ONLINE COUNSELING SUPPORT SYSTEM

CASE STUDY; BUSITEMA UNIVERSITY

By

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A Project Report Submitted to the Faculty of Science and Education for the Study Leading to a Project in Partial Fulfillment of the Requirements for the Award of the Degree of Bachelor of Science in computer science

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DECLARATION

I DDAMBA BRIGHTON PAUL of Registration Number BU/UP/2023/1565 hereby declare that this Project Report is on a study I did.

Sign: 

Date : 24th/08/2026

DDAMBA BRIGHTON PAUL

APPROVAL

This project report has been submitted for examination with the approval of the project supervisor.

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DEDICATION

First and most importantly, I thank the Almighty God who has enabled me to complete this report with all the divine wisdom and sound mind.

I dedicate this project to my parents**; Mr. & Mrs. Buule,** my family members and my close friends for their support, encouragement, and motivation throughout my academic journey.

I then dedicate this report to my dear supervisor Dr. Lukyamuzi Andrew who guided me throughout the process of making this report a successfully. Thank you so much sir for imparting knowledge in me.

I also dedicate this work to all university students struggling with mental health challenges, stress, anxiety, and emotional difficulties. May this system contribute positively toward improving student wellbeing and access to counselling support services.

And lastly, I would like to express my sincere gratitude to my course mates **NABIRYE SHIIVAN, PANDE STEVEN, ANGOLE SHARIF, NAKUYA FAITH AND SABILA JOHN RAWLINGS** for journeying with me and supporting my academic endeavors up to the end of the course.

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LIST OF ACRONYMS

Acronym	Meaning
OCSMS	Online Counselling Support Management System
DFD	Data Flow Diagram
ERD	Entity Relationship Diagram
HTML	Hypertext Mark-up Language
PHP	Hypertext Pre-processor
DBMS	Database Management System
UI	User Interface
UX	User Experience
RAD	Rapid Application Development
SDLC	Software Development Life Cycle

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ABTRACT

The increasing prevalence of mental health challenges among university students has created a growing need for accessible, efficient, and confidential counselling support services within higher institutions of learning. Traditional counselling systems used in many universities are largely manual and face several challenges including inconvenient appointment procedures, limited accessibility, poor communication channels, inadequate record management, and stigma associated with physical counselling visits. These limitations often discourage students from seeking professional counselling assistance despite experiencing emotional, psychological, academic, and social difficulties.

This project focused on the design and development of an Online Counselling Support Management System (OCSMS) aimed at improving counselling service delivery for university students. The system was developed to provide a secure and user-friendly platform through which students can access counselling services remotely. The proposed system incorporates features such as online appointment booking and scheduling, real-time chat communication between students and counsellors, self-help mental wellness resources, and administrative management functionalities.

The study employed the Rapid Application Development (RAD) methodology due to its flexibility, iterative design process, and emphasis on user participation during development. Data was collected using interviews, questionnaires, observation, and literature review methods in order to identify user requirements and challenges associated with existing counselling systems. The system was implemented using web technologies including HTML, CSS, JavaScript, PHP, and MySQL.

Testing and evaluation of the system demonstrated that the Online Counselling Support Management System effectively improves accessibility, communication, confidentiality, and efficiency in counselling service delivery. The findings revealed that students preferred digital counselling support due to its convenience, privacy, and flexibility.

The study concludes that integrating online counselling technologies within universities can significantly improve student wellbeing and strengthen counselling management processes.

CHAPTER ONE

1.1 Background of the Study

Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. (WHO, 2026). Many people globally are living with a mental disorder, with anxiety and depression. The incidences are ever-rising in today's diverse communities starting at mostly during the youthful stages especially with university students.

University life comes with academic pressure, financial challenges, relationship struggles, and adjustment issues that may negatively affect students' mental wellbeing. Traditionally, counseling services in many campuses are offered physically through guidance and counseling offices. However, students may fail to access these services due to stigma, time constraints, fear of being seen, limited counselor availability, or lack of organized appointment systems.

Counseling in educational settings aims to support students academically, socially, emotionally, and psychologically. With increased internet access and widespread smartphone use among students, online systems can extend counseling support beyond office hours and reduce barriers to access.

An online student counseling system can improve accessibility and convenience for students, especially those who prefer privacy and flexible scheduling. However, online counseling requires strong attention to confidentiality, informed consent, and secure handling of sensitive records

1.2 Problem Statement

Many students suffer from emotional and mental challenges stemming from personal issues, family dynamics, academics and societal influences. Furthermore, the National Alliance on Mental Illness (NAMI) reports that approximately 50% of all lifetime cases of mental illness begin at a teenage age, which highlights the urgency of addressing mental health issues early (NAMI, 2021)

While various counsellors and mental health professionals provide support, barriers like limited availability for one-on-one sessions, busy schedules, geographical/ regional barriers often hinder access to these services, stigma, lack of access, and insufficient resources prevent individuals from seeking help.

Many people also express a preference for different modes of communication with mental health providers, with a survey by the Pew Research Centre finding that the benefits in using technology to access health services like mental care is vital for both patients and health service providers (Talkington, 2022). Specifically, factors such as timing, location, and convenience play vital roles in individuals' willingness to engage with mental health services.

This research covered the need for easy access to mental health services during the student's time of need, especially in remote area, and opportunity of students to select professionals and choose their preferred method of communication for sessions, including text, calls, schedule one-on-one meetings or access self-help tools like books, articles and audios. An online counselling support system can deliver timely and accessible mental health services to those who may otherwise hesitate to seek help due to stigma of face to face interactions.

1.3 Main Objective

To develop a university counselling support system that provides people easy, timely and reliable access to mental care and counselling services.

1.3.1 Specific Objectives

1. To various literature about the online counselling support systems and determine the requirements for developing a counselling support system
2. To design an online counselling support system.
3. To implement an online counselling support system.
4. To test and validate the online counselling support system.

1.4 Significance

Counselling support plays a vital role in promoting mental health and well-being. It provides students with a safe and confidential space to express their thoughts, feelings, and concerns. Through counselling, students can gain a deeper understanding of their emotions, develop coping strategies, and work through personal challenges. The therapeutic relationship between

the counsellor and the client fosters trust and acceptance, which are crucial for effective communication and healing.

Counselling can help students address a wide range of issues, including stress, anxiety, depression, relationship problems, and grief. By offering emotional support and guidance, counselling helps students achieve personal growth, improve their mental health, and enhance their overall quality of life (Pew Research Centre, 2021)

Furthermore, counselling support is significant in preventing and managing mental health crises. Early intervention through counselling can identify potential mental health issues before they escalate into more severe problems. Counsellors can provide valuable resources and referrals to other mental health professionals or services if needed.

Counselling also plays a crucial role in reducing the stigma associated with mental health issues, encouraging individuals to seek help without fear of judgment. In educational and workplace settings, counselling support can lead to better academic and professional outcomes by addressing issues that may hinder performance. Overall, counselling support is a cornerstone of mental health care, promoting resilience, empowerment, and a healthier society.

1.5 Scope

1.5.1 Geographical Scope

The study and development of the proposed system will be geographically focused on **Busitema University, Nagongera Campus, Tororo District, Uganda**. The system is intended to serve the targeted users within the university environment, including students, administrators, and students. The geographical scope is limited to the selected university environment because it provides the specific organizational setting in which the identified problem occurs and where the proposed system will be implemented and evaluated. However, since the system is web-based, authorized users may access it remotely through an internet-enabled device, provided they have the required credentials and permissions.

1.5.2 Time Scope

The study and development of the proposed system will cover the period from J**anuary 2026 to June 2026.** During this period, I carried out the major activities of the project, including problem identification, literature review, requirements gathering, system analysis, system design, development, testing, implementation, and documentation. The time scope covered the

entire project development lifecycle, from the initial identification of the problem to the testing and evaluation of the completed system. Data and information collected during this period helped guide the design and development of the proposed system.

1.5.3 Content Scope

The system includes a **counsellor directory** that provides students with access to a searchable database of professional counsellors within the institution. The directory contains information such as counsellor names, areas of specialization, availability schedules, and contact details. This feature is intended to help students identify and select counsellors who best match their personal, emotional, academic, or psychological needs, thereby improving accessibility and effectiveness of counselling services.

The system also provides a **scheduling and booking functionality** that enables students to request counselling sessions online. Through an integrated calendar system, counsellors are able to manage their availability while students can select convenient dates and time slots for appointments. Once requests are submitted, counsellors may approve, reschedule, or decline appointments depending on their schedules. This functionality is intended to simplify appointment management and reduce delays associated with manual booking procedures.

Another important feature within the scope of the study is the **chat session module,** which supports secure and encrypted communication between students and counsellors. The chat platform allows students to seek guidance, ask questions, and communicate privately with counsellors at any time without necessarily visiting counselling offices physically. This functionality aims to promote confidentiality, convenience, and continuous support for students experiencing emotional or psychological challenges.

The system further includes a **resource library** containing mental health and wellness materials such as articles, books, audio resources, motivational content, and self-help tools. The purpose of this module is to empower students with educational resources that can assist them in managing stress, anxiety, depression, academic pressure, and other personal challenges independently.

In addition, the system provides a **personal journal and mood evaluation** feature where students can regularly record their thoughts, emotions, moods, and personal experiences. This feature will help students monitor their emotional wellbeing over time while also providing counsellors with useful insights during counselling sessions where necessary. The journaling functionality is intended to encourage self-reflection, emotional awareness, and mental wellness tracking among users.

The system also incorporates an **emergency or panic button** designed to support students during urgent situations. In cases where students require immediate assistance, the panic button will send alerts to available counsellors and relevant campus security personnel for rapid response and intervention. This feature is intended to improve student safety and provide timely support during mental health emergencies.

Furthermore, the system supports **session notes and task assignment functionalities** specifically for counsellors. Counsellors are able to document counselling session notes for future reference, follow-up, and continuity of care. They also have the ability to assign personalized tasks, activities, or recommendations to students as part of therapeutic and developmental processes. This functionality will improve counselling management, monitoring, and follow-up support for students receiving counselling.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

University students face increasing academic, social, financial, and personal pressures that significantly affect their mental health and overall well-being. Research indicates a rise in cases of anxiety, depression, stress disorders, and academic burnout among higher education students globally. Traditional face-to-face counselling services in universities have been the primary support mechanism; however, these services often struggle to meet growing demand (Wang P, 2007).

With advancements in Information and Communication Technology (ICT), digital mental health platforms have emerged to complement conventional counselling services. A University Counselling Support System (UCSS) integrates online appointment scheduling, virtual counselling sessions, self-help resources, emergency response tools, and administrative management features into a centralized web-based platform. Literature in emental health and telepsychology suggests that technology-driven counselling systems improve accessibility, reduce stigma, and enhance service efficiency.

2.2 Overview of Online Counselling Systems

Online counselling systems, also referred to as telepsychology or e-counselling, involve the delivery of psychological support services through digital communication technologies such as web platforms, mobile applications, video conferencing, and instant messaging. These systems have gained global recognition due to their ability to overcome geographical and time constraints associated with traditional face-to-face counselling (Barak A. H.-N., 2008). Online counselling enables students and clients to access professional support remotely, making mental health services more flexible and accessible.

Modern platforms such as BetterHelp and Talkspace demonstrate the effectiveness of digital counselling by offering real-time chat, video sessions, and asynchronous messaging. These systems emphasize confidentiality, user anonymity, and ease of access, which are critical factors in encouraging individuals to seek mental health support (Richards & Vigano, 2013). Additionally, institutions such as Makerere University and Uganda Christian University have begun integrating online counselling portals into their student support services, highlighting the growing adoption of digital mental health solutions within academic environments.

2.3 Online Counselling Management Systems

Online counselling management systems extend beyond basic communication platforms by integrating multiple functionalities into a unified system. These systems typically include appointment scheduling, secure messaging, video conferencing, user management, and administrative dashboards. They are designed to streamline counselling operations while ensuring secure handling of sensitive client data (Anthony, K., & Nagel, D. M. , 2010).

A key feature of such systems is the implementation of security mechanisms such as RoleBased Access Control (RBAC), encryption, and audit logs to protect confidentiality and maintain accountability. Additionally, modern systems incorporate self-help tools inspired by applications like Headspace and Calm, which provide guided meditation, stress management, and mood tracking features. These tools complement professional counselling by promoting continuous mental wellness support.

Furthermore, advanced counselling systems integrate crisis response mechanisms similar to those used in services like the 988 Suicide & Crisis Lifeline, enabling immediate assistance through panic alerts and real-time communication. In developing countries, organizations such as Mental Health Uganda and StrongMinds Uganda demonstrate how digital and community-based systems can be combined to provide affordable and accessible mental health services, particularly for students and young people.

2.3 Challenges of Online Counselling Systems

Despite their advantages, online counselling systems face several challenges that limit their effectiveness. One major issue is the lack of robust privacy and security measures in some platforms, which exposes sensitive counselling data to potential breaches. Maintaining confidentiality in digital environments remains a critical concern, especially where encryption and access controls are weak (Maheu, 2012).

Another challenge is limited user engagement, as many systems focus primarily on appointment scheduling without offering continuous interaction, follow-up support, or personalized resources. Additionally, ethical considerations such as obtaining informed consent and clearly communicating the limitations of online counselling are often inadequately

addressed (Barnett, 2011). These gaps can reduce trust and discourage students from using such systems.

Connectivity constraints also present a significant barrier, particularly in developing regions where internet access is unstable. This affects real-time communication such as video counselling, necessitating the inclusion of asynchronous communication options like messaging. Furthermore, stigma associated with seeking mental health support discourages students from engaging with counselling platforms, especially when privacy concerns are not adequately addressed (Gulliver, 2010).

Other limitations include lack of personalization, poor integration with university systems, and insufficient crisis response mechanisms. Many platforms operate independently without linking to student databases or academic systems, resulting in fragmented services. Additionally, the absence of real-time emergency features such as panic buttons limits the ability to provide immediate intervention during critical situations.

2.4 Advantages of Online Counselling Systems

Online counselling systems offer numerous advantages that make them suitable for modern educational environments. One of the primary benefits is improved accessibility, as students can access counselling services at any time and from any location. This flexibility is particularly beneficial for students with busy schedules or those who may feel uncomfortable attending in-person sessions (Barak A. H.-N., 2008).

Another significant advantage is the ability to provide centralized service delivery. Modern systems integrate multiple functionalities, including booking, communication, self-help tools, and administrative management, into a single platform. This improves efficiency and enhances coordination between counsellors and students. Additionally, secure communication technologies such as encryption and authentication mechanisms ensure confidentiality and build user trust.

Online systems also support data-driven decision-making through analytics and reporting tools. Universities can monitor usage patterns, identify peak counselling periods, and address common student concerns more effectively. Furthermore, digital counselling reduces stigma

by allowing students to seek help privately and discreetly, thereby increasing the likelihood of utilization (Richards & Vigano, 2013).

Finally, the inclusion of emergency support features, such as panic buttons and real-time alerts, enhances the system's ability to respond to crises promptly. When properly designed, online counselling systems can provide a comprehensive, secure, and scalable solution for addressing student mental health needs.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter describes the methods, procedures, tools, and techniques that was used to design, develop, and implement the Online Counselling Support Management System (OCSMS). The methodology outlines how data was collected, analysed, and translated into a functional, secure, and user-friendly web-based system tailored for university students.

The chapter covers the research design, data collection methods, system development approach, system architecture, database design, security considerations, testing strategies, and deployment procedures.

3.1 Research Design

This study employed a qualitative research approach, integrated with the Rapid Application Development (RAD) framework for system development. The qualitative design enabled the researcher to gather deep insights from participants through questionnaires, interviews, document review and observation, while RAD supported rapid system prototyping with continuous user feedback. RAD was chosen due to its iterative nature, which emphasizes quick development and adaptation. It allowed for the system to be developed in close collaboration with stakeholders, ensuring the resulting product matched user expectations. The development followed four main phases; Requirements Planning which involves Understanding and modelling user needs, User Design that translated requirements into interactive prototypes and wireframes, Rapid Construction that built functional system modules incrementally and, testing ensuring functionality, usability, and accuracy before deployment.

3.2 Area of Study

This study was conducted at Busitema University, which served as the case study for the development of the Online Counselling Support Management System. Busitema University is one of the public universities in Uganda with multiple campuses and a growing student population pursuing different academic programs. Like many higher institutions of learning, the university experiences challenges related to student mental health, emotional wellbeing, academic stress, financial difficulties, and social adjustment issues.

The university was selected as the area of study because it provided an appropriate environment for examining the effectiveness of counselling support services and identifying challenges associated with traditional counselling management systems. The institution largely relied on

conventional counselling approaches where students physically visited counselling offices to seek guidance and support. This created limitations such as inconvenience in accessing services, fear of stigma, delays in appointment scheduling, and difficulties in maintaining proper counselling records.

The proposed Online Counselling Support Management System was intended to address these challenges by providing a digital platform through which students could access counselling services more conveniently and confidentially. The system supported functionalities such as online appointment booking, counsellor-student communication through chat, access to self-help resources, mood tracking, and emergency support services.

The target population for this study included students, counsellors, and university administrators at Busitema University. Students formed the primary users of the proposed system because they were the main beneficiaries of counselling services within the university environment. The study involved students from different faculties, programs, and years of study in order to gather diverse opinions and experiences regarding mental health support services and system requirements.

Professional counsellors within the university also formed part of the target population because they were directly involved in providing counselling services and managing student welfare. Their participation helped provide insights into the challenges faced in counselling management, communication with students, and record handling procedures.

Additionally, university administrators were involved in the study because they played an important role in policy implementation, system management, and institutional decisionmaking related to student support services. Their views helped ensure that the proposed system aligned with university operational requirements and administrative expectations.

The selection of Busitema University as the case study therefore provided an opportunity to develop a practical and institution-centred solution capable of improving counselling service delivery and enhancing student wellbeing within the university environment.

3.3 Sampling Approach

The study used a purposive sampling approach to select respondents who were directly related to counselling services and the proposed Online Counselling Support Management System. This approach was considered appropriate because it enabled the researcher to collect relevant information from participants with knowledge and experience concerning student counselling and mental health support services.

The study targeted three categories of respondents, namely students, counsellors, and university administrators. Students from the Faculty of Science Education (Nagongera Campus) of Busitema University and different years of study were selected to provide diverse views regarding counselling challenges and system expectations. Professional counsellors were selected because of their involvement in providing counselling services and managing student welfare, while university administrators were included to provide administrative and institutional perspectives regarding the proposed system.

The purposive sampling approach therefore helped the researcher obtain reliable and relevant information necessary for the successful development of the Online Counselling Support Management System.

3.4 Data Collection Methods

To gather accurate system requirements, the following methods were used:

3.4.1 Interviews

Structured and semi-structured interviews were conducted with counsellors and administrators to understand the current counselling procedures, challenges faced in appointment management, record-keeping methods, confidentiality concerns and emergency handling processes.

Interviews with some student or campus leaders were also conducted to find out previous reporting and handling of mental health issues among the students and the suggestion for the best approach to make sure the system delivers at handling the stated problem.

3.4.2 Questionnaires

The questionnaires included both closed-ended and open-ended questions focusing on awareness of counselling services, challenges faced while accessing counselling support, preferred communication methods, and desired system features such as appointment scheduling, real-time chat, and self-help tools.

Questionnaires were distributed to students to gather information regarding their experiences, opinions, and expectations concerning counselling services. The questionnaire method was suitable because it allows data collection from a larger number of respondents within a short period of time.

The information collected from students helped design a system that aligns with the actual needs and expectations of university students.

3.4.3 Observation

Direct observation of existing counselling workflows will be carried out to identify inefficiencies in communication between students and counsellors, common mental health needs of students, service availability and administrative stand on mental health support.

3.5 System Development Model

The project adopted the Rapid Application Development (RAD) methodology in the development of the Online Counselling Support Management System. RAD was selected because it emphasizes quick system development, user participation, continuous feedback, and iterative prototyping. These characteristics make RAD suitable for developing systems that require frequent user interaction and refinement.

The RAD model allows users such as students and counsellors to participate actively during system development. Through continuous feedback, the system can be improved progressively to ensure that it meets user expectations and institutional requirements.

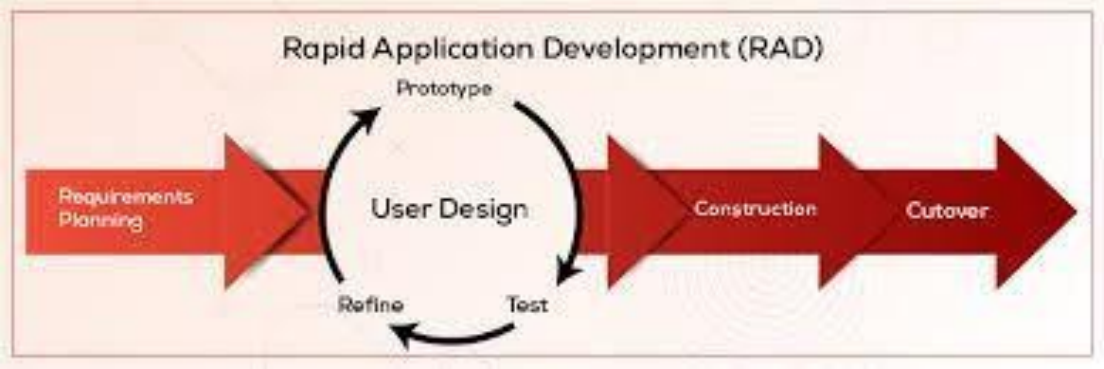

Figure 1 RAD Methodology

The phases included:

3.5.1 Requirements Analysis

Gathering functional requirements like requirements for setting up chat functionality, appointment booking, and self-help tools, identifying non-functional requirements like security, usability and system performance. And finally preparing a Software Requirements Specification (SRS) document

3.5.2 System Design

System design was divided into Architectural design and database design.

(a)Architectural Design

The system followed a three-tier architecture; Presentation Layer (Frontend Interface), Application Layer (Backend Logic) and Data Layer (Database Management System)

(b) Database Design

An Entity Relationship Diagram (ERD) was created to model relationships between students, counsellors, appointments, chat messages, self-help resources and emergency alerts

Normalization techniques were applied to eliminate redundancy and ensure data integrity.

(c) Interface Design

User interfaces were designed using wireframes and mock-ups to ensure simplicity, accessibility, responsive design (mobile-friendly) and clear navigation

3.5.3 System Implementation

The implementation phase involved coding the system components and the technologies used included HTML5 and CSS3 for front-end, JavaScript, PHP for back end, MySQL database and XAMPP (Apache Server)

Core Modules Developed include User Authentication Module, Appointment Scheduling Module, Real-Time Chat Module, Self-Help Tools Module, Emergency Support Module and Admin Dashboard.

3.5 System Security and Privacy Measures

Because counselling data is highly sensitive, strong security measures were implemented, this included password hashing using secure encryption algorithms, secure login authentication, role-Based Access Control (RBAC), HTTPS protocol for encrypted communication, input validation to prevent SQL injection and cross-site scripting (XSS), session management and automatic logout. Confidentiality and ethical considerations were strictly observed during both research and system implementation.

3.7 Testing Strategy

The complete system will be tested for performance, security, usability and reliability to make sure that it can perform the desired functionalities fully and maintain confidentiality while giving a good user experience. Testing was conducted as follows.

Unit Testing for each module (Registration, login, booking, chat, Journal, Resource library) was tested individually.

Integration Testing where the Modules were tested together to ensure smooth interaction.

User Acceptance Testing (UAT); Final system version was demonstrated to 6 students and 1 academic supervisor. All confirmed the system addressed previously identified gaps

3.9 Ethical Considerations

Key considerations include:

i. Informed Consent: Participants must clearly understand the purpose of the study, how their data will be used, and their right to withdraw at any time.

ii. Confidentiality and Privacy: Personal information must be anonymized and securely stored to protect sensitive mental health data, in line with principles promoted by the World Health Organization.

iii. Data Security: Strong security measures such as encryption, password protection, and role-based access control must be implemented to prevent unauthorized access.

iv. Voluntary Participation: Students and counsellors must participate willingly without coercion or academic consequences.

v. Minimization of Harm: Research tools and system features must avoid triggering distress, and participants in need should be referred to professional support.

vi. Ethical Approval: The study must obtain clearance from the university's research ethics committee before data collection begins.

vii. Transparency and Proper Referencing: All findings must be reported honestly, with proper citation of sources such as the National Alliance on Mental Illness.

Overall, these ethical principles ensure the protection, dignity, and well-being of participants while maintaining academic integrity.

CHAPTER FOUR: SYSTEM DESIGN AND IMPLEMENTATION

4.1 Analysis of the Existing System

Currently, counselling services in many universities are managed manually through physical appointments and paper-based record keeping. Students are required to visit counselling offices physically in order to book appointments or seek assistance from counsellors. Communication between students and counsellors is often conducted through face-to-face meetings, phone calls, or informal messaging platforms.

Although the existing system provides counselling support, it faces several limitations that reduce efficiency and accessibility. Students frequently experience delays in receiving counselling services due to limited counsellor availability and manual appointment scheduling procedures. Some students also avoid seeking help because they fear being seen visiting counselling offices.

Manual record management further creates challenges in storing, retrieving, and securing counselling information. In addition, communication between students and counsellors is limited outside official working hours, reducing accessibility to timely support.

4.1.1 Problems of the Existing System

The existing manual counselling system suffers from several weaknesses that affect the quality of counselling service delivery. One of the major problems is the inconvenience associated with physical appointment booking. Students must physically visit counselling offices, which may discourage those who fear stigma or lack time.

The system also lacks efficient communication channels between students and counsellors. Delays in communication may worsen emotional or psychological challenges experienced by students. Additionally, manual record keeping increases the risk of losing important counselling information and makes report generation difficult for administrators.

Another challenge involves limited accessibility because students can only access counselling services during official working hours and within physical campus locations.

4.1.2 Strengths of the Existing System

Despite its limitations, the existing counselling system has some strengths. Face-to-face counselling allows direct interaction between students and counsellors, enabling better emotional connection and observation of non-verbal communication.

The manual system also does not heavily depend on internet connectivity or digital devices, making it usable even in environments with limited technological infrastructure.

4.2 System Requirements

The requirements of the Online Counselling Support Management System are divided into functional and non-functional requirements. Functional requirements describe what the system should do, while non-functional requirements define system qualities and performance standards.

4.2.1 Functional Requirements

The Online Counselling Support Management System provides several core functionalities aimed at improving counselling service delivery within universities. The system supports secure user authentication, allowing students, counsellors, and administrators to log into the system using unique credentials. Each user category shall have role-based access rights that determine the features and information accessible to them.

The student module allows students to create accounts, update profile information, book counselling appointments, access self-help resources, communicate with counsellors through chat, and receive notifications regarding appointments or counselling updates. Students are also be able to view counsellor availability and schedule appointments according to preferred time slots.

The counsellor module enables counsellors to manage appointment schedules, communicate with students, update counselling records, and monitor counselling sessions. Counsellors also have the ability to upload mental wellness resources, respond to student inquiries, and track appointment histories.

The administrator module provides functionalities for managing users, monitoring system usage, generating reports, and overseeing overall system operations. Administrators are responsible for maintaining system integrity, approving counsellor accounts, and ensuring proper management of counselling resources.

The system additionally includes a self-help resources section containing articles, stress management tips, motivational content, and mental wellness materials aimed at supporting students independently outside direct counselling sessions.

4.2.2 Non-Functional Requirements

The Online Counselling Support Management System was designed to meet several nonfunctional requirements that ensure reliability, usability, performance, and security.

The system prioritizes usability by providing a simple, intuitive, and user-friendly interface that can easily be used by students, counsellors, and administrators regardless of their technical expertise. The interface design will focus on simplicity, accessibility, and responsiveness across different devices.

Security was a major requirement because the system handles sensitive counselling information. Measures such as password encryption, secure authentication, role-based access control, and session management were implemented to protect user data and ensure confidentiality.

The system was also designed for reliability and availability to ensure consistent access to counselling services. Performance efficiency were considered to minimize delays during appointment booking, messaging, and system navigation. Additionally, the system will be scalable to support future improvements and increasing numbers of users.

4.3 Hardware and Software Requirements

The development and implementation of the Online Counselling Support Management System required both hardware and software resources.

The hardware requirements included a computer with at least 4GB RAM, sufficient storage capacity, internet connectivity, and backup power supply for stable development and testing

activities. Smartphones and laptops were used during system testing to ensure compatibility across multiple devices.

The software requirements included development tools and programming technologies such as HTML, CSS, JavaScript, PHP, and MySQL. XAMPP was used as the local server environment for development and database management. Visual Studio Code was used as the primary source code editor due to its flexibility and support for multiple programming languages.

Web browsers such as Google Chrome and Microsoft edge were used for system testing and interface evaluation.

4.4 System Architecture

The system architecture describes the overall structure and organization of the Online Counselling Support Management System. The architecture follows a three-tier structure consisting of the presentation layer, application layer, and database layer.

The presentation layer includes all interfaces accessed by users through web browsers. This layer provides forms, dashboards, chat interfaces, and navigation menus used by students, counsellors, and administrators.

The application layer contains the business logic responsible for processing user requests, validating data, handling appointments, and managing communication between users and the database. This layer was implemented using PHP scripts and server-side processing technologies.

The database layer stored all system data including user accounts, appointments, counselling records, messages, and self-help resources. MySQL was used as the database management system due to its efficiency and compatibility with web-based applications.

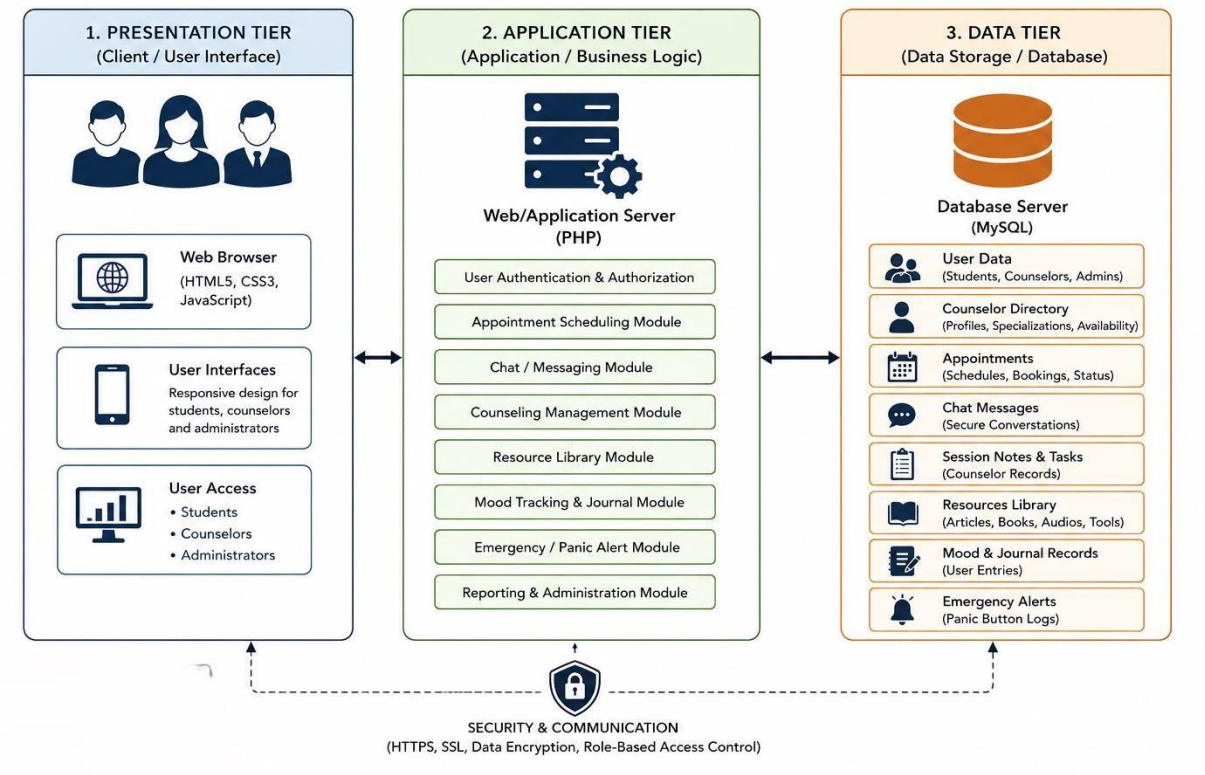

Figure 2 Three Tier Architecture diagram

4.5.2 Context Diagram

The context diagram provided a high-level overview of the Online Counselling Support Management System and its interactions with external entities. The main external entities interacting with the system will include students, counsellors, and administrators.

Students submit appointment requests, receive notifications, access counselling resources, and communicate with counsellors. Counsellors manage schedules, respond to messages, and update counselling information. Administrators manage users and generate reports.

The context diagram helped define system boundaries and illustrate the movement of information between users and the system.

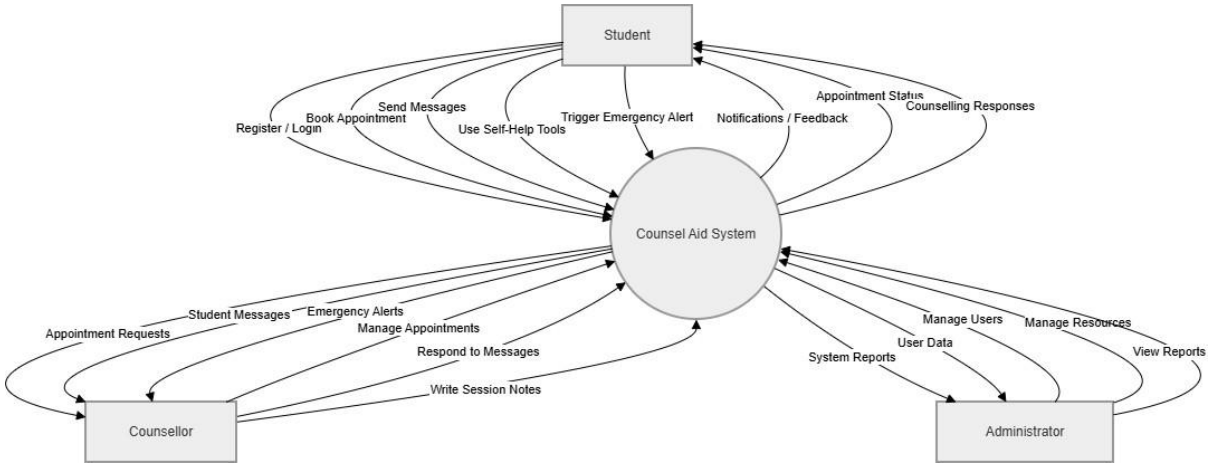

Figure 3 Context Diagram

4.5.3 Data Flow Diagram (DFD)

The Data Flow Diagram (DFD) illustrated how data moves within the Online Counselling Support Management System. The diagram represented processes such as user registration, login authentication, appointment scheduling, chat communication, and report generation.

The DFD also shows data stores such as the student database, counsellor database, appointment records, and chat records. This model helped ensure efficient data handling and smooth interaction between system components.

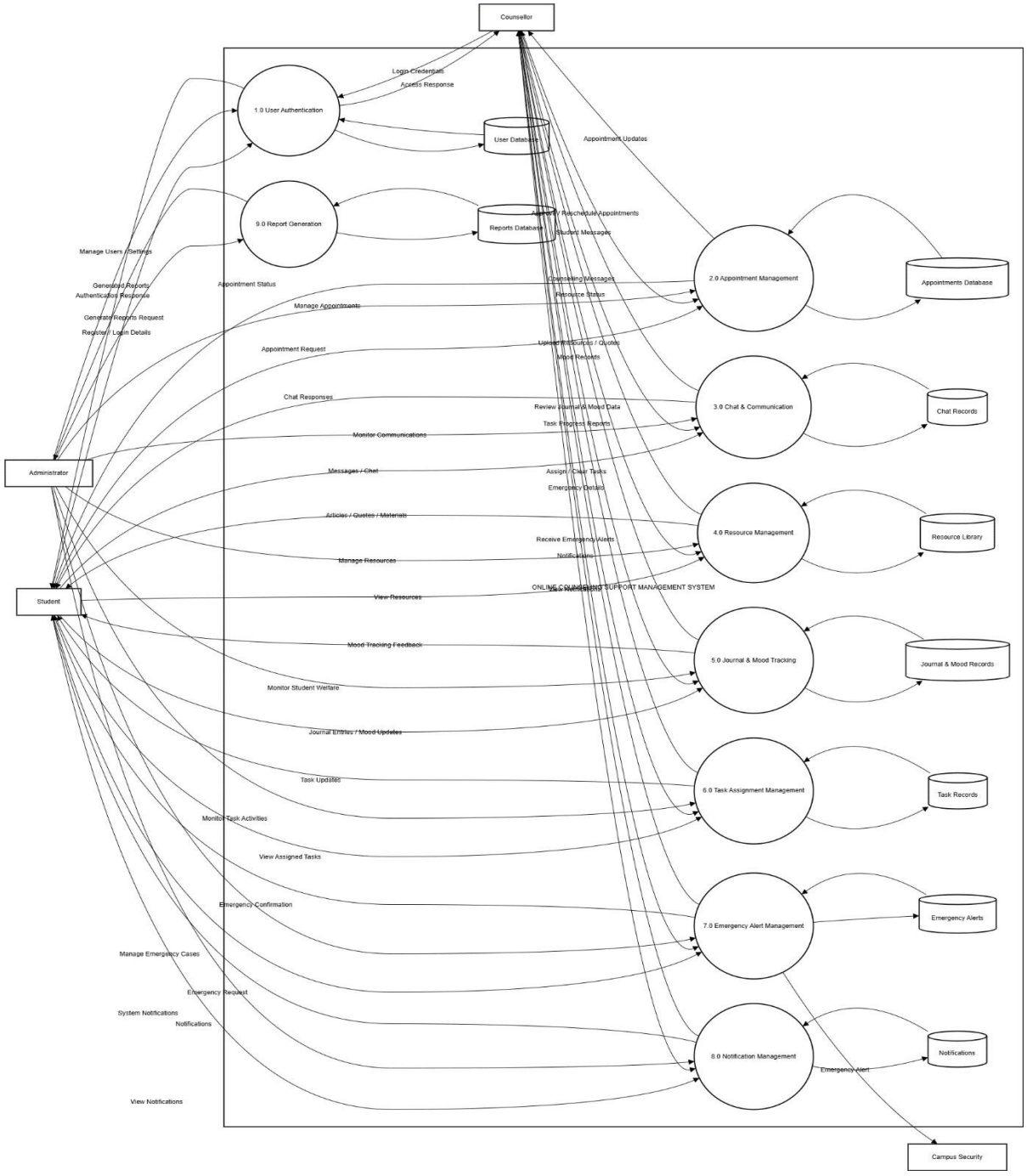

Figure 4 Data Flow Diagram

4.5.4 Use Case Diagram

The use case diagram describes the activities performed by different users within the system. Students interact with the system to register accounts, log in, book appointments, communicate with counsellors, and access self-help resources.

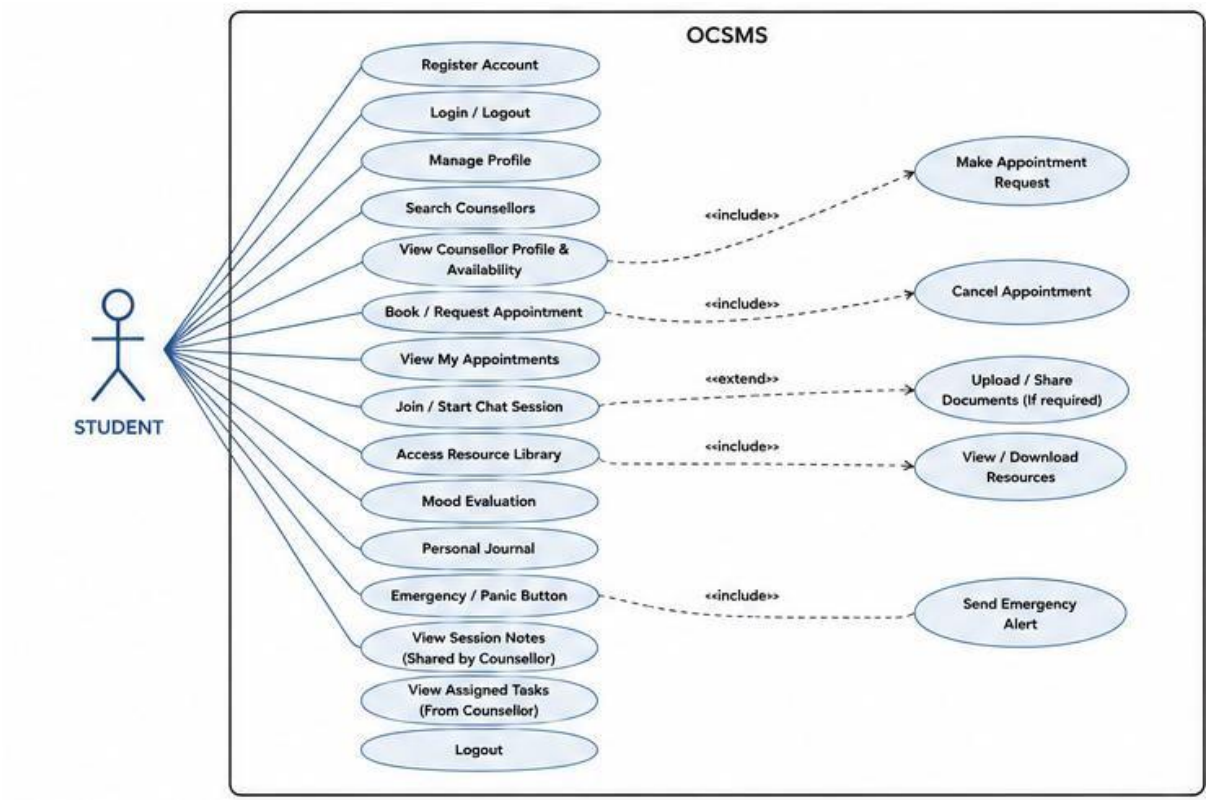

Figure 5 Use case diagram(students)

Counsellors manage appointments, respond to messages, provide guidance, and upload counselling resources.

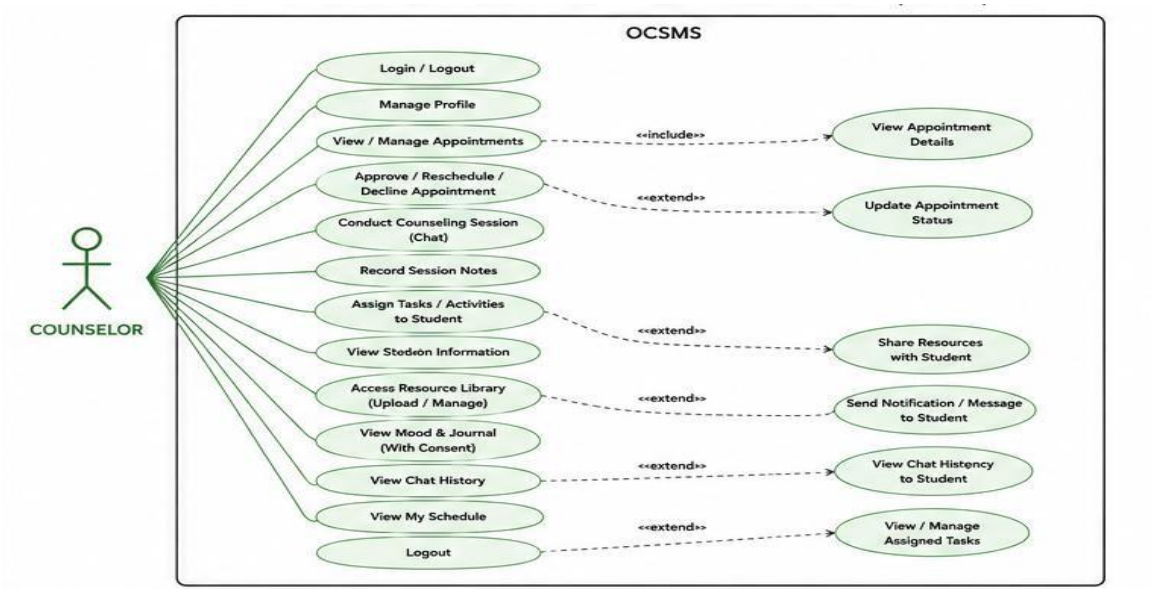

Figure 6 Use case diagram(counselor)

Administrators oversee user management, monitor system operations, and generate reports.

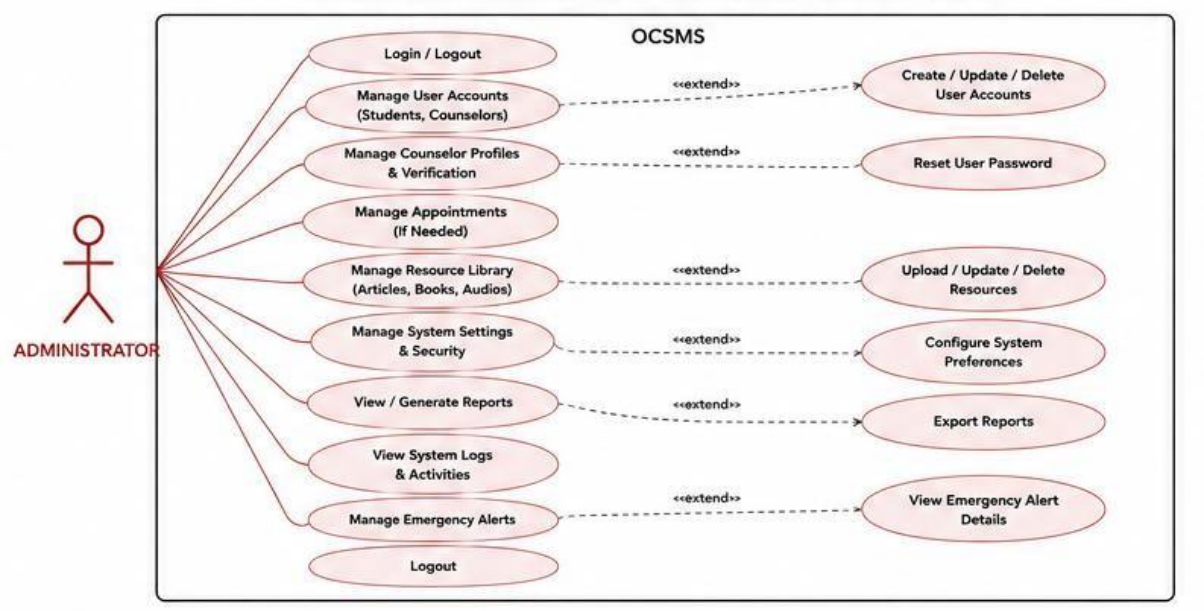

Figure 7Use case Diagram (Admin)

The use case diagram provided a clear understanding of user roles and interactions within the system.

4.5.5 Entity Relationship Diagram (ERD)

The Entity Relationship Diagram (ERD) was used to model relationships between major system entities such as students, counsellors, appointments, chat messages, and counselling resources.

The ERD guided database development by defining tables, attributes, and relationships required for efficient storage and retrieval of information.

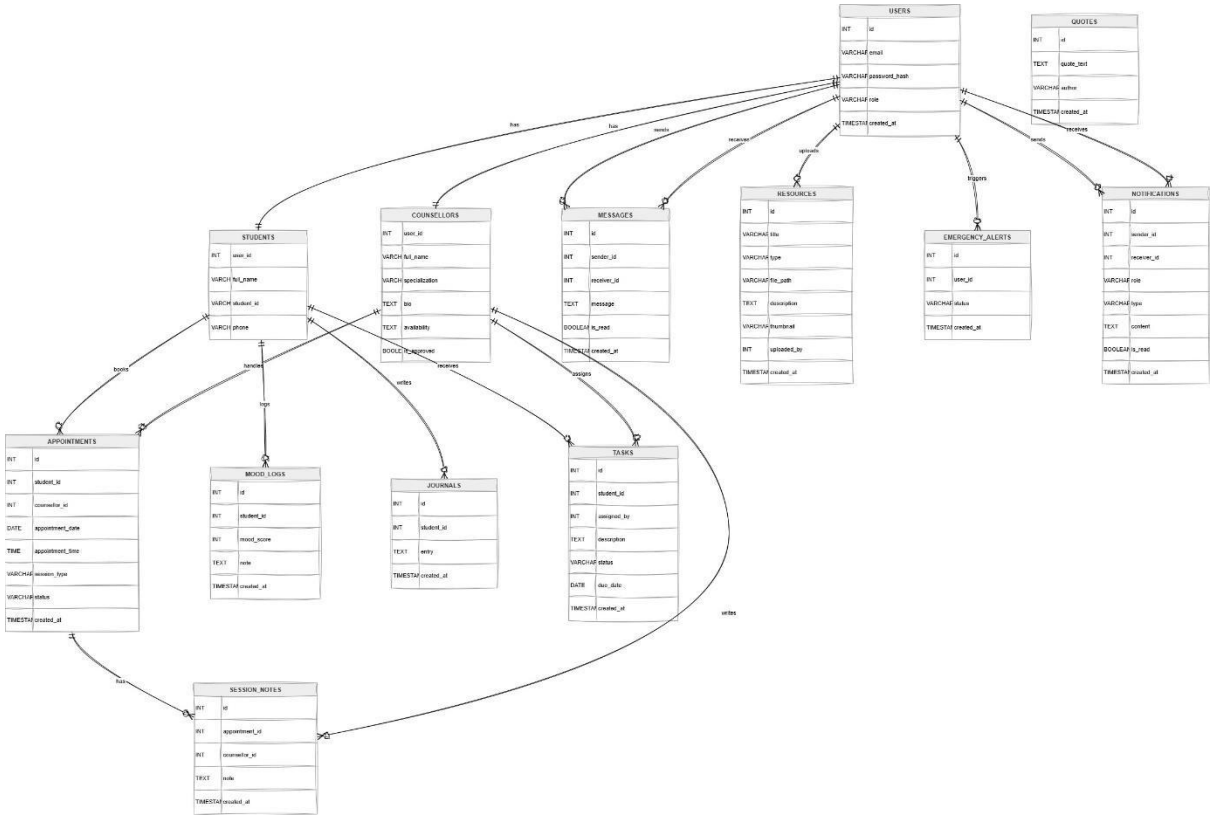

Figure 8 Entity Relationship Diagram

4.5.6 Implementation and Testing

The implementation phase involved coding the system modules based on the approved system design. Frontend development was implemented using HTML, CSS, and JavaScript to create interactive user interfaces, while PHP and MySQL were used for backend processing and database management.

The system was tested continuously during development to identify and correct errors. Each module was subjected to unit testing before integration into the complete system. After integration, system testing and user acceptance testing was conducted to ensure that the system functions correctly and satisfies user requirements.

CHAPTER FIVE: PRESENTATION OF RESULTS

5.1 Introduction

This chapter presents the results obtained after the implementation and testing of the Online Counselling Support Management System. The chapter explains how the developed system meets the objectives of the study and discusses the effectiveness of various system functionalities.

The implementation results are presented alongside interface descriptions and testing outcomes to demonstrate the performance and usability of the system.

5.2 Implementation of the System

The Online Counselling Support Management System was implemented as a web-based application accessible through internet-enabled devices such as computers, smartphones, and tablets. The system was developed using HTML, CSS, JavaScript, PHP, and MySQL technologies.

The implementation focused on creating a responsive and user-friendly interface that supports efficient communication between students and counsellors while ensuring confidentiality and accessibility.

The system includes several modules such as user authentication, appointment scheduling, real-time chat, self-help resources, and administrative management functionalities.

5.3 Interface Design

The user interface was designed to provide simplicity, consistency, and ease of navigation for all users. Different interfaces were developed for students, counsellors, and administrators based on their specific responsibilities and system interactions.

The homepage provides general information about counselling services and allows users to log into the system securely.

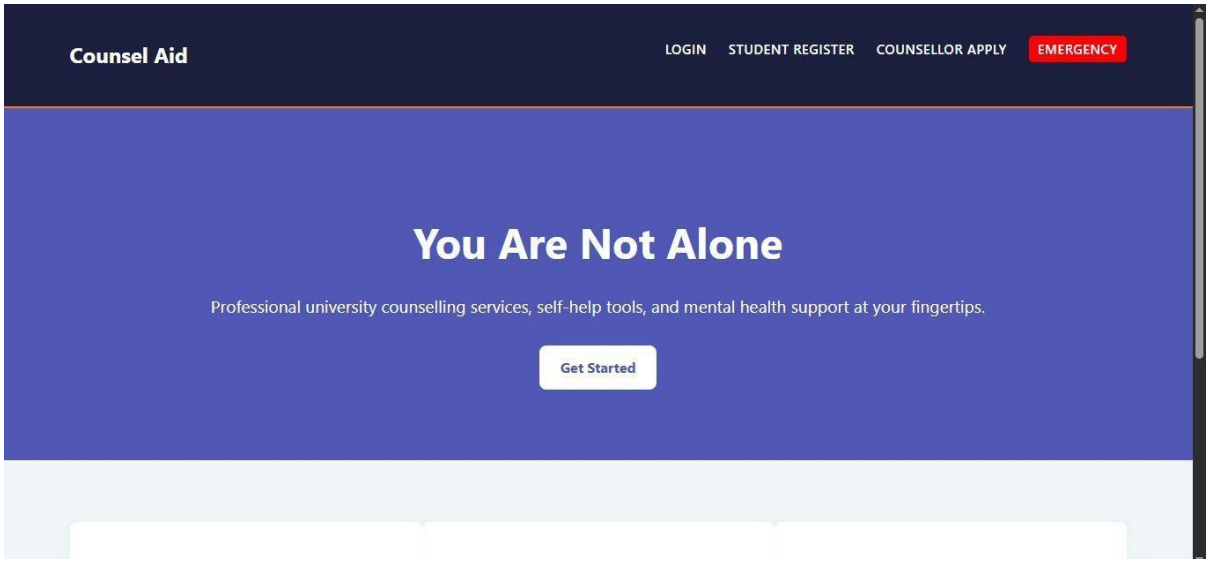

Figure 9 Home page

At the homepage, new are able to register and create accounts based on their roles, either as a student or counselor.

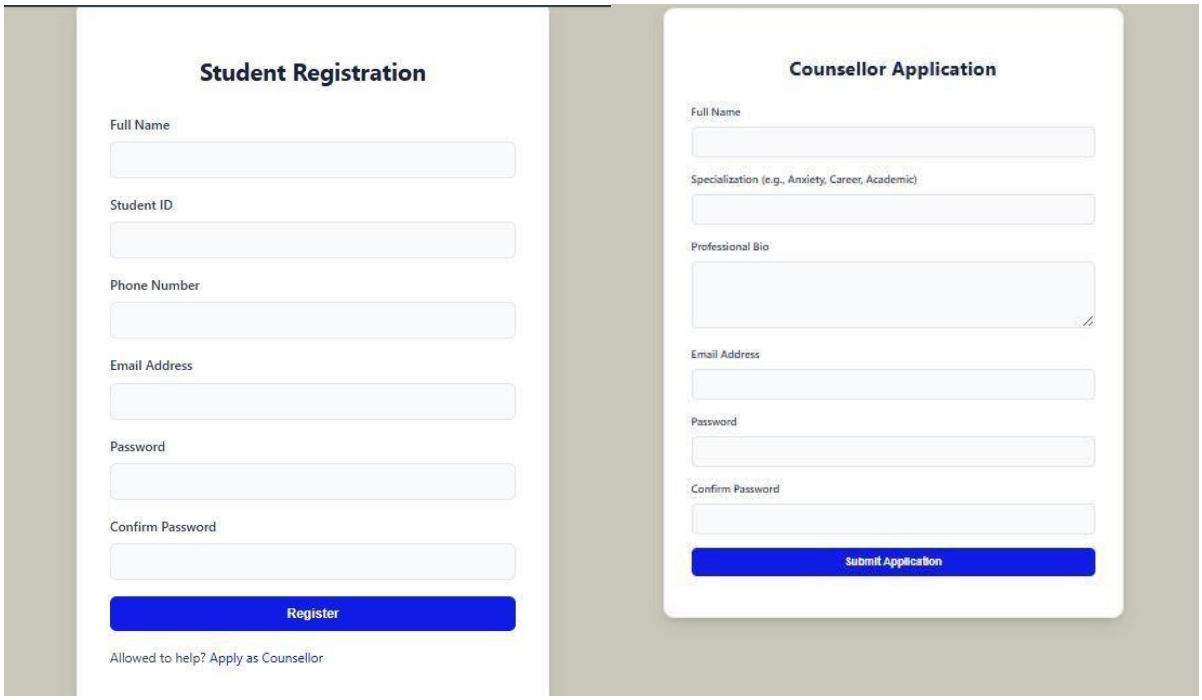

Figure 10 Registration forms

At the homepage, registered personnel are able to provide their credentials to access their pages based on their roles, either as a student, counselor or Admin.

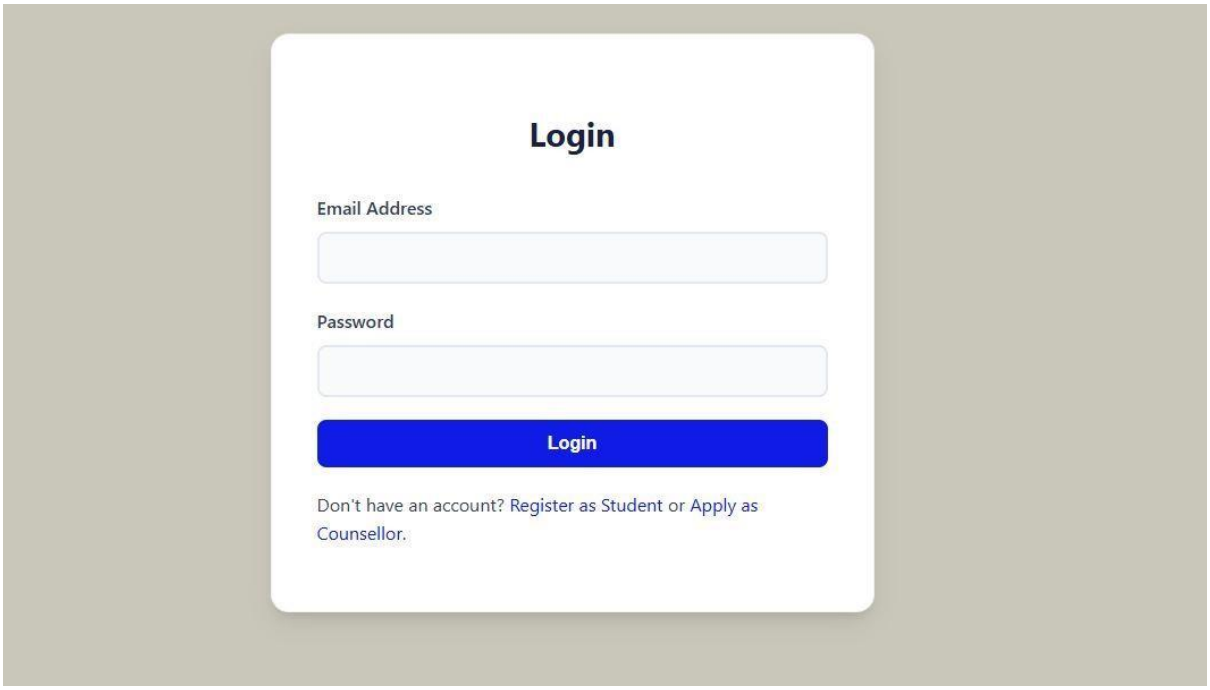

Figure 11 login page

The student dashboard enables students to view counsellor availability, schedule appointments, access counselling resources, and communicate with counsellors.

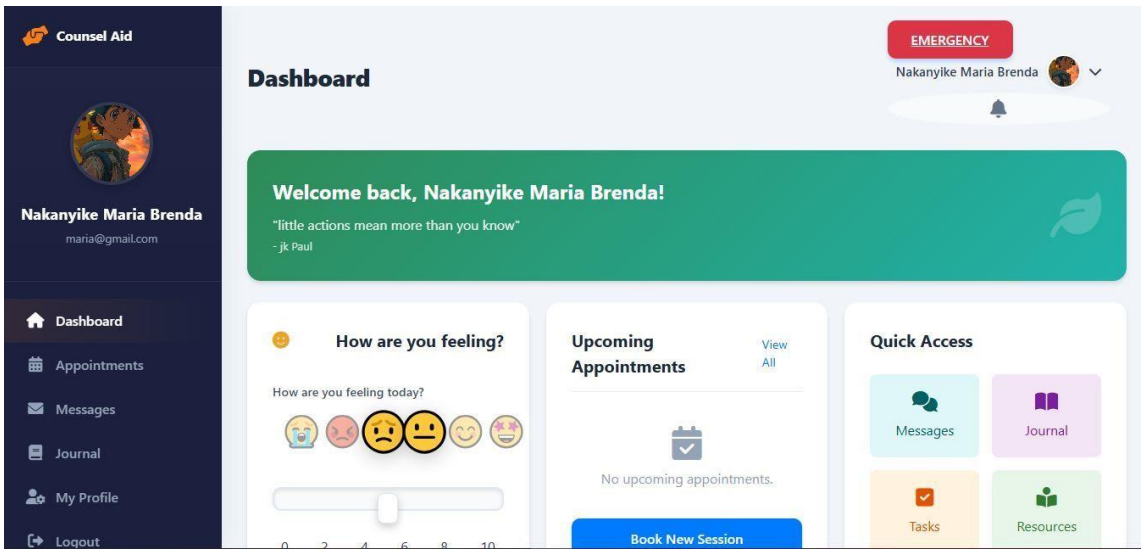

Figure 12 student dashboard

The counsellor dashboard allows counsellors to manage appointments, communicate with students, and update counselling records.

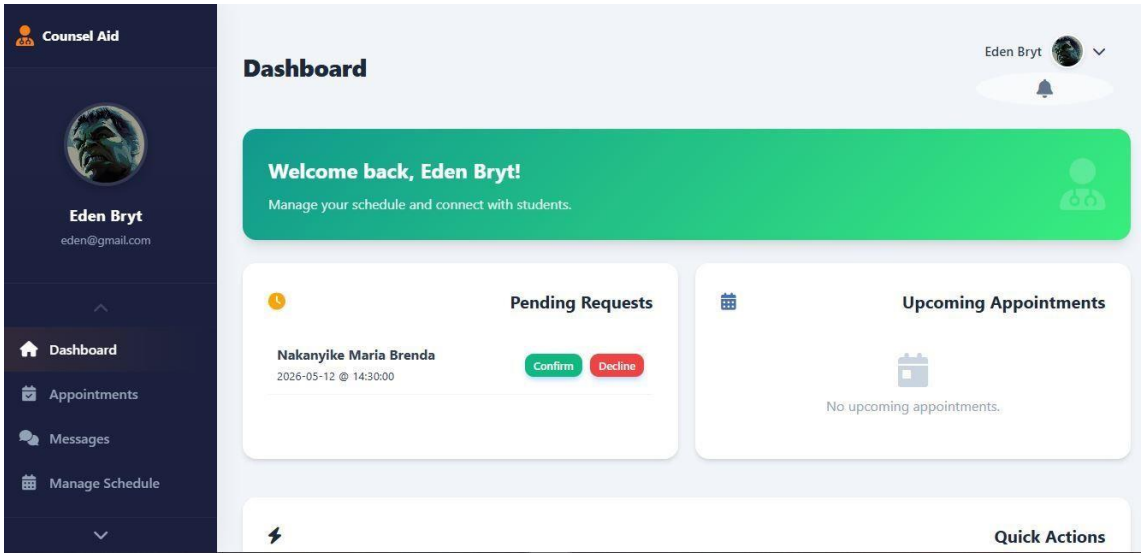

Figure 13 counsellor dashboard

5.4 Appointment Scheduling Module

The appointment scheduling module was developed to simplify the process of booking counselling sessions within the university. The counselor is able to set availability for easy scheduling in the system and through this module, students are able to view counsellor availability and select suitable dates and time slots for appointments.

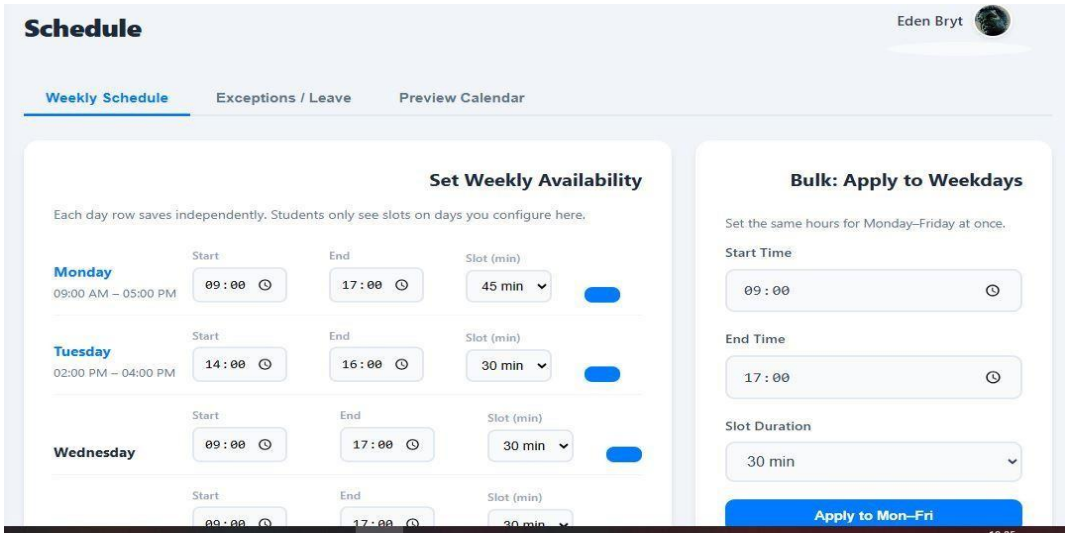

Figure 14 Availability & scheduling page

Once an appointment request is submitted, the counsellor receives a notification and may either approve or reschedule the request depending on availability.

The scheduling system reduces the inconveniences associated with manual appointment booking and helps minimize delays in accessing counselling services. The module also improves organization by maintaining accurate appointment records within the database.

The appointment scheduling interface was designed with simplicity in mind to ensure that students can navigate the booking process easily without technical difficulties.

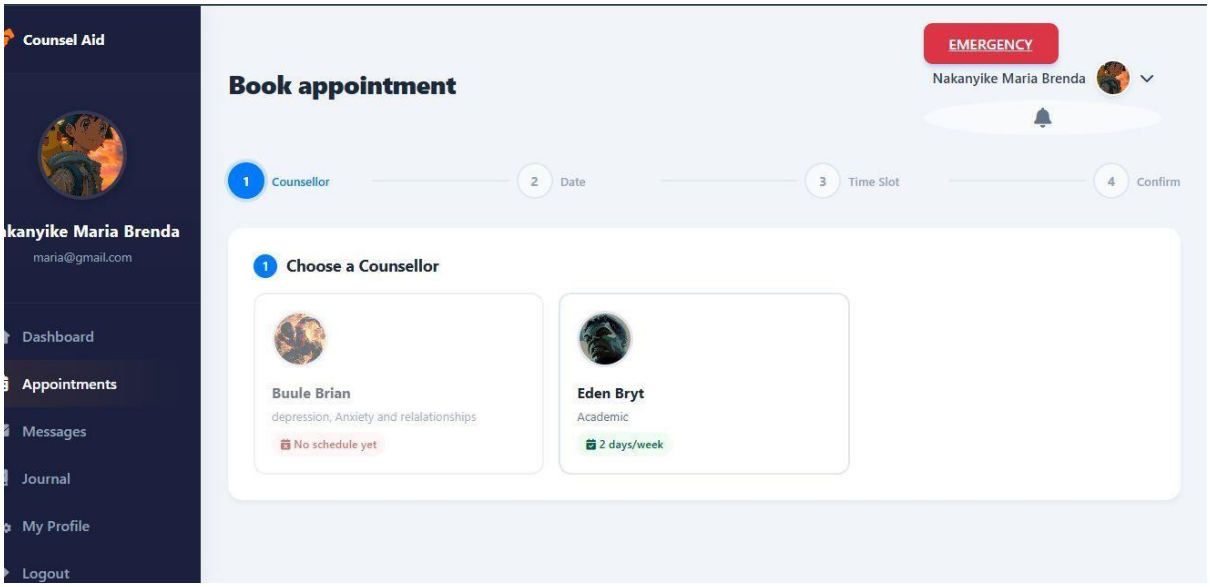

Figure 15 booking appointment

5.5 Real-Time Chat Module

Communication is a critical aspect of counselling services, and therefore the system includes a real-time chat module that allows direct communication between students and counsellors. The chat platform enables students to seek guidance, ask questions, and communicate privately with counsellors without the need for physical meetings.

The messaging system was implemented to support secure and confidential communication. Messages exchanged between students and counsellors are stored securely within the system database for reference and continuity during counselling sessions.

The chat module also helps students who may feel uncomfortable with face-to-face counselling by providing a more private and flexible communication alternative.

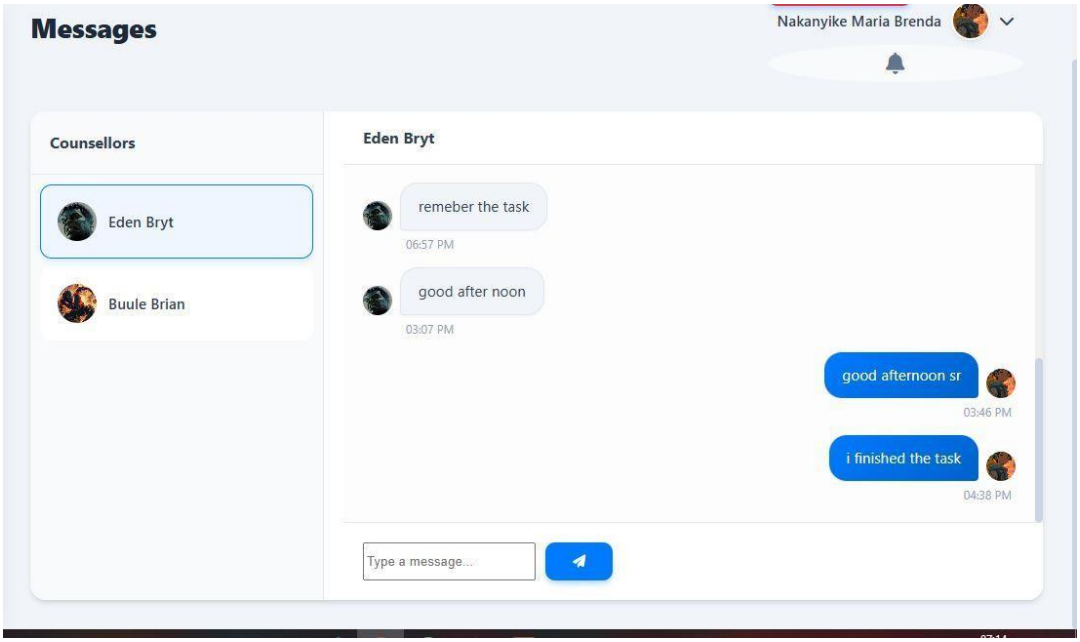

Figure 16 Chat platform

5.6 Self-Help Resources and Motivational Content Management

The Online Counselling Support Management System implemented a comprehensive resource management module containing articles, mental wellness materials, audio resources, motivational quotes, and self-help content. The module was designed to provide students with educational and emotional support resources that could assist them independently outside direct counselling sessions.

Counsellors and administrators were provided with functionalities for uploading, updating, and managing mental health resources within the system. Counsellors could upload motivational quotes, awareness materials, coping strategies, relaxation techniques, and educational content related to stress management, anxiety, depression, academic pressure, and personal development.

Students were able to browse, view, and download available resources through the resource library. The implementation of this module improved access to mental health information and encouraged independent emotional support and learning among students.

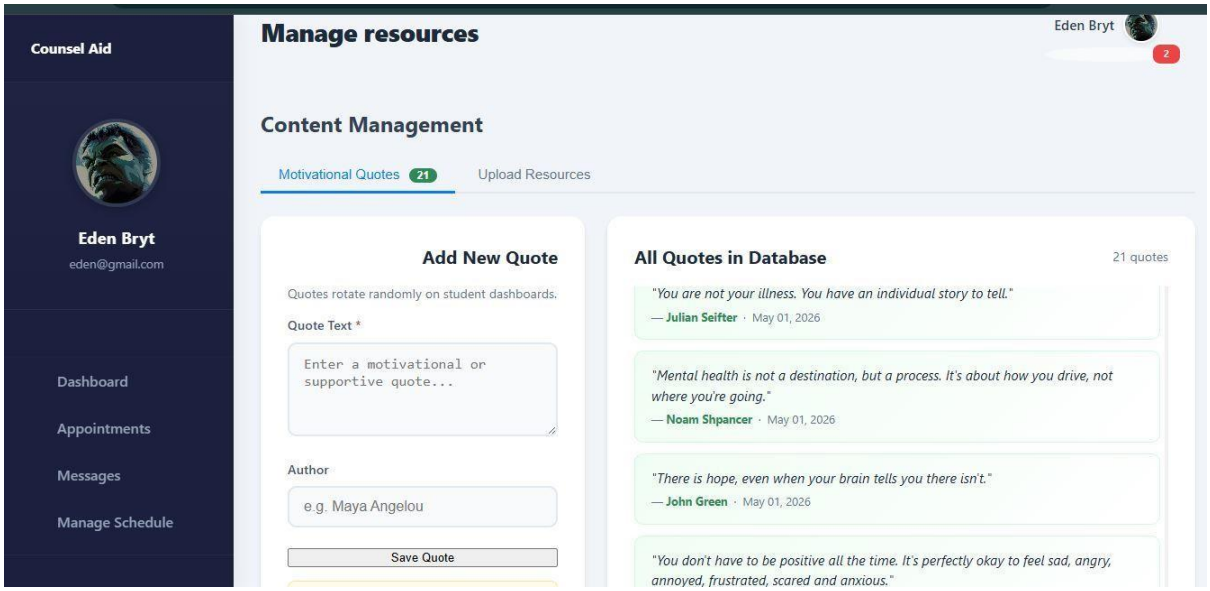

Figure 17 resource upload

5.7 Task Assignment and Task Management Module

A task assignment module was implemented to enable counsellors to assign personalized activities, recommendations, and follow-up tasks to students during counselling processes. Counsellors were able to create tasks aimed at supporting emotional development, stress management, behavioural improvement, or personal growth.

Assigned tasks could include activities such as journaling exercises, relaxation practices, reading motivational materials, or completing personal reflection exercises. Students were able to view assigned tasks, track progress, and mark completed activities within the system.

The system also supported task clearing and follow-up management. Counsellors could review completed tasks, provide feedback, and clear completed assignments after evaluation. This feature improved continuity in counselling processes and strengthened follow-up support between counsellors and students.

The implementation of the task assignment module enhanced engagement between counsellors and students while promoting accountability and active participation in counselling programs.

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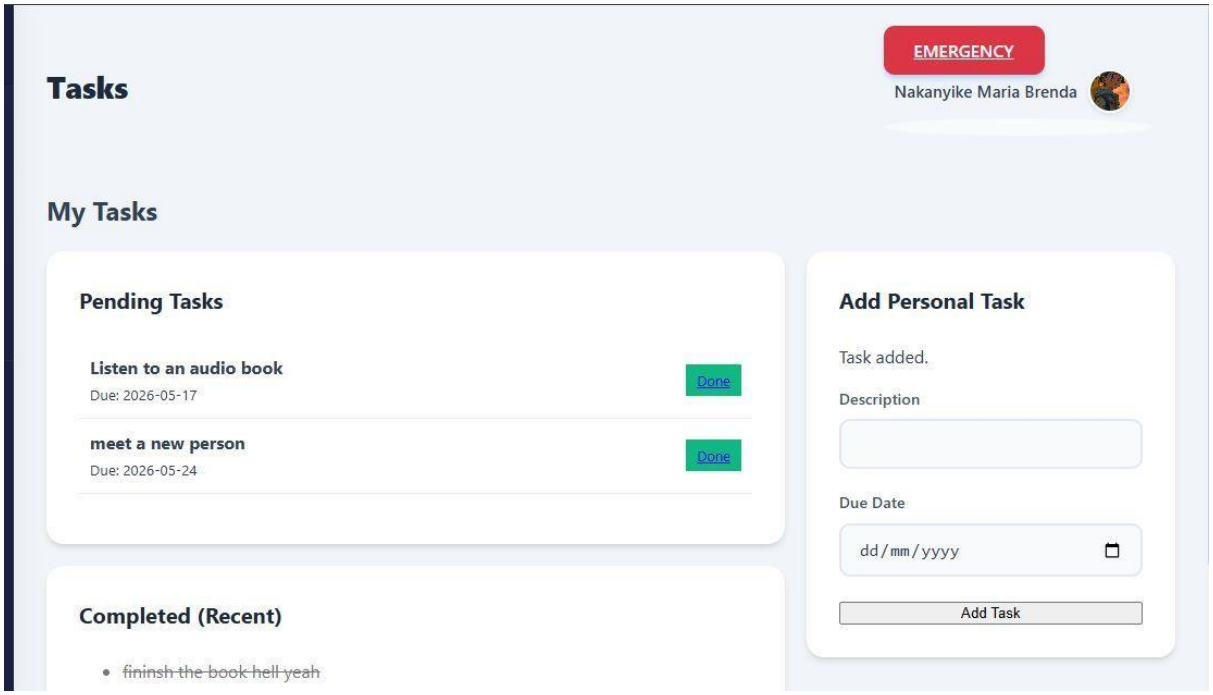

Figure 18 Task management

5.8 Emergency Button and Alert Management System

The system implemented an emergency or panic button feature aimed at supporting students during urgent emotional or psychological situations. Through this functionality, students were able to request immediate assistance whenever they experienced emergencies requiring urgent intervention.

Once activated, the emergency button automatically generated alerts and notifications to available counsellors and designated campus security personnel. The alert included relevant student information and emergency details to facilitate rapid response and support.

The implementation of the emergency management feature improved student safety and strengthened institutional emergency response mechanisms. The feature also demonstrated the system's capability to support crisis management within university counselling environments.

Figure 19 Emergency page

5.9 Notification and Alert System Implementation

A notification management feature was implemented to improve communication and coordination within the system. Notifications were automatically generated for important activities such as appointment approvals, appointment rescheduling, task assignments, emergency alerts, and new messages.

Students received notifications whenever counsellors approved appointments, assigned new tasks, uploaded resources, or responded to chat messages. Counsellors similarly received notifications regarding appointment requests, emergency alerts, and student communications.

The notification features improved responsiveness and ensured that users remained updated about counselling activities and system events. This functionality enhanced user interaction and reduced delays in communication processes.

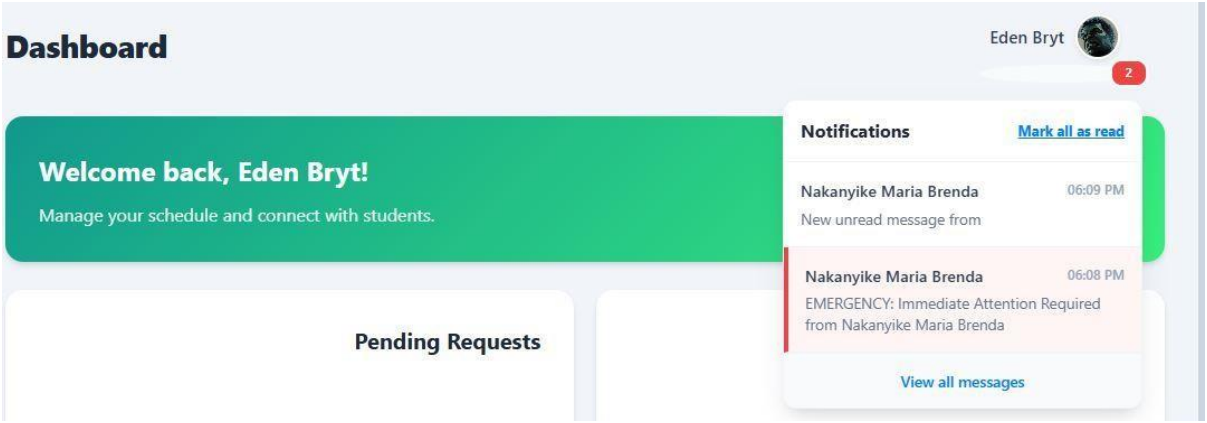

Figure 20 Notifications

5.10 Administrative Management and Reporting Features

The administrator module was implemented to support effective system monitoring and management. Administrators were able to manage student and counsellor accounts, monitor system activities, generate reports, and oversee counselling operations.

System logs and activity monitoring functionalities were also implemented to improve accountability, security, and management of system operations.

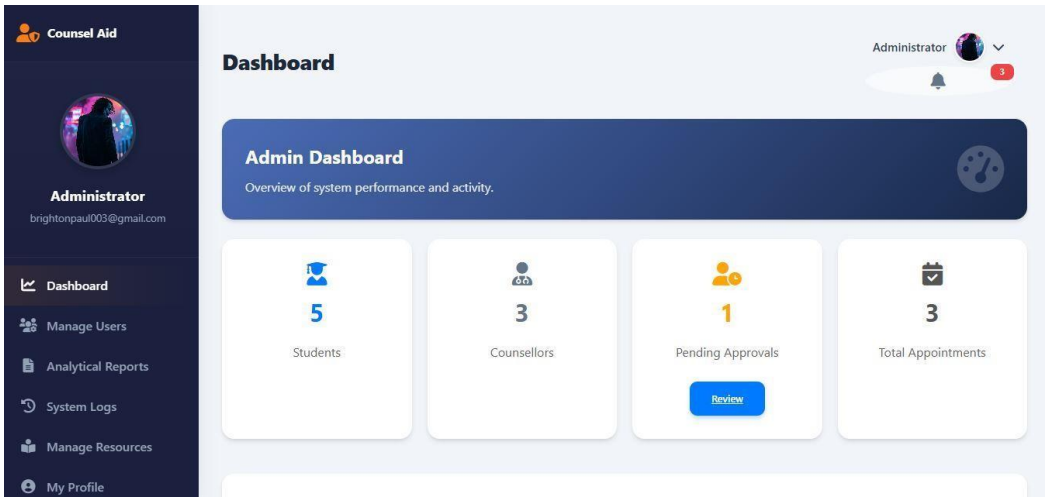

Figure 21 Admin Dashboard

5.11 System Testing and Evaluation

The Online Counselling Support Management System underwent extensive testing to evaluate system functionality, usability, reliability, and security. Unit testing was conducted on

individual modules such as login authentication, appointment scheduling, notifications, journaling, and emergency alerts to verify correct operation.

Integration testing was then conducted to ensure smooth interaction between system modules. The testing process confirmed successful communication between appointment scheduling, notifications, task management, and chat functionalities.

User acceptance testing was conducted with selected students and counsellors who interacted with the system and provided feedback regarding usability and effectiveness. Most respondents indicated that the system was easy to use, accessible, and capable of improving counselling support services within the university.

The testing results therefore demonstrated that the developed system successfully achieved the objectives of the study and addressed the limitations associated with traditional counselling management systems.

Table 1: Summary of System Testing Results

Test Module	Test Objective	Expected Result	Actual Result
Appointment Booking	To verify appointment scheduling functionality	Students should successfully request appointments	Appointment requests were successfully submitted and stored
Real-Time Chat	To verify secure communication between users	Messages should be sent and received successfully	Chat communication functioned correctly
Resource Upload	To verify upload of mental health resources and quotes	Counsellors/admin should upload resources successfully	Resources and quotes were uploaded successfully
Student Journal Entry	To verify journal recording functionality	Students should save personal journal entries	Journal entries were successfully saved
Mood Tracking	To verify mood evaluation functionality	Students should record and update moods	Mood information was successfully recorded
Task Assignment	To verify counsellor task assignment functionality	Counsellors should assign tasks to students	Tasks were successfully assigned and stored
Notification System	To verify automatic notification generation	Users should receive notifications for system activities	Notifications were generated and delivered correctly
Emergency/Panic Button	To verify emergency alert functionality	Emergency alerts should notify counsellors/admin	Alerts were successfully generated and received
Report Generation	To verify administrative reporting functionality	System reports should be generated accurately	Reports were generated successfully
System Security	To verify protection of sensitive information	Unauthorized access should be restricted	Security controls functioned effectively
Overall System Performance	To verify reliability and stability of the system	System should perform efficiently without major errors	System operated successfully and efficiently

5.12 Discussion of Results

The findings obtained from system implementation and testing indicate that the Online Counselling Support Management System successfully addresses many of the challenges associated with traditional counselling systems.

The appointment scheduling module simplified the process of accessing counselling services by allowing students to book sessions online without physically visiting counselling offices. This improved convenience and reduced delays in appointment management.

The chat functionality enhanced communication between students and counsellors while promoting confidentiality and flexibility. The self-help resources module further expanded support services by providing students with independent access to mental wellness materials.

User feedback during testing demonstrated positive acceptance of the system, particularly regarding ease of use, accessibility, and privacy. The system therefore achieved its primary objectives of improving accessibility, efficiency, and confidentiality in counselling service delivery.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Summary

This study focused on the design and development of an Online Counselling Support Management System aimed at improving counselling service delivery for university students. The research identified several challenges associated with traditional counselling systems, including limited accessibility, manual appointment scheduling, poor communication channels, and concerns regarding confidentiality.

To address these challenges, the study proposed and implemented a web-based counselling support system incorporating functionalities such as online appointment scheduling, real-time chat communication, self-help resources, and administrative management features.

The system was developed using modern web technologies including HTML, CSS, JavaScript, PHP, and MySQL. Testing and evaluation results demonstrated that the system performs effectively and satisfies user requirements. The developed platform improves accessibility, communication, efficiency, and confidentiality in counselling services within universities.

6.2 Conclusion

Mental health support has become increasingly important within university environments due to the growing emotional, academic, and social challenges faced by students. Traditional counselling systems, although valuable, are often limited by accessibility barriers, manual procedures, and communication inefficiencies.

The Online Counselling Support Management System developed in this study demonstrates how digital technologies can be used to improve counselling services and enhance student wellbeing. By integrating appointment scheduling, secure communication, self-help resources, and administrative management functionalities, the system provides a more flexible and user-centred approach to counselling support.

The project therefore concludes that online counselling systems have significant potential to improve the effectiveness and accessibility of mental health services within universities.

6.3 Recommendations

Based on the findings of this study, several recommendations are proposed to improve counselling service delivery within universities.

Universities should invest in digital counselling platforms to improve accessibility and convenience for students seeking mental health support. Institutions should also strengthen internet infrastructure and provide adequate technological resources to support online counselling services effectively.

Counsellors should receive training in digital communication and online counselling practices to ensure effective engagement with students through virtual platforms. Awareness programs should also be conducted to educate students about the importance of mental health and the availability of counselling support systems.

Additionally, universities should establish clear data privacy and security policies to protect sensitive counselling information and maintain trust among users.

6.4 Limitations of the Study

Although the project achieved its objectives successfully, several limitations were encountered during the study. Time constraints limited the scope of system implementation and testing. Financial limitations also affected access to advanced technologies and hosting services.

Some respondents were hesitant to discuss counselling and mental health issues openly due to the sensitive nature of the topic. Additionally, the system depends heavily on internet connectivity, which may limit accessibility in areas with unstable internet services.

6.5 Areas for Future Work

Future improvements to the Online Counselling Support Management System may include the integration of video conferencing features to support virtual face-to-face counselling sessions. Mobile application development may also be considered to improve accessibility for smartphone users.

Artificial intelligence technologies such as chatbot support and automated mental health assessments could further enhance the system by providing immediate assistance to students.

Integration with university learning management systems may also improve coordination between academic and counselling support services.

Additional research may focus on evaluating the long-term impact of online counselling systems on student wellbeing and academic performance.

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APPENDICES

Appendix II: Research Questionnaire for Students

This is the questionnaire that was used through google forms for proposed Online Counselling Support Management System

1. Gender ○ Male ○ Female
2. Faculty:
   _____
   _____
3. Year of Study ○ Year One ○
   Year Two ○ Year Three ○
   Year Four ○ Other
   _____

5. Are you aware that your university provides counselling services?
   ○ Yes ○
   No
6. Have you ever used university counselling services?
   ○ Yes ○
   No
7. If yes, how often have you used the counselling services?
   ○ Once ○
   Occasionally ○
   Frequently ○
   Very Frequently
8. If no, what are your reasons for not using the counselling services?
   ○ Fear of stigma ○ Lack of awareness ○ Lack of time ○ Lack of privacy/confidentiality ○
   Counselling offices are not easily accessible ○ I do not feel comfortable with face-to-face counselling ○
   Other: _____
9. What challenges do you face when accessing counselling services?

○ Long waiting time ○ Difficulty booking appointments ○ Lack of privacy ○ Limited counsellor availability ○ Poor communication channels ○ Fear of being judged ○ Other: _____

10. How would you rate the current counselling services in your university?

- Excellent
- Good
- Fair
- Poor

11. Would you use an online counselling system if provided?

- Yes
- No
- Not Sure

12. Which features would you prefer in the online counselling system?

- Online appointment booking
- Real-time chat with counsellors
- Self-help mental health resources
- Student journal and mood tracking
- Emergency/panic button
- Notifications and reminders
- Task assignments from counsellors
- Other: _____

13. How important is privacy in an online counselling system?

- Very Important
- Important
- Neutral

- Not Important

14. Which counselling approach would you prefer?

- Face-to-face counselling
- Online counselling
- Both face-to-face and online counselling

15. What additional features would you like the system to include?

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16. Do you think an online counselling system can improve student well-being?

- Yes
- No
- Not Sure

17. Would you recommend such a system to other students?

- Yes
- No

18. Any additional comments or suggestions?

Thank You

Appendix II: Interview Guide for Counsellors and Administrators

This appendix contains interview questions used during data collection from counsellors and university administrators.

Counsellor Interview Questions

1. What counselling challenges are commonly experienced by students?
2. What limitations exist in the current counselling management process?
3. How are appointments currently managed?
4. What communication challenges exist between students and counsellors?
5. What features should be included in an online counselling system?
6. How can technology improve counselling service delivery?

Administrator Interview Questions

1. Does the university support digital student welfare systems?
2. What challenges are faced in managing counselling services?
3. How can an online counselling system improve institutional operations?
4. What security and privacy concerns should be considered?

APPENDIX III: WORK PLAN

The work plan presents the major activities undertaken during the development of the **Online Counselling Management System** from January 2026 to June 2026.

No.	Activity	Jan.	Feb.	Mar.	Apr.	May	Jun.
1	Identification and definition of the problem	✓					
2	Literature review	✓	✓				
3	Requirements gathering and analysis		✓				
4	System analysis and specification		✓	✓			
5	System design and database design			✓			
6	System development and coding			✓	✓		
7	System integration				✓		
8	System testing and debugging					✓	
9	System evaluation and improvements					✓	
10	Report writing and documentation				✓	✓	✓
11	Final system review and submission						✓

Key: ✓ = Activity undertaken during the month.

APPENDIX IV: BUDGET

The following budget presents the estimated costs incurred or required during the research, development, testing, and documentation of the Online Counselling Management System.

No.	Item/Activity	Estimated Cost (UGX)
1	Internet/data bundles for research and development	150,000
2	Transport for data collection and consultations	100,000
3	Printing and photocopying of questionnaires and documents	80,000
4	Stationery and office materials	50,000
5	System hosting and domain-related expenses	150,000
6	Software/system development and testing expenses	100,000
7	Report printing and binding	100,000
8	Communication and consultation expenses	50,000
9	Contingency expenses	70,000
	TOTAL ESTIMATED BUDGET	**850,000**

The budget represents estimated project expenses and may vary depending on the actual costs of internet services, transport, printing, hosting, and other project requirements.