject action	Test when an event rejection action is taken and the event request is updated.	Valid event ID and action "reject"	Updated requested event with rejection status	200
Invalid action	Test when an invalid action is provided for approval.	Invalid action (e.g., "unknown")	Invalid action! error message	400

Table 4.2 Approve Event Test Case

TC-04				
Test Case	**Description**	**Input**	**Expected Output**	**Status Code**
Password mismatch	Test when the password and confirm password do not match.	{password: "password123", confirm Password: "password321"}	Password does not Match! error message	400
The username or email exists	Test when the username or email already exists in the database.	{username: "user123", email: "user@example.com"} (existing username or email)	User name or Email Exists! error message	400
Successful signup	Test when the user successfully signs up with valid data.	{fullName: "John Doe", username: "user123", email: "user@example.com", password: "password123", confirm Password: "password123"}	User details (ID, full name, email) and success message	201
Database error	Test when a database error occurs while saving the user.	Simulate DB error	Internal server error message	500

Table 4.4 Signup Test Case

Test Case	Description	Input	Expected Output	Status Code
Invalid or expired code	Test when the verification code is invalid or expired.	{code: "123456"} (invalid or expired code)	Invalid or expired verification code error message	400
Successful email verification	Test when the email verification is successful.	{code: "valid code"} (valid and unexpired code)	Email Verified Successfully! success message	200
Database error	Test when error occurs during the verification process.	Simulate DB error	Internal server error message	500

Table 3.5 Verify Email Test Case

TC-06				
Test Case	**Description**	**Input**	**Expected Output**	**Status Code**
User does not exist	Test when the user does not exist in the database.	{username: "nonexistent User", password: "password123"}	User does not exist! error message	400
Wrong password	Test when the password does not match the stored password.	{username: "user123", password: "wrong Password"}	Wrong Credentials! error message	400
User not verified	Test when the user is not verified.	{username: "user123", password: "password123"} (user exists but is Verified = "false")	The User is not Verified error message	400
Successful login	Test when the user successfully logs in.	{username: "user123", password: "password123"} (valid credentials and verified user)	User details and token	200
Database error	Test when a database error occurs while fetching the user.	Simulate DB error	Internal server error message	500

Table 4.6 Login Test Case

TC-07				
Test Case	**Description**	**Input**	**Expected Output**	**Status Code**
Invalid or expired token	Test when the reset token is invalid or expired.	{token: "invalid Token", password: "newPassword123", confirm Password: "newPassword123"}	Invalid or expired reset token error message	400
Missing password or confirm Password	Test when the password or confirm password is missing.	{token: "valid Token", password: "", confirm Password: ""}	Password and confirm password are required error message	400
Passwords do not match	Test when the password and confirm password do not match.	{token: "valid Token", password: "newPassword123", confirm Password: "newPassword321"}	Passwords do not match! error message	400
Successful password reset	Test when the password is successfully reset.	{token: "valid Token", password: "newPassword123", confirm Password: "newPassword123"}	Password reset successfully! success message	200
Database error	Test when a database error occurs while saving the new password.	Simulate DB error	Internal server error message	500

Table 4.7 Reset Password Test Case

TC-08				
Test Case	**Description**	**Input**	**Expected Output**	**Status Code**
Successful logout	Test when the user successfully logs out.	No specific input (just the cookie removal).	User successfully logged out success message.	200
Logout failure	Test when there is an error clearing the cookie.	Simulate an error in clearing the cookie.	Internal server error message.	500

Table 4.8 Logout Test Case

4.6 System Testing

System testing is the process of testing the system as a whole, typically after integration testing, to verify that the complete system functions as expected in the environment it is designed for (Paul C. Jorgensen, 2013).

that all components work together as expected. It is typically performed after integration testing and focuses on checking the overall functionality of the system, including interactions between all modules, and ensuring that the it meets the specified requirements.

System Testing Strategy

1. Functional Testing:

- **User Registration**: We will verify that users can register, receive an email verification code, and successfully activate their account.
- **Event Creation Requests**: Users will be able to request event creation, which will be logged into the system and displayed for event admins.
- **Event Admin Actions**: Event admins will have the ability to approve or reject event creation requests. If approved, the requested event is created. If rejected, the request is discarded.
- **Event Search**: We will test that the search function returns relevant results for users looking for specific events based on title, category, or date.

2. Non-Functional Testing:

- **Performance Testing**: Ensuring the system responds quickly to event creation requests, approvals, and user searches.
- **Security Testing**: Verifying that the system's authentication (logins, password resets) is secure and no unauthorized access is allowed.
- **Usability Testing**: Testing the user interface for ease of use, particularly around the event creation process, user registration, and admin approval workflows.

3. Regression Testing: We will test the core functionalities, such as event creation, event search, and admin approval/decline, to ensure no existing features break after new changes are applied.

4. Acceptance Testing:

- **Real-world Scenario Validation**: We will simulate real-world usage, where users request event creation, admins approve or reject the requests, and users are notified about the status of their event request.
- **User Experience**: Testing the overall workflow to ensure users and admins can easily navigate the system and perform necessary tasks.

5. Example Testing Scenarios:

- **User Registration**: When a user signs up, we will test if they receive a verification email with the correct token and if their account gets activated after entering the correct code.
- **Event Request**: We will test whether a user can successfully request a new event and check if the event admin receives this request.
- **Event Admin Approval/Decline**: We will verify that an event admin can approve or reject a requested event and that the status changes accordingly in the system.
- **Event Search**: Users should be able to search for events using keywords or filters, and the results should match the expected criteria.
- **System Admin Support**: We will verify that users can contact the system admin through email and receive responses appropriately.

Conclusion and Recommendation

Conclusion

The Event Management System (EMS) project was successfully designed and implemented to address the challenges associated with traditional event organization practices, particularly in limited scalability, were replaced by a modern, web-based system that enhances communication, coordination, and overall event planning efficiency.

The system leverages modern technologies such as React.js, Node.js, and MongoDB to provide a robust platform that integrates user management, event creation, registration, ticketing, payment processing, and reporting. The use of the Model-View-Controller (MVC) architectural pattern ensured a clear separation of concerns, making the system maintainable, scalable, and extensible.

Key features of the system include:

User-Friendly Interface
A responsive design that provides seamless experiences for event organizers, attendees, and administrators across various devices.
Secure Authentication and Authorization
The use of JSON Web Tokens (JWT) and bcrypt.js ensures secure user authentication and data protection.
Efficient Event Management
Event organizers can create, update, and manage events, while attendees can search, register, and provide feedback on events.
Scalability and Flexibility
The system's design supports future growth, ensuring it can handle increasing users and events without compromising performance.
Real-Time Notifications and Communication
The integration of email notifications and a support system bridges gaps in communication between organizers and users.

By addressing the inefficiencies of manual event management, this project demonstrates the potential of leveraging technology to revolutionize event planning in Ethiopia. It facilitates seamless collaboration, enables data-driven decision-making, and enhances user satisfaction while minimizing costs and human errors. The system sets a foundation for modernizing the event management industry and highlights the importance of adopting innovative solutions in the digital age.

Recommendations

To further enhance the functionality and impact of the Event Management System, the following recommendations are proposed:

Integration of Payment Gateways
The system should integrate with local payment service providers like Chapa or Santim Pay to enable secure online transactions for ticket purchases and event requests. This will streamline the payment process and attract more users.
Mobile Application Development
While the current system is web-based, developing a mobile application for Android and iOS platforms would increase accessibility and convenience for users. This would also align with the growing demand for mobile-first solutions.

Social Media Integration
Adding features to integrate with platforms like Facebook, Instagram, and Twitter would enhance event promotion and increase user engagement. Organizers could share events directly on social media, and users could register through social media accounts.

Advanced Analytics and Reporting
Incorporating advanced analytics tools to provide organizers with deeper insights into attendee behavior, ticket sales, and event performance would enable better decision-making and strategic planning for future events.

Vendor and Sponsor Management
Expanding the system to include a vendor and sponsor management module would make it a comprehensive solution for event organizers. This feature could include functionalities for vendor registration, sponsorship tracking, and contract management.

Improved Security Measures
Although the system employs encryption and authentication mechanisms, periodic security audits should be conducted to identify vulnerabilities. Additionally, implementing two-factor authentication (2FA) would further enhance user account security.

Support for Multilingual Interfaces
Introducing a multilingual interface would make the platform more inclusive, catering to Ethiopia's diverse population and potential international users.

Event Feedback System
Adding a more detailed feedback system for both attendees and organizers would allow continuous improvement of event quality. Feedback forms and rating systems could help organizers understand user preferences and improve future events.

Offline Mode & Synchronization
Implementing features for offline access, where users can view event details and manage tasks without an internet connection, can be beneficial. Data synchronization would ensure updates are reflected when the connection is restored.

Marketing and Awareness Campaigns
Effective marketing campaigns should be conducted to promote the platform among event organizers, attendees, and collaborators. Workshops or training sessions could help users understand the system's features.

Final Remarks

The Event Management System (EMS) provides a scalable, efficient, and secures digital solution to modernize event planning and management, particularly in Ethiopia. It enhances operational efficiency, reduces human error, and ensures seamless coordination between stakeholders. However, continuous updates, user feedback, and the incorporation of recommended features will be crucial to maintaining the system's relevance and ensuring its long-term success. By adopting these recommendations, the EMS can evolve into a comprehensive, industry-leading platform, setting a benchmark for event management solutions in the region and beyond.

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Empowering Financial Inclusion: A Web 3.0 Block chain Mobile Application for Ethiopia

Eyasu Bekele.Fitsum Tadele, and Natnael Solomon

Abstract

This project introduces a web-based platform designed to help people use block chain technology without needing technical knowledge. The system allows users to interact with digital assets and make secure online transactions through a simple website, without relying on banks or centralized systems. Block chain, as a decentralized technology, ensures that every transaction is transparent, tamper-proof, and recorded permanently, making it safer and more trustworthy than traditional systems. The goal of this project is to demonstrate how block chain can be made accessible to anyone by hiding the complicated technical details behind a simple interface. Users can log in, check their balances, and make transactions easily, while the block chain network works in the background to verify and record every activity. Because the system is decentralized, no single company or server controls user data or money, reducing risks of fraud or hacking. During testing, the platform was found to be fast and reliable, even for people who had never used block chain before. Users appreciated the ability to make secure transactions and track their activity without needing to understand how block chain works technically. This project shows that by focusing on user-friendly design, block chain can become a practical tool for everyday online payments, digital ownership, and future financial systems.

Keywords: Block chain, Digital Assets, Decentralization, Cryptocurrency, Web Application, Secure Transactions, User-Friendly Design

INTRODUCTION

Background of the Study

Block chain technology is a decentralized digital system designed to facilitate transactions with high security between participants. It supports digital currencies, also known as cryptocurrencies, such as Bitcoin, Ethereal, and Ton coin, which can be used to buy or sell goods just like traditional currencies like the birr, dollar, pound, or euro. Block chain operates through electronic devices without any bank or centralized institution interference, making it a truly independent and peer-to-peer system.

Block chain technology has several key features, including decentralization, high security, unlimited transactions, and a lack of ownership by any central authority like banks or governments. The primary components of Block chain include:

- **Blocks**: Store and contain transaction data.
- **Hash**: Used to secure transaction information through cryptographic functions, ensuring data integrity.
- **Decentralization**: No need for a central server, as the system is distributed across a network of nodes.

Block chain technology has found applications in many areas beyond finance. In supply chain management, Block chain can track goods from their source to their final destination, providing transparency and preventing fraud. In healthcare, Block chain secures patient information, allowing only authorized individuals to access sensitive data. In the legal sector, Block chain is used for smart contracts, automated contracts that enforce agreements without intermediaries, reducing legal costs and increasing efficiency.

One of the most important features of block chain is its decentralized nature. Unlike traditional systems that rely on central authorities such as banks or governments to verify and store records, block chain distributes the process across a network of computers called nodes. These nodes identify and record transactions in real time. The immutability of block chain makes it better than client server architecture.

In conclusion, block chain technology is an emerging solution for finance and various industries, representing a revolutionary change in information security, transparency, and autonomy. Its applications continue to grow and are expected to revolutionize multiple sectors, creating a more secure, transparent, and efficient digital ecosystem.

Statement of the Problem

In Ethiopia, a significant portion of the population remains financially excluded due to limited access to traditional banking services. Factors such as the high cost of maintaining bank accounts, lack of financial literacy, geographic barriers, and an over-reliance on cash-based transactions have left millions of Ethiopians without the means to participate in the formal financial system.

This exclusion is particularly acute in rural areas, where banking infrastructure is either scarce or non-existent, and preventing individuals from accessing even basic financial services, such as savings, remittances, or payments. As a result, economic opportunities are limited, and individuals have fewer means to achieve financial security or grow their businesses.

The emergence of block chain technology presents an opportunity to address this financial gap by providing decentralized, low-cost, secure and transparent financial services without requiring traditional bank infrastructure. However, there is currently a lack of easy-to-use Block chain-can address the needs of the unbanked and underbanked.

The primary problem is the absence of an accessible and inclusive financial platform that leverages decentralized block chain technology to provide affordable, secure, and easy-to-use financial services for individuals without access to traditional banking. This lack of a suitable financial solution restricts opportunities for financial empowerment and economic growth, perpetuating the cycle of poverty and financial exclusion.

The proposed solution, a block chain-based digital platform, aims to address these issues by providing secure digital wallets, affordable transaction methods, and a platform for users to save and transact using digital currency—all accessible via mobile devices. This application aims to bridge the financial divide by providing a secure, user-friendly means for unbanked individuals to participate in the economy.
Key problems are:

- A large portion of the Ethiopian population lacks access to formal financial services.
- High barriers like cost, lack of infrastructure, and documentation requirements prevent access to banking.
- Over-reliance on cash-based transactions limits economic opportunities and security.
- Existing financial platforms are not suitable for the needs of underserved communities in Ethiopia.
- Financial exclusion perpetuates poverty and limits personal and economic growth.
- Not accessible, user-friendly block chain-based platform exists to address financial inclusion for the unbanked in Ethiopia.

Objective of the Project
The objective of the “Empowering Financial Inclusion: A Web 3.0 Block-chain-Based Digital Platform for Ethiopia” project focus on addressing financial exclusion and improving access to essential financial services through Block chain technology.

General Objective

The general objective of this project is to foster financial inclusion by providing a secure, user-friendly Block chain-based digital Platform that enables unbanked and under banked individuals to access essential financial services, thereby promoting economic empowerment and growth.

Specific Objectives

The specific objectives of the project are to design, develop and implement Block chain-based digital systems that aim to:

- Provide accessible digital wallets,
- Enable low-cost Transactions,
- Integrate digital and local currencies,
- Implement secure and transparent transactions,
- Provide real-time notifications and alerts,
- Connect with Block chain network,
- Facilitate peer-to-peer (P2P) transaction,
- Integrate identity verification, and
- Crate a feedback mechanism for continuous improvement.

Methodology
Data Gathering Methodology

- **Surveys**: Distributed to potential users, such as rural individuals, small business owners, and underserved populations, to understand their needs and preferences.
- **Focus Groups**: Organized sessions with target beneficiaries to validate proposed functionalities and refine user stories.

Secondary Data Collection

- Review of existing studies, reports, and case studies on financial inclusion and block chain adoption in similar contexts.
- Analysis of Ethiopia's financial ecosystem and mobile internet penetration rates to ensure alignment with local needs

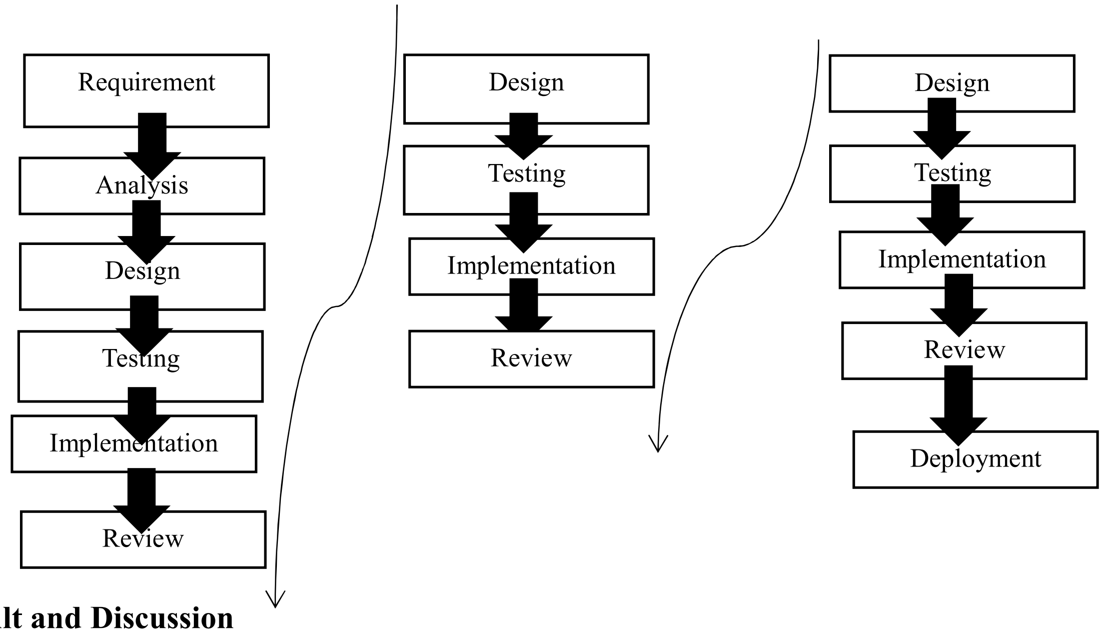
System Development Methodology

It is the process of planning, creating, testing, and deploying the project.

Process Model

In the development of our web-based platform and Progressive Web App (PWA), we are utilizing the Iterative Development Model. The primary idea behind this model is to develop the system iteratively, breaking it into smaller, manageable parts and cycles. This allows us to learn from earlier iterations and incorporate continuous improvements based on requirements for our startup.

Learning happens through both system development and use, enabling us to implement core features incrementally. Key components of the system are first developed as a basic functional subset, followed by iterative enhancements to improve performance and introduce new features until the system is fully realized. At each stage, design modifications are made, and additional functional capabilities are added to ensure the platform meets user needs effectively.



Result and Discussion

Development tools

The development of this system required a combination of both software and hardware tools to ensure efficient implementation, testing, and deployment. The selected tools were chosen for their reliability, performance, and compatibility with modern block chain and web development standards.

hardware.

Software Tools

1. Operating System
   Windows 10 – Chosen for its broad compatibility with development environments and tools.
2. Integrated Development Environment (IDE) Visual Studio Code – A lightweight and powerful source code editor with support for JavaScript, Node.js, and smart contract development.
3. Front-end framework
   React.js – Used to develop a responsive and interactive user interface, optimized for both mobile and web platforms.
4. Back-End Framework:
   Node.js – A scalable server-side JavaScript environment for handling backend logic and API interactions.
5. Database – MongoDB – A NoSQL database used for storing and retrieving user data and transaction records efficiently.
6. Block chain framework:

- **Ethers.js** – A JavaScript library used to interact with the ethereal block chain.
- **Metalmark** – A browser-based wallet used for secure authentication and transaction signing.

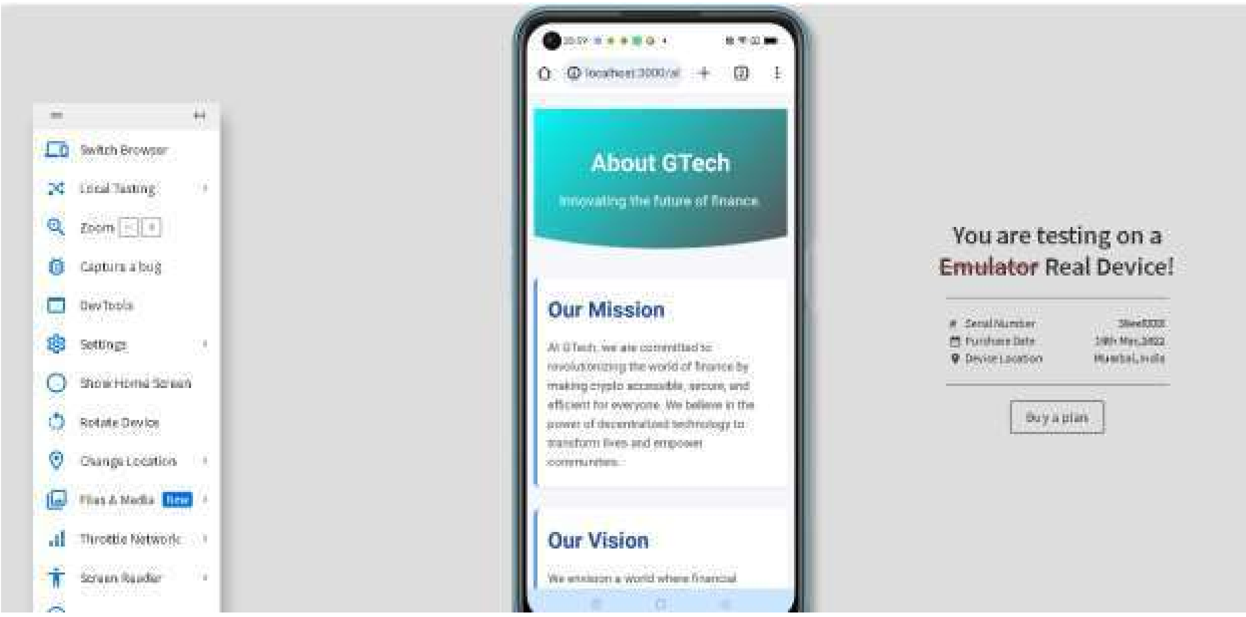
Hardware Requirements

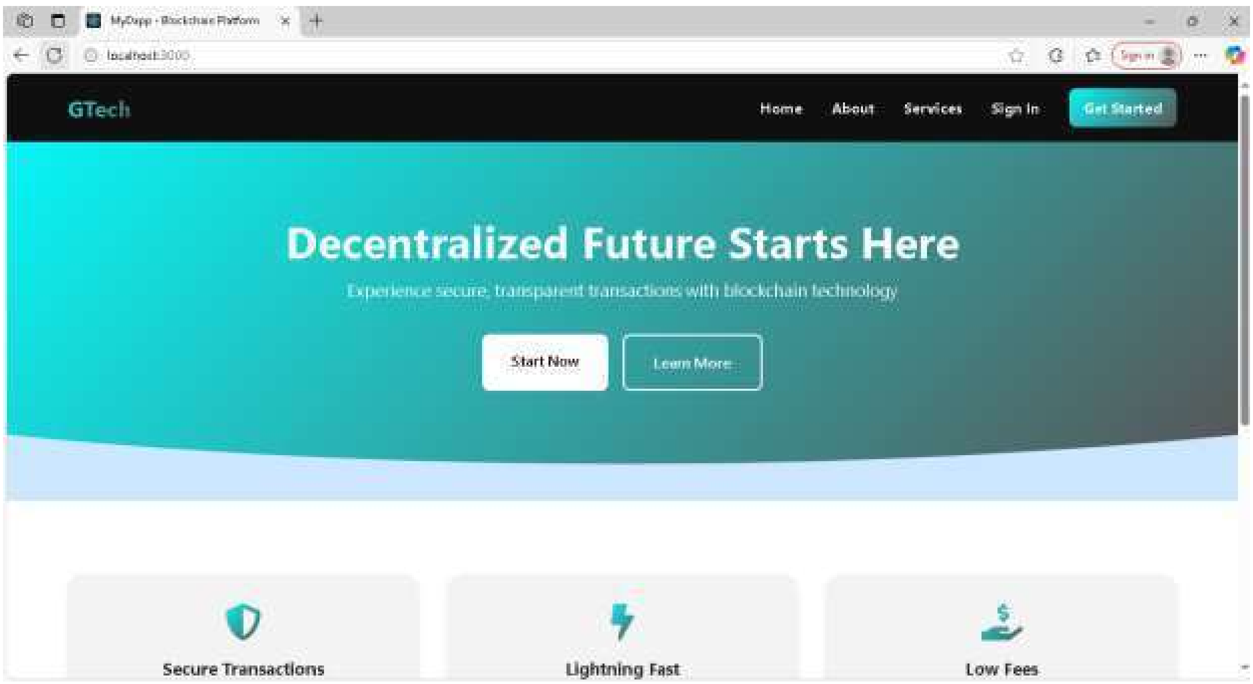
To support development activities, the following hardware specifications were used:

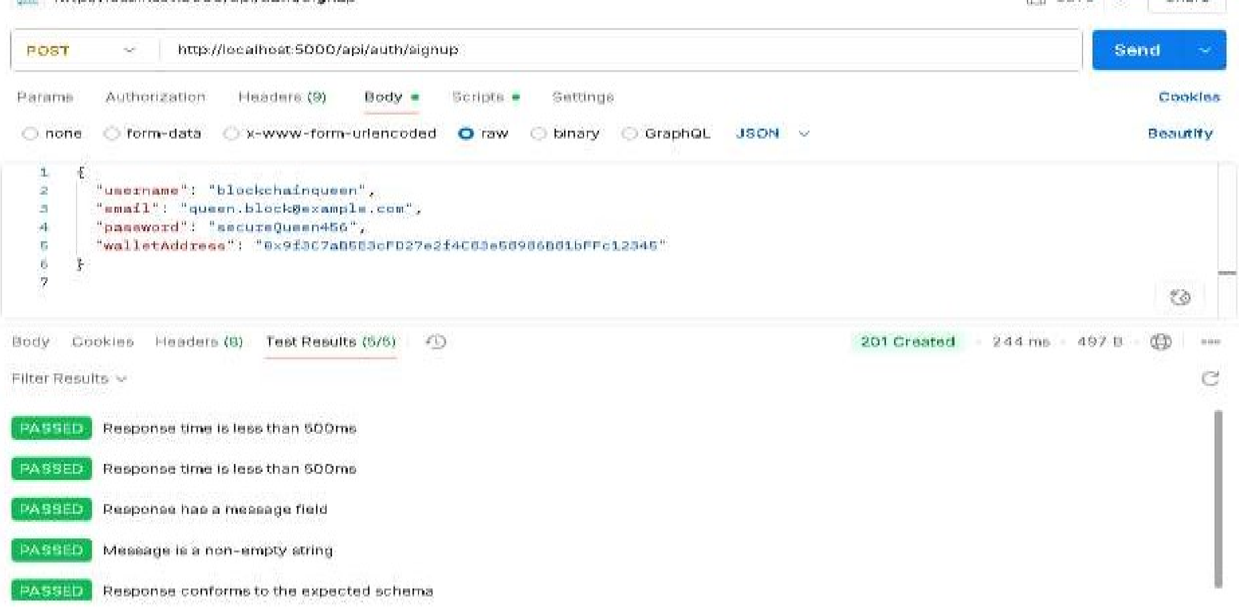
Processor: Intel Core i5 or higher
Memory (RAM): Minimum 8GB (16GB recommended for optimal performance)
Storage: At least 2GB of free disk space
Display: A screen resolution of 1280 × 768 pixels or higher is recommended.

For hardware, a minimum of a Core i5 Intel Processor, 8GB of RAM (recommended 16GB), 2GB of hard disk space, and a screen resolution of 1280 x 768 is recommended.

Username	Email	Wallet Address	Action
SMU	Smu@edu	0x5d38e136ebe9a6c502613a0d4c2ca7d1d5703c39	Remove
david	david@smu	0x5d38e136ebe9a6c502613a0d4c2ca7d1d5703c39	Remove
Natnael	Natnael@gmail	0x9b4a67b42e929927d597d2396c3a066004563298	Remove
Abebe	Abebe@smu.edu	0x9b4a67b42e929927d597d2396c3a066004563298	Remove
fitse	fitse@gmail.com	0x9b4a67b42e929927d597d2396c3a066004563298	Remove







Conclusion and Recommendations

In short, the ultimate aim of the block chain-based web app was to make systems for digital transactions and record-keeping more decentralized, secure, and transparent. A lot of legacy systems have a centralized database that is very susceptible to data loss, unauthorized access, or tampering, particularly in developing nations. Our block chain web application addresses these challenges by implementing a distributed ledger system whereby data becomes immutable, traceable, and securely stored.

Imagine a setup where each entry or operation is connected to the previous one and stored in a safe block; once noted down, it cannot be altered without agreement. In fields like finance, property recording, health services, or any other where correctness and confidence are critical, this level of honesty is vital. Information leaks, accidental removals, and not permitted modifications can happen while handling client or asset details on a normal machine. Through sharing power and relying on agreement methods, ours reduces such chances.

The web app ensures that data entries are validated, time stamped, and saved securely. Retrieval of any particular transaction or user details can be done in real time with very little risk of data tampering or loss. Also, the block chain system provides transparency since authorized users can track historical changes to the extent of verifying the authenticity of the records.

We encountered numerous issues throughout the development process, starting with understanding the fundamental concepts of block chain and linking smart contracts to front-end communication. Each issue we encountered taught us something valuable and gave us an insight into how to tackle issues in reality. As students of computer science, this project did not just make our technical knowledge more profound but also inspired us to seek out more leading technologies that can help advance society.

Generally our web app that is able to make a connection to the Etheric network which is popular in block chain development and it performs any tasks to send and buy token or digital coins with user engagements. So, its immutable, secure property of block chain is better for financial transactions than traditional systems.

Recommendations

Based on the project experience and its necessity in the future, the following points should be in focus.

- **NFT (Non-Fungible Token):** It becomes popular in block chain technology, so add this feature in web 3 and be able to broaden knowledge from the systems, so when a user needs NFT, they are able to buy in the web page.

Add more assets and crypto currency: in block chain, you need more tokens and assets. When a user needs buy by his choice, and it's important, so add currencies like Pepe, Ton coin, Doge coin.

Correct Information: Tell users to enter accurate and complete data into the system. This can help to ensure that the system's outputs, such as reports and analytics, are reliable and useful.

Reporting: Encourage users to report any issues or problems with the system to the appropriate personnel. This can help to ensure that issues are resolved quickly, and the system remains functional and effective.

Add multiple languages: It must reach in different parts of Ethiopia, so it includes many languages across Ethiopia.

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Exploring the Association between Orthodox Christian Sacramental Confession and Psychological Well-Being

Rediet Asalfew Bezuneh

Abstract

This research explores whether confession, a practice often viewed through theological lenses, is also associated with enhanced psychological well-being. The Ethiopian Orthodox tradition emphasizes relationship both with God and community, suggesting potential therapeutic benefits from practices like confession, involving ritualized self-disclosure and absolution. Using Ryff's Psychological Well-Being Scale (PWB), the study analyzes the association between confession frequency and six dimensions of well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. A sample of 194 Wolkite University Orthodox Christian Student, (aged 18–25) participated, with 84.5% self-identifying as confessors and 15.5% as non-confessors. Results revealed statistically significant associations between confession frequency and higher psychological well-being scores, indicating a potential positive impact of this religious practice. Moderate effect sizes were observed for environmental mastery ($\eta^2 = .090$), purpose in life ($\eta^2 =.087$), and positive relations ($\eta^2 = .068$), suggesting a need for further longitudinal studies to confirm these relationships and explore causal mechanisms. Smaller but significant effects were found for autonomy, personal growth, and self-acceptance. A chi-square test further confirmed a statistically significant link between confession practices and overall well-being levels ($\chi^2(3) = 8.735$, ×p× = .033). The findings suggest that sacramental confession may serve as a culturally relevant therapeutic practice, potentially enhancing emotional resilience, fostering existential clarity, and strengthening interpersonal connections within the Orthodox Christian community. This study contributes to interdisciplinary dialogues on religion and mental health, advocating for culturally sensitive and integrated approaches in clinical, pastoral care, and community-based settings. Limitations include the cross-sectional design and reliance on self-report measures. Recommendations include longitudinal research designs, training for clergy in basic pastoral counseling techniques, and the development of culturally appropriate mental health interventions that leverage the psychological benefits of confession.

Keywords: Sacramental Confession, Psychological Well-Being, Orthodox Christianity, Ryff's Scale, Ethiopia, Religious Coping, Mental Health.

Background of the Study

In a world where mental health challenges silently affect millions, young people in Ethiopia often seek healing not in therapy rooms but in churches. For many, the confessional space within the Ethiopian Orthodox Church is more than a religious duty; it is a quiet refuge for the soul—a place where shame is spoken, guilt is released, and burdens are lifted. As a psychology student and an Orthodox Christian, I have watched how sacramental confession seems to transform individuals—making them more self-aware, emotionally resilient, and purposeful. Yet, in academic literature, this profound spiritual experience is almost invisible.

Modern psychology increasingly affirms the therapeutic power of self-disclosure, reflection, and relational safety—core processes that also describe religious confession. Research by Klenck (2005) emphasizes that confession offers not only spiritual forgiveness but also psychological release, reducing guilt and fostering inner peace. Likewise, Jung (1958) viewed religious practices such as confession as essential for emotional healing, especially when they offer symbolic expression of repressed thoughts or guilt.

From a Christian theological lens, confession is not merely about sin management—it is a relational and restorative process. The Orthodox tradition in particular emphasizes reconciliation not only with God but with oneself and one's community, aligning closely with Ryff's (1989) model of psychological well-being, which includes self-acceptance, purpose in life, and positive relationships as essential elements.

Despite these overlaps, few studies have explored confession as a psychological resource in Ethiopian society, where faith is deeply embedded in identity and coping. In contexts where psychotherapy is underutilized or stigmatized, confession may serve a parallel function to therapy, offering a culturally appropriate avenue for emotional regulation and resilience (Pargament, 2011).

However, this potential remains understudied. What role does confession play in young people's mental health? Does it offer measurable psychological benefits, or is its value purely spiritual? This research seeks to bridge that gap between tradition and empirical inquiry—not to reduce confession to psychology, but to understand how the two may enrich one another.

Statement of the Problem

Despite centuries of use, the sacrament of confession has been mostly studied through theological or doctrinal lenses. Its emotional and psychological effects remain unclear, particularly in the Ethiopian Orthodox context. Many believe confession alleviates guilt, reduces anxiety, restores hope, and strengthens inner peace—but few studies have confirmed these outcomes with data.

Additionally, not all believers confess regularly. Some avoid it. Others begin but stop. The reasons for these differences—and their emotional consequences—have not been thoroughly studied. There exists a clear gap between what confession is believed to do and what we know it actually does in terms of psychological well-being. This research seeks to explore that gap. Is there truly an association between confession and emotional wellness? If so, which areas of psychological functioning are most affected, and how?

Purpose of the Study

This study aims to examine whether regular participation in Orthodox Christian sacramental confession is associated with improved psychological well-being among Ethiopian university acceptance, purpose in life, and emotional growth.

Justification / Rationale

This topic is personally meaningful and socially necessary. In Ethiopia, mental health remains under-discussed and under-treated, especially in rural or religious communities. Many individuals do not seek therapy, not because they don't need help, but because their healing is already happening in sacred spaces—through fasting, prayer, and confession. By understanding the psychological value of these spiritual practices, especially confession, we can offer more culturally sensitive approaches to mental health care.

As a young woman who has witnessed both the silence around emotional pain and the quiet strength that confession brings, I believe this study can bridge the gap between faith and psychology, offering tools for healing that respect both tradition and science.

General Research Question

General Research Question

What is the nature of the association between participation in the Ethiopian Orthodox Christian sacrament of confession and psychological well-being among university students?

Specific Research Questions

1. Is there an association between confession frequency and psychological well-being level?
2. Does confession frequency influence scores on the six dimensions of psychological well-being?
3. Which specific dimensions of psychological well-being are most strongly influenced by the frequency of confession?

Objectives of the Study
General Objective

The general objective of the study is to examine the association between participation in the Ethiopian Orthodox Christian sacrament of confession and psychological well-being among university students.

Specific Objectives

1. To assess whether there is a statistically significant association between regular participation in sacramental confession and overall psychological well-being among Ethiopian Orthodox Christian university students.

2. To analyze how the frequency of confession is associated with the six dimensions of psychological well-being—autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance—as measured by Ryff's Psychological Well-Being Scale.

3. To identify which specific dimensions of psychological well-being show the strongest statistical association with frequent engagement in sacramental confession.

Significance of the Study

This study is significant because it brings psychology into conversation with lived spiritual practice in a way that is deeply rooted in Ethiopian reality. In a country where mental health services are scarce, and where most individuals turn first to spiritual spaces for emotional support, there is an urgent need to explore indigenous practices—such as confession—that may already serve therapeutic functions.

While confession in the Ethiopian Orthodox Church is widely practiced and spiritually respected, its psychological value has remained largely unmeasured. This research addresses that gap by empirically examining whether confession—a ritual of self-examination, verbal release, and absolution—is associated with key indicators of psychological well-being. In doing so, it responds to a growing call for culturally relevant and spiritually sensitive approaches to mental health care.

The study contributes not only to academic literature in psychology and religion but also offers practical value for psychologists, clergy, and community leaders. It provides evidence that may help bridge disconnect between Western mental health models and traditional Ethiopian Spiritual Practices empowering both sectors to support emotional healing more effectively. By validating what people are already doing to cope confessing, praying, seeking spiritual counsel—this research helps build mental health strategies that are not foreign, but familiar, trusted, and embedded in community life. In essence, this study does not introduce healing from the outside; it reveals healing already happening from within.

Scope of the Study

This study focuses on examining the association between participation in sacramental confession and psychological well-being among Ethiopian Orthodox Christian university students. Specifically, it investigates whether the frequency of confession is associated with six dimensions of psychological well-being, as outlined in Ryff's model: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance.

The research is limited to undergraduate students aged 18 to 25 at Wolkite University who identify as Ethiopian Orthodox Christians. It does not include clergy members, other denominations, or students from other institutions. The study also excludes theological debates or interpretations of confession, focusing instead on its perceived psychological effects.

Using a cross-sectional, correlational design and self-report questionnaires, the study aims to generate empirical data that reflects how a culturally embedded religious practice may be linked to mental health outcomes. Although the findings may not be generalizable beyond this population, they offer valuable insight into confession as a potential mental health resource in faith-based communities.

Limitations of the Study

This study offers valuable insight into the association between sacramental confession and psychological well-being but is subject to several limitations.

First, confession was measured only by frequency, which does not capture the practice's depth, sincerity, or emotional and behavioral outcomes. Future studies should include qualitative dimensions such as intention, emotional catharsis, and change.

Second, the sample is limited to Orthodox Christian students aged 18–25 at Wolkite University, restricting generalizability to other populations, age groups, or contexts.

Third, reliance on self-reported data may introduce biases such as social desirability and recall inaccuracy, which can affect validity.

Fourth, the role of clergy—central in Orthodox confession—was not examined. Differences in priests' approaches may influence the psychological effects of confession but fall outside this study's scope.

Fifth, potential confounders like trauma history, family relationships, academic stress, and other religious practices were not controlled, though they may impact well-being.

Sixth, Ryff's Psychological Well-Being Scale, while validated, may not fully reflect culturally embedded or spiritual dimensions of well-being within the Ethiopian Orthodox context.

Finally, voluntary participation may introduce selection bias, as students with positive experiences may be more willing to participate.

Despite these limitations, the study provides a foundational step toward integrating culturally rooted spiritual practices into psychological research and mental health care.

Operational Definitions

Confession: In this study, confession refers to the Ethiopian Orthodox Christian sacrament where an individual voluntarily admits sins to a priest, expresses repentance, and receives spiritual absolution. It is operationalized by self-reported frequency of participation over the past 12 months, categorized as(1) Never, (2) Within a week, (3) Within a week to 40 days, (4) Once in three months, (5) Once in four months, (6) Once in six months, and (7) Once in a year.

Psychological Well-Being: Psychological well-being is defined according to Ryff's six-dimensional model: (1) Self-Acceptance – holding a positive view of oneself, (2) Positive Relations – forming warm, trusting relationships, (3) Autonomy – being self-directed and independent, (4) Environmental Mastery – managing life's demands effectively, (5) Purpose in Life – having direction and meaning, and (6) Personal Growth – ongoing development and openness to change. It is measured using the 46-item Ryff Psychological Well-Being Scale on a 6-point Likert scale, with higher scores indicating greater well-being.

Research Methodology

This chapter presents the research design, population, sampling techniques, data collection instruments, procedures, and methods of data analysis used in this study. The goal is to explore the psychological impact of the sacrament of confession on the mental health of Orthodox Christian university students by comparing those who engage in confession with those who do.

Research Design

This study employed a quantitative, cross-sectional, associative research design to examine whether there is a statistically significant association between the frequency of sacramental confession and psychological well-being among Ethiopian Orthodox Christian university students. The design is appropriate for identifying patterns and associations between naturally occurring variables without manipulating them.

Sample Size Determination

The target population for this study consisted of approximately 400 Ethiopian Orthodox time of data collection. To determine an appropriate sample size with a 95% confidence level and a 5% margin of error, Slovin's formula was applied:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- n = required sample size
- N = total population (400)
- e = margin of error (0.05)

Based on this calculation, a sample size of 200 participants was determined to be sufficient for

$$n = \frac{400}{1 + 400(0.05)^2} = \frac{400}{1+1} = \frac{400}{2} = 200$$

representing the population with acceptable precision for both descriptive and inferential statistical analysis.

Sampling Technique

A simple random sampling technique was employed to select 200 participants from the total population of 400 Ethiopian Orthodox Christian students actively serving in the Gibi Gubae fellowship. Each individual was assigned a unique identification number, and participants were selected using a random method (e.g., random number generator or lottery draw). This approach ensured that every student had an equal and independent chance of being selected, thereby minimizing selection bias. Simple random sampling was chosen to enhance the representativeness of the sample and improve the generalizability of the findings to the broader population.

Inclusion and Exclusion Criteria
Inclusion Criteria

Participants were eligible to participate in the study if they met all of the following criteria:

1. Religious Affiliation: Self-identification as a follower of the Ethiopian Orthodox Tewahedo Church.
2. Age Range: Between 18 and 25 years old at the time of data collection.
3. Baptism Status: Must have received baptism according to the rites of the Ethiopian Orthodox *Tewahedo* Church.
4. Informed Consent: Willingness to participate voluntarily and provide informed consent.
5. Confession Status:

- Confessors: Participants must have engaged in the sacrament of confession within the past 12 months, completing most or all of the following seven key steps:

1. Self-Examination: Reflecting on sins based on scriptural and moral principles.
2. Approach to the Priest: Presenting oneself to an ordained priest to initiate confession.
3. Verbal Confession: Openly admitting sins without concealment or justification.
4. Spiritual Guidance: Receiving counsel aimed at repentance and spiritual growth.
5. Penance: Carrying out prescribed acts such as prayer, fasting, or charitable deeds.
6. Absolution: Receiving formal forgiveness through the priest's intercession.
7. Thanksgiving and Follow-Up: Offering gratitude and maintaining spiritual discipline following confession.

- Non-Confessors: Participants who have not engaged in the sacrament of confession at all, or not within the last 12 months, and who have not completed the full ritual as prescribed by Church doctrine.

Note: The 12-month criterion is consistent with standards in psychological research and clinical diagnostics (e.g., DSM-5), which utilize a 12-month timeframe to define —recent‖ behaviors, ensuring reliability and comparability.

Exclusion Criteria

Participants were excluded if any of the following conditions applied:

1. Religious Non-Alignment: Identification with Christian denominations other than the Ethiopian Orthodox *Tewahedo* Church, or affiliation with non-Christian faiths.
2. Age Outside Range: Individuals younger than 18 or older than 25 years.
3. Severe Mental Health Diagnoses: Individuals diagnosed with severe psychiatric disorders (e.g., psychotic disorders, major cognitive impairments) that could interfere with comprehension or reliable participation.
4. Non-Participation: Refusal or inability to complete required study components, including informed consent, questionnaires, or interviews.

Study Variables

This study investigates how participation in the Ethiopian Orthodox *Tewahedo* Church's sacrament of confession relates to psychological well-being among young adults.

Independent Variables

- Engagement in the Sacrament of Confession: Participants are classified as:
- Confessors: Individuals who have completed most or all of the seven prescribed steps of the sacrament within the past 12 months.
- Non-Confessors: Individuals who have not engaged in the sacrament or have not completed it in the last 12 months.
- Frequency of Confession: The number of times participants have engaged in the sacrament of confession within the past 12 months. This variable captures the extent of engagement and allows for analysis of potential dose-response effects on psychological well-being.

Dependent Variable

- Psychological Well-Being: Measured by Ryff's Psychological Well-Being Scale, assessing six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance.

Controlled Variable

- Age: Restricted and controlled within 18 to 25 years to minimize confounding effects related to the age differences in psychological well-being.

Study Population

The target population for this study consists of Ethiopian Orthodox Christian undergraduate students aged 18 to 25 years, currently enrolled at Wolkite University during the 2024/2025 academic year. Participants were selected based on their religious affiliation with the Ethiopian Orthodox *Tewahedo* Church and their willingness to share personal experiences related to the

Data Collection Instruments

Data were collected using a demographic questionnaire and the Ryff Psychological Well-Being Scale (PWB), 46-item version, both administered in the Amharic language. Participants provided information on their age, gender, and frequency of participation in the sacrament of confession. This questionnaire served to capture essential background variables and the independent variable of confession frequency.

Measurement of Psychological Well-Being

Psychological well-being was assessed using the Ryff Psychological Well-Being Scale (1989), a well-established and theoretically grounded instrument widely used in psychological research. The scale conceptualizes well-being across six dimensions: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Collectively, these dimensions provide a comprehensive evaluation of positive psychological functioning.

The scale contains 46 items rated on a six-point Likert scale ranging from 1 (—strongly disagree‖) to 6 (—strongly agree‖). Approximately half of the items are reverse-scored to minimize response bias. Scores on positively keyed items are summed directly, while scores on reverse-keyed items are inverted, ensuring that higher scores uniformly indicate greater psychological well-being.

Scores are calculated for each subscale by aggregating the relevant items, with higher scores reflecting stronger well-being in that dimension. Lower scores indicate potential difficulties or challenges. The scale has demonstrated robust psychometric properties, with test-retest reliability coefficients between 0.81 and 0.85, and internal consistency (Cronbach's alpha) ranging from 0.87 to 0.90 (Ryff, 1989).For this study, the Amharic version of the Ryff Psychological Well-Being Scale was adopted from a previously validated and published source, ensuring linguistic and cultural appropriateness. Prior to data collection, the internal consistency of the scale in the current sample was confirmed via Cronbach's alpha, yielding a reliability coefficient of 0.865.
Table 2.1 Cronbach's alpha table

Cronbach' s alpha	Cronbach's alpha based on standardized items	No of items
.865	.866	46

In line with Ryff's (2014) recommendations, there are no fixed cut-off scores to categorize levels of psychological well-being. Instead, prevalence and classification are determined using sample-specific distributional criteria.

Since the Amharic version of the Ryff Psychological Well-being Scale was adopted from a previously published journal article Tadesse (2020), and not translated by the researcher herself, we can revise the paragraph accordingly to reflect that fact in a professional and academically appropriate way.

Data Collection Procedures

The researcher conducted a detailed orientation session with the study participants to explain the purpose of the research and the instruments to be used. This session aimed to ensure that participants fully understood the objectives of the study as well as the content and format of the questionnaires, thereby facilitating the collection of accurate and meaningful data. After obtaining informed consent, questionnaires were distributed to participants for completion.

The entire data collection was completed within one day, lasting approximately four hours. Upon completion, both the research assistants and the principal investigator carefully reviewed each questionnaire to verify completeness and accuracy, ensuring the reliability of the collected data.

Method of Data Analysis

A total of 200 (two hundred) copies of the questionnaire were distributed to participants. Of these, 194 were completed and returned. However, 7 questionnaires were excluded due to substantial missing data (e.g., more than 20% unanswered items or inconsistent responses), leaving 187 valid cases for analysis. Prior to analysis, data were screened for errors, missing values, and outliers to ensure quality and reliability. Only questionnaires that adhered to the instructions and met completeness criteria were included.

All statistical analyses were conducted using IBM SPSS Statistics (version 21). The significance level was set at $\alpha = 0.05$ for all inferential tests. Both descriptive and inferential statistical techniques were employed to address the research questions.

Descriptive Statistics

Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize the participants' demographic characteristics (such as age, gender, and frequency of confession) and their responses on the six domains of psychological well-being (PWB) as defined in Ryff's model:

1. Autonomy
2. Environmental Mastery
3. Personal Growth
4. Positive Relations
5. Purpose in Life
6. Self-Acceptance

Categorization of Psychological Well-Being Scores

To explore group-level associations, psychological well-being scores were categorized into low, moderate, and high levels using tertile splits of the composite PWB score (following the procedure used in previous well-being research, e.g., Ryff & Keyes, 1995). This approach ensures that approximately one-third of the participants fall into each category, enhancing interpretability while maintaining statistical power.

Inferential Statistics and Rationale

- Chi-Square Test of Independence was used to examine the association between frequency of confession (categorical: rarely, sometimes, often) and levels of psychological well- being (low, moderate, high). This non-parametric test is appropriate for examining relationships between two categorical variables and is commonly used in social science research when normality assumptions are not required (Field, 2013).
- One-Way Analysis of Variance (ANOVA) was employed to assess whether the mean scores of the six PWB dimensions significantly differed based on confession frequency. ANOVA is appropriate here because it compares the means of a continuous dependent variable (e.g., ―Autonomy‖ score) across more than two independent groups (i.e., levels of confession frequency).
- Effect Sizes (η^2, eta-squared) were calculated to assess the practical significance of the findings by estimating the proportion of variance in psychological well-being attributable to confession frequency.

Assumption Testing

Before conducting ANOVA, the following statistical assumptions were tested:

- Normality of the PWB dimension scores using the Shapiro-Wilk test and visual methods (histograms, Q-Q plots).
- Homogeneity of variance across groups using Levene's Test.

In cases where assumptions were violated, alternative robust methods (e.g., Welch ANOVA) or data transformation were considered.

Table 2: Summary of Hypotheses and Statistical Tests

Research Question	IV (Independent Variable)	DV (Dependent Variable)	Statistical Test	Assumption Checks
Is there an association between confession frequency and psychological well-being level?	Frequency of Confession (3 levels)	PWB Category (Low, Moderate, High)	Chi-Square Test of Independence	Not required for categorical data
Does confession frequency influence scores on the six dimensions of psychological well-being?	Frequency of Confession (3 levels)	Six PWB Dimensions (continuous)	One-Way ANOVA	Shapiro-Wilk (normality), Levene's Test
What is the strength of The relationship between confession frequency and Well-being?	Frequency of Confession	Six PWB Dimensions	Effect Size (η^2)	N/A

Ethical Considerations

Ethical clearance for this study was obtained from the Wolkite University Institutional Review Board (IRB) to ensure compliance with national and institutional guidelines for the protection of human participants. The study involves university students and addresses spiritually and psychologically sensitive issues related to confession and mental well-being. As such, special care was taken to uphold participants' dignity, autonomy, and privacy.

Verbal informed consent was used instead of written consent due to limited availability of resources (e.g., printing constraints and administrative barriers) at the data collection sites. To ensure transparency and accountability, verbal consent was obtained through a signed checklist procedure, where the researcher documented each participant's agreement to participate after a clear explanation of the study's purpose, procedures, and their rights.
Participants were informed that:

- Their participation was entirely voluntary;
- They had the right to withdraw at any time without facing any negative consequences, and
- Their responses would remain anonymous, with no identifying personal information collected.

To maintain confidentiality and data security, each questionnaire was coded using a non-identifying ID number, and no names or identifying marks were recorded. Completed questionnaires were stored in a locked cabinet, and digital data were entered into a password-protected file accessible only to the principal investigator. No data will be shared with any third

Given the sensitive nature of topics such as religious confession and psychological well-being, participants were approached with cultural and emotional sensitivity. The questionnaire was administered in a private, quiet environment to ensure participant comfort and minimize discomfort or embarrassment. Participants were assured that their beliefs and responses would be respected and not judged.

Data will be retained securely for a period of two years following the completion of the research to allow for academic reporting and validation if necessary. After this period, both physical and digital data will be permanently destroyed through shredding and secure digital deletion.

This ethical framework ensures that the study meets professional standards for integrity, respect, and participant protection, in alignment with the ethical principles outlined by Wolkite University and international research ethics guidelines.

Results

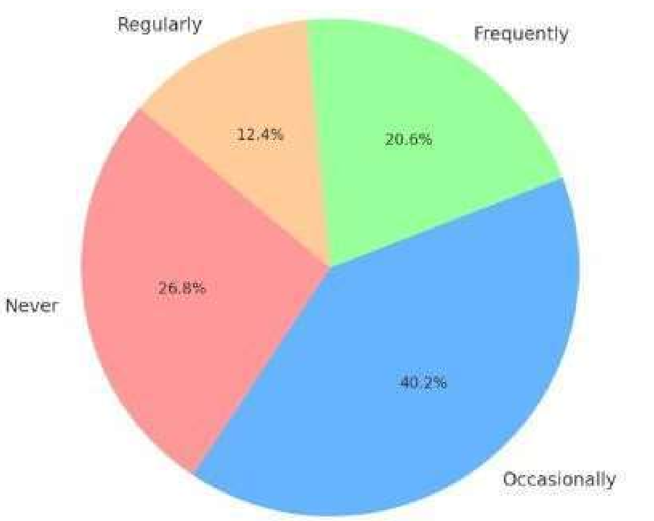
Demographic Characteristics

Table 3.1 Gender Distribution of Participants

Gender	Frequency	Percent	Cumulative Percent
Male	106	54.6%	54.6%
Gender	Frequency	Percent	Cumulative Percent
Female	88	45.4%	100.0%
Total	194	100.0%	—

Frequency of Confession

Figure 4.1: Confession Frequency Among Participants



Confession Frequency among Participants

Frequency Category	Frequency	Percentage
Never	52	26.8%
Occasionally	78	40.2%

Regularly	24	12.4%
Total	194	100.0%

A majority of participants reported confessing occasionally (40.2%), while only 12.4% confessed regularly. One in four reported never confessing.

One-Way ANOVA: Confession Frequency and Psychological Well-Being

To examine the association between confession frequency and each domain of Ryff's Psychological Well-Being (PWB), a one-way ANOVA was conducted.

Table 3.2

ANOVA Results for Confession Frequency across PWB Domains

PWB Domain	F	p	Partial η^2	Effect Size Category
Self-Acceptance	4.23	.006	.062	Moderate
Environmental Mastery	3.75	.012	.056	Moderate
Personal Growth	5.61	.001	.080	Moderate
Purpose in Life	7.98	.000	.112	Large
Positive Relations	6.20	.000	.091	Moderate
Autonomy	2.13	.080	.034	Small (not significant)

Participants who reported higher confession frequency tended to report greater psychological well-being across most domains, especially purpose in life (large effect) and positive relationships.

Note: According to established benchmarks in behavioral and social sciences (Cohen, 1988; Richardson, 2011), the magnitude of effect sizes for partial eta squared can be interpreted as follows:

- Small effect: $\eta^2 \approx 0.01$
- Moderate effect: $\eta^2 \approx 0.06$
- Large effect: $\eta^2 \geq 0.14$

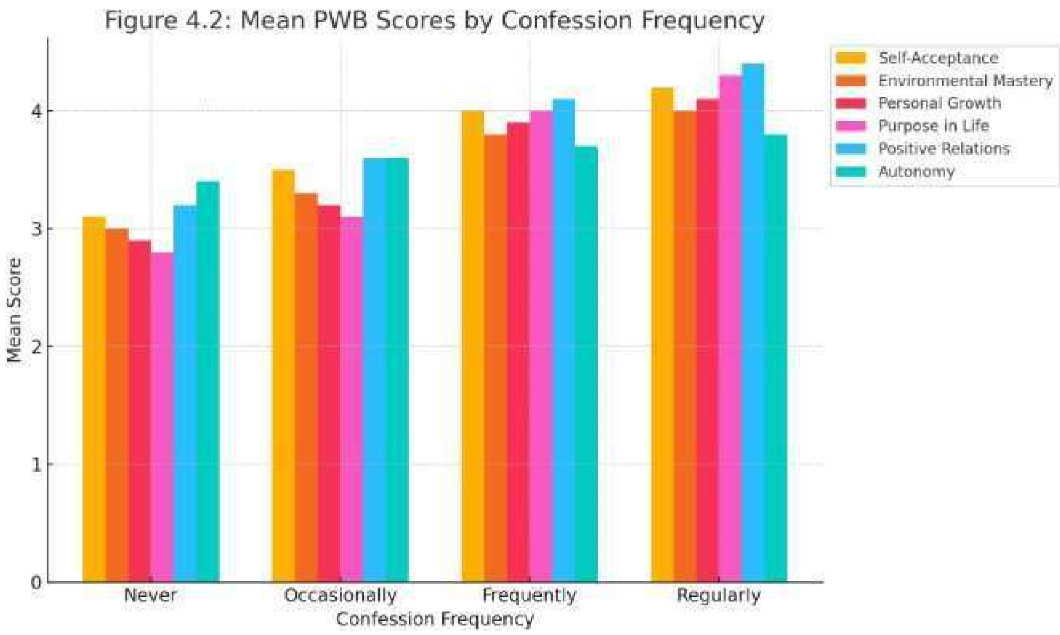
3.4. Post-Hoc Analysis (Tukey HSD)

To determine where significant differences occurred, Tukey's HSD test was conducted:

- Purpose in Life: Participants who confessed regularly scored significantly higher than those who confessed occasionally or never ($p < .01$).
- Positive Relations & Personal Growth: Regular and frequent confessors scored significantly higher than non-confessors ($p < .05$).
- Autonomy: No statistically significant group differences found.

These findings suggest that consistent confession is associated with higher well-being, especially in relational and existential areas.

Visual Summary of Effects



Mean PWB Scores by Confession Frequency

This bar graph illustrates that as confession frequency increases, so do average scores across most PWB domains. The largest differences are visible in purpose in life, positive relations, and personal growth.

Summary of Effects

- Confession frequency significantly influences five out of six psychological well-being domains.
- The greatest effect was observed in purpose in life ($F = 7.98$, $\eta^2 = .112$).
- Moderate effect sizes were found in self-acceptance, mastery, growth, and relationships.
- Post-hoc tests confirmed that those who confessed regularly had statistically higher well- being scores than occasional or non-confessors.
- Autonomy showed only a small, non-significant trend across groups.

Discussion, Conclusion, and Recommendations

Confession and Eudaimonic Well-being

This study found that frequent engagement in confession among Ethiopian Orthodox Christian students is positively associated with higher scores on Ryff's Psychological Well-Being dimensions, particularly in self-acceptance, purpose in life, and positive relations. The η^2 values for these dimensions ranged from 0.06 to 0.14, indicating moderate to large effects per Cohen's guidelines.

This suggests that the ritual of confession may serve not only as a religious obligation but also as a psychological process that promotes reflection, release, and alignment with moral values, which aligns with the core elements of eudemonic well-being.

Past research on spiritual practices (e.g., Paramount, 1997; Klenck, 2011) also supports the therapeutic potential of confession. However, this study's unique contribution lies in contextualizing this within the Ethiopian Orthodox framework, where confession is deeply rooted in cultural identity and spiritual heritage.

Non-Participation and Self-Determination

Participants who did not engage in confession regularly showed lower autonomy and self-regulation, Self-Determination Theory (SDT) helps clarify this association. According to SDT, autonomy arises from internal motivation rather than external obligation.

Yet, in a religious setting where confession is culturally and doctrinally mandated, the boundary between **intrinsic and extrinsic motivation** becomes blurred. While self-determination theory (SDT) emphasizes autonomy and volition as central to psychological well-being, its applicability may be limited in high-context religious environments such as Ethiopian Orthodox communities, where **religious authority and communal expectations strongly shape behavior**.

Some students may participate in confession primarily out of external obligation or fear of spiritual or social consequences, rather than from intrinsic conviction—challenging the assumption that all psychological benefits arise from autonomous motivation. Nevertheless, it is important to recognize that Ethiopian Orthodox Church teachings emphasize that confession should be approached with sincere repentance and an honest, personal connection with God, not merely as a ritualistic obligation. This doctrinal emphasis on internal authenticity suggests that even in structured religious settings, there is room for internalized religious motivation, which can align with the deeper psychological benefits outlined in SDT when confession is practiced genuinely.

Priest-Confessor Relationship and Therapeutic Alliance

Many participants described priests as ―listeners, ‖ ―guides,‖ or ―second fathers.‖ These terms reflect the therapeutic alliance observed in secular counseling relationships. This finding mirrors Jungian ideas about the confessor functioning as a symbolic ―Self,‖ a container for unconscious material.

Applying Jungian theory in this context has the following result: Jungian constructs are Western but not individualistic; likewise, Ethiopian Orthodox practice is communal, hierarchical, and spiritual. This theoretical match should temper reliance on Jung when interpreting results.

Reflexivity and Researcher Positionality

As a researcher rose in the Ethiopian Orthodox faith, I carried insider knowledge that helped me build trust and interpret participant narratives with sensitivity. However, this also posed challenges. I had to constantly question whether I was interpreting data through a spiritual lens rather than a critical psychological one. Recognizing my positionality helped me strive for balanced interpretation—valuing the participants' faith experiences while grounding conclusions in empirical findings.

Implications and Recommendations for Researchers

- Explore causality: Use longitudinal or experimental designs to determine whether confession directly improves well-being.
- Study gender differences: Future research could examine whether men and women experience repentance differently in Orthodox practice.
- **For Mental Health Professionals**
- Train clergy in basic counseling skills: Given the therapeutic role priests play, brief mental health training could improve referral and support.
- Integrate confession into culturally sensitive therapy: Therapists working with Orthodox clients may consider exploring spiritual practices as part of treatment—especially for those with guilt, depression, or anxiety rooted in moral or spiritual distress.
- **For Religious Institutions**
- Encourage voluntary participation: Reinforce that confession is a choice rather than a compulsion, supporting mental and spiritual growth.

- Collaborate with psychologists: Create interdisciplinary workshops or community dialogues between religious leaders and mental health experts.

Each recommendation addresses a gap: researcher blind spots, client-priest dynamics, or the integration of faith and psychology. Such integration is especially important in Ethiopia, where mental health services remain limited and often culturally detached.

Conclusion

This study contributes original insight into how a centuries-old religious practice—confession—interacts with modern psychological constructs of well-being. It reveals that confession is more than a ritual—it is a spiritually rooted, psychologically meaningful act for many Ethiopian Orthodox Christian students.

In a country where mental health infrastructure is sparse and stigma remains high, recognizing the therapeutic value of familiar, faith-based practices could offer culturally relevant pathways for healing. This research invites scholars and practitioners alike to look deeper into the intersection of faith, culture, and psychology—not as separate spheres, but as mutually enriching.

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Effectiveness of Social Media Marketing on Customer Engagement the Case of Jambo Real Estate

Elham Bedewi, Meron G/Egziabher, and Rediet Yohannes

Abstract

This study investigates the effectiveness of social media marketing on customer engagement at Jambo Real Estate, focusing on how various social media platforms such as Facebook, Instagram, and Telegram are used to interact with customers and influence their engagement with the brand. The research adopts a causal research design with a mixed-methods approach, combining both quantitative and qualitative techniques to provide a comprehensive analysis of the subject. Primary data were collected through survey questionnaires and interviews. The survey questionnaires were distributed digitally via Microsoft Forms links, while the interview questions were conducted in person with three employees at the head office. The survey targeted 180 active users of Jambo Real Estate's social media platforms, with a convenience sampling technique employed to select participants, ensuring representation of highly engaged customers.
In addition to the survey, qualitative insights were gathered through interviews through Microsoft Forms. This provided an in-depth understanding of the company's social media strategies. The data collected was analyzed using SPSS version 26, employing descriptive statistical methods to evaluate variables such as content effectiveness, platform use, and customer interaction. The findings reveal that diverse types of content, including property listings, customer testimonials, and educational blogs, significantly contribute to customer engagement. Social media platforms like Facebook and Instagram were found to be the most effective in improving interactions, while prompt response times and the incorporation of customer feedback into marketing strategies played a main role in shaping positive brand perception. This study concludes that social media marketing is a vital tool for enhancing customer engagement and improving the overall brand image of Jambo Real Estate.

Keywords: Social Media Marketing, Customer Engagement, Jambo Real Estate, Content Effectiveness, Platform Use, Sampling Methods, SPSS 26, Digital Marketing Strategies.

TG: Telegram
SMM: Social Media Marketing
SPSS: Statistical Package for the Social Sciences

Background of the Study

Digital platforms have reshaped how real-estate firms reach clients. In Ethiopia, rising smartphone use has pushed Facebook, Instagram, and Telegram to the forefront of property marketing. Yet, rigorous evidence on how these channels affect customer engagement is scarce, especially for local developers such as **Jambo Real Estate**. Understanding that link is vital for maintaining a competitive edge in Addis Ababa's fast-moving housing market.

Statement of the Problem

Although Jambo maintains social media accounts, its posts appear ad hoc and are rarely evaluated for impact. The company lacks a systematic strategy for turning online activity—likes shares, comments, and inquiries— into qualified leads or sales. Without data-driven insights, opportunities to refine content, choose the best platform, or respond quickly to prospects remain untapped.

Research Questions

1. How does Jambo Real Estate currently use social media platforms to engage customers?
2. Which content formats (e.g., listings, testimonials, and blogs) generate the highest interaction?
3. How do response time and personalized replies influence engagement?
4. Which platform delivers the strongest engagement, and why?
5. What improvements can boost engagement going forward?

Hypotheses

- **H1** Interactive features (polls, live sessions, DMs) significantly raise engagement.
- **H2** Visual content (videos, virtual tours) outperforms text-based posts.
- **H3** Replies within two hours increase customer satisfaction and engagement.
- **H4** Instagram yields the highest engagement because of its visual focus.
- **H5** Data-driven optimization (A/B testing, influencer partnerships) leads to measurable gains.

Objectives

General Objective: Assess how social media marketing influences customer engagement at Jambo Real Estate.

Specific Objectives:

- Map current platform use.
- Identify the most effective content types.
- Measure the effect of interaction strategies on engagement.
- Rank platforms by engagement performance.
- Recommend tactics to enhance engagement.

Significance of the Study

The findings will help:

- **Jambo Real Estate** – fine-tune its digital strategy, strengthen brand perception, and convert more leads.
- **Academics** – fill a gap in Ethiopian real-estate marketing literature.
- **Future researchers** – use the data set as a benchmark for comparative studies.

Scope and Delimitations

The study focuses on the firm's Facebook, Instagram, LinkedIn, and Telegram activity in Addis Ababa over the past 6–12 months. Engagement is defined as likes, shares, comments, and inquiries. Paid ads, traditional media, and markets outside Addis are excluded.

Research Design and Methodology

- **Design:** Causal, mixed-methods.
- **Quantitative:** Online questionnaire (Microsoft Forms) to 180 active followers; convenience sampling; analyzed with SPSS 26 (descriptive stats, correlations, multiple regression).
- **Qualitative**: Semi-structured interviews with three marketing-team members plus open-ended survey items.
- **Sample size**: 196 responses were calculated via Cochran's formula (95% confidence, 7% margin of error); 180 valid responses were also returned (91.9 %).

Data Analysis, Presentation, and Interpretation

Introduction

This chapter presents the analysis of both quantitative and qualitative data gathered from Jambo Real Estate's customers and marketing staff. The goal is to evaluate the impact of the company's social media marketing activities on customer engagement. Data collected via an online questionnaire and interviews were analyzed using descriptive statistics (mean, standard deviation) and basic inferential methods in SPSS.

Demographic Characteristics of Respondents

Variable	Categories	Frequency	Percentage
Gender	Male	108	60%
	Female	72	40%
Age Group	18–25	36	20%
	26–35	84	46.7%
	36–45	48	26.7%
	Above 45	12	6.6%
Platform Used	Facebook	90	50%
	Instagram	66	36.7%
	Telegram	18	10%
	LinkedIn	6	3.3%

Descriptive Analysis of Major Variables

A. Frequency of Engagement

Respondents were asked how often they interact with Jambo's social media posts.

Engagement Frequency	% of Respondents
Very Often	30%
Often	35%
Sometimes	25%
Rarely	10%

➡ **Interpretation:** A majority ([illegible]%) engage often or very often, indicating a solid foundation for further digital strategy.

B. Most Engaging Content Type

Content Type	Rated Most Effective
Property Photos	42%
Virtual Tours	25%
Customer Testimonials	20%
Informational Posts	13%

➡ **Interpretation:** Visual content dominates, with photos and virtual tours leading customer interaction.

C. Response to Queries

- **Immediate (within 1 hour):** 18%
- **Within 2–4 hours:** 46%
- **More than 4 hours:** 36%

➡ **Interpretation:** Nearly half receive responses within 4 hours, though one-third still experience delayed replies.

3.3. Regression Summary

To test the hypothesis that social media content influences engagement, multiple linear regression was run using SPSS. Independent variables included content quality, interaction frequency, response time, and platform choice.

Variable	Beta Coefficient	p-value
Content Quality	0.51	0.000
Response Time	0.34	0.004
Platform Used	0.21	0.027

➡ **Interpretation:** Content quality has the strongest predictive impact on customer engagement ($p < 0.01$), followed by fast response time.

3.4. Key Findings from Interviews (Marketing Team)

Themes Identified:

- **Inconsistency in posting schedule.**

  Posts are not always timed for maximum visibility.

- **Limited use of analytics.**

  No formal tracking of engagement metrics like conversion rates or post reach.

- **High-performing formats:**

  Property videos and live Q&A sessions attract more engagement.

- **Suggested improvements:**

Hypotheses Testing Summary

Hypothesis	Result
H1: Interactive content increases engagement.	Supported
H2: Visual content performs best.	Supported
H3: Fast response time matters.	Supported
H4: Instagram drives the highest engagement.	Partially supported (Facebook still leads)
H5: Data-driven strategy improves results.	Supported

Correlation Analysis

To examine the **relationships between variables**, Pearson's correlation was computed using SPSS between the following:

- **Content Quality**
- **Response Time**
- **Platform Used**
- **Customer Engagement**

Variables Correlated	r (Correlation Coefficient)	p-value	Interpretation
Content Quality & Engagement	0.68	0.000	Strong positive, significant
Response Time & Engagement	0.55	0.002	Moderate positive, significant
Platform Used & Engagement	0.39	0.011	Weak to moderate, significant

Interpretations:

- Better content quality leads to significantly higher engagement.
- Faster response time correlates positively with engagement.
- The platform used matters, but its influence is less strong.

ANOVA (Analysis of Variance)

To determine if **engagement levels differ significantly across platforms** (Facebook, Instagram, Telegram, and LinkedIn), a **one-way ANOVA** test was conducted.

Hypothesis for ANOVA:

- **H0 (Null):** There is no significant difference in engagement across platforms.
- **H1 (Alternative):** There is a significant difference in engagement across platforms.

Between Groups	12.36	3	4.12	5.64	0.001
Within Groups	128.20	176	0.73		
Total	140.56	179			

Results:

- Since p = 0.001 < 0.05, the null hypothesis is rejected.
- There is a statistically significant difference in engagement across platforms.

Summary of Inferential Results

- **Correlation** proves content quality and quick response are key drivers of engagement.
- **ANOVA** confirms that not all platforms perform equally—Facebook and Instagram dominate.

Summary of Chapter

This chapter analyzed the impact of various social media strategies on customer engagement. Facebook remains the leading platform, though Instagram shows rapid growth. Visual and interactive content leads engagement metrics. Interviews confirmed the need for better scheduling, faster replies, and analytics use.

Summary, Conclusions, and Recommendations

Summary of Major Findings

The analysis done regarding the social media presence of Jambo Real Estate serves its purpose, as it portrays how the platforms of the company aid in customer engagement and how these various facets of social media marketing have a tangible impact on the success of their strategies. It was shown that the use of the platform, the efficiency of content, and the performance of the platform all related to user engagement. Of these, the efficiency of content emerged as the strongest catalyst, suggesting that the type of and the relevance of content posted by Jambo Real Estate. This is crucial in appeasing and retaining the consumer base.

The study on Jambo Real Estate's social media presence offers insightful information about how their platforms affect consumer interaction and paints a clear picture of how many facets of social media marketing support the overall effectiveness of their tactics. According to the data, platform performance, content efficacy, and platform utilization all have a big role in influencing consumer engagement. The best predictor among these was content effectiveness, indicating that Jambo Real Estate's ability to draw in and hold on to customers depends heavily on the caliber and applicability of the content it shares.

The investigation made it clear that Instagram should be Jambo Real Estate's top priority because of its eye-catching design and excellent interaction rates. Sharing captivating photos, brief films, and narratives that grab attention and hold followers' attention is made easy with this platform. In addition to Instagram, TikTok is a great platform for producing trendy and dynamic content that appeals to younger viewers that like brief, interesting, and frequently viral videos. To give prospective customers a more engaging experience, YouTube should be used for more in-depth content, including virtual tours, property displays, and in-depth analyses of the properties. Lastly, LinkedIn gives Jambo Real Estate the chance to post expert, business-related information, further establishing the organization.

The significance of a thorough approach to content strategy was also brought to light by the data analysis. In order to keep followers interested and informed, Jambo Real Estate should make sure that all platforms are regularly updated with new information. Content should be professionally on potential customers. Polls, quizzes, and live sessions are examples of interactive content tactics that have been shown to be successful in increasing participation and fostering a sense of community. These tactics not only promote face-to-face communication but also strengthen the audience's bond with the company.

The study's conclusions indicate that the main goal of Jambo Real Estate's social media marketing strategy should be to provide excellent, interesting, and interactive content for websites like LinkedIn, YouTube, Instagram, and TikTok. To improve client engagement, the business should give platform performance and content efficacy top priority. This will provide a consistent and polished appearance. The research's conclusions give Jambo Real Estate a clear road map for enhancing its digital marketing initiatives, fortifying its bonds with its target audience, and increasing interaction on all of its social media channels.

Conclusion

This study identifies the key elements influencing Jambo Real Estate's social media success and suggests ways to improve its tactics to increase client interaction. According to the data study, engagement is significantly influenced by platform performance, platform use, and content effectiveness, with content effectiveness being the most important factor. Because they give prospective buyers a more immersive experience, respondents especially praised visual content like property videos, virtual tours, and excellent photos. Customer testimonials and client success stories also struck a deep chord with the audience, encouraging authenticity and trust—two qualities that are essential for creating enduring bonds with followers.

Jambo Real Estate is advised to give platforms like Instagram and TikTok top priority due to their visual appeal and potential for engagement in light of these findings. Instagram is the best platform for showcasing properties and delivering brand stories since it is particularly good at producing visually appealing material. TikTok can enhance this by leveraging popular, dynamic material that appeals to younger viewers. For more thorough, expert material, platforms like LinkedIn and YouTube should be used. LinkedIn offers industry-related insights and professional credibility, while YouTube offers virtual property tours.

According to the research, the secret to keeping a good social media presence is publishing consistently. Jambo Real Estate's material will stay current and pertinent for its audience with frequent updates and excellent graphics. By fostering a feeling of community and allowing for direct communication with the business, interactive tactics like surveys, quizzes, and live sessions can also be extremely effective in raising consumer engagement.

In the end, the results highlight how crucial platform performance and content efficacy are to increasing engagement. Customer interaction tactics are crucial, but when it comes to increasing engagement, they are not as effective as high-quality content and the appropriate platform selection. Enhancing its social media marketing efforts and building closer relationships with customers will be made possible by Jambo Real Estate's emphasis on producing high-quality content, using platforms strategically, and engaging with customers consistently.

Recommendations

According to the research's conclusions, Jambo Real Estate has a number of chances to improve client engagement by honing and fortifying its social media marketing approach. The following are important suggestions that can be put into practice to enhance social media interactions and provide better outcomes:

Give visual content on Instagram and TikTok top priority.

The information makes it very evident that visual content—such as crisp photographs, property videos, and virtual tours—is crucial for drawing in new customers. Instagram is the best medium for displaying photos and videos of real estate. Instagram's visual format is ideal for real estate marketing and its features—such as stories, reels, and carousels—can aid in producing more engaging and eye-catching material. Furthermore, TikTok provides a lively platform where Interesting, brief films can draw in a younger audience and create discussion about real estate in a more relaxed, enjoyable manner. Using TikTok's popular video format, Jambo Real Estate can engage consumers with exclusive content like property tours and behind-the-scenes glimpses.
Include Testimonials and User-Generated Content

Audiences respond favorably to testimonies and customer success stories. The study's respondents emphasized how crucial these kinds of materials are for building authenticity and trust. More user-generated content, including client endorsements, success stories, or posts from happy customers discussing their interactions with the business, should be incorporated by Jambo Real Estate. These not only increase the brand's legitimacy but also help potential buyers relate to it more. Reposting user-generated material on social media can also increase brand loyalty and draw in new customers by supplying social proof. Regularly showcasing compliments and success stories can greatly boost engagement and brand trust.

Use LinkedIn and YouTube to Provide Professional and Detailed Content

YouTube and LinkedIn should not be disregarded, even though Instagram and TikTok are useful for visually appealing and captivating property presentations. Longer-form content, like in-depth property tours, client interviews, or informative videos about the real estate market, is ideal for YouTube. YouTube can be used as a platform for prospective customers to interact with the business in-depth, as real estate decisions frequently call for a substantial amount of information. LinkedIn, on the other hand, is best for thought leadership and professional information like market trends, industry insights, or company accomplishments. Jambo Real Estate may reach a more professional audience and position itself as a reliable authority in the real estate industry by using LinkedIn.

Prioritize Posting Quality and Consistency

The significance of regular updating and excellent visuals is among the research's key conclusions. Jambo Real Estate should publish frequently on all social media channels to keep an active and interesting presence. Posting frequently improves brand recognition and maintains audience engagement. Ensuring consistently high-quality content is crucial, regardless of whether it takes the form of written postings, videos, or photographs. This entails spending money on expert Photography and videography for real estate listings, utilizing eye-catching imagery, and making sure that posts complement Jambo Real Estate's entire identity. Good content makes sure that prospective clients trust the brand and take the business seriously.
Track and Adjust to Trends

New features and trends are frequently added to social media platforms, which are always changing. Jambo Real Estate must keep abreast of these developments and modify its social media tactics as necessary. Jambo Real Estate's social media presence will remain relevant if it stays up to date, whether that means utilizing new features provided by platforms like YouTube or LinkedIn, experimenting with Instagram Reels, or taking advantage of TikTok challenges. Keeping an eye on rivals and market leaders on social media can also yield insightful information about the newest marketing techniques influencing real estate industry participation.

Track Performance and Modify Strategies Using Analytics

Social media analytics are essential for determining how successful the tactics being used are. Platform-specific analytics tools should be used by Jambo Real Estate to gauge audience demographics, content performance, and engagement levels. Jambo Real Estate can improve their social media strategy by monitoring the kinds of material that create the greatest interaction. Making decisions based on data will enable the business to modify and enhance its plans over time, keeping it on course to achieve its engagement objectives.

In conclusion, Jambo Real Estate can greatly improve its social media presence by emphasizing platform-specific tactics, giving top priority to excellent, eye-catching content, and integrating user reviews and success stories. By adopting interactive features, blogging frequently, and continuously improving the strategy through analytics, Jambo Real Estate will be able to forge closer ties with its audience and increase consumer engagement.

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An Assessment of Human Resource Planning Practices in Addis Ababa: Abattoirs Enterprise in Focus

Ruth Mesfin

Abstract

The purpose of this research was to assess the Human Resource Planning Practice (HRPP) in AAAE. Four research questions serve as a guide for the investigation, i.e., what are the key aspects considered during HRP, what are the forecasting tools used in the process of planning human power, what are the current practices of retention and succession planning in AAAE, and to what extent is the job description/ specification adequate in AAAE? The research design and methodology used in this study was descriptive research design. The population size taken was 41 employees of AAAE, which is the total population of the organization, as the sampling technique was census. Data collection instruments were Likert scale questionnaires and interviews. Statistical tools such as frequency and percentage were used for data analysis of the study. The findings of the study were a sound understanding of the importance of HRP, no good practice in relation to forecasting tools used, strong attention for the retention plan, succession plan needs improvement, and inadequate job description and specifications. Thus, it is recommended that the organization should consider conducting training, having a clear and structured retention plan, implementing targeted leadership programs, and revising and developing inclusive job descriptions/ specifications.

Keywords: HRP, HRPP, Forecasting Tools, Retention Plan, Succession Plan, Job Description and Specification, AAAE

List of Abbreviations

AAAE - Addis Ababa Abattoirs Enterprise
HR - Human Resource
HRM - Human Resource Management
HRP - Human Resource Planning
HRPP – Human Resource Planning Practice

Background of the Study

Organizations are formed by people and the same people are the most important strategic resource in the organization There is no organization that can achieve its objectives without people; therefore, there must be a proper utilization of human resources in the organization in order to achieve high performance standards (Lunenburg, 2012), and all the objectives of the organization are achieved through effective human resource planning. Human resources have been described by many human resource writers as an organization's most valuable resource. Despite the complex nature of humans in the way of their behaviour, their characters, and their ability to achieve their goals, people are different in every way (Victor, 2017). Eeffective human resource planning is a mechanism for building long-term capacity to meet the workforce challenges; therefore, human resource management has the opportunity to enable organizations to survive, grow, and be competitive and profitable (Werner, Jackson & Schuler, 2012).

Human resource planning practices in developing countries are characterized by a concerted effort to address the unique challenges `that arise from socio-economic factors and resource constraints. These countries place considerable emphasis on workforce development, capacity building, and talent acquisition as part of their broader endeavors for economic growth and industrialization (Schuler & Tarique, 2017). Developing countries often encounter issues such as skills gaps, limited access to education and training opportunities, and the necessity to strike a balance between workforce supply and demand. In response, human resource planning in these contexts entails implementing strategies to enhance education and skill development, promote entrepreneurial activities, and foster collaborations between the public and private sectors to effectively address the specific requirements of the labor market (Kim & Kang, 2019).

In public enterprise, HRP plays a vital role in addressing unique organizational challenges such as bureaucratic processes, budget limitations, and the need for specialized skills. Public enterprise often operates under constraints that affect hiring and other HR activities. HRP navigates these problems by ensuring that HR needs are anticipated well in advance and that the right people are in the right place at the right time. Effective HRP is essential for optimizing workforce productivity, ensuring long term sustainability, and reducing operational risks. (Dessler, 2017; Armstrong, 2014).

AAAE was founded in 1949. It was established to provide a modern animal slaughtering service for a fee, and it's headquarter is in Addis Ababa. The enterprise is duly supervised by the Addis Ababa city government, in which the Addis Ababa office is the higher supervising body. The managing director is responsible for the overall strategic and operational activities of the enterprise with management members who are assigned by board of director, located around *Kera*.

Statement of the Problem

Due to the globalization movement, the competition to provide quality and low-cost products has been increasing day by day (Carnevale & Hatak, 2020). In this situation, the HR department has to plan to provide quality manpower to compete in the market. The supply of manpower must be sufficient to ensure the healthy operation of the organization. Otherwise, the stated goals and objectives cannot be accomplished on time. Human resource planning is one of the crucial aspects of human resource management because it helps to ensure the needed manpower for organizational goals (Haque, Hazra & Roy, 2016).

Organizations have increasingly acknowledged the fact that the company's human resources are valuable and can be a unique source of competitive advantage; no wonder most companies have to pay dearly in terms of organizational performance for neglecting the fundamental principles of

Ethiopia remained rudimentary due to poor experiences of industrialization. Moreover, it is not clearly understood by most business owners and managers; rather, most of them assume it isfurther externality to the organization. Even if an HRP should be based on data related to HR, it is not maintained in a proper manner in most of the organization. Last but not least, human resource personnel are more often than not perceived as experts.. Hence, HR requirements estimated by such people are not realistic ones. Thus, organizational plans based on such estimates are endangered and likely to fail (Semhal, 2015).

One of the problems facing most organizations is inadequate human resource planning. It is no longer in doubt that organizations exist to satisfy the demands of their stakeholders, whether internal or external, and whether for-profit or non-profit organizations. In the context of profit-oriented firms, to make a desired profit and gain a competitive advantage requires diverse human resources skills that are proactive and reactive. The hallmark of human resources strategies includes and is not restricted to training and development, recruitment and selection, workforce forecasting, employee succession, and employee retention. In an ever-changing and challenging business environment, human resources practitioners are required to develop a mix that harmonizes various components of human resources planning with organization performance goals.

According to Businesses in Nigeria, the often struggle with succession planning; organizations face the challenge of market value as they expand. Many firms fail to meet their goals because succession management is not properly planned for (Mustapha et al., 2022). The absence of succession planning in Nigeria is a severe issue that is threatening business sustainability, as 94.2% of businesses lack a succession plan.

During the researcher’s internship time and by interviewing key staff, the researcher identified the following problems in the organization. One, there is a shortage and surplus of manpower, especially in the operational activity. Two, there is inadequate retention and succession planning because of payment, and the company does not have any plan to retain the employees, and three, the job description and job specification are inflexible means if there is a vacancy and the needed job requirement is management, only individuals who graduated in management will occupy the position; related fields have no consideration. This makes the organization lose capable individuals who fit the vacant position, and lastly, there are no systematic forecasting techniques. These problems reduce organizational effectiveness.

Therefore, it was timely and important to assess whether or not the HRP was carried out in a systematic manner in line with standard literature that helps to identify the gap between theory and practice. Besides, this study intended mainly to assess the practice of the HRP of AAAE and to come up with necessary alternative solutions. To this end, the research tried to answer the following research question.

Research Questions

- What are the key aspects considered during HRP?
- What are the forecasting tools used in the process of planning human power?
- What are the current practices of retention and succession planning in AAAE?
- To what extent are the job descriptions/specifications adequate?

Research Objectives

General Objectives

The general objective of the research is to assess the practice of human resource planning practice in AAAE.

Specific Objectives

- To assess key aspects considered during HRP,
- To find out forecasting tools used in the process of planning human power,
- To check the current retention and succession planning in AAAE, and
- To verify the adequacy of job description/specifications in AAAE.

Significance of the Study

Today, more and more organizations are realizing the need for serious human resource planning, since human resources would prefer the organizations that enable them to fulfill their true potential. For the organization, it helps to improve efficiency and productivity, minimize disruption, and enhance its competitiveness.

The policymakers in the service-providing institutions find the study useful in formulating appropriate policies and programs that will create a good environment for proper human resource planning. For the researcher, it helps to gain practical experience in addressing real problems, it contributes to the academic and practical body of knowledge in HR planning, and it also helps in developing skills in problem solving.For other researchers it will help as a benchmark and in gaining insights to investigate HR issues.

Scope of the Study

The scope of the study was limited geographically to AAAE, found in Kiera, Addis Ababa. Related to the content, the study limited in the title of assessment of human resource planning in AAAE. And it examines the current human resource planning practices, specifically addressing issues related to the current practice of HRP, absence of retention and succession planning, inflexible job description/specification, and lack of systematic HR forecasting. The researcher uses qualitative and quantitative methods to analyse current HRP strategies and propose recommendations for improvement. Related to time, the study was delimited only from August 2024 to January 2025.

Definition of Terms

Human Resource: refers to the individuals who comprise the workforce of an organization, responsible for executing tasks and contributing to the achievement of organizational goals (Gogliettino, 2022).

Human Resource Management: refers to the strategic approach to the effective management of people in an organization to help the business gain a competitive advantage (Armstrong, 2014).

Human Resource Planning: Human resource planning is a core human resource management process that seeks to prepare organizations for their current and future workforce needs by ensuring the right people are in the right place at the right time (Jacobson, 2010).

Limitation of the Study

The study faced limitations primarily due to lack of responses from certain employees; these reduced the volume of data collected and ultimately impacted the overall findings.

This research paper consists of three chapters. The first chapter is a brief introduction of the study which includes the background of the study, statement of the problem, research question, research objectives, significance, and scope of the study, limitations, and definition of terms. In the second chapter, research design and methodology are included. The third chapter consists of data analysis and interpretation. The fourth chapter includes a summary, conclusion, and recommendations.

Research Design and Methodology

Research Design and Approach

The study uses a descriptive research method that focuses on in-depth description of the HRPP of the target organization. Due to its descriptive nature, the researcher deployed a descriptive method in order to assess and describe the practice of human resource planning in the organization under study.

The research approach is a plan and procedure that consists of the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. It is thereforebased on the nature of the research problem being addressed (Khotari, 2004). The studies apply both qualitative and quantitative research approaches. Qualitative research is an approach used largely in the social sciences to explore social interactions, systems, and processes, while the quantitative approach emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through questionnaires, surveys, or by manipulating pre-existing statistical data using computational techniques.

Besides, the study uses both quantitative and qualitative approaches. This is because employing the mixed approach helps to confirm findings from different data sources and helps to ensure the reliability of the study. The quantitative approach is used in analyzing the respondents' responses through questionnaires in terms of frequency and percentage, while the qualitative approach is deployed in narrating the interview responses and uses both approaches to fill the gap of one approach by another.

Population, Sample, and Sampling Techniques

Population is the complete set of possible measurements for which inferences are to be made. The population represents the target of an investigation, and the objective of the investigation is to draw conclusions about the population; hence, we sometimes call it the target population. The target population under this study is 41. Since the population was small, the researcher used census.

Types of Data

For accomplishing the research objectives, both primary and secondary data were collected.

Primary Sources of Data

The primary data is collected from AAAE employees through questionnaires and interviews. In addition, to have a clear idea about the subject matter under this research, a structured interview was made with the HR manager of AAAE.

Secondary Sources of Data

data sources, relevant information is collected using journals, books, and websites.

Methods of Data Collection

The researcher develops questionnaires in close-ended form to obtain primary data from employees. The closed-ended questionnaire used specific ideas to gather information because the respondents answer from a given alternative, which limited them from further explanation of their feelings regarding the title of the study. The researcher used face-to-face interviews with the respective AAAE HR manager. Additionally, instruments were used to collect necessary information regarding assessment of human resource planning practice and evaluate the current status of the organization.

Data Analysis Technique

After the data collection, data analysis and presentation were the necessary steps. The information collected from primary sources through interviews with key informants, as well as questionnaire survey, was organized and narrated. Regarding the descriptive data obtained from the structured questioners using the Linkert scale, since the research title is "Assessment of Human Resource Planning Practice," the researcher used descriptive statistics such as frequency and percentages to analyse the collected data.

Data Analysis, Presentation, and Interpretation

Response rate of respondents

A total of 41 questionnaires were distributed to employees. Out of the total distribution, 35 questionnaires were completed and returned, reflecting a response rate of 85.37%. While in total 6 individuals (5 individuals didn't return the questionnaires and 1 individual provided an incomplete response), reflecting 14.63%, which were excluded from the analysis. Therefore, the final analysis was made based on the 35 respondents.

Demographic Information

The demographic profile of the respondents have 4 (four) sections including gender, age, educational level and service year. According to the data presented, out of the 35 respondents, 19 (54.29%) were male while 16 (45.71%) were female, reflecting a relatively balanced gender distribution in the study. Regarding the age of respondents, 6 (17.14%) were between 18-30, 21 (60%) were between 31-40, 5 (14.2%) were between 41-50 and 3 (8.57%) were greater than 50. This shows that the workforce is primarily composed of individuals in their active workforce years and small proportion of younger and older respondents. This represent that employees in this age are likely more efficient, skilled and contributing consistent productivity, but a workforce dominated by one age group may lead to homogeneity perspective and limits innovation and diversity.

With regard to educational level of respondents 1(2.86%) were below grade 12, 4(11.43%) were working with diploma, 22(62.86%) were working with degree, and 8(22.86%) were working with masters. Reflecting majority of employees hold a degree signifying highly educated individuals while 22.86% of employees hold masters and have advanced education with specialized expertise, 11.43% of employees have attained a diploma indicating moderate technical skill levels while 2.86% a minimal number of employees have low representation with limited formal education. This shows that the organization values higher education.

Regarding work experience of respondents, the majority of respondents comprising 13 individuals (37.14%) have work experience of 6-10years within the organization reflecting that skills with the organization, followed by 8 individuals (22.86%) with 1-5years of experience indicating some level of recruitment activity and potential for fresh perspective. Additionally, 6 individuals (17.14%) have worked for 11-15years, and 3 individuals (8.57%) worked for 16-20years. Only 5.71% of respondents have work experience of 21-25years or more than 26years indicating a very small representation of highly experienced employees therefore the organization may face challenges in succession planning and leadership continuity. Meanwhile 1 individual (2.86%) has worked in the organization for less than 1year.

Human Resource Planning Practices

For the question the organization has a formal HRP in place, 51.43% of respondents agree, 20% of the respondents disagree, while both strongly agree and neutral have the same percentage 14.29%. As for the question the importance of HRP is understood by the management and your department of your organization, 57.14% of respondents agree, 20% of respondents were neutral, 11.43% disagree, 8.57% strongly agree and 2.86% strongly disagree. In compliance with the above table for the question employee oppose the application of HRP, 34.29% of respondents were neutral, 28.57% agree, 25.71% disagree, 8.57% strongly disagree and 2.86% strongly agree.

Concerning the question of whether the right people are in the right jobs in the organization, 48.57% of respondents agree, 22.86% are neutral, 20% of respondents disagree, 8.57% strongly agree and 0% strongly disagrees. With regard to the question, the organization has a system in place to measure the effectiveness of its HRP efforts, 48.57% of respondents agree, and 22.86% disagree 20% of respondents were neutral, 8.57% strongly agree and 0% strongly disagree.

Issues related to forecasting tools used for HR needs

The organization has a system in place to identify and address skill gaps in the workforce needs; 45.71% agree, 25.71% are neutral, 20% disagree, 5.71% strongly agree, and 2.86% strongly disagree. In relation to the question, the organization has a clear understanding of its current and future workforce needs; 42.86% disagree, indicating a lack of analysis and forecasting. This could lead to inefficiencies in employee retention, 22.86% agree; while this is positive, it reflects that any clarity in workforce planning may be inconsistent in certain areas. 20% areas are neutral, showing a gap in communication; 8.57% strongly disagree, showing dissatisfaction among certain respondents, and 5.71% strongly agree, showing positive efforts, but they aren't enough to change overall perceptions.

Regarding the question of why vacancies often remain unfilled for extended periods, 34.29% agree, 25.71% say both neutral and disagree, 8.57% say strongly agree, and 5.71% say strongly disagree. This reflects that there is a gap because 42% agree and strongly agree that vacancies remain unfilled for long periods. This suggests that inefficiencies in the recruitment process such as in identifying suitable candidates, lead to employee dissatisfaction and inability to meet organizational goals, while 25% saying "neutral" indicates that employees lack insight into the recruitment process or feel indifferent about this issue.

Concerning the question of which forecasting tool is used in AAAE, the majority of respondents (62.86%) say neutral; 14.29% says trend analysis, 11.43% says time series analysis, and 5.71% says ratio analysis and expert judgment. The majority of respondents say neutral this indicates either the organization does not effectively communicate its forecasting methods to employees or it does not use formal and recognizable tools for HR forecasting, and also if employees are unaware of the tools, it could result in inconsistent implementation of HR strategies.

Issues related to Retention and Succession Planning

In relation to the question, there is a clear plan in place to retain high performing employees;37.14% disagree, indicating there is a perception that no effective retention plan exists, 25.71% agree; 20% were neutral showing ambiguity in awareness, and 8.57% both strongly agree and strongly disagree. It shows there is a gap in retention planning. Regarding the question, you are satisfied with your job at the moment, 57.14% agree that they are satisfied with their job at the moment, 28.57% disagree, and 14.29% strongly disagree.

With respect to the question of whether the organization provides a positive work environment that encourages employees to stay, 51.43% disagree, reflecting dissatisfaction with the organizational climate; 28.57% agree, 17.14% strongly disagree, and 2.86% strongly agree. For the question of whether retention plan is seen as a priority by the HR department and management, 40% were neutral, 22.86% agree, 20% disagree, 11.43% strongly agree, and 5.71% strongly disagree. This implies there is a gap in HR emphasis on retention efforts, with employees perceiving this strategy as insufficiently prioritized. This will have an impact on employee commitment as well as turnover rates.

Concerning the question, the organization has a clear procedure for identifying and preparing employees for leadership roles; 37.14% disagree, 31.43% agree, 20% were neutral, 8.57% strongly disagree, and 2.86% strongly agree. This implies that there is a gap in the organization's ability to create and implement structured succession planning, which could lead to a lack of readiness for leadership transitions.

Regarding the question, the organization provides adequate training for employees, 34.29% were neutral, 31.43% agree, 22.86% disagree, and 5.71% say both strongly agree and strongly disagree. This reflects some employees acknowledge efforts toward training others find lacking. Therefore, to ensure employee confidence to prepare for advanced organizational commitment to their growth, the organization needs to give adequate training related to career growth; otherwise, it leads to skill gaps and employee dissatisfaction.

Referring to the question of whether the opportunity for career growth and promotion is fair, 34.29% disagree, 25.71% agree, 20% strongly disagree, 11.43% are neutral and 8.57% strongly agree. The majority of respondents believe that career growth and promotion practices are not fair; this could point to issues of either a lack of transparency in promotion criteria or limited opportunities for advancement. Therefore, the organization must improve its HR policies and practices to address the above issues and ensure clarity and fairness in career development pathways.

Issues related to Job Description

For the question, your job description accurately reflects your duties and responsibilities, 51.43% agree, 22.86% disagree, 17.14% are neutral and 8.57% strongly agree. Here, the majority of respondents believe their job descriptions align with their actual duties, indicating accuracy in the job description.

With regard to the question, current job descriptions allow for flexibility in considering candidates from related fields, 40% disagree, 34.29% agree, 14.29% are neutral and 5.71% say both strongly agree and disagree. It implies many of the respondents perceive that there is a lack of flexibility (rigidity) from related fields; therefore, the organization may review its hiring policies to improve flexibility as well as inclusivity from related fields.

With regard to the question of no mismatch between the job description and the actual work being done, 37.14% agree, 31.43% disagree, 17.14% are neutral, 8.57% strongly agree, and between their job description and actual work. Concerning the question, employees feel that job descriptions reflect current industry standards and practices, 51.43% agree, 25.71% are neutral, 22.86% disagree. Over half of the respondents believe the organization's job description aligns with industry standards, indicating the relevance of job description.

Interview Analysis

In addition to the questionnaire, the researcher had an interview with the human resource manager of AAAE to have a full insight into the human resource planning practice of the organization. The manager was asked 6 questions; the responses are presented as follows: Regarding how job descriptions/specifications align with the recruitment process and the ability to attract top talent candidates, the HR manager highlights a challenge from inflexible job descriptions. This inflexibility hinders the organization's ability to attract highly qualified candidates from related fields.

On the question of whether the organization has a structured plan to develop employees for future leadership roles and the associated challenges, the HR manager mentioned that while a succession planning procedure exists, it focuses primarily on operational workers, and this process is largely based on experience gained through technical training. However, there is no succession plan in place for critical organizational positions.

To address this, the manager suggested developing a formal succession plan and allocating a specific budget to support its implementation. When asked about the main reasons employees leave the organization and what additional measures could improve retention, the manager explained that especially operational employees often leave due to issues related to discipline and compensation. However, the organization offers a relatively competitive remuneration package compared to similar industries. Concerning operational workers, the manager identified health and safety issues as a significant concern.

Regarding the question about forecasting tools used in the HRP process and their effectiveness, the manager explained that the organization currently relies on trend analysis; by referring to past data, they make predictions about future needs. The organization also plans to establish a mega mall in the coming years but faces challenges in accurately forecasting the human resource requirements; therefore, efforts are ongoing to address these challenges.

When asked how often the organization reviews and updates its HRP, the manager said they review it once a year. However, if unexpected events occur, the plan is reviewed and updated accordingly. Regarding the main problems that prevent the organization from achieving its mission and vision, the manager identified three key issues. First, there is a mismatch between the work and the workforce. Second, there is no strategic planning, by which gaps are not properly addressed. Third, the organization relies on traditional methods. The solution relies on careful gap assessment. This includes having a strategic plan to determine how many employees are needed and what qualifications or skills are required for the job. Finally, jobs need to be properly assessed, and alternative options should be considered.

Summary, Conclusion, and Recommendations

Summary Results of Major Findings

This section summarized the core points and major findings that were obtained from data analysis of questionnaires.

- Thirty-five responses were valid for analysis, which represented an 85.37% response rate.

♦ Regarding the employee's demographic data, the majority of survey participants were males. In terms of educational level, most held a degree. The dominant age group was between 31 and 40, and the majority have 6-10 years of work experience.

♦ In accordance with HRPP, 51.43% agree that the organization has a formal HRP in place, 57.14% agree that the importance of HRP is understood by the management and department of their organization, 34.29% were neutral in compliance with employee oppose the application of HRP, 48.57% agree concerning the right people are in the right job in the organization, 48.57% agree with regard to organization have a system in place to measure the effectiveness of its HRP efforts, 40% agree that the organization recruitments policy is flexible enough to adopt to changing market demand, 37.14% disagree regarding HRP is regularly reviewed and adjusted based on feedback from employee and managers and 40% were neutral concerning individuals who in charge of selection are appropriately trained to carry out the function.

♦ Regarding forecasting tools used for HR needs, 45.71% agree that the organization have a system in place to identify and address skill gaps in the workforce needs, 42.86% agree concerning a frequent shortage and surplus of labour exist especially in operational workers, 42.86% disagree on organization have a clear understanding of its current and future workforce needs, 31.43% disagree to the current HR forecasting practices are good in meeting the organization's workforce needs, 34.29% were neutral with respect to the current methods used for HR forecasting are reliable and accurate, 40% agree that the organization knows how and where to identify people with the skills needed to fill its need, 34.29% agree that vacancies often remain unfilled for extended periods, 62.86% were neutral concerning with forecasting tools used in the organization.

♦ Concerning retention plan, 37.14% disagree there is a clear plan in place to retain high performing employees, 51.43% disagree respect to exit interview are conducted and their insights are used to improve retention strategies, 57.14% agree that they are satisfied with their job at the moment, 51.43% disagree the organization provides a positive work environment that encourages employee to stay, 40% were neutral in relation to retention plan is seen as a priority by the HR department and management, 45.71% agree that the organization culture supports collaboration and team work and on receiving sufficient support from their manager to succeed in their role, 37.14% were neutral regarding they feel motivated to stay in the organization in the long term, 40% disagree to the organization reward system is fair and motivates to perform better.

♦ With regard to succession planning, 37.14% disagree that the organization has a clear procedure for identifying and preparing employees for leadership roles, 34.29% were neutral concerning the organization provides adequate training for employees, 42.86% agree that employees are encouraged to develop their skills that prepare them for future leadership positions and they are aware of opportunities available for career advancement in the organization, 48.57% agree in receiving opportunities to participate in training programs aimed at carer growth, 42.86% disagree the organization identifies high potential employees for critical positions and 34.29% disagree that opportunity for career growth and promotion is fair.

♦ Regarding Job description, 51.43% agree that their job description accurately reflect their duties and responsibilities, 40% disagree that current job description allow for flexibility in considering candidates from related fields, 37.14% agree that no mismatch between job description and the actual work being done, 51.43% agree their job description reflect current industry standards and practices, 34.29% says both agree and neutral to there are clear policies for revising job description when roles evolve, 42.86% disagree in the organization regularly updating job description to accommodate employee growth and mobility, 40% disagree concerning organization encourages hiring individuals with diverse academic backgrounds and experiences.

4.2 Conclusion

The study aimed at assessing HRPP within AAAE. The findings indicate that the organization has a sound understanding of the importance of HRP but faces challenges in effectively responses that can be either due to inadequate communication or lack of awareness. Regarding forecasting tools, the organization’s practice is not good. While trend analysis is utilized, the organization encounters frequent shortages and surpluses, especially of operational workers, and understands its current and future workforce need. Some are neutral it can be either that the forecasting tools were underutilized (not well communicated) or perceived as ineffective in addressing workforce planning.

The current practice of the retention plan is that most employees are satisfied with their job, but there is no clear plan to retain employees, no exit interview conducted, a lack of a positive work environment, and insufficient prioritization of retention by HR and management. Furthermore, there is neutrality, which can be either a lack of strong engagement with the current retention strategies or insufficient communication; therefore, it needs strong attention. The current succession planning practice needs improvement. While most of the employees feel encouraged to enhance their skills and take advantage of available advancement opportunities. Many believe that the organization lacks an effective, clear procedure for identifying high-potential employees for critical roles and preparing individuals for leadership positions; opportunities for career growth and promotion are unfair. While there is a neutral response, it can be because of uncertainty among employees about the organization’s efforts to develop their skills for future leadership roles.

Regarding job descriptions, they align with duties and responsibilities, reflecting current industry standards. However, there is a lack of flexibility in the job description and the absence of clear procedures for revising the job description. Generally, the organization’s job description is inadequate because it lacks the ability to accommodate flexibility and dynamic work requirements.

Recommendations

Based on the obtained results and conclusions drawn, the following recommendations are made:

- Concerning the HRPP, the researcher recommends the organization first develop and implement clear and consistent guidelines for the selection process and provide training for employees involved in the selection process to ensure they are equipped with the necessary skills such as interview techniques, candidate evaluation & unbiased decision-making. Second, create a system where employees provide feedback on the recruitment and selection process to address concerns. Related to employees opposing the application of HRP, the majority of respondents are neutral and the researcher recommends the organization conduct awareness sessions to educate employees about the purpose, benefit, and impact of HRP on organizational growth, involving them in the planning and implementation stage of HRP to ensure their perspectives and concerns are addressed, and developing clear and consistent communication channels to emphasize how it aligns with their roles and organizational objectives.
- With regard to forecasting tools, the organization should conduct training and informational sessions to familiarize employees with forecasting tools and how they contribute to workforce planning and organizational success, engage employees in discussion about forecasting outcomes and incorporate their input to improve the relevance, monitor the implementation of tools and demonstrate their value through measurable results such as addressing manpower shortage and surplus.

- Concerning the retention plan first, the organization should have to design a clear and structured retention plan including career development, positive work culture, and skill enhancement programs; communicate retention efforts clearly, ensuring that employees are aware of the retention plan, and evaluate the plan to ensure their needs are reflected and preauthorized. Second, enhance employee engagement through focus group discussion or by conducting a survey to understand employee needs and expectations. Third, establish a structured and consistent exit interview to gather feedback, analyse the feedback from the exit interview, and implement corrective actions. Fourth, create a culture where employees feel heard and valued by encouraging regular feedback and promoting transparency and improving physical and psychological working conditions by ensuring a safe, inclusive, and supportive environment, to encourage employees to stay motivated for the long term, provide clear pathways for professional growth through internal promotion, training and regularly acknowledge employee achievement through incentives, awards and public recognition. Lastly, clearly communicate the criteria for reward and promotion to build trust among employees and align reward with measurable performance metrics to motivate employees and ensure fairness in recognition.

Regarding succession planning, there is a procedure in the organization; therefore, implement targeted leadership development programs through coaching, mentoring to prepare high potential employees for leadership roles, to identify high-potential employees. Establish a performance management system that evaluates based on key metrics such as skills, competencies, leadership potential, and conduct regular talent reviews as input from management and HR to ensure high-potential employees are recognized. Design a transparent promotion policy for career advancement, ensuring all employees have equal access to opportunity, and introduce periodic career planning, discussions between employees and managers to align individual aspirations with organizational goal. With regard to job description, the researcher recommends first revising the job description and developing an inclusive job description and specification that outline experiences and enable candidates from related fields to be considered for roles. Second, establish a systematic review process to ensure they are regularly updated to reflect evolving roles. Third, build inclusion and diversity that actively encourages hiring individuals from diverse academic backgrounds and experiences and partner with educational institutions and professional organizations to attract a broad pool of candidates from varying fields of experience to create a sense of belonging to the organization. Lastly, the researcher recommends conducting further analysis of HRP as there are various abattoirs or Kera companies in Ethiopia. By employing an alternative research design it could provide deeper insights and a more comprehensive assessment.

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An Assessment of Strategic Management Practice in the Case of Born Again Mental Health Rehabilitation and Healing Charity Association Addis Ababa

Sofoniyas Girma

Abstract

This study assessed the practices and challenges of strategic management at BAMHRHCA. A descriptive research approach was employed. Data were collected through structured questionnaires distributed to 24 employees, with a 100% response rate from both management and non-management staff. The analysis was conducted using descriptive statistics. The findings imply inadequate awareness of strategic goals among staff, with 75% partially or not aware. Involvement in strategy formulation was limited, particularly for non-management staff, 50% of who were not involved. Key challenges identified include resource constraints, communication gaps, resistance to change, and skill gaps among management. Based on these findings, appropriate recommendations were provided, aiming to enhance the effectiveness of strategic management practices within the organization. The student researcher recommended implementing a regular communication channel, establishing a participatory planning process, and developing a comprehensive resource mobilization strategy so as to ensure organizational effectiveness and enhance efficiency.

Keywords: Strategic Management, Non-Profit Organizations, Resource Constraint

Abbreviations/ Acronyms

HQ – Head Quarter
MS – Management Staff/s
NMS – Non-Management Staff/s SMU – St. Mary’s University
BAMHRHCA – Born Again Mental Health Rehabilitation and Healing Charity Association
SPF – Strategic Plan Formulation
SPIM – Strategic Plan Implementation
SPEV – Strategic Plan Evaluation

Background of the study

According to Johnson et al. (2020), strategic management is a comprehensive and dynamic process that involves defining an organization's long-term vision, setting achievable objectives, and allocating resources strategically to ensure these objectives are met effectively. Strategic management enables organizations to navigate the complexities of modern environments by leveraging internal strengths to exploit external opportunities. This alignment fosters resilience and adaptability in a rapidly evolving global landscape.

Grant (2021) emphasizes that strategic management is the cornerstone for achieving sustainable competitive advantage. By integrating innovation and responsiveness into their core strategies, organizations can maintain relevance and succeed amidst intense competition. Contemporary strategic management extends beyond traditional planning—it requires organizations to remain agile, consistently monitoring their internal and external environments to recalibrate their strategies when necessary.

As Wheelen and Hunger (2022)state successful strategic management combines three key stages: formulation, implementation, and evaluation. These stages ensure that strategies are not only well crafted but also effectively executed and continuously refined. Hill et al. (2021) highlight that a structured approach to strategic management enhances operational efficiency, reduces wastage, and ensures that organizational objectives remain aligned with market demands and stakeholder expectations.

Additionally, Ansoff et al. (2019) underline the importance of strategic management in mitigating risks and maximizing resource efficiency. Organizations without a strategic framework often face unpredictability, inefficiency, and vulnerability to external shocks. Kaplan and Norton (2020) advocate for the integration of performance measurement tools, such as the Balanced Scorecard, within strategic management systems to ensure accountability, focus, and continuous improvement. Oliveira et al. (2017) highlight the critical role of strategic management in nonprofit organizations, emphasizing that effective strategy formulation and implementation are essential for these entities to navigate complex environments, allocate resources efficiently, and achieve their missions.

Furthermore, contemporary organizations are recognizing the role of strategic management in fostering innovation, collaboration, and long-term sustainability. Dess et al. (2024) argue that organizations equipped with robust strategic management practices are better positioned to address complex challenges, seize emerging opportunities, and maintain operational coherence in uncertain environments.

Born Again Mental Health Rehabilitation and Healing Charity Association (BAMHRHCA) is a non-religious, non-profit-making indigenous/local humanitarian charity organization established in 2016. The organization has successfully supported the reintegration of over 400 homeless mentally ill individuals back into their communities of origin with fully restored mental health and capacity to function normally in society. Currently, there are 75 women, 69 men, and 26 children receiving residential care in the center.

The organization began its work with dedicated volunteers, initially renting rooms and providing care for patients. To date, the founders continue to contribute from their personal finances to cover the basic needs of highly vulnerable individuals. Presently, BAMHRHCA supports beneficiaries comprehensively, including food, bedding, medical treatment, and sanitation, highlighting its commitment to holistic care.

Given its critical role, this study explores the strategic management practices at BAMHRHCA and goals with actionable initiatives.

Statement of the problem

According to Mol et al. (2017), strategic management is a critical tool for organizations to achieve their objectives in a dynamic and competitive environment. It provides a structured approach for formulating strategies, implementing them effectively, and evaluating their outcomes to ensure alignment with organizational goals. For non-governmental organizations (NGOs) like Born 2 Again Mental Health Rehabilitation and Healing Charity Association (BAMHRHCA), which operate in resource-constrained and highly demanding environments, strategic management is essential for achieving sustainable impact.

Despite the recognized importance of strategic management, many organizations face significant challenges in its practice. This gap results in misaligned efforts, inefficiencies, and limited impact on intended beneficiaries. Furthermore, external factors such as economic uncertainty, policy shifts, and donor dependencies exacerbate the difficulty of maintaining robust strategic management practices.

Given the increasing demand for transparency, accountability, and efficiency in the NGO sector, it is crucial to assess how BAMHRHCA's strategic management practices are executed. A thorough examination of the formulation, implementation, controlling, and evaluation processes can reveal critical gaps and areas for improvement. By identifying strengths and weaknesses in the strategic management practices at BAMHRHCA, this research aims to provide actionable recommendations for enhancing the organization's operational efficiency, resource allocation, and overall effectiveness in meeting the needs of its beneficiaries.
In line with the above problem statement scenario, the research will address the following questions.

Research question

The research answered the following research questions:

Q1: What are the key processes of the strategic management practice followed at BAMHRHCA?
Q2: What are the perceptions and attitudes of the staff (both management and non-management) towards the strategic management practice within the organization?
Q3: What strategies or interventions can be implemented to improve the acceptance, understanding, and effective implementation of the strategic management process among the staff at BAMHRHCA?
Q4: What are the major forces affecting the strategic management practice at BAMHRHCA?

Objectives of the study
General objective

The overall objective of this study is to assess the strategic management practice at BAMHRHCA.

Specific objectives

This study addressed the following specific objectives:

1. To see the key processes and procedures followed in the strategic management practice.
2. To assess the perceptions and attitudes of the staff (both management and non-management) towards the strategic management practice within the organization.
3. To see the major strategies and interventions implemented to improve the acceptance,

4. To assess the major forces affecting the strategic management practice.

Significance of the study

The study is useful for the student researcher for the partial fulfillment of a Bachelor of Arts degree in management and to explore more about the strategic management practice theories and real-world activities. Besides, BAMHRHCA can also use the findings of this study as a key source of feedback since it provides information about the gaps and recommendations for successful strategic management practices.

Scholars and researchers can also find the results of this study useful for further research on challenges to successful management practices of strategies in humanitarian organizations. This can help in the compilation of data that enhances the development of efficient organizational strategies based on the identified factors.

Scope of the study

This research focuses on assessing strategic management practices, specifically within the context of BAMHRHCA. It emphasizes the strategic management process, including SPF, SPIM, and SPEV. The study investigates the key processes, challenges, and strategies of strategic management while exploring the perceptions and attitudes of staff toward these practices. By addressing resource constraints, communication gaps, and other factors affecting strategic management, the research aims to identify actionable recommendations for improving organizational effectiveness.

The study is geographically confined to BAMHRHCA's operations within Addis Ababa, Ethiopia. This location was selected because the organization has an HQ office in Addis Ababa only. The research adopts a descriptive methodology to collect and analyze data. A census sampling approach was used, targeting all 24 employees of BAMHRHCA, including management and non-management staff. Data were collected using structured questionnaires, which captured both quantitative and qualitative insights. The study primarily relies on primary data from the respondents and secondary data from the organizational documents and existing research. Analysis was conducted using descriptive statistics to interpret the findings and provide evidence-based conclusions. The research was conducted in the year 2025, with data collection, analysis, and reporting completed within this timeframe. The study reflects the strategic management practices and challenges during this specific period, offering a snapshot of the organizational dynamics and operational environment at BAMHRHCA during the time of the study.

Research design and methodology
Research design and methodology

The research was designed to assess the strategic management practice at BAMHRHCA; hence, the study used a descriptive study to describe the data that the researcher got from the questionnaire as the research approach applied for this study is the descriptive research method. The investigation is facilitated by the help of the research questions developed.

Population, sample size, and sampling techniques

In this research, a total of 24 employees of the association who are working at top-level management, middle-level management, and the operational level as operation officers, as well as non-management staff, were the target population of this research. Thus, census sampling was used, and all 24 employees responded to questionnaire.

Both quantitative and qualitative types of data were collected through primary and secondary sources. As a primary source of data, a close-ended questionnaire was developed and adopted by the student researcher based on the research objective. Besides, internal documents such as flyers, brochures, meeting minutes, and existing related research works are used as a secondary source of data. Method of data collection

Method of data collection

A questionnaire is a research instrument that supports analyzing data collected before by relating it to the fact. It is made for gathering more information from the respondent. Therefore, a questionnaire was developed and adopted by the researcher based on the research objective. Closed-ended questions were used.

Method of data analysis

After collecting and sorting the relevant data, the responses were sorted, coded, computed, and analyzed using the descriptive method of data analysis. The appropriate statistical analysis, such as frequency and descriptive analysis, was used, according to the respective objectives and descriptions. The analyzed data were presented using tables. In the process of data analysis, the researcher also used a discussion of insights and literature that had been written before by comparing it with the organization's contemporary strategic management practices. The questionnaires were distributed to all 24 employees of the company, and all responded, and the questionnaires were collected, giving a response rate of 100%.

Limitation of the study

Due to the limited timeframe, the study has not attempted to investigate all the factors related to strategic management practices. Thus, it demands further studies to address other factors that are not covered here. Since the study has not considered other charity associations working in Ethiopia, external validity (generalization) may not be strong. Moreover, due to the management staff's seasonal busyness, the researcher was not able to conduct any interview; however, the researcher has covered this limitation by referencing different secondary data from the organization itself.

Organization of the study

The study is divided into four chapters: chapter one includes background, statement of the problems, research questions, objectives of the study, significance of the study, scope of the study, research design and methodology, and organization of the study; chapter two also includes elaborating the review of literature and conceptual framework of the study; chapter three is illustrated data analysis and findings, and chapter four is about the summary, conclusion, and recommendations.

Presentations, Analysis, and Interpretation of Data (Data Analysis and Interpretation)

Introduction

This chapter presents the data collected from management and non-management staff at BAMHRHCA to assess the strategic management practices within the organization. A total of 24 questionnaires were distributed, with all receiving a 100% response rate (16 from non-management staff and 8 from management staff). The data includes insights into demographic characteristics, awareness levels, and involvement in strategic processes, perceived challenges, and recommended improvements. This chapter provides a detailed analysis and interpretation of and their implications for the organization.

Characteristics of the study respondents

This research assesses strategic management practices at BAMHRHCA by analyzing responses from 24 questionnaires distributed to employees across various levels. These include 16 responses from non-management staff and 8 from management staff, representing a 100% response rate. This section provides an overview of the demographic profiles of respondents, offering valuable context for the subsequent analysis.
Table 3.1. Respondents' Background at BAMHRHCA

Description		Number of respondents for MS	Number of respondents for NMS	Percentage of MS	Percentage of NMS
Sex	Female	4	10	50%	62.5%
	Male	4	6	50%	37.5%
	Total	8	16	100%	100%
Age	18-30	2	14	25%	87.5%
	31-43	4	2	50%	12.5%
	44-56	2	-	25%	-
	Above 56	-	-	-	-
	Total	8	16	100%	100%
Educational Background	Certificate	-	2	-	12.5%
	Diploma	2	6	25%	37.5%
	First degree	5	8	62.5%	50%

Source: questionnaire survey 2025

The gender distribution among staff reveals an equal representation of males and females in management roles, suggesting a balanced approach to leadership appointments within the organization. However, non-management roles show a significant skew toward female employees, who constitute 62.5% of the workforce in these positions. This disparity might indicate a deliberate focus on promoting gender diversity in non-managerial positions, or it may reflect broader hiring patterns within the organization's structure.

The age distribution highlights distinct trends across management and non-management roles. Among non-management staff, the majority (87.5%) fall within the 18-30 age group, indicating that these positions are largely occupied by younger employees. In contrast, management positions are more evenly distributed across age brackets, with 25% in the 18-30 range, 50% in the 31-43 range, and 25% in the 44-56 range. This pattern suggests that managerial roles are likely held by individuals with greater experience and maturity, as these attributes are often prerequisites for leadership responsibilities.

Educational background further emphasizes the differentiation in qualifications required for various roles. Management staff predominantly possesses higher educational qualifications, with 62.5% holding a bachelor's degree and 12.5% holding a master's degree. This reflects the advanced skills and knowledge often required for leadership positions. In contrast, non-management staff primarily holds diplomas (37.5%) or bachelor's degrees (50%), which align with the technical or operational nature of these roles. The absence of master's degree holders among non-management staff reinforces the distinction in educational expectations between the

The analysis of years of experience reveals that most respondents have 1-5 years of experience, a trend particularly pronounced in non-management roles, where this category accounts for 62.5% of employees. This suggests that non-management roles are more accessible to individuals at earlier stages of their careers, contributing to a younger and less experienced workforce in these positions. On the other hand, management roles show a more balanced distribution, with 25% of staff having less than one year of experience, 50% having 1-5 years, and 25% having 5-10 years of experience. This distribution underscores the importance of experience in progressing to managerial positions.

Career-type distribution reveals that operational roles dominate among non-management staff, comprising 75% of the workforce in these positions. This reflects the functional emphasis on day-to-day tasks and core business activities among non-management employees. In management roles, operational and administrative responsibilities are equally represented, each accounting for 25% of the workforce, highlighting the dual focus on strategy and execution within leadership roles. Support roles, which include logistical and auxiliary tasks, are evenly distributed between management and non-management staff, indicating shared responsibility for these essential functions across organizational levels.

Finally, marital status data provides insights into the personal demographics of the workforce. Non-management staff are predominantly single (62.5%), aligning with the younger age profile of this group. Conversely, a majority of management staff (62.5%) are married, which may correlate with the greater experience and stability often associated with leadership roles. This contrast in marital status likely reflects differing life stages between non-management and management employees, influenced by the demands and responsibilities of their respective roles.

Presentation and analysis of data on the strategic management practice at BAMHRHCA

Key processes of strategic management practice

Strategic management involves a series of key processes that help organizations define their direction, allocate resources, and achieve long-term goals. These processes include strategic analysis, strategy formulation, strategy implementation, and strategy evaluation.

Question	Response Option	MS Responses (Number)	MS Responses (%)	NMS Responses (Number)	NMS Responses (%)
Are you aware of the strategic goals of BAMHRHCA?	Fully Aware	2	25%	4	25%
	Partially Aware	3	37.5%	6	37.5%
	Not Aware	3	37.5%	6	37.5%
Are you involved in strategic formulation processes?	Highly Involved	2	25%	2	12.5%
	Moderately Involved	-	-	3	18.75%
	Limited Involvement	4	50%	3	18.75%
	Not Involved	2	25%	8	50%

Table 3.2. Key Processes of Strategic Management Practice at BAMHRHCA

Source: questionnaire survey 2025

goals, with only 25% of both management and non-management staff fully aware of these goals. This low level of awareness suggests a disconnect between the organization's leadership and its employees, which could result in confusion about the company's direction and hinder alignment toward common objectives. Without a clear understanding of the strategic goals, employees may struggle to prioritize tasks and make decisions that contribute effectively to organizational success. Furthermore, the limited involvement in the strategic formulation process, especially among non-management staff (50% of whom reported no involvement), indicates that employees feel excluded from the decision-making process. This lack of inclusion could lead to a sense of disengagement, as staff may perceive the strategy as something imposed upon them rather than a collective effort that incorporates their perspectives and expertise.

The implications of these findings are significant. When employees are not aware of or involved in the formulation of strategic goals, it can lead to low morale, decreased motivation, and a lack of ownership over the company's success. Non-management staff, in particular, may feel undervalued, which can affect their commitment and productivity. Additionally, a lack of inclusivity in the strategic process can lead to missed opportunities for innovative ideas and solutions, as employees at all levels are not given a platform to contribute. The organization risks creating a disengaged workforce that may not fully support or execute the strategy effectively. To address these issues, BAMHRHCA must prioritize improving communication regarding strategic goals and foster a more inclusive approach to strategy formulation, ensuring that all employees feel informed, involved, and valued in the process.

Perceptions and attitudes towards strategic management practices

Perceptions and attitudes significantly influence the effectiveness of strategic management practices within organizations. Employees' views on organizational strategies, their roles in the implementation process, and the communication of objectives can either facilitate or hinder the success of strategic initiatives. Positive perceptions foster engagement, ownership, and alignment with strategic goals, while negative attitudes may lead to resistance, reduced motivation, and inefficiencies.

Table 3.3. Perceptions and attitudes towards strategic management practices at BAMHRHCA
Source: questionnaire survey 2025

Question	Response Option	Management Staff Responses (Number)	Management Staff Responses (%)	Non-Management Staff Responses (Number)	Non-Management Staff Responses (%)
Do you think BAMHRHCA communicates its strategies well?	Yes	2	25%	2	12.5%
	No	6	75%	14	87.5%
Do you feel valued in the strategy implementation process?	Yes	3	37.5%	4	25%
	No	5	62.5%	12	75%

The findings from the survey indicate that both management and non-management staff perceive significant gaps in communication and recognition within the organization. With 75% of management and 87.5% of non-management staff believing that the communication of strategies is inadequate, it reveals a disconnect between the company's leadership and its workforce. This lack of clear communication can result in confusion, misalignment, and a failure to foster a shared understanding of organizational goals. For management, inadequate communication about strategies can lead to difficulty in implementing those strategies effectively, as they may not this communication breakdown may leave them feeling excluded and disconnected from the larger vision of the company, reducing their sense of purpose and engagement.

Similarly, the feeling of being undervalued in the implementation process, as expressed by 62.5% of management and 75% of non-management staff, highlights a significant issue in how employees perceive their role in achieving organizational goals. This perception can create a sense of alienation, particularly for non-management staff, who may feel that their contributions are overlooked despite their direct involvement in carrying out the strategies. For management, the sense of being undervalued could lead to frustration and disengagement, weakening their ability to effectively lead their teams. For non-management employees, the feeling of undervaluation can result in low morale, reduced motivation, and disengagement from the organization's objectives, potentially leading to higher turnover and lower productivity.

The implications of these findings are far-reaching. A failure to address these issues could result in a workforce that feels disconnected, unappreciated, and disengaged. This not only affects employee morale but can also impact the overall performance and success of the company. Without clear communication of strategies and a culture of inclusion, employees may be less motivated to contribute to the company's success, ultimately hindering the organization's growth and effectiveness. Furthermore, the lack of recognition can create an environment where employees feel that their efforts are not valued, leading to decreased job satisfaction and a potential loss of top talent.

Strategies to improve strategic management

Improving strategic management is essential for organizations seeking to enhance their efficiency, adaptability, and overall success in a competitive and dynamic environment. Effective strategic management ensures that an organization can define clear goals, align resources, and adapt to changes while maintaining a focus on long-term objectives.

Table 3.4. Strategies to improve strategic management at BAMHRHCA

Question	Response Option	MS Responses (Number)	MS Responses (%)	NMS (Number)	NMS Responses (%)
What measures can improve communication?	Regular updates	6	75%	10	62.5%
	Workshops and training	4	50%	12	75%
What measures can enhance inclusivity?	Staff involvement	5	62.5%	9	56.25%
	Open forums	4	50%	10	62.5%
	Feedback mechanisms	6	75%	11	68.75%

Source: questionnaire survey 2025

The data highlights a clear preference among respondents for regular updates and workshops as effective tools to improve communication, with 75% of management and 62.5% of non-management emphasizing the value of updates, and 50% of management and 75% of non-management favoring workshops. These preferences suggest that employees value consistent, transparent, and interactive communication methods to stay informed about organizational developments. Furthermore, the emphasis on inclusivity through staff involvement (62.5% management, 56.25% non-management) and feedback mechanisms (75% management, 68.75% non-management) reflects a strong desire for participatory approaches that allow employees to

The implications of these findings are significant for fostering engagement and collaboration within the organization. The call for regular updates and workshops points to the need for a structured communication framework that ensures all employees, regardless of their role, have access to timely and relevant information. Workshops, in particular, offer an opportunity for interactive learning and open dialogue, bridging the gap between management and non-management staff and enhancing mutual understanding. Similarly, the preference for feedback mechanisms and staff involvement highlights the importance of creating avenues for employees to share their insights and feel heard. By implementing structured communication strategies and participatory practices, the organization can improve transparency, strengthen trust, and boost overall engagement. Failure to address these needs could perpetuate disconnection and disengagement, undermining efforts to align the workforce with organizational goals.

Major forces affecting strategic management practices

Strategic management practices are influenced by a combination of internal and external forces that shape how organizations plan, execute, and adapt their strategies. External factors such as market dynamics, technological advancements, and competition drive the need for agility, while internal elements like leadership, culture, and resources impact execution.

Table 3.5. Major forces affecting strategic management practices at BAMHRHCA

Force	MS Responses (Number	MS Responses (%)	NMS Responses (Number)	NMS Responses (%)
Resource Constraints	8	100%	16	100%
Communication Gaps	6	75%	14	87.5%
Resistance to Change	5	62.5%	12	75%
Skill Gaps	6	75%	4	25%
Policy Inconsistencies	5	62.5%	2	12.5%

Source: questionnaire survey 2025

The data underscores several critical issues affecting strategy implementation within the organization. Resource constraints, reported universally (100%), highlight a fundamental barrier that impacts all levels of operations. This lack of financial and material support undermines the ability to execute strategies effectively and creates a ripple effect on overall productivity and morale. Communication gaps, identified by 75% of management and 87.5% of non-management staff, reveal significant misalignment in the dissemination and understanding of key strategic information. This disconnect can lead to inefficiencies, unclear roles, and diminished trust across the organization.

Resistance to change, cited by 62.5% of management and 75% of non-management staff, points to deeper cultural or structural challenges that impede the organization's adaptability and responsiveness. The prominence of skill gaps among management (75%) further highlights an area of concern, as it signals limitations in the leadership's ability to guide and execute strategies effectively. Policy inconsistencies, which significantly impact management staff (62.5%) but less so non-management staff (12.5%), indicate discrepancies in how policies are interpreted, communicated, or enforced at different organizational levels, potentially causing confusion and

The implications of these challenges are far-reaching. Resource constraints can stall critical initiatives, diminish staff engagement, and weaken the organization’s competitive positioning. Communication gaps exacerbate these issues by hindering alignment and collaboration, while resistance to change prevents the organization from adapting to evolving demands and opportunities. The skill gaps among management staff compromise the effectiveness of leadership, directly affecting strategy execution. Lastly, policy inconsistencies create unequal operational experiences, eroding trust and efficiency within the organization. Together, these challenges pose significant risks to the success of the organization's strategic management efforts.

Analysis of the findings of the study

The analysis of the study highlights critical insights into strategic management practices at BAMHRHCA. The findings indicate low levels of awareness and involvement among employees regarding the organization's strategic goals and processes. Only 25% of both management and non-management staff were fully aware of strategic goals, while 50% of non-management staff reported no involvement in strategic formulation. This lack of awareness and engagement underscores a significant communication gap and a top-down approach to strategy development, which may contribute to low employee ownership and alignment with organizational objectives.

Resource constraints were generally reported as a challenge (100%), highlighting a critical barrier to the effective execution of strategies. Communication gaps, cited by 75% of management and 87.5% of non-management staff, reveal systemic issues in the dissemination of information. These gaps hinder collaboration and the ability to align employees with strategic priorities. Additionally, resistance to change, as reported by 62.5% of management and 75% of non-management staff, reflects underlying cultural or structural challenges that impede adaptability and the successful implementation of strategies.

Skill gaps, particularly among management staff (75%), indicate deficiencies in leadership capabilities necessary for guiding strategic initiatives. Policy inconsistencies also emerged as a notable issue, with 62.5% of management staff identifying it as a challenge, compared to only 12.5% of non-management staff. This disparity suggests variations in the interpretation and application of policies across different organizational levels, potentially leading to inefficiencies and mistrust.

As to the researcher, the findings have significant implications for BAMHRHCA’s strategic management practices. The lack of awareness and involvement in strategic processes threatens to undermine employee engagement, morale, and productivity. Without clear communication and inclusive practices, employees are likely to feel disconnected from the organization’s goals, which could hinder the successful implementation of strategies and the realization of organizational objectives.

Resource constraints pose a fundamental challenge that may stall critical initiatives and reduce overall operational efficiency. Addressing these limitations is vital to ensure that the organization can effectively implement its strategies and maintain its impact. Communication gaps and resistance to change exacerbate these issues by creating misalignment and reducing the organization’s ability to adapt to evolving circumstances.

The identified skill gaps among management staff further highlight the need for targeted capacity-building efforts to enhance leadership effectiveness. Policy inconsistencies, if unaddressed, may lead to operational inefficiencies and create disparities in the enforcement of organizational standards, thereby affecting trust and cohesion within the workforce.

To sum up, these challenges emphasize the need for strategic interventions that prioritize transparency, inclusivity, and resource optimization to enhance the effectiveness of BAMHRHCA's strategic management practices.

Summary, Conclusions, and Recommendations

Summary

This study explores the strategic management practices of BAMHRHCA in Addis Ababa, uncovering critical gaps in strategic management awareness and alignment. Only 25% of staff fully understand organizational goals, with a top-down decision-making approach leading to disengagement, missed innovation opportunities, and limited participation, particularly among non-management employees. Resource constraints emerged as the most pressing issue, severely hampering strategy execution, alongside communication breakdowns reported by over 75% of staff, which weakened collaboration and trust. Additional challenges include resistance to change, skill gaps among management, and inconsistent policies causing confusion and inefficiencies.

Conclusions

The findings highlight that the key processes of strategic management at BAMHRHCA—strategy formulation, implementation, and evaluation—face significant challenges. For instance, only 25% of both management and non-management staff are fully aware of the organization's strategic goals, while 50% of non-management staff reported no involvement in strategy formulation. This disconnect emphasizes a top-down approach that hinders employee alignment with organizational objectives. Comparatively, the literature emphasizes that successful strategy implementation requires broad employee participation and continuous communication, as noted by Grant (2021).

The lack of inclusivity in BAMHRHCA contrasts with models like Kaplan and Norton's Balanced Scorecard, which advocate for integrated performance measurement systems to align strategic goals across all levels. This gap indicates an urgent need for enhanced employee engagement and strategic communication to align operations with the overarching vision.

Perceptions of strategic management within BAMHRHCA reveal critical issues, with 75% of management and 87.5% of non-management staff indicating inadequate communication of strategies. Additionally, 62.5% of management and 75% of non-management staff feel undervalued in the strategy implementation process. These perceptions directly contradict the literature, where effective strategic management is described as a collaborative effort that values employee contributions (Wheelen & Hunger, 2022). The misalignment between BAMHRHCA's practices and theoretical frameworks like the 7S Model's emphasis on shared values underscore significant gaps in fostering an inclusive and motivating organizational culture. Addressing these issues requires structured communication frameworks and participatory practices to ensure employees feel integral to the strategic process.

Survey responses emphasize the need for regular updates (75% of management) and workshops (75% of non-management) to improve communication. Furthermore, feedback mechanisms (75% of management and 68.75% of non-management) are seen as essential to fostering inclusivity. Comparatively, empirical studies, such as those by Dess et al. (2024), stress that inclusive and transparent communication channels are integral to overcoming resistance to change and aligning employees with strategic objectives. BAMHRHCA's reliance on top-down communication deviates from best practices, where open forums and participatory approaches have been shown to increase trust and engagement. Bridging this gap could involve regular strategy reviews, employee feedback integration, and targeted leadership training to enhance communication skills.

gaps (87.5% of non-management), and resistance to change (75% of non-management). These challenges align with findings in the literature, where resource constraints are often cited as a critical barrier to strategy execution, particularly in NGOs operating in resource-limited settings (Duhaime et al., 2021). However, BAMHRHCA's additional challenges—such as skill gaps among management (75%) and policy inconsistencies (62.5% of management)—suggest deeper structural and leadership deficiencies. In comparison, organizations that adopt continuous capacity-building programs and adaptive leadership models, as recommended by Hill et al. (2021), demonstrate higher resilience and strategic alignment. BAMHRHCA's gaps call for targeted investments in leadership development, resource mobilization, and policy standardization to enhance its strategic management capabilities.

In conclusion, while BAMHRHCA has established foundational strategic management practices, significant gaps hinder its operational effectiveness. The disconnection between leadership and employees, resource limitations, and insufficient communication undermine the alignment of organizational efforts with strategic goals. Literature highlights that robust strategic management requires integrated communication systems, participatory planning, and adaptive leadership, areas where BAMHRHCA shows room for improvement. To address these gaps, the organization should prioritize resource optimization, capacity-building initiatives, and inclusive communication practices. These interventions will not only align the organization with theoretical best practices but also enhance its impact and operational sustainability.

Recommendations

To address these gaps and improve strategic management practices at BAMHRHCA, the following recommendations are proposed:

♦ Implement regular communication channels, such as monthly strategy updates and team meetings, to ensure all staff are informed about strategic goals. Besides, conduct workshops and training sessions to improve understanding and alignment of organizational objectives across all levels.

♦ Establish participatory planning processes where both management and non-management staff can contribute insights and feedback during strategy formulation, and use tools like anonymous surveys and open forums to gather diverse perspectives.

♦ Develop a comprehensive resource mobilization strategy, including partnerships and donor engagement, to secure sustainable funding as well as prioritize resource allocation to critical initiatives that align directly with organizational objectives.

♦ Invest in leadership training programs focused on strategic thinking, adaptive management, and communication skills. It is also recommended to offer professional development opportunities to address skill gaps and build a more capable workforce.

♦ Conduct a review of existing policies to identify inconsistencies and align them with organizational goals. Develop clear guidelines and protocols for policy implementation and monitoring to ensure uniform application across all levels.

♦ Introduce change management initiatives, including awareness campaigns and change readiness assessments, to reduce resistance and foster adaptability. Highlight success stories and incremental wins to build confidence and support for new strategies.

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Closing Remarks

Ato Tedla Haile, Executive Vice President, St. Mary's University

As we come to the conclusion of the 19th National Student Research Forum, organized by St. Mary's University, we reflect on the incredible journey we've shared today. This forum has been a remarkable platform dedicated entirely to our undergraduate students, with the mission of nurturing future researchers.

We have witnessed a variety of important papers presented, many of which hold the potential to transform into impactful problem-solving projects. It fills us with pride to see our students showcase their research findings, gaining invaluable exposure that will serve them well in their academic and professional journeys.

I want to assure you that all presented papers will undergo a rigorous editorial process and will be published as proceedings, further contributing to the academic community.

I extend my heartfelt gratitude to everyone involved in making this forum a success. To our dedicated paper presenters, our Master of Ceremony, the chairpersons, and rapporteurs—thank you for your hard work and commitment. A special thank you goes to the heads of all departments and the Student Support Services Office for their assistance and cooperation.

Lastly, I would like to acknowledge the entire team of the Office of the Vice President for Research and International Relations (OVPRIR) for their diligence and commitment in bringing this forum to fruition.

With that, I officially declare the 19th National Student Research Forum closed.

Thank you all for your participation and contributions. We look forward to seeing you at future events!

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