

**ONLINE COUNSELING MANAGEMENT SYSTEM APPLICATION**

**“Let’s Talk”**

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**A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL  
FULFILLMENT FOR THE AWARD OF BACHELOR DEGREE IN BUSINESS  
COMPUTING OF UGANDA CHRISTIAN UNIVERSITY**

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**UGANDA CHRISTIAN  
UNIVERSITY**

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## DECLARATION

This is to certify that this project entitled Let's Talk in my original work and has never been submitted before by any other person. Due acknowledgement has been made in the text to all other materials used.

KUGONZA JOEL NUWAGABA

Signature.....

Date.....06<sup>th</sup>/09/2023

Supervisor

This project was supervised under the guidance of:

MR. MWESIGYE JOSHUA

Signature.....

Date.....06/09/2023

## RECOMMENDATION

This is to certify that the research work, Let's Talk an Online Counseling Management System Application development project report has been prepared by Kugonza Joel Nuwagaba with Registration Number S20B06/004 and approved by the Department through the project supervisor.

Approved By;

MR. MWESIGYE JOSHUA

Signature.....*Mwesigye Joshua* Date.....*02/07/2023*

## **ACKNOWLEDGEMENTS**

In a journey of a million miles is said to commence with a single step. I take the pleasure to thank my God Almighty for granting me his mercies and ability to take the final step.

My profound gratitude to my supervisor Mr. Mwesigye Joshua for the constructive criticism and correction as from the start of this research.

## **DEDICATION**

This research is dedicated to Almighty God to sustain me in all ramifications to guide me towards the completion of my project and to my lecturer and friends who are my greatest help at this time.

## **ABSTRACT**

The development of the "Let's Talk" Online Counseling Management Application System was driven by the increasing demand, for efficient health support services at Uganda Christian University (UCU) majorly in the counseling department. This report begins with an introduction highlighting challenges with the current system being used. It also outlines the objective of the study which is to make sure the students, staff and community around easily access the counseling services in and out of the campus premises conveniently and lastly the overview of how the system was designed implemented and its impact on the university community.

The report also explores the literature which looks at recent research and advancements in the field of online counseling management application systems, encompassing subjects such as mobile applications for individuals' involvement in use of the counseling services through these application systems. The assessment also emphasizes recent developments in online counseling management applications and the shift in the future forecast.

Let's Talk aims to bridge the gap in health care services by creating a user confidential platform where students, staff and faculty can seek counseling and support. The application system offers features such as user profiles, appointment scheduling, real time chat with professional counselor's resource libraries and tools to track progress.

The implementation of Let's Talk also involved collaboration between UCUs IT department Known as the University ICT Services (UIS), counseling services department and student representatives. The system was designed with a focus on user needs to ensure that individuals, with levels of proficiency can easily access and utilize it which is well emphasized in the report's conclusion. The findings of this case study will be utilized for directing subsequent research and modifications to the ecosystem underpinning the online counseling management app systems.

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## ABBREVIATIONS AND ACRONYMS

OCMSA	Online Counseling Management System Application
UCU	Uganda Christian University
UAT	User Acceptance Testing
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheets
GDPR	General Data Protection Regulation
HIPAA	Health Insurance Portability and Accountability Act of 1996
UML	Unified Modeling Language.
ERD	Entity Relationship Diagram
DFD	Data Flow Diagram
IDEs	Integrated Development Environment

# Chapter 1: INTRODUCTION

## 1.1 Background.

This chapter introduces the topic of an Online Counseling Management System Application and its case study being Uganda Christian University Counseling (UCU) Department that offers professional counseling services to the student community and community around. The background, problem statement, main and specific objective are included.

The background of this study focus on the Counseling system and particularly how the counseling services works (“LET’S TALK”) especially in Uganda Christian University, UCU Community which is the case study in the research. The Counselling Department of Uganda Christian University (UCU) still used the traditional means of offering the counseling services of face to face which limited those with urgent cases or those with problem in socializing and further those in distant areas out of reach of the Campus premises yet they are students of Uganda Christian University or people around the community hence making the services offered inefficient and unavailable for all those in need.

Due to the need to solve the above challenge, there was a need to develop an Online counselling management application system for Uganda Christian University. Online therapy or Counselling apps are System Applications which provide counseling support using electronic devices, like smartphones and tablets. Users can communicate with licensed, trained professionals when they’re going through a hard time, need someone to talk to, or when they need help managing their mental health issues. Online therapy apps systems are convenient, and they can be used without having to leave the house. Online therapy apps typically include multiple ways to communicate with a therapist, including voice and video calls and texting. These kinds of apps give individuals of all ages a simple way to give therapy a try without having to commit to in-person therapy sessions.

A counseling service is offered by a professional councilor to a client in need with a goal to have solution for the problem one is facing. Appointments are scheduled by

an interested party who may wish to come physical or virtually have the meeting with the counsellor. Therefore, there is a need for both parties to have a platform that can enable them be accessed virtually and also track progress of the client at any time.

The types of counselling services offered at the counselling department of Uganda Christian University are professional in different areas like Marriage/Couples, Group, individual and Family counselling which is done among married couples, social groups like campus students, community individuals and family members.

Uganda Christian University in which this counselling department belongs is found on plot 67-173, Mukono Hill, Bishop Turker Road, Kampala Uganda. University pages [www.ucu.ac.ug](http://www.ucu.ac.ug). The heads of Uganda Christian University Counselling departments are Mrs. Irene Nabwire, main campus and Aaron Kakiga Tumusiime, Kampala Campus.

The counselling department of Uganda Christian University used majorly is the face-to-face physical meetings where the professional counsellor meets the client by face to face at an appointed time. Records that are kept as a follow up for the clients served are kept in small mini note books which makes it prone for them to be misplaced hence losing valuable data. Further the training of para-counselors is strictly done physically leaving out those who would wish to access all these services online.

This system therefore serves to improve on the problem of inadequate service accessibility for those that cannot be able make it physically to the premises, also help the para-counselors have blended training sessions at any time in any place and also help in keeping track of the counselors' clients. Intern making it possible for the counsellor officials to easily carry out their duties without much work load since they can access their clients at any time of the day, share content in form of PDF's documents to their clients and easily record, backup the data of the clients and department on the system or cloud database making data more secure and easily accessible.

It makes it convenient since every student in every campus of Uganda Christian University can access the counselling services from anywhere anytime without limit regardless if the student is connected to the internet via a mobile device or a personal computer.

## **1.2 Problem Statement**

In many occasions, students of Uganda Christian University both new and continuing are not well informed of the presence of the counselling services in Uganda Christian University or maybe some are not free with meeting the counselors physically all this leading a number of students die in depression when in need of such counselling services. In other cases, students are off semester and are in need of having para-counselor session trainings which is not possible with the old system of meeting physically.

## **1.3 Main Objective**

To develop an Online Counselling Management System “LETS TALK” which can enable students in the Uganda Christian University and the community around to easily access Uganda Christian University counselling department services conveniently at all time without limit.

## **1.4 Specific objectives**

- To design a system that will schedule appointments and alert counsellors about appointments made.
- To design and develop a system that can share and store data for the Uganda Christian University counselling department.
- To test, validate and maintain the system put in place.

## **1.5 Scope of the study**

The area of study is Uganda Christian University and the Online Counselling Management Application System is to be used by the institution counsellors and the Uganda Christian University students in all various campuses and staff.

## **1.6 Significance of the study**

### **1.6.1 To students and community;**

- The system has improved counselling service delivery freely available for all the students across all campuses in Uganda and the community around hence improving people's welfare.
- It creates room for a student to get a counselor of his or her choice by gender or campus which makes the service very reliable and effective.
- It is confidential and private, so students can feel safe discussing their concerns with a counsellor.
- It is affordable and convenient, so students can get the counselling they need without having to travel or spend money on fees.

### **1.6.2 To the Professional councilors;**

- This system enables them to do a close follow up upon their clients on how they are responding to the service and also share extra helpful material like videos and text information related to subject matter.
- The counselors are able to schedule themselves in an organized manner since they are able to track how many client patients they have in a row.

### **1.6.3 To the researcher;**

- Reacher's as well as academic scholars can use this study for further research and also build more findings from the study.

# CHAPTER 2: LITERATURE REVIEW

## 2.0 Introduction

Online counseling systems and applications have gained significant popularity and recognition in recent years due to their accessibility, convenience, and potential to overcome geographical barriers. This literature review aims to explore the existing research and literature on online counseling systems, highlighting their effectiveness, benefits, challenges, and ethical considerations.

## 2.1 Analysis of Current Work System.

Three related system for analysis

This analysis can help identify areas for improvement and inform recommendations providing an overview of current knowledge, allowing us to identify relevant theories, methods, and gaps in the existing research that we can later apply to the paper, thesis, or dissertation topic and, for the implementation of the new Online Counseling system

### 2.1.1. BetterHelp

BetterHelp is the global leader in providing online therapy and virtual mental health services to people who deserve support from a licensed therapist.

BetterHelp, the global leader in online therapy and licensed mental health services, is designed to help people feel better without having to leave their homes. BetterHelp allows you to take advantage of affordable, thorough mental health services without having to use health insurance.

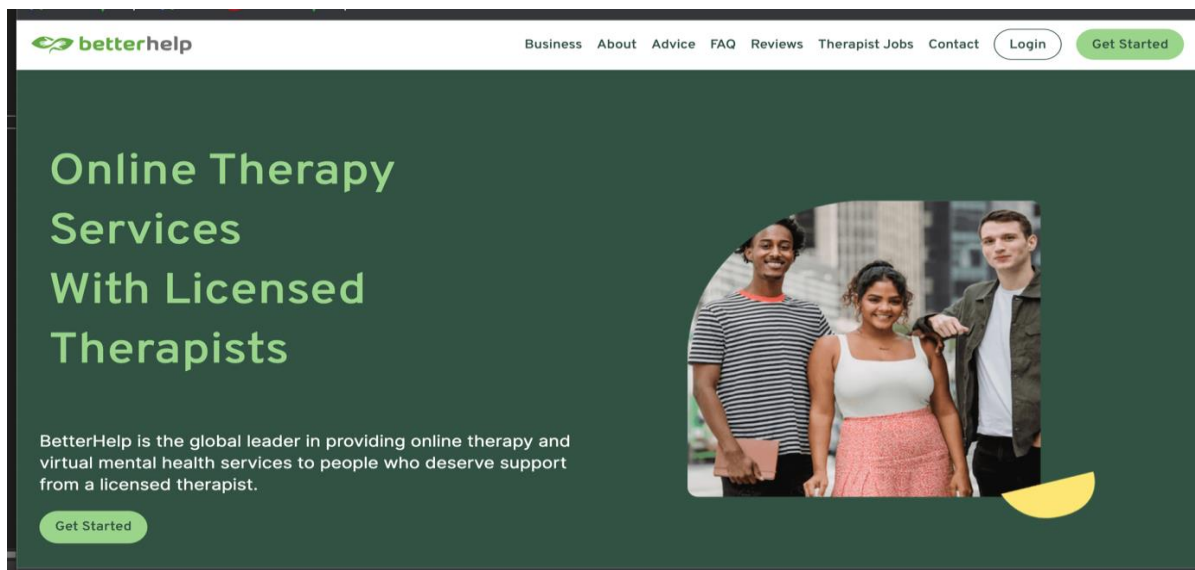


Figure 1: Betterhelp application home page

In figure 1, above we see a user interface home page of BetterHelp

A certified BetterHelp therapist may help with anything from parenting difficulties, marital problems, and trauma-related worries to depression, anxiety, and aggression. The goal of online counseling is to make receiving the support you require without ever having to leave your home as simple as possible.

One of the reasons BetterHelp counseling is regarded as one of the finest websites for online therapy is that it provides therapy that is more affordable than in-office therapy. When compared to BetterHelp memberships, which cost \$60 to \$90 each week and are billed every four weeks, in-person counseling frequently costs \$75 to \$200 per session. BetterHelp enables therapists to speak with their patients over the phone, via live chat, video chats, or messaging; all of these methods are simple to use on a range of gadgets. You may obtain the assistance you require when and how you require it by selecting the approach that works best for you.

Marriage and family therapy, couples counseling, addiction counseling, career counseling, gender-affirming therapy, psychodynamic therapy, and existential therapy are some of the mental health care modalities and specialties that our therapists concentrate on.

## 2.1.2 Talkspace

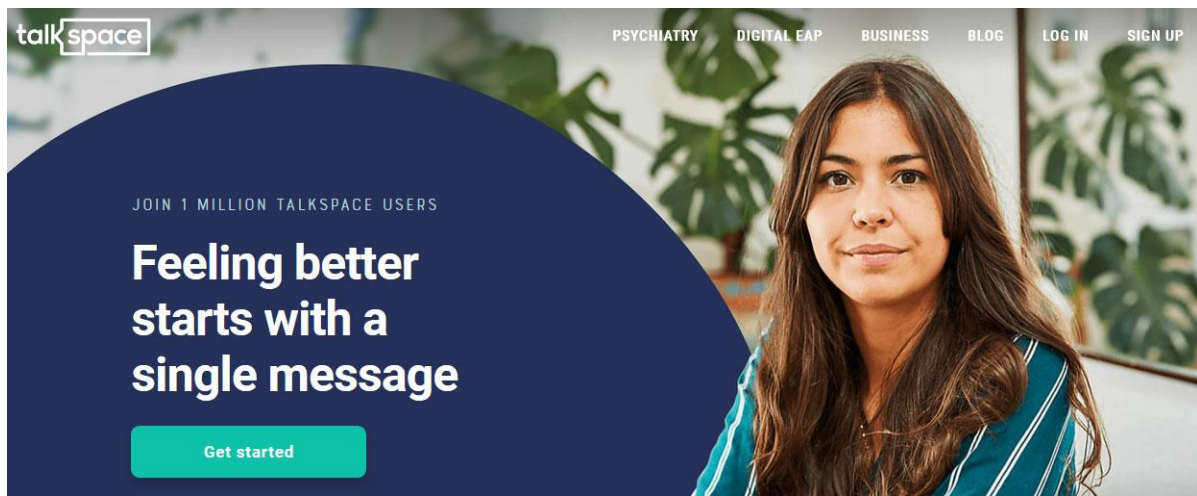


Figure 2: Talkspace Application home page

In figure 2, above we see a user interface home page of talkspace

Talkspace is a popular counseling app that has 1 million users. This counseling platform supports a variety of treatment types, including individual therapy, couples counseling, family counseling, psychiatry, and therapy for adolescents. After answering some questions and filling out basic information, individuals can easily choose a counselor based on recommendations and reviews. Talkspace makes recommendations based on the type of therapy or the situation someone is going through. Talkspace employs various professionals, including individuals with licenses in counseling, marriage and family therapy, social work, and psychology. You will encounter therapists with different licenses such as LPC, MS, LMHC, LMFT, and LICSW licenses and certificates and Psy.D. and Ph.D. degrees- these different license types mean that each therapist have different levels of education and experience however all have met requirements and expertise to work as a mental health therapist in the state they reside in.

Being able to choose a counselor they feel most comfortable with can help patients be more at ease with the idea of therapy. With this app, users can reach out to their counselor 24/7. Users can also communicate with their therapist in

whatever way is best for them, including video chat, messaging, or phone. Talkspace accepts insurance, including Cigna, Healthgrades, Humana, and Resources for Living. For those without insurance, Talkspace is affordable. A mix of plans is available, and pricing ranges from \$49 to \$79 per week, depending on which plan is chosen. Unlimited plans are available for those who need it. This online counseling app solution runs on Android and iOS devices, and Talkspace can also be accessed from a web browser.

Table 1: Talkspace platform capability and costs

Price	Appointment Types	Accepts Insurance	Therapists on Staff
\$49-\$79 per week	Phone Call Video Call Text Messaging	Yes	LCSW, LMFT, LPCC, or Ph Psychology

In the above table 1, it reflects Talkspace platform capability and costs.

And below are the Patients comments about Talkspace;

Patients appreciate the flexibility and convenience that Talkspace provides. One user said, “Talkspace allowed me the flexibility I needed when receiving counseling sessions, when I needed them, and at my pace.” Patients also appreciate that they can get help quickly, without needing to leave their homes. According to one user, “The ability to reach out and receive help instantly and from home was amazing.

The this makes it a good platform to use since it allows phone and video calls and text messaging for both the counselor and the client.

### 2.1.3. LARKR – Best for On-Demand Care

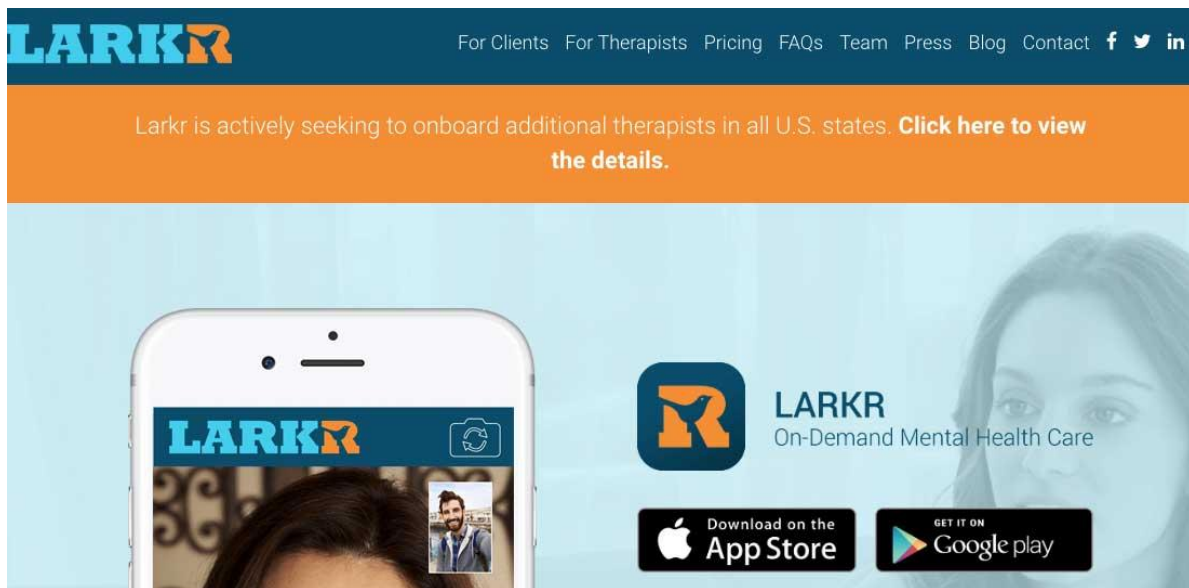


Figure 3: LARKR Application home page.

In figure 3, above we see a user interface home page of LARKR application

LARKR is an on-demand online counseling app that offers support 24/7. Individuals can receive guidance support through video calls on their cell phones, and LARKR is available for Android and iOS devices. This solution uses a matching algorithm to match patients and counselors. If, for some reason, a patient doesn't like their counselor, they can request a new match. This online counseling app costs \$85 per session. Most users commit to two sessions per month, at a total cost of \$170 per month. Counselors on this app work with a variety of people, and they can address concerns, including depression, anxiety, mood disorders, and relationship problems. Anyone can use LARKR, no matter their age or situation. Since this is a mobile app, LARKR can easily be accessed from home or on the go.

In addition to counseling, LARKR includes other tools and capabilities. Users can keep track of their mood each day and make notes in their journals throughout the month. LARKR also encourages its users to do a good deed daily and provides tips and suggestions on what to do as doing good things for others can help boost their self-worth and their overall mood. They can then track their progress within the app.

Table 2: LARKR capability and costs

Price	Appointment Types	Accepts Insurance	Therapists on Staff
\$85 for \$50 minutes, \$170 per month (two sessions a month)	Phone Call Video Call Text Messaging	No	All LARKR counselors are licensed therapists

In the above table 2, it reflects LARKR capability and costs.

And below are the Patients comments about LARKR;

#### What Patients Are Saying

Patients find that by using LARKR, they have more access to the resources and support they need. One reviewer said the following, “This is such an amazing resource, especially living in a somewhat rural area and small town where it’s not always easy to access the services someone needs.” Patients also appreciate the ability to have counseling sessions from the comfort of their homes. One patient noted, “When you aren’t up for making it out of the house to a therapy appt, LARKR is a real lifesaver.”

#### What are online counseling apps?

Online therapy apps provide counseling support using electronic devices, like smartphones and tablets. Users can communicate with licensed, trained professionals when they’re going through a hard time, need someone to talk to, or when they need help managing their mental health issues. Online therapy apps are convenient, and they can be used without having to leave the house. Online therapy apps typically include multiple ways to communicate with a therapist, including voice and video calls and texting. These kinds of apps give individuals of all ages a simple way to give therapy a try without having to commit to in-person therapy sessions.

#### Who is providing online therapy through these apps?

The counselors you will find on these apps are all licensed, trained, and experienced with a variety of different degree types. All of these individuals have either a Master's or Doctorate Degree in their particular field with training to provide therapeutic support to individuals or couples. They have all been certified by their state's professional licensing board which requires education, extensive training, and exams. In order to become a qualified therapist most the individuals you will encounter have had roughly 1000 hours of clinical experience as well as around 3 years of experience with clients.

Are online counseling apps effective?

Online therapy apps can be quite useful, and they can be just as effective as traditional therapy options. Since users are communicating with experienced counselors and therapists, just like they would during in-person therapy sessions, they can get the help and support they need to get through any life situation. Many patients prefer online therapy apps because they can fit therapy into their busy schedule, and they may be uncomfortable with the idea of in-person sessions. People who use online therapy apps can feel less stress and can learn how to navigate tough issues better with the help of their therapist.

How much does it cost to use online counseling apps?

The cost to use online therapy apps varies depending on the capabilities of the app and the number of services that an individual chooses to use. In most cases, individuals can expect to pay at least \$60 per month to use an online therapy app. Some apps charge \$100 or more per month. Most companies provide discounts if a patient is willing to pay quarterly or annually. Many apps offer unlimited access to a therapist when paying for service, and some online counseling apps accept insurance. In many cases, paying for online counseling apps outright is a lot cheaper than using insurance or having to pay out-of-pocket costs for traditional therapy offerings.

Online Therapy Services Market Analysis 2023-2027:

The online therapy services market size is expected to increase by USD 9.31 billion from 2021 to 2026, and the market's growth momentum will accelerate at a CAGR of 27.7%.

What will the Online Therapy Services Market Size be During the Forecast Period?



Figure 4: Online therapy services forecast

Figure 4, shows the market size of Online Therapy Services during the forecast period.

#### 2.1.4 Online Therapy Services Market: Key Drivers, Trends, and Challenges.

Research shows through the historical data for years, the market for online therapy services was examined for drivers, trends, and barriers, using 2021 as the base year and 2022 as the estimated year. The need for online therapy services has been greatly impacted by the COVID-19 epidemic, but a comprehensive analysis of drivers will aid in assessing actual demands and improving marketing methods to achieve a competitive advantage.

##### i. Key Online Therapy Services Market Driver.

Online therapy services growth is being significantly fueled by the rapid adoption of smartphones and increasing demand for online services. The rising use of broadband services has been accountable for the growth of many online services, including online counseling services. As broadband and Internet usage has expanded, more people are preferring to use them instead of visiting any offices or shops due to the benefits offered by the Internet, particularly online services. Patients or clients can consult with doctors using online therapy services without

physically visiting to the office or other locations. As a result, it is cheaper and saves both time and money.

The World Bank Group reports that there were 8.648 billion mobile cellular subscriptions globally as of December 22, 2021, up from 8.335 billion in 2020. Online treatment services are being prioritized more due to the widespread use of smartphones and tablets and the growing customer desire for personalized online therapy services. Several suppliers in the global market for online therapeutic services provide text and audio content that is mobile-friendly. Additionally, as Internet usage increases globally, customers are better able to access online services, which is fueling an increase in demand for online therapeutic services. For example, in 2009, almost 65% of households in Europe had access to the Internet; by 2016, that number had climbed to almost 90%.

Furthermore, with over 110 million subscribers as of 2020, Russia has the largest Internet market. With over 73 million users in 2020, Germany is the second-largest market, followed by Turkey and the UK. Therefore, it is expected that an important factor driving the growth of the global market for online therapy services over the forecast period will be rising Internet penetration.

## **ii. Key Online Therapy Services Market Trend.**

The key trend fueling the expansion of the online therapy services market is the rise in popularity of online healthcare services. Telehealth services are those that give psychological support and services, as well as psychiatric assessment and care, remotely via telecommunications or videoconferencing technology. These services can be provided via the phone or the Internet using videoconferencing, online chats, and email. For those with health difficulties, especially those who reside in distant or underdeveloped areas, these programs help to enhance access to healthcare. Patients who cannot leave their homes due to illness, emergency, or mobility issues might benefit from online healthcare services like telehealth services. Additionally, they make it possible for healthcare professionals to support their patients or clients in between appointments.

In addition to inpatient and residential treatment services, telehealth services are now offered by renowned market participants in the online therapy services

market. To increase their market shares, these vendors have used both organic and inorganic growth techniques, such as the release of new goods and services and acquisitions. Therefore, such advances are expected to increase the demand from individuals with mental health conditions for online treatment services. During the forecast period, the rising demand for online therapy services is anticipated to positively affect the expansion of the worldwide online therapy services market.

### **Effectiveness of Online Counseling:**

Numerous studies have examined the effectiveness of online counseling systems compared to traditional face-to-face counseling. Overall, research suggests that online counseling can be equally as effective in addressing various mental health concerns. For instance, a study by Reynolds and Stiles (2018) found that online cognitive-behavioral therapy demonstrated comparable outcomes to in-person therapy for treating depression and anxiety.

### **Benefits of Online Counseling:**

- **Accessibility:** Online counseling eliminates geographical barriers, making mental health services accessible to individuals in remote areas or those with mobility limitations.
- **Convenience and Flexibility:** Online counseling provides flexible scheduling options, eliminates travel time, and allows individuals to receive support from the comfort of their own homes.
- **Anonymity and Reduced Stigma:** Online counseling offers a level of anonymity, which may reduce stigma and encourage individuals to seek help who might otherwise be hesitant to do so.

### **Challenges of Online Counseling:**

- **Technical Issues:** Connectivity problems, technical glitches, and platform reliability can hinder the delivery of online counseling services.

- **Lack of Nonverbal Cues:** Online counseling may lack nonverbal cues, such as body language and facial expressions, which can impact the therapeutic process and the counselor's ability to accurately interpret client emotions.
- **Limited Emotional Connection:** Building rapport and establishing a therapeutic alliance might be more challenging in an online setting.

### **Ethical Considerations**

- **Confidentiality and Privacy:** Online counseling platforms must ensure robust security measures and comply with privacy regulations to protect clients' confidentiality.
- **Informed Consent:** Informed consent should cover issues specific to online counseling, such as the potential risks and limitations associated with technology.
- **Competence and Training:** Counselors providing online services should receive specialized training to develop the necessary skills and competencies unique to the online counseling environment.

### **2.1.5 Conclusion**

In Conclusion, from the reviewed online counselling systems they all stand out with a good future of supporting online interaction between the counselor and the client through the video and telephone calls and remote direct messaging. Never the less they are costly to use since they are paid for in order to use them and they require a lot of client details for one to achieve the goal of making an appointment. In this case the Uganda Christian University Online counseling management application system enables one make a quick sign-in and making an appointment free of charge with the other above services included at no cost making it more convenient and effective for the user more so the client.

In addition to that, online counseling systems have shown promise in expanding mental health services and increasing accessibility for individuals in need. While the effectiveness of online counseling has been supported by research, challenges related to technology, nonverbal cues, and building rapport still exist. Ethical considerations must be addressed to ensure client confidentiality and counselor competence. Future research should continue to explore the long-term outcomes and effectiveness of online counseling, as well as address the challenges and ethical concerns associated with this mode of service delivery.

## **CHAPTER 3: Methodology**

### **3.0 Introduction**

In this chapter we look at the Methodology used in the system development, the data collection instruments, System Design tools and software tools that are to be used in the actual design of the Online Counselling Management Application System “Let’s Talk”

### **3.1 Research Design / Methodology**

This a process, a set of steps followed in system development.

The Agile methodology is recommended for the development of the electronic health management system. The Agile methodology emphasizes the use of iterative and incremental development processes that involve frequent testing and feedback. It is a flexible and adaptable methodology that allows the development team to respond quickly to changing requirements and priorities. Agile methodology has the following benefits for the development of the Online Counselling Management Application System;

- i. **Speed:** The Agile methodology emphasizes the delivery of working software in short iterations. This allowed the development team to quickly identify and resolve any issues.
- ii. **Flexibility:** The Agile methodology allows the development team to adapt to changing requirements and priorities.
- iii. **Collaboration:** The Agile methodology emphasizes collaboration between the development team and the stakeholders. This ensured that the development team understood the requirements and priorities of the stakeholders.

iv. Quality: The Agile methodology emphasizes the delivery of high-quality software. This ensured that the electronic health management system meet the needs of the stakeholders.

#### Illustration of the Agile Methodology

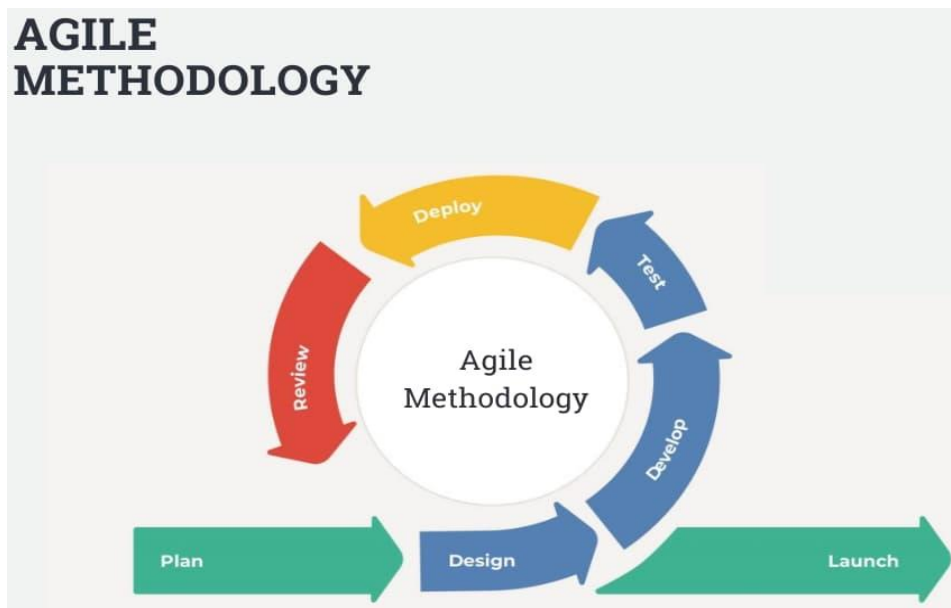


Figure 5: Agile Methodology

Figure 5 above shows the cycle of the Agile methodology

Agile isn't defined by a set of ceremonies or specific development techniques. Rather, agile is a group of methodologies that demonstrate a commitment to tight feedback cycles and continuous improvement.

### **3.2 Data Collection Instruments**

The following data collection technique was used in collection of data before the development of an Online Counselling System Application "Let's Talk":

Interviews: Interviews were used to collect data from school counselors. Interviews were used to collect information about counseling therapy provider experiences, challenges, and recommendations for the Online Counselling System Application.

### **3.3 Design tools**

#### **3.3.1 System Design Tools.**

Data flow diagram (DFD): This is a graphical representation of the flow of data through a system. It shows how data is input into the system, processed and output from the system. DFDs can be used to model the flow of data in an Online Counselling System Application.

Use case diagram: This is a visual representation of the functional requirements of a system. Use case diagrams show the interactions between the system and its users. Use case diagrams can be used to model the functionality of an Online Counselling System Application.

Entity-relationship diagram (ERD): This is a graphical representation of entities and their relationships in a system. ERDs can be used to model the data schema of an Online Counselling System Application.

Sequence diagram: This is a graphical representation of the interactions between objects in a system over time. Sequence diagrams can be used to model the behavior of an Online Counselling Management System Application.

State diagram: This is a graphical representation of the states that a system can be in and the transitions between these states. State diagrams can be used to model the behavior of an Online Counselling Management Application System.

Activity diagram: This is a graphical representation of the workflow of a system. Activity diagrams can be used to model the processes in an Online Counselling Management Application System.

### 3.3.2 Software Tools

Unified Modeling Language (UML) tools: UML tools are used for modeling and designing software systems. They were used to design the architecture and functionality of an OCMAS.

Data modeling tools: Data modeling tools are used to design the data schema of a software system. They were used to design the database schema of the OCMAS.

Web development tools: Web development tools such as HTML, CSS, and JavaScript were used to create the user interface of the OCMAS.

Database management tools: Database management tools are used to create, manage and manipulate databases. They were used to manage the database of the OCMAS.

Programming languages: Programming languages such as Java, C#, and Python were used to write the code for an OCMAS.

Integrated development environments (IDEs): IDEs such as Eclipse, Visual Studio, and PyCharm were used to provide a development environment for writing, debugging, and testing software code.

Version control tools: Version control tools such as Git, cloud cPanel and Subversion were used to manage the source code of an OCMAS.

Testing tools: Testing tools such as JUnit and NUnit were used to test the functionality of an OCMAS.

Deployment tools: Deployment tools such as Docker and Kubernetes were used to deploy an On to a production environment.

## 3.7 Implementation

This implementation plan's goal was to provide direction for the creation and deployment of an OCMAS. Through a safe online environment, the application seeks to offer clients quick and confidential counseling services at all time at the comfort zone.

### 3.7.1 Implementation Steps:

**Scope:** The development of the online therapy counseling system application supports real-time text-based messaging, real-time video conferencing, and enables file sharing for document exchange, resource sharing, and treatment materials for client-counselor interactions for Students in Uganda Christian University.

**Objectives:** This System improves accessibility, provide flexible scheduling options, ensure data security and privacy, and enhance the overall counseling experience for clients.

### 3.7.2 Development and Customization

There was a collaboration with a development platforms like bootstrap to customize the selected platform or build a custom application.

The development of this system application was integrated in core features such as secure messaging, video conferencing, and appointment scheduling to make it effective.

Customization of the user interface was well implemented to ensure ease of use and intuitive navigation for both student clients and counselors.

### 3.7.3 Data Security and Privacy

Implementation of robust security measures to protect client data and ensure compliance with privacy regulations (e.g., GDPR, HIPAA).

Utilization of encryption and secure data storage to safeguard sensitive client information.

Regular security audits to identify and address vulnerabilities were conducted. This was done when the system was launched and used by the clients.

#### **3.7.4 Staff Training and Support**

There was comprehensive training given to therapists and staff members on using the online therapy counseling system effectively.

Offering of training sessions was majorly done on secure communication practices, handling emergency situations, and maintaining client confidentiality in regards to the use of the system application.

There was establishment of a support system to address technical issues, provide ongoing guidance, and offer assistance to therapists and clients and which will be provided by the Uganda Christian University UIS department.

#### **3.7.5 Monitoring and Evaluation**

Monitor system performance, user feedback, and client satisfaction regularly.

Conduct surveys or feedback sessions with clients and therapists to identify areas for improvement.

Continuously evaluate the effectiveness of the online therapy counseling system in meeting the established objectives.

#### **3.7.6 Compliance and Ethical Considerations**

Compliance with the legal and ethical guidelines for online counseling services was considered.

There was verification of the credentials and licensure of therapists practicing within the system.

The therapists were educated on ethical practices, boundaries, and maintaining client confidentiality in the online environment.

### **3.8 Testing and system Application validation.**

The objective of this testing and validation plan was to ensure the accuracy, functionality, and reliability of the online therapy counseling system application.

The plan focuses on thorough testing and validation processes to identify and rectify any issues, ensuring a high-quality user experience.

### **3.8.1 Testing Phase**

In this stage the following phases were involved with the respective activities;

#### **a) Unit Testing.**

Testing individual modules and components of the application.

Verification of functionality and correctness of each unit was done further addressing any bug or errors identified during testing.

#### **b) Integration Testing.**

Integration testing to validate the seamless interaction between different modules and components.

Verification of data flow and synchronization between modules.

We had to ensure the proper functioning of interdependent features.

#### **c) System testing**

There was testing of the system thoroughly to assess the application as a whole to make sure all features operate as intended, testing of multiple user situations and workflows is to be implemented and detect any defects, inconsistencies, or performance problems found and fixed.

#### **d) Security Testing.**

A thorough security testing was made to find weaknesses and safeguard sensitive information is conducted.

A check out for possible security lapses like unauthorized access or information leaks is conducted.

Required security precautions to close any found vulnerabilities were also taken.

#### **e) Usability Testing**

Utilizing of representative users while testing usability.

Analyzing the navigability, intuitiveness, and user experience of the interface.

Gathering of suggestions, then make the required adjustments to increase usability.

### **3.8.2 Validation Phase**

The following stages were involved on this phase with the respective activities under each stage.

#### **a) User Acceptance Testing (UAT)**

This included the following;

- Working jointly to conduct UAT with a group of representative users.
- Verification of the application so to satisfies the needs and expectations of the user.
- Obtaining of opinions on the product's usability, functionality, and general satisfaction.

#### **b) Performance and scalability Testing**

It included the following;

- Checking the application's responsiveness under various user volumes and loads.
- Analyzing server capacity, system stability, and response times so as to improve scalability and performance.

#### **c) Compatibility Testing**

The application was tested on the different devices, browsers and operating system.

Configurations with compatibility with the different Screen sizes and any compatibility issue was identified during the testing.

#### **d) Data Validation**

Testing of data input, storage, and retrieval processes was implemented.

Validation of data integrity, validation and error handling and accuracy within the application was implemented.

e) Accessibility Testing

A test on the application for accessibility compliance was made to ensure compatibility with assistive technologies and adherence to accessibility guidelines (e.g., WCAG).

## **Chapter 4: System Analysis and Design**

### **4.0 Introduction**

This chapter is necessary in identifying the strengths and weaknesses of the current systems, system requirements and user requirements of the Counsellor officials, and administrators at Uganda Christian University.

### **4.1 Analysis of the current system**

#### **4.1.1 Description of the current system**

In-person (face to face) counseling is the common and mostly used way of offering counselling services at Uganda Christian University. In-person counselling also known as traditional counseling or face-to-face counseling, involves clients visiting a counselor's office or a counseling center for sessions. This method allows for direct and personal interaction between the client and the counselor, facilitating a deeper level of connection and engagement.

This physical system is being used to support students' mental health and well-being. School counselors or mental health professionals are available on-site to offer guidance, support, and counseling services to students dealing with academic, social, or personal issues.

#### **4.1.2 Strengths of the current system.**

**Direct Human Connection:** In-person counseling allows direct face-to-face interaction between the client and the counselor. This personal connection fosters trust, empathy, and rapport, which are crucial for effective therapy. Being physically present in the same space enables nonverbal communication, such as body language and facial expressions, which can enhance the therapeutic process.

**Immediate Feedback and Support:** In an in-person counseling session, both the client and the counselor receive immediate feedback and support. The counselor can observe the client's reactions, emotions, and nonverbal cues in real-time, allowing them to tailor their approach and interventions accordingly. This real-time feedback facilitates a more dynamic and responsive therapeutic process.

**Enhanced Emotional Engagement:** Being physically present with a counselor can enhance emotional engagement and the overall therapeutic experience. Clients may feel more supported, understood, and validated when they can share their emotions and experiences in person. The counselor's presence and attentiveness can help create a safe and nurturing environment for emotional exploration and healing.

**Non-Digital Distractions:** In-person counseling eliminates the potential distractions associated with digital communication, such as poor internet connection, technological glitches, or multitasking. Clients can focus solely on the counseling session without the interruptions and technical barriers that may arise in online or phone counseling.

**Use of Therapeutic Tools and Techniques:** In-person counseling provides opportunities for counselors to utilize a wide range of therapeutic tools and techniques effectively. This can include the use of art therapy materials, sensory interventions, role-playing exercises, and other modalities that may require physical presence or tactile interaction. These tools can enhance the therapeutic process and help clients explore their emotions and experiences in different ways.

**Confidentiality and Privacy:** In-person counseling offers a controlled and private environment for clients to share their concerns and personal information. Confidentiality can be more easily managed within the confines of a counseling room, ensuring that clients feel safe and secure in disclosing sensitive information.

**Flexibility in Interventions:** In-person counseling allows for spontaneous adjustments and adaptations in therapy sessions. Counselors can respond to the client's needs in real-time and modify the therapeutic interventions accordingly. This flexibility promotes a personalized and tailored approach to counseling, ensuring that the client's unique needs are met effectively.

#### **4.1.2 Weaknesses of the Current System**

**Accessibility and Geographical Limitations:** In-person counseling requires clients to physically travel to the counselor's location, which can present challenges for individuals who live in remote areas or have limited mobility. Geographical constraints may limit access to qualified counselors, especially in underserved or rural areas, making it difficult for some individuals to receive timely and convenient counseling services.

**Time and Scheduling Constraints:** In-person counseling typically follows a fixed schedule and requires both the client and the counselor to coordinate and be present at the same location. This can lead to scheduling conflicts, especially for clients with busy lifestyles or those who face time constraints due to work, family responsibilities, or other commitments.

**Stigma and Privacy Concerns:** In certain cultural or social contexts, seeking in-person counseling may still carry a stigma. Individuals may be concerned about being seen entering or leaving a counseling office, which can deter them from seeking help. Privacy concerns may also arise if clients encounter someone they know in the waiting room or have concerns about confidentiality in small communities.

**Travel and Cost-Related Factors:** In-person counseling often involves travel expenses, such as transportation costs and parking fees, which can add financial burdens for clients. Additionally, individuals living in urban areas may face challenges related to traffic congestion and limited parking options near

counseling centers, making the process less convenient and potentially time-consuming.

**Limited Specialist Availability:** In certain specialized areas of counseling or specific therapeutic modalities, finding qualified and experienced counselors nearby may be challenging. Clients seeking highly specialized support may need to travel long distances or may not have access to specialized services within their local area.

**Disruptions and External Factors:** In-person counseling sessions can be disrupted by external factors, such as unexpected interruptions, noisy environments, or uncomfortable physical settings. These disruptions may affect the quality and focus of the counseling session, potentially impacting the therapeutic process.

## **4.2 The Developed System**

The Online counselling System Application(OCSA) “Let’s talk” is a developed system designed to enhance the delivery of counselling services and enhance good record keeping and information within the Uganda Christian University counselling department. The Online Counselling System Application “Let’s talk” provides the Uganda Christian University counselling department with a centralized and automated platform for managing Student cases that require a counsellor, and through appointments, providing online therapy services, and storing data information collected from the services offered in a given period of time.

This developed system application streamlines the operations of counselling service providers, enabling them to deliver efficient and quality services to the Uganda Christian University Students.

The Online Counselling System enable the counselors to receive scheduled appointments from the student clients send appointment video call links and also start live chat. Students are able to schedule their appointments online or by phone, computers, and providers will be able to manage their appointment schedules using the system. The Online Counselling System provides the university

counselors with access to reports and analytics on student patient outcomes, health performance, and other key metrics. The service providers are able to use this information to improve their operations and student patient care.

### **4.3 Design of the developed system**

#### **4.3.1 Requirement Specifications**

These are both system and user requirements as follows;

##### **4.3.1.1 Hardware Requirements.**

The Online Counselling System required a server infrastructure capable of handling the load of student's user data and counsellors. The server hardware included high-speed processors, sufficient storage, and backup facilities. Desktop computers, laptops, and mobile devices with internet connectivity was also required for accessing the system.

##### **4.3.1.2 Software Requirements.**

The Online Counselling System "Let's Talk" required software for managing both students' and counsellors' records, scheduling appointments, generating video chat links and automatically sending them to the users' email address, and generating reports.

The software was compatible with the server infrastructure and the devices used to access the system.

##### **4.3.1.3 Functional Requirements**

User management: Online Counselling System provided user management features that allow system administrator professionals to create, manage, and delete user accounts with different roles and permissions.

Student record management: Online Counselling System allowed Counselor professionals to update, and view student client records, including appointment history, student issue, and reports.

Appointment scheduling: The online Counselling system allowed system admins to schedule appointments for student clients and send appointment reminders to both the student clients and the counsellors.

User report management: The Online Counselling System allowed counsellor professionals to upload and manage Student reports and view counselling sessions report results.

Reporting: The Online Counselling System provided reporting features that allow counsellor professionals to generate reports on student client reports.

Integration: The online Counselling System is able to integrate with other student related user systems such as Alpha Management System used by Uganda Christian University to provide seamless data exchange.

#### **4.3.1.4 Non-functional Requirements.**

Security: The Online Counselling Management System Application was designed with strong security features, including data encryption, access controls, and user authentication, to protect student client data from unauthorized access.

Performance: The Online Counselling Management System Application was designed with a capability to handle a large volume of patient data and provide fast response times to ensure smooth user experience.

Reliability: Online Counselling Management System Application was designed with high availability and fault tolerance features to ensure that all the students data is always available to the counsellor professionals.

Scalability: The Online Counselling Management system application was designed to scale easily as the number of users and patient data grow.

Usability: OCMSA was designed with a intuitive user interface that is easy to use and understand, and provide appropriate training and support to users.

Compliance: The OCMSA was designed in comply to relevant healthcare regulations, such as HIPAA, to ensure that student data is handled appropriately.

#### **4.3.1.5 User Requirements.**

The Online Counselling Management System Application (OCMSA) was designed to meet the needs of the institution counsellors who offer counselling services to the students and administrators. The following user requirements are necessary to ensure the OCMSA meets their needs:

The institution Counselor Requirements:

The institution counselors' providers required an easy-to-use system that allows them to access student records, schedule appointments, view reports, manage the online video meet sessions, and generate reports. The system was designed user-friendly and efficient, allowing providers to spend more time with student patients and less time on administrative tasks.

Student Patient Requirements:

Student Patients required a system that is easy to use and allows them to access their past records, schedule and view appointments, and join online meetings with the counsellors through the links sent on their emails. The system was designed enabling it to be accessible from mobile devices and provide patients with up-to-date information on their progress with the counsellor they have been assigned to.

Administrator Requirements:

Administrators required a system that allows them to manage user accounts, security settings, and access controls. The system is able to provide administrators with the ability to generate reports on system usage and performance.

Regulatory Requirements:

The Online Counseling Management System Application complies with regulatory requirements for healthcare information systems, including HIPAA and other data

privacy and security regulations. The system was also designed to accommodate any future regulatory changes.

#### **4.3.1.6 Operational Requirements**

**System Availability:** The Online Counselling Management System application was designed with a capability to be available 24/7 to accommodate users from different time zones and allow flexible scheduling of counselling sessions.

The system has minimal downtime for maintenance and upgrades, ensuring uninterrupted access for users.

**Scalability:** The online counselling Management System application is scalable to handle an increasing number of users and counselling sessions as the user base grows. The system is able to scale resources, such as server capacity, to maintain optimal performance during peak usage periods.

**Performance:** The Online counselling management system application provides fast response times to ensure smooth and efficient user experience.

It is capable of handling multiple concurrent sessions without significant lag or delays in communication.

**Data Backup and Recovery:** The Online counselling management system application is able to implement regular data backups to prevent data loss in case of system failures or disasters.

Backup data is securely stored and easily recoverable to minimize downtime and ensure data integrity.

**System Monitoring and Reporting:** The Online counselling management system application has monitoring tools in place to track system performance, detect errors or anomalies, and generate reports on system usage.

Administrators have access to comprehensive reports and analytics to monitor the application's usage and identify areas for improvement.

**Integration with External Systems:** The Online counselling management system application has support integration with external systems, such as electronic health record systems, to streamline processes and enhance functionality.

Integration is seamless and secure, ensuring smooth data transfer between systems.

**User Training and Support:** The application provides comprehensive user documentation and training materials to familiarize users with the platform's features and functionalities.

A dedicated support system is available to address user queries, technical issues, and provide assistance when needed.

**Compliance with Regulatory Standards:** The application complies with relevant regulatory standards, such as data protection and privacy regulations in the jurisdiction where it operates.

User data is securely stored and transmitted, and appropriate consent mechanisms are put in place.

**System Security:** The application has robust security measures, including encryption, user authentication, and access controls, to safeguard user data and prevent unauthorized access.

Regular security audits and updates are conducted to identify and address any potential vulnerabilities.

**Disaster Recovery and Business Continuity:** The application has a disaster recovery plan in place to ensure service continuity in case of unforeseen events, such as server failures or natural disasters.

The plan includes data backups, redundant systems, and procedures for restoring the application quickly and efficiently.

#### **4.3.1.7 System Requirements**

Table 3: Hardware Requirements

Hardware Requirement	Description
Processor	Duad-core and above is recommended.
Memory	Minimum 8G RAM & 16GB more recommended for smooth performance.
Storage	Minimum 500GB hard drive or 256GB solid-state drive (SSD) is recommended.
Display	High resolution monitor minimum 1920*1080.
Input Devices	Keyboard, Mouse, touch screens, biometric readers necessary for health workers.
Network Interface	Should have network interface card (NIC) enable connect internet & other devices.
Power Backup	Should have an Uninterruptible power supply (UPS).
Backup System	To ensure safety, availability of student clients data in case of data corruption disaster.
Security Devices	Install firewalls, antivirus, and intrusion detection system to ensure data confidentiality.

Table 3 above shows the hardware requirements that were used in the development of the online counseling management application system.

Table 4: Software Requirements

Software Requirement	Description
Integrated Development Environment (IDE)	An IDE is required for software development, debugging, and testing. Popular options include Eclipse, IntelliJ IDEA, and Visual Studio.
Database Management System (DBMS)	For storing and managing electronic health records (EHRs) securely. Popular options include MySQL, Oracle, and Microsoft SQL Server.
Web Development Framework	For developing user interface (UI) of the system. Options include AngularJS, React, and Vue.js.
Server-side Language	Required for implementing the logic of the system and processing data on the server-side. Popular options include Java, Python, and PHP.
Application Programming Interface (API)	Required for enabling communication and data exchange between the system and other institution systems and devices. Popular options include REST and SOAP.
Version Control System	For tracking changes to the software code and collaborating with other developers. Popular options include Git and Subversion.
Testing Framework	Required for automated testing and ensuring the quality and reliability of the system. Popular options include JUnit, Selenium, and

	Cypress.
Security Software	This includes encryption software and antivirus software, is required to protect against cyber threats and ensure the confidentiality, integrity, and availability of the student data.
Virtualization Software	VirtualBox or VMware, is recommended for creating a development environment that closely mirrors the production environment.

Table 4 shows the software requirements that were used in the development of the online counseling management application system.

## 4.4 System Design

### 4.4.1 Context Diagram

Figure 6: Context Diagram Level 1 [System Administrator]

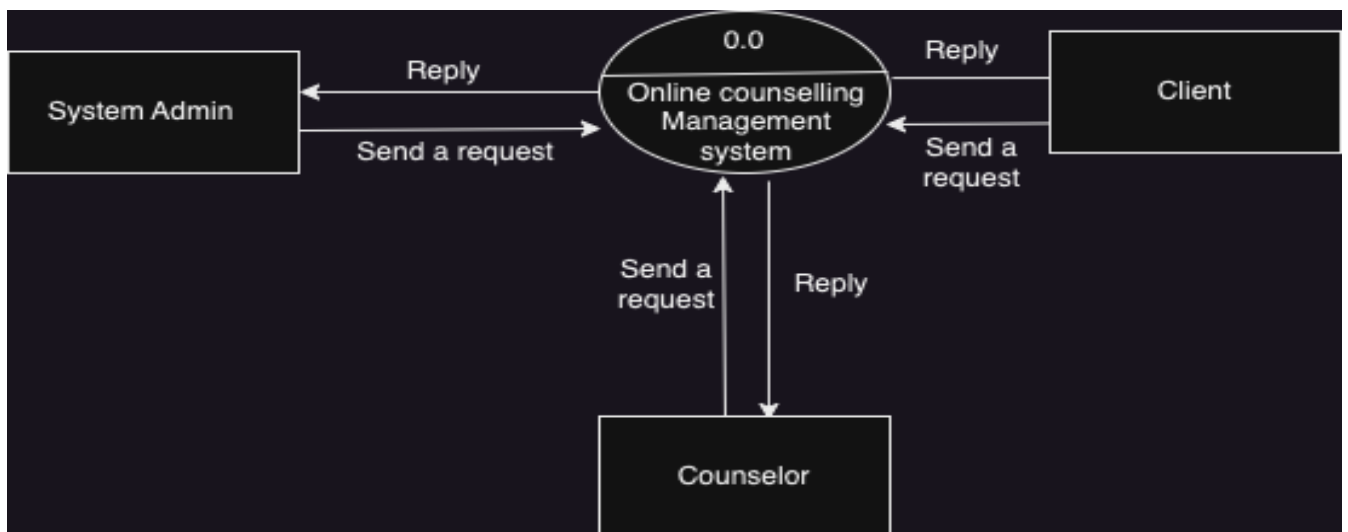


Figure 6 shows the context diagram (Level 1) that clearly defines the system users.

#### 4.4.2 Data Flow Diagram(s)

Figure 7: DFD Level 1 [System Administrator]

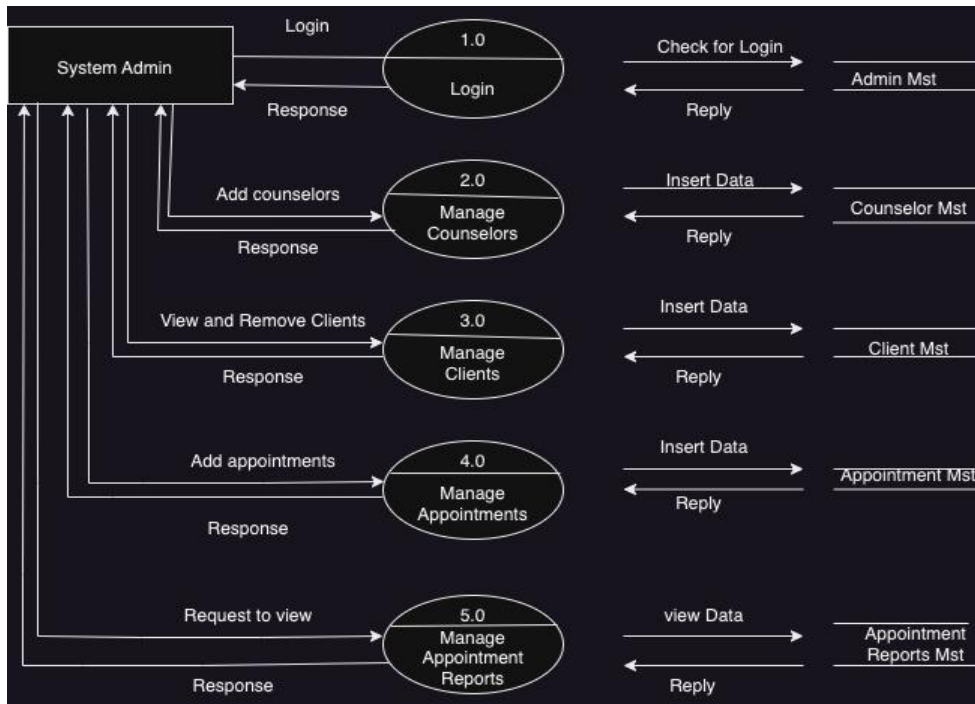


Figure 7 is a Data Flow Diagram Level 1 showing the System Admin roles and where data is stored on the system application.

Figure 8: DFD Level 2 [System Administrator]

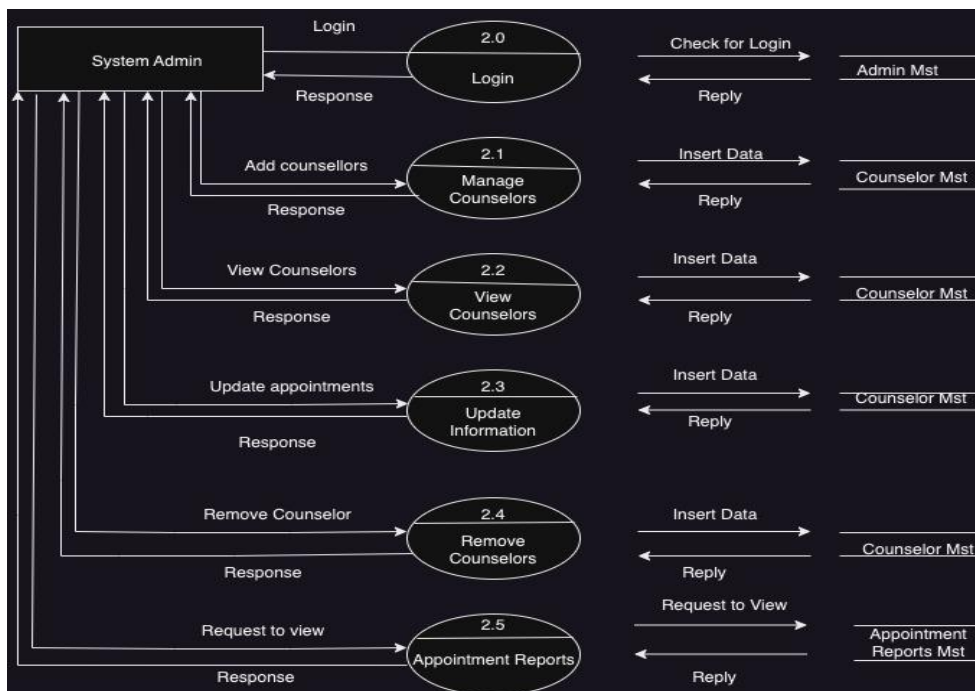


Figure 8 is a Data Flow Diagram Level 2, showing the System Admin roles and where data is stored on the system application at the second stage of management.

Figure 9: DFD Level 1 [Counselor side]

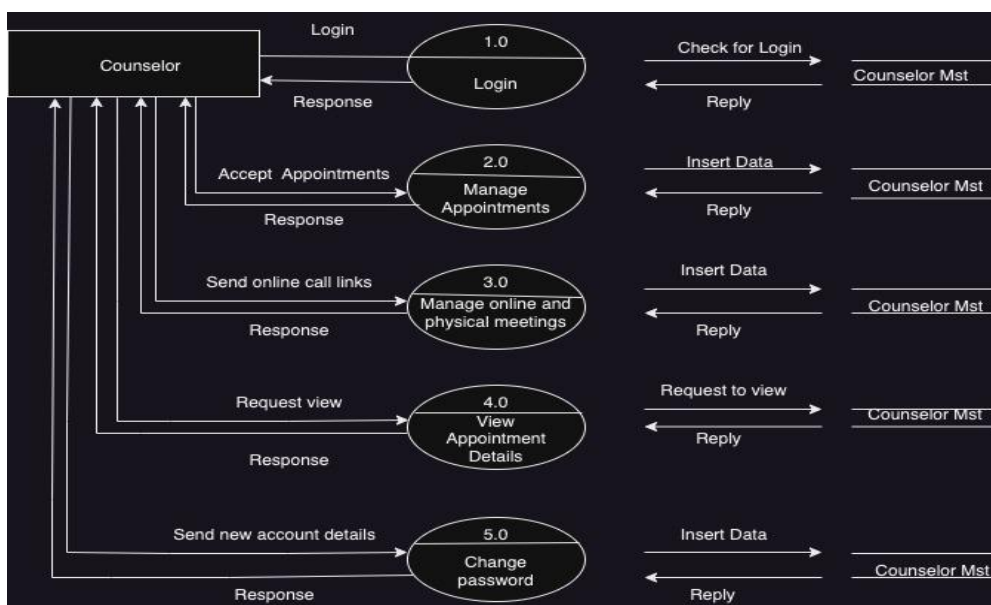


Figure 9 is a Data Flow Diagram Level 1 showing the counselor roles and where data is stored on the system application.

Figure 10: DFD Level 1 [ Client Side ]

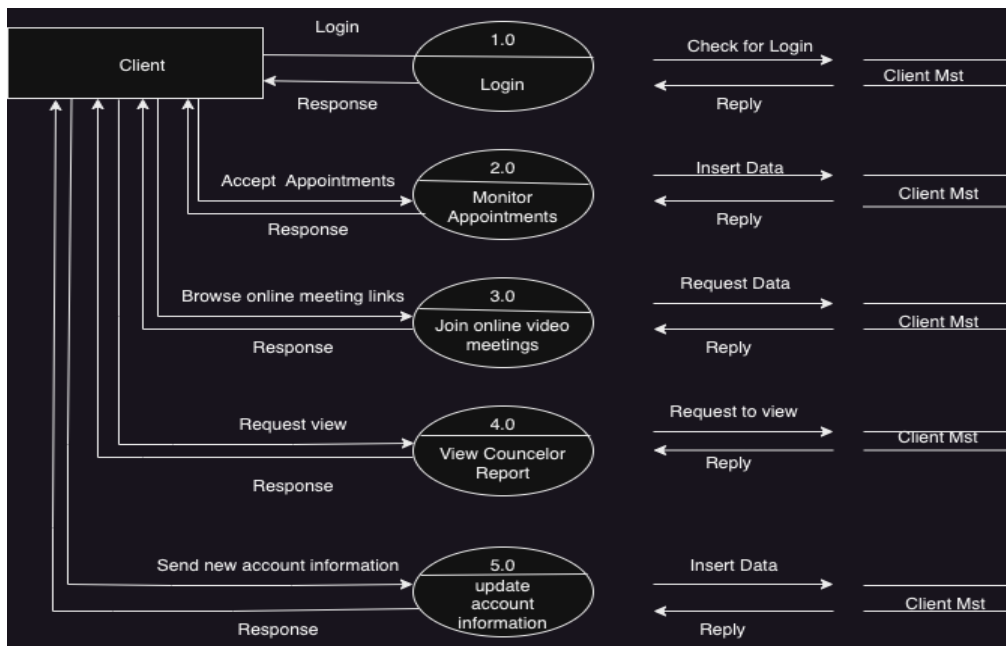


Figure 10 is a Data Flow Diagram Level 1 showing the client roles and where data is stored on the system application.

#### 4.4.3 Flow Chart(s)

Figure 11: Flow Chart

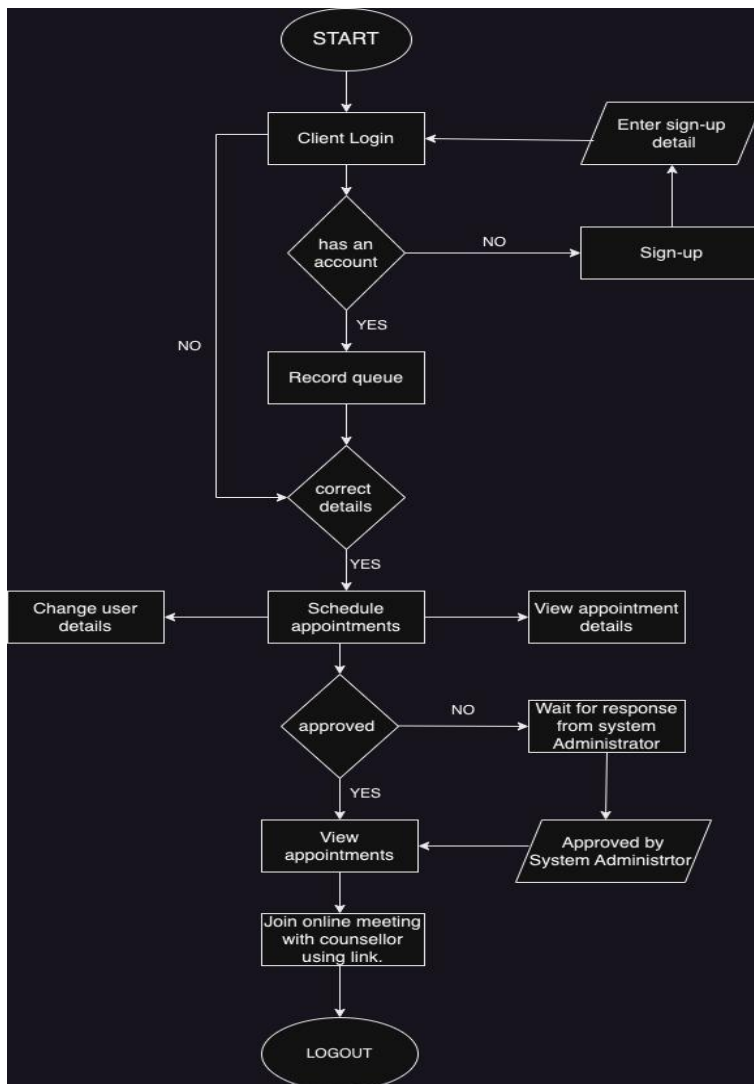


Figure 11 is a flow chart that clearly shows the processes the client goes through when interacting with application system from the sign-up or login to when one logs out.

#### 4.4.4 Entity Relationship Diagram (ERD)

a) Entities;

- Counselor
- Client
- System Administrator
- Client records

- Client History reports

## b) ATTRIBUTES TO ENTITIES

Table 5: Attributes to Entities

Entity	Attributes
Counsellor	id, f_name, m_name, l_name, username, specialty, password, meeting_link, status, avatar, Date added, Date updated.
Client	id, f_name, m_name, l_name, date_of_birth, Gender, Contact, Email, Address.
System Administrator	id, f_name, m_name, l_name, username, password, status, avatar, Date_added, Date_updated.
Appointment Records	id, code, Date, Schedule, Description, status, Date_update.
Appointment History Reports	id, Appointment_id, Status, Remarks Date_Created.

Entity	Primary Key
--------	-------------

Table 6: Relation ships (Identifyi ng Primary, Candidate and Alternate Keys)	Client	Client_id
	Counselor	Counselor_id
	System_Admin	Admin_id
	Appointment List	Appointment_id
	Appointment History	App_History_id

Table 6 shows entities with the respective keys as represented in the system application database.

### c) LOGICAL DESIGN

Figure 12: Logical Design



Figure 12 shows a logical design which shows a relationship between entities in the system application database

**d) ENTITY RELATIONSHIP DIAGRAM**

Figure 13: Entity Relationship Diagram

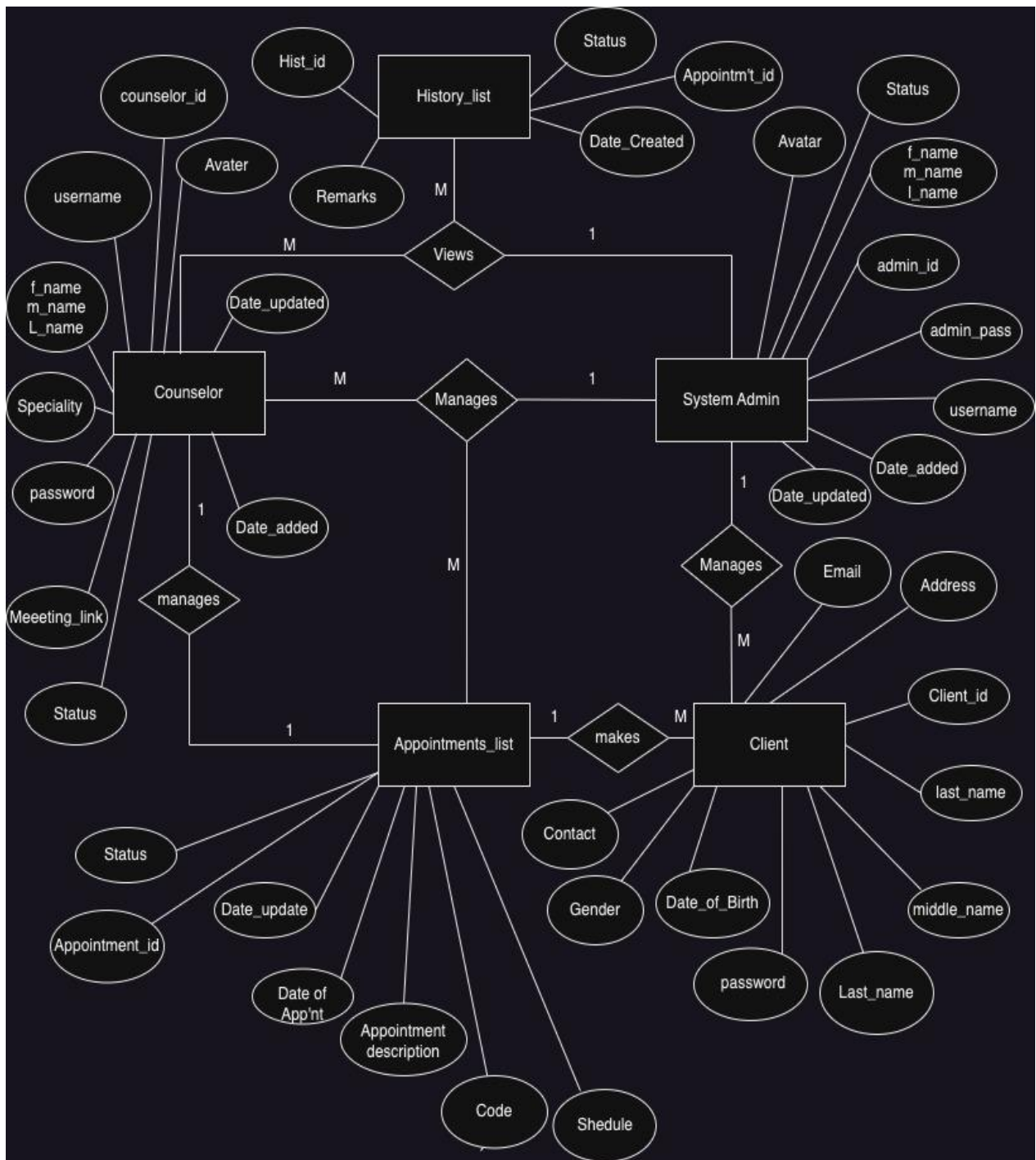


Figure 13 is an entity relation diagram which shows which shows a relationship between entities with the correspondent attributes in the system application database

**e) USER CASE DIAGRAM**

Figure 14: User Case Diagram

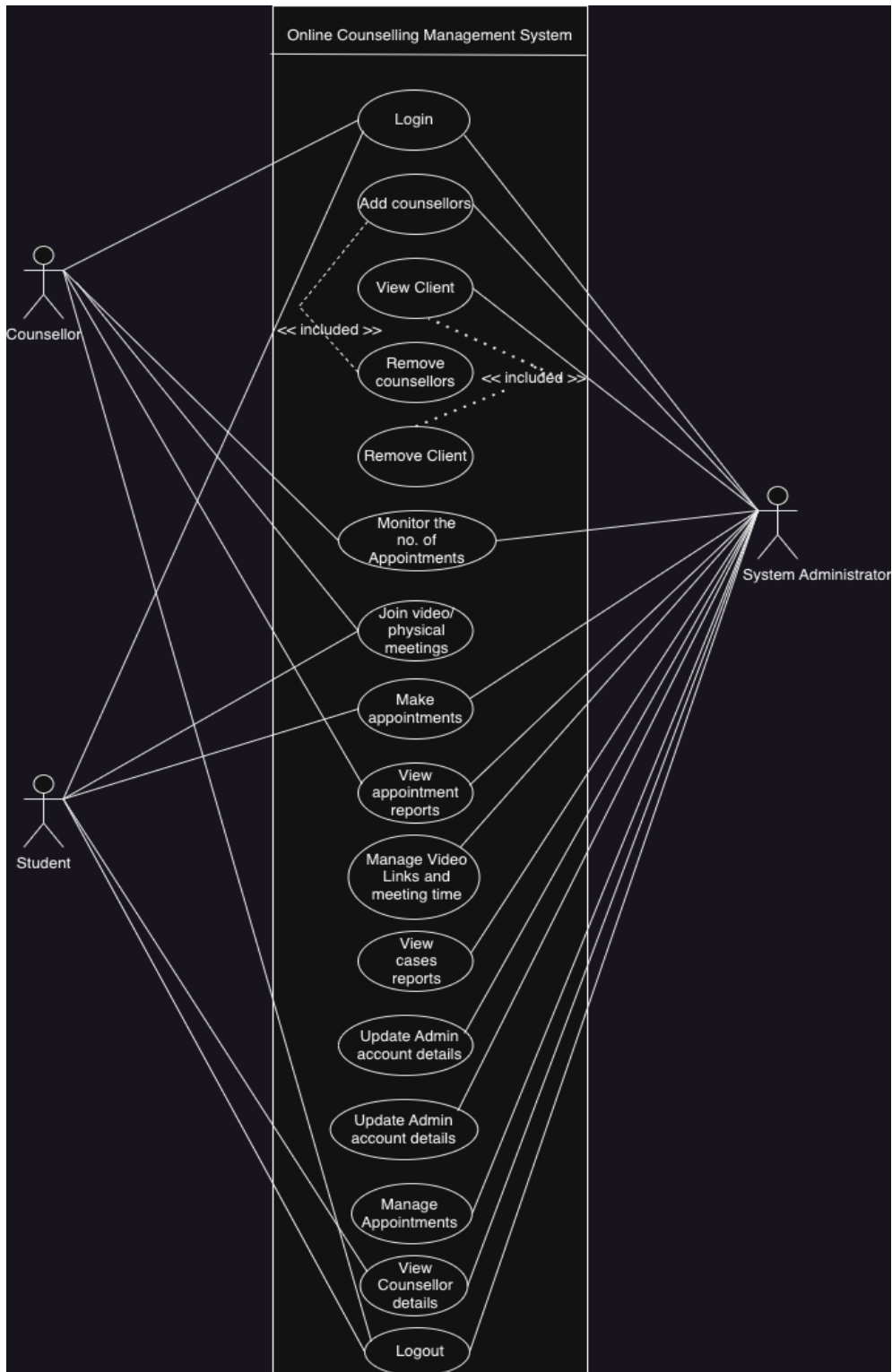


Figure 14 is user case diagram which clearly defines the roles of each user of the designed online counselling management system application

#### 4.4.5 Data Dictionary

Table 7: Data Dictionary

Entity	Attributes	Data type	Constraints
Client_list	Client_id F_Name, M_Name L_name Gender Contact Email Password dob avatar, Address	Int (20) Varchar (50) Varchar (200) Varchar (220) Varchar (50) Int (20) Varchar (50) Varchar (50) Varchar (200) img (png,jpeg) Varchar (220)	Not null Not Null Not null Not null Not null Not Null Not null Not null Not null Not Null Not Null
User Admins -System Admin -Counselor	id, F_Name, M_Name L_name Username Password Avatar Last_login Status Date_added Date_updated	Int (20) Varchar (50) Varchar (25) Varchar (50) Varchar (25) Varchar(10) Img(jpeg,png) Date (0000-00-00) Int(2) Int(2) Date (0000-00-00) (00:00:00) Date (0000-00-00) (00:00:00)	Not null Not Null Not null Not null Not Null Not null Not null Null Not null Not null Not Null Not null
Counselor_list	id Name, Speciality Meeting Link Status	Int (20) Varchar (50) Varchar (50) Varchar(50) Int(2)	Not null Not Null Not null Not null Not Null

	Delete flag Date_created  Date_updated	Int(2) Date (0000-00-00) (00:00:00) Date (0000-00-00) (00:00:00)	Not null Not null  Not null
Appointment List	id, code, shedule, client_id Case description, Status, Date updated Date_of_Appointment	Int (20) int (50) Date(0000-00-00) (00:00:00) Int(20) Varchar(30) Int(2) Date(0000-00-00) (00:00:00) Date(0000-00-00) (00:00:00)	Not null Not Null Not null Not null Not Null Not null Not null Not Null
Appointment counselor list	Appointment_id, Counselor_id Date_created	Int (20) Varchar (50) Date (0000-00-00) (00:00:00)	Not null Not Null Not null
History_list	Id Appointment_id Status Remarks Date_created	Int(20) Int(20) Int(2) Varchar(10) Date (0000-00-00) (00:00:00)	Not null Not Null Not null Not null Not Null

Table 7 is a Data dictionary which contains entities, attributes with the correspondent data types and constraints in the similar way they are represented in the application system database.

# CHAPTER 5: Implementation

## 5.1 Introduction

This chapter provides a detailed report on the implementation, system testing, validation, and limitations of the "Let's Talk" online counseling management system application specifically designed for Uganda Christian University. It outlines the implementation process, testing methodologies employed, validation process, and highlights the limitations encountered during the development of the application.

The implementation of the "Let's Talk" online counseling management system application involved translating the design specifications into a functional software system. The key features implemented in the application include user authentication and authorization, user profile management, counseling session scheduling, real-time chat and video conferencing, and counseling session records and reporting. The technologies used for implementation were HTML, CSS, JavaScript, ReactJS, Redux, Node.js, PHP, and Mariadb.

## 5.2 Implementation Process

The implementation of the "Let's Talk" online counseling management system application for Uganda Christian University followed a systematic approach. The key steps involved in the implementation process were as follows:

**Step 1: Requirements Analysis:** Conducted a thorough analysis of the specific requirements and needs of Uganda Christian University, taking into account the campus structure, student population, counseling services, and existing systems.

**Step 2: Customization:** The application was customized to align with the unique requirements of Uganda Christian University, including incorporating the university's branding, specific counseling services offered, and relevant campus information.

Step 3: Software Development: Implemented the necessary features and functionalities based on the identified requirements. This included user registration and authentication, user profile management, counseling session scheduling, real-time communication, and counseling session records management.

Step 4: Integration with University Systems: Integrated the "Let's Talk" application with the existing systems at Uganda Christian University, such as the student information system, to ensure smooth data exchange and enhance the overall user experience.

## 5.3 Print Screen

### 5.3.1 CLIENT SIDE;

Figure 15: Client login page

This shows the welcome landing page of the online counseling management application. The client is able to create an account to access the services and also able to sign-in and use the available services the application offers.

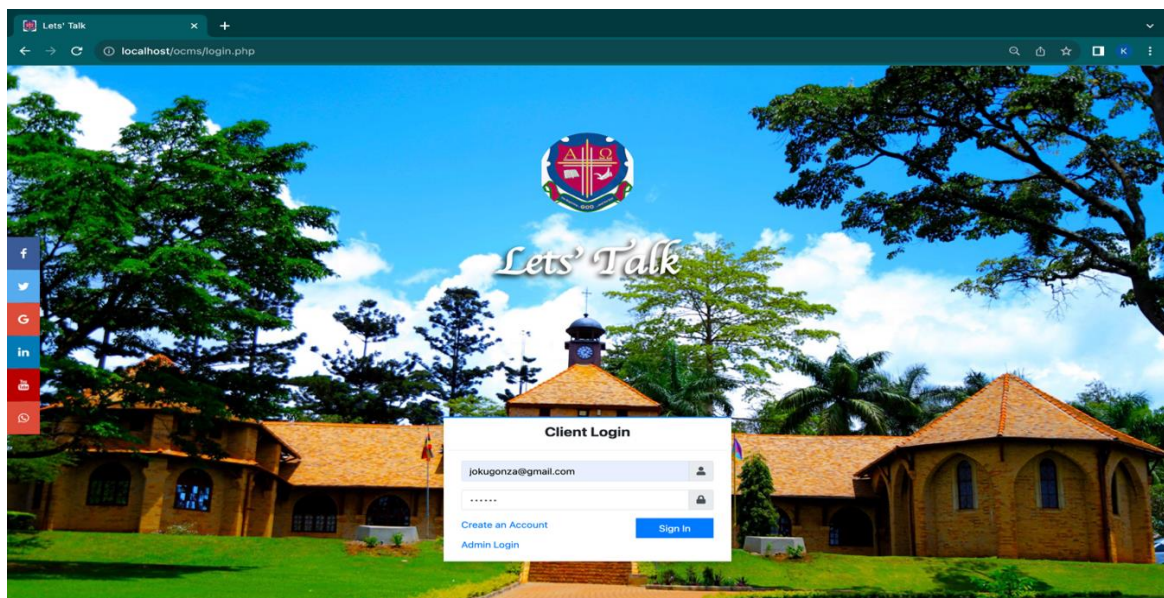


Figure 16: Client account registration page

This shows a sign-up window for the client which offers a privilege for the new client user to enter the required details which are registered in for the client user account.

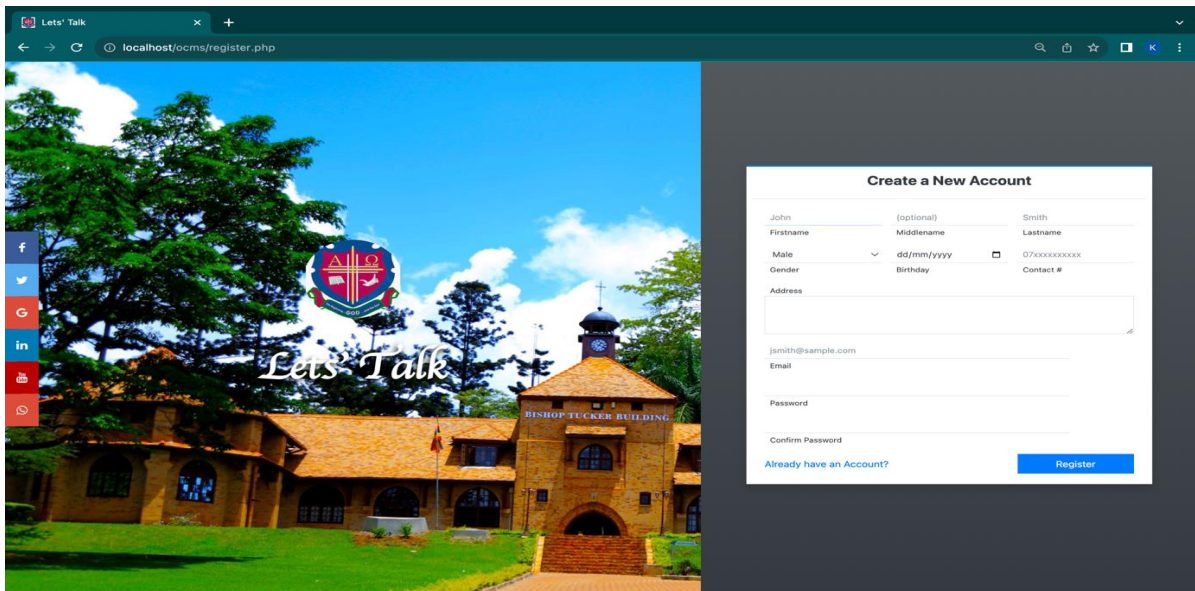


Figure 17: Client Dashboard

The client user Dashboard window shows the general information contained within the user account activities and also containing extra information like toll free numbers and working hours. Therefore, it makes appointment handling and monitoring easy for the client in a most convenient way.

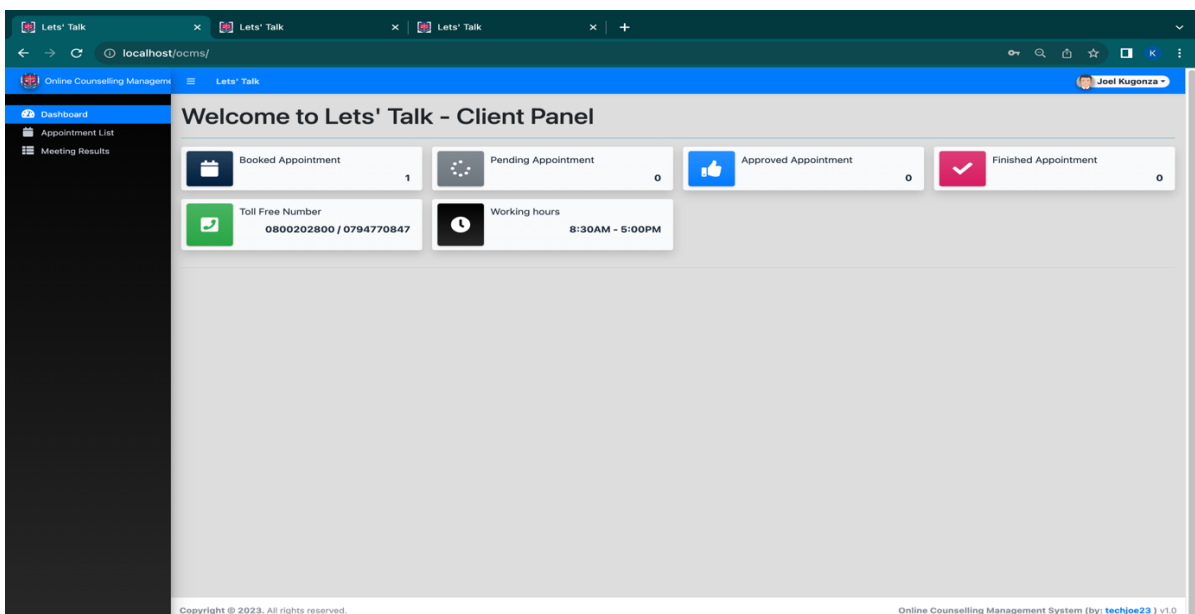


Figure 18: Appointment List page.

This shows the specific appointments done by client with the correspond date at which it was done, code, the counselor to handle the case, status and action privileges like view, edit or also delete the appointment details

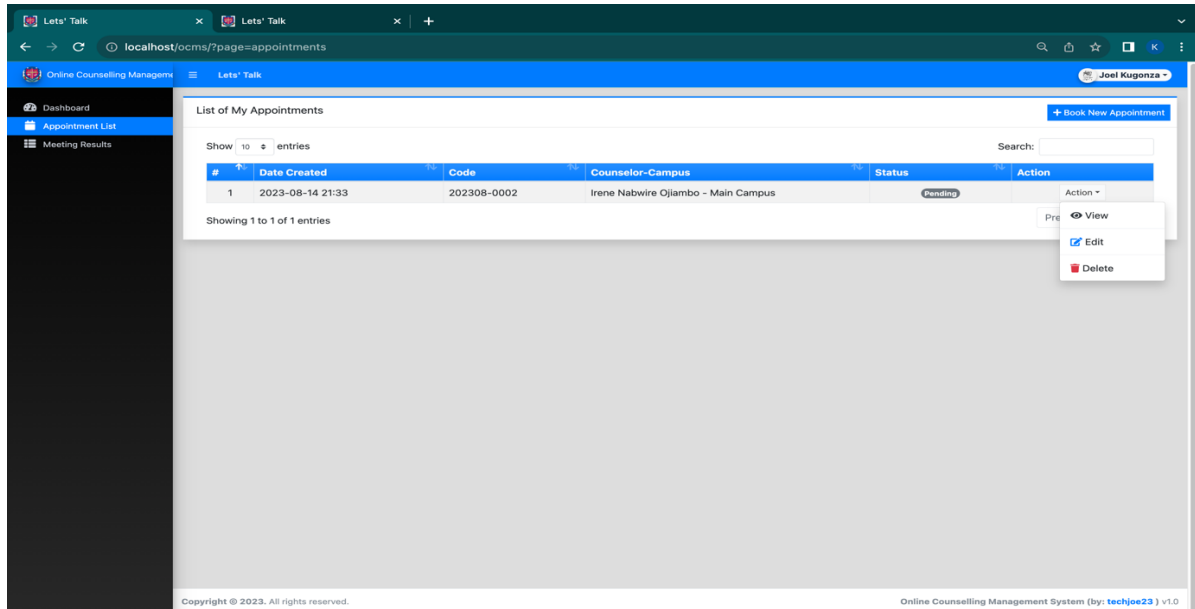


Figure 19: Meeting Results page.

This page gives the client a privilege to view and also download any report shared by the counselor that handled the client's case by clicking on the view result button.

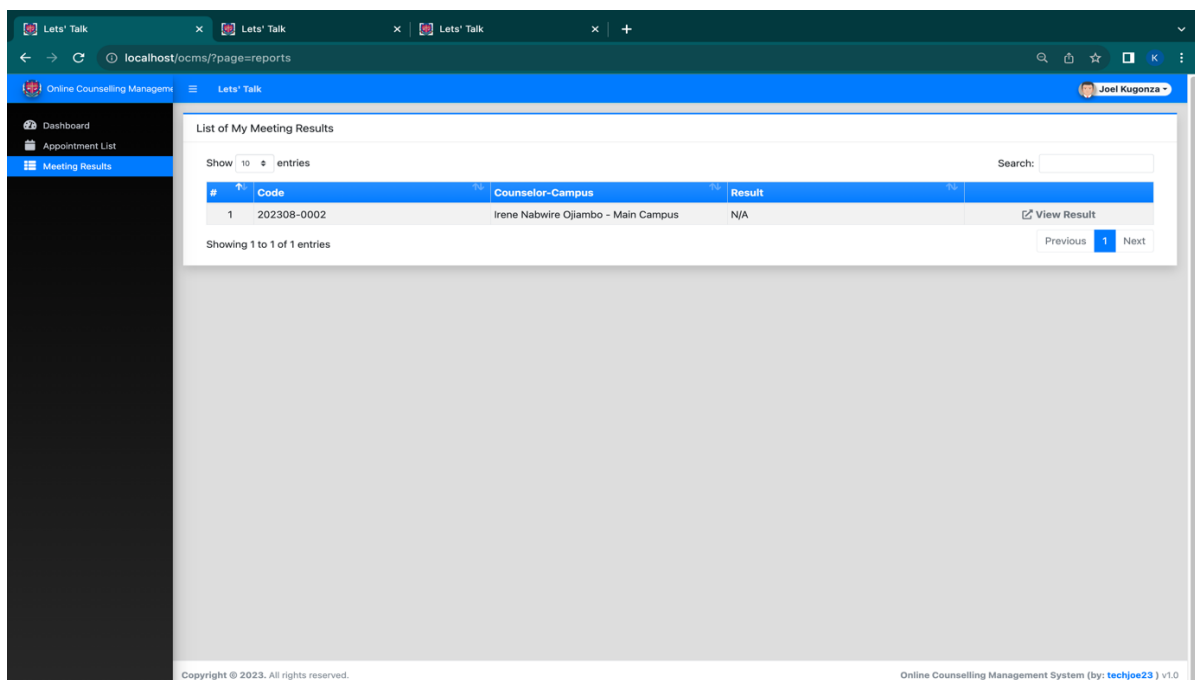


Figure 20: Appointment Report page.

This page shows all the report details of a given appointment made by the client i.e Client personal details, meeting details and the meeting updates. On this same page a client is able to join the online meeting with the counselor.

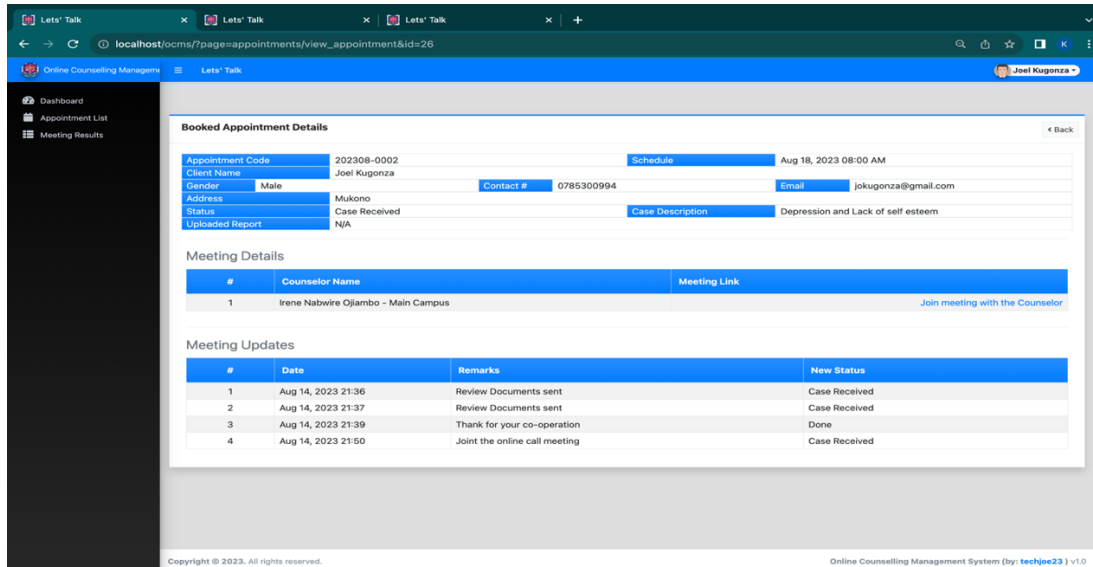
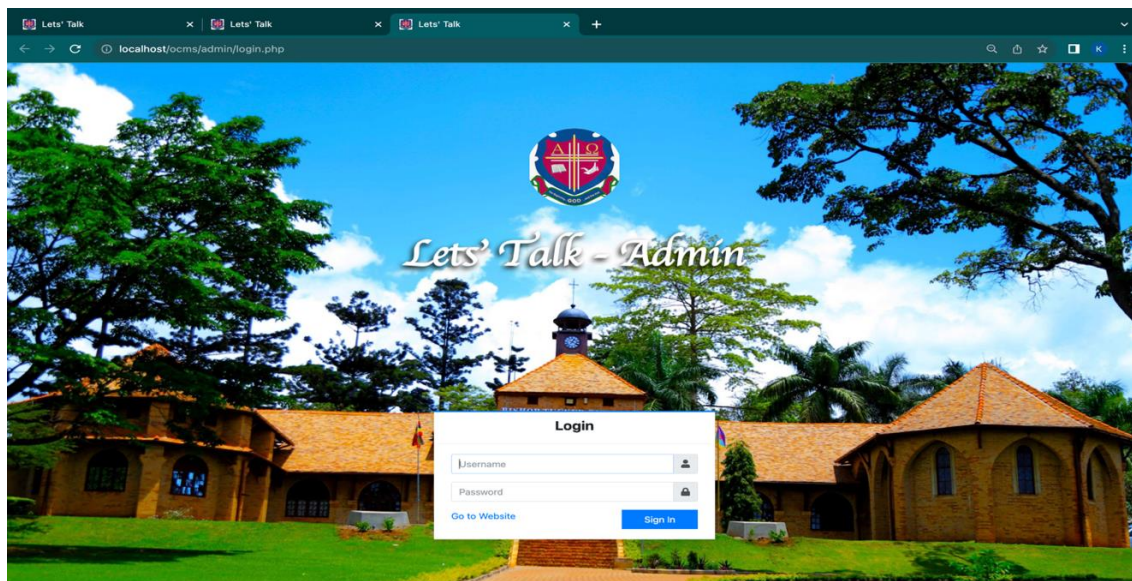


Figure 21: System Administrator Login page.

This system has two admins the system administrator who is the over manager of all the system operations and functionality and the counselor who has admin privileges in regards to only the client. Therefore, this window page provides a gateway login page to their respective dashboards to access their information and perform their tasks.



### 5.3.2 COUNSELOR SIDE;

Figure 22: Counselor Dashboard.

On this page, the counselor is able to monitor and have an over view of all the number of registered counselors, clients and users appointments details totals.

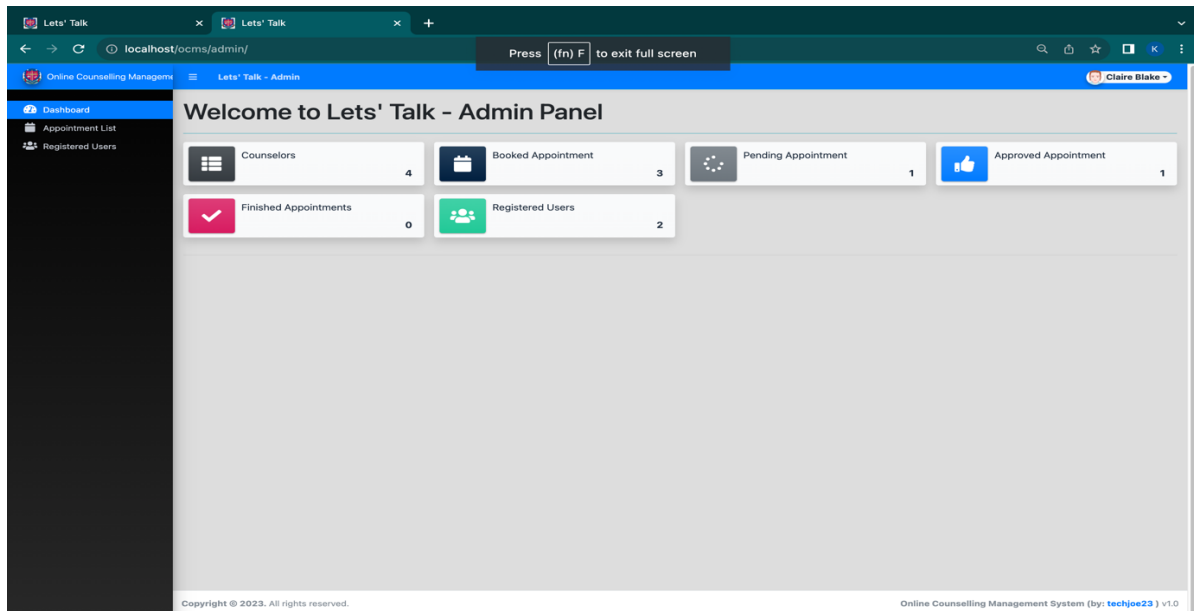


Figure 23: Appointment List page.

On this page the counselor is able to view the appointments registered by various clients with the correspond counselor assigned to attend the client. Further the counselor can view, edit or even delete the appointment.

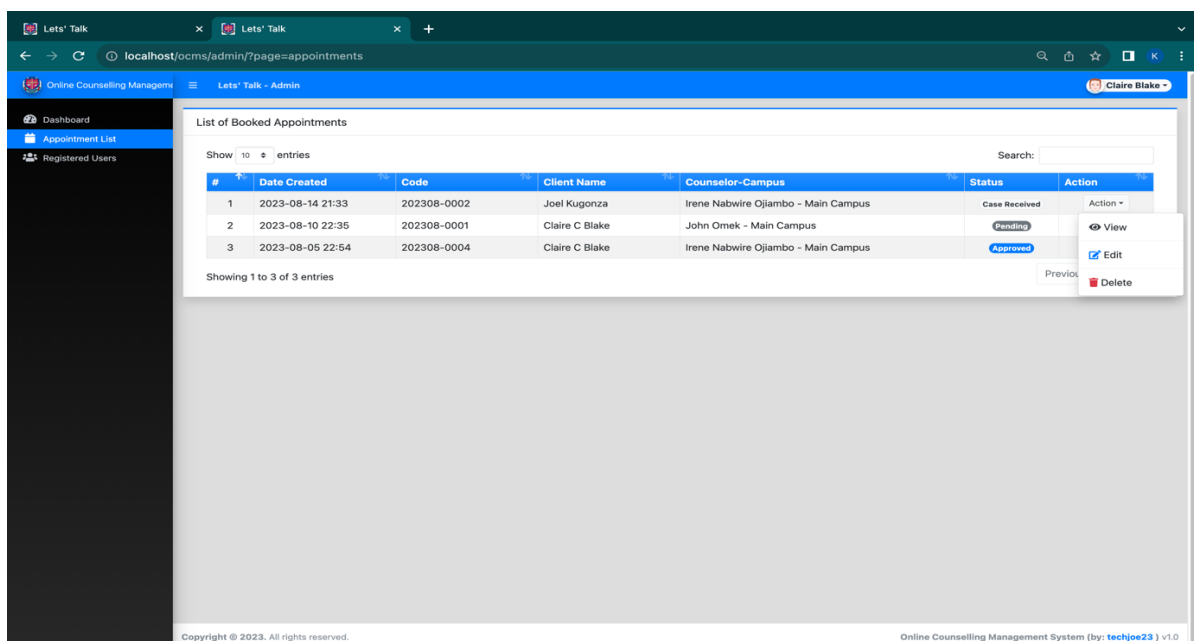


Figure 24: View appointment page

On this page the counselor is able to view appointment details, upload the report from the meeting, update the appointment status and also start the meeting with the client.

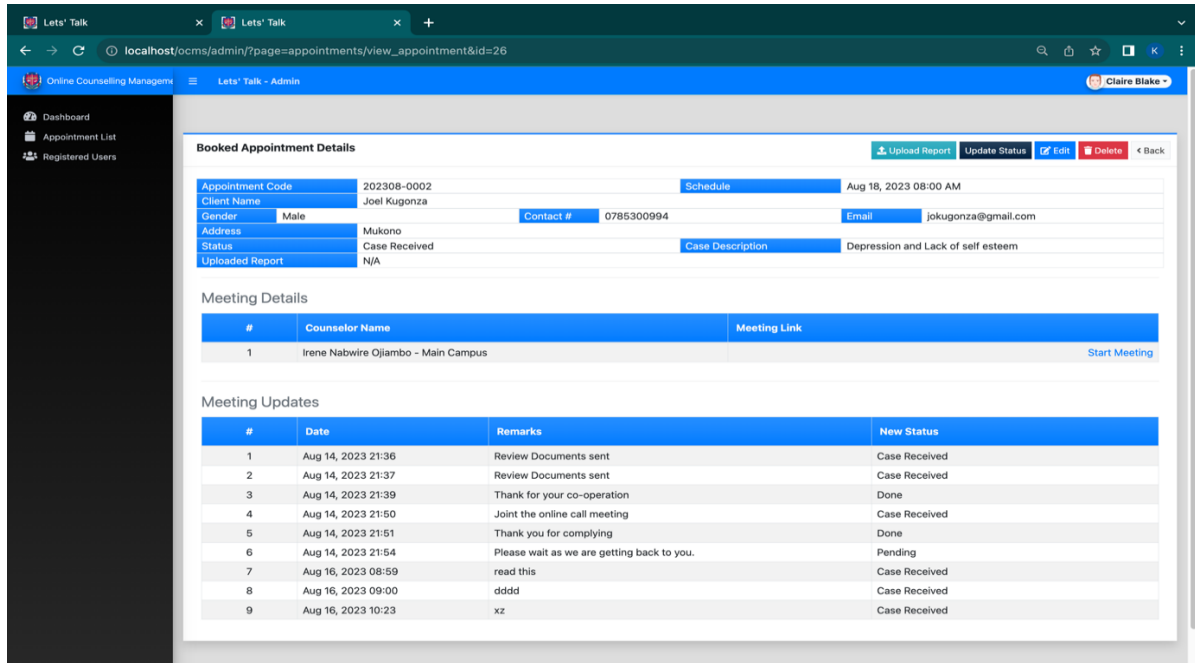
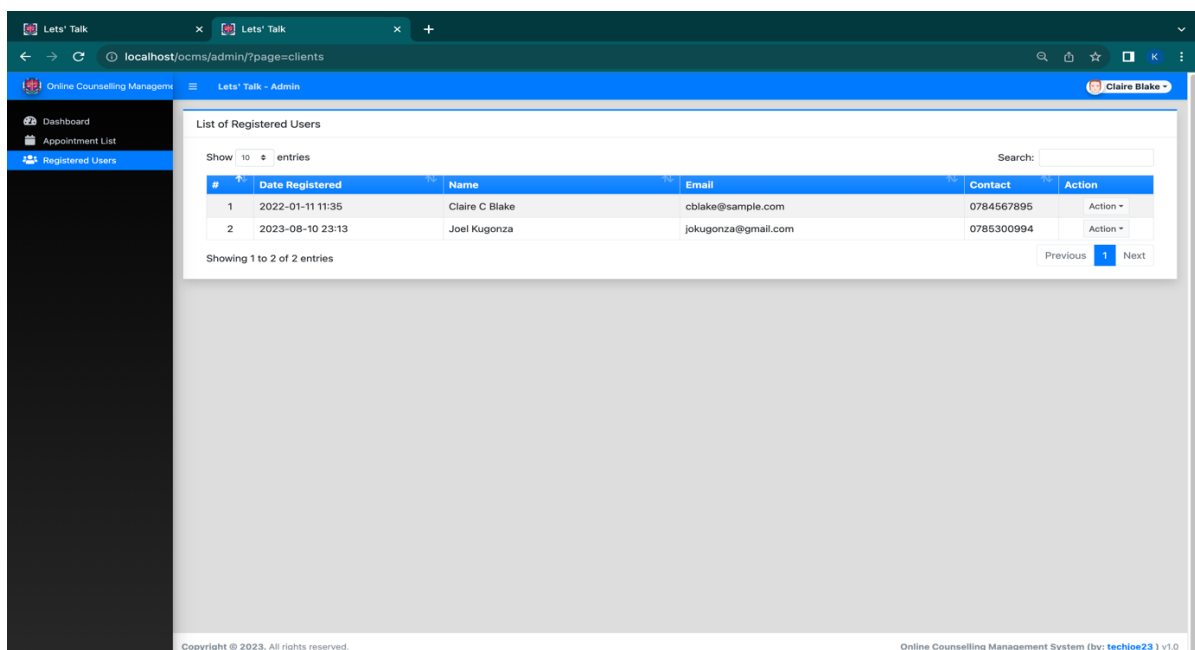


Figure 25: View client's page.

This page shows the list of the registered clients in the system to the counselor.



### 5.3.3 SYSTEM ADMINISTRATOR SIDE;

Figure 26: System Administrator Dashboard

This shows the clear total of all registered counselors, clients and appointments and their current status. Furthermore, the system administrator is also able to view appointment list and registered user details as the counselor does.

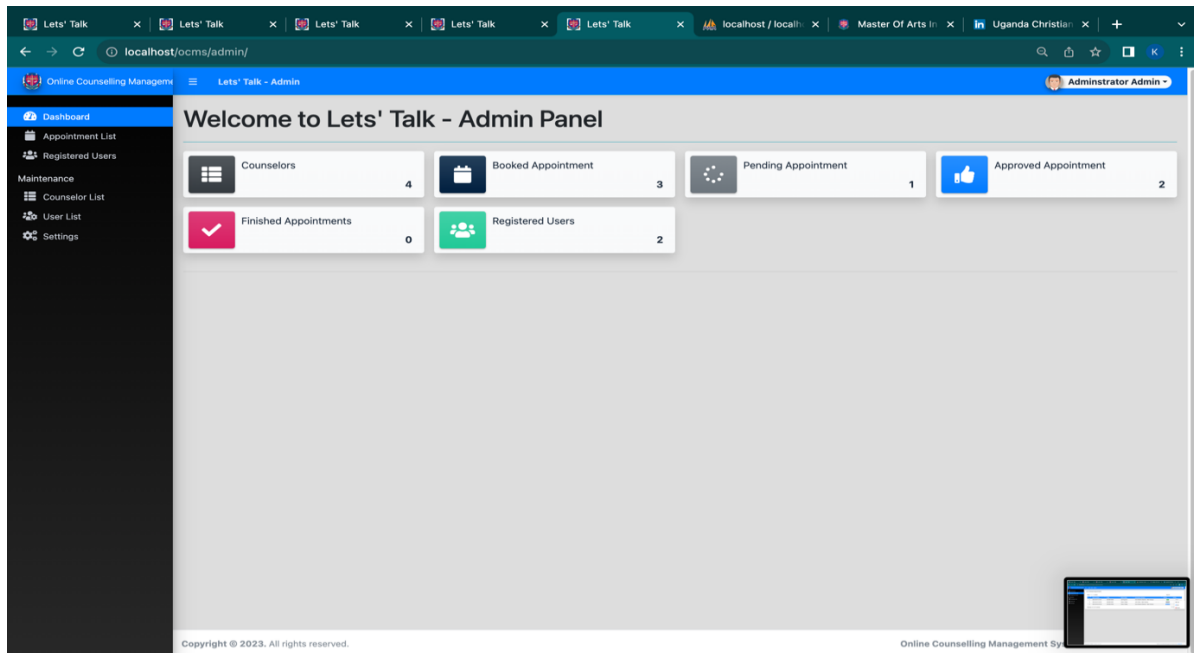


Figure 27: System Administrator Dashboard

On this page the system admin is able to add, view, manage counselors.

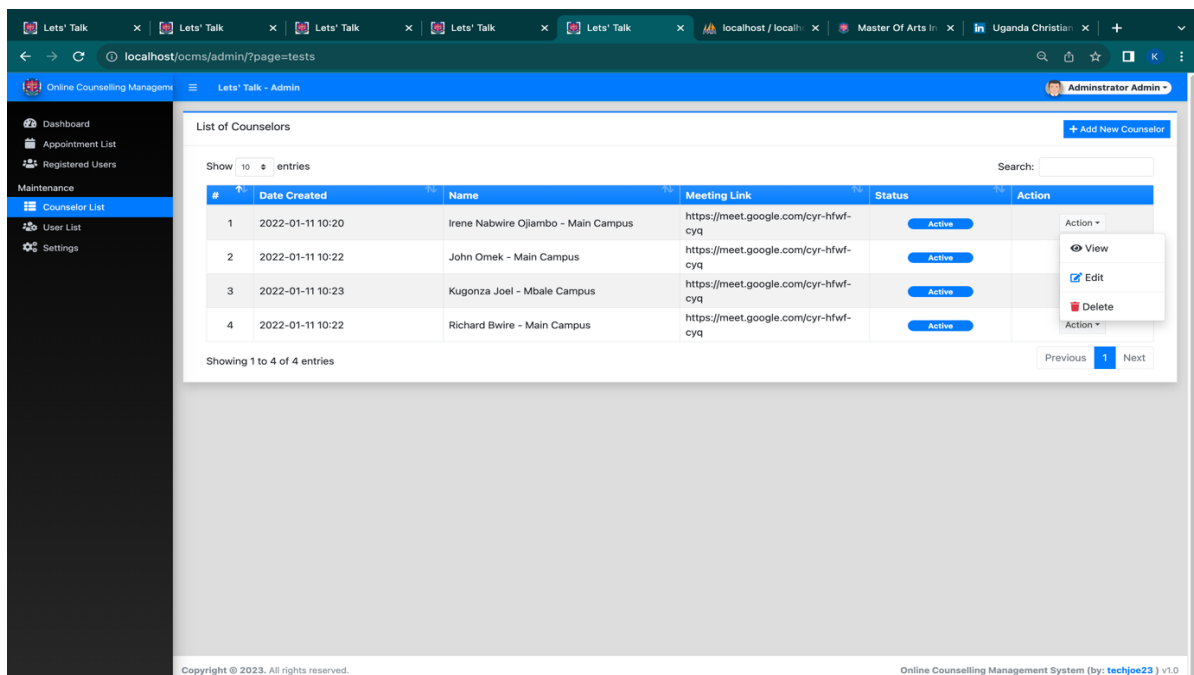


Figure 28: User List Management.

In this page, the system administrator is able to manage the system users in terms of what they should access and roles they should perform on the online counselling platform as super admins or just counselors

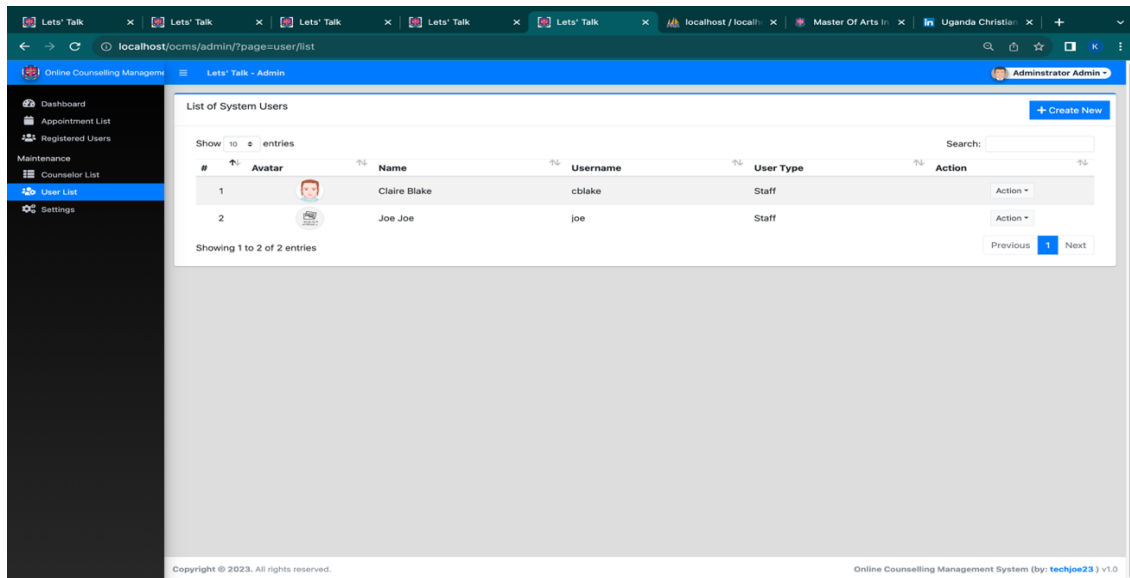
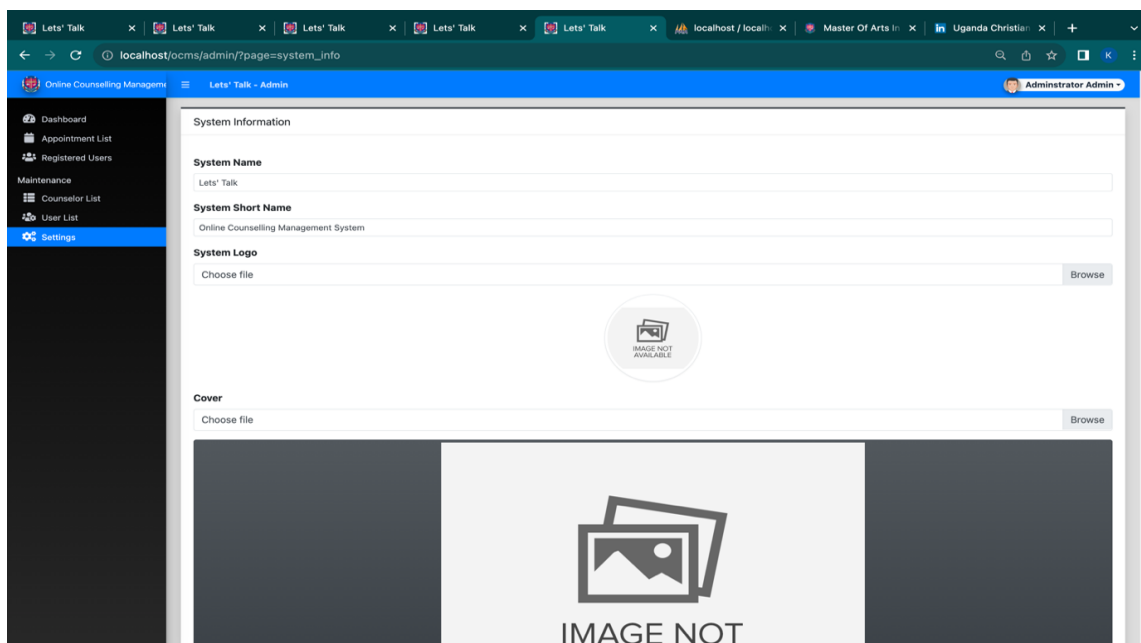


Figure 29: System settings page.

This enables the system administrator to manage and control the settings of the application. i.e. Change the system name, edit system short name, upload system logo and cover image (background image).



## **5.4 System testing**

To ensure the functionality, reliability, and usability of the "Let's Talk" application for Uganda Christian University, various testing methodologies were employed:

**Unit Testing:** Individual components and modules were tested to ensure their correctness and adherence to the expected behavior.

**Integration Testing:** The application was tested to verify the seamless integration of various modules and their compatibility with the university's systems.

**Functional Testing:** The application's functionality was tested against the specific requirements of Uganda Christian University to ensure that all features operated as intended.

**User Acceptance Testing:** Real users, including students and counselors from Uganda Christian University, were involved in testing the application to gather feedback, validate user requirements, and assess overall usability.

## **5.5 System Validation**

The validation process for the "Let's Talk" application at Uganda Christian University involved several steps:

**Step 1: Requirements Validation:** The implemented features were validated against the initial requirements and design specifications to ensure that they accurately addressed the unique needs of Uganda Christian University.

**Step 2: Usability Testing:** Real users, including students and counselors from Uganda Christian University, were engaged in testing the application. They performed various tasks, provided feedback on usability, and assessed the overall user experience.

Step 3: Performance Testing: The application's performance was evaluated under various load conditions to ensure its responsiveness and stability, considering the student population and usage patterns at Uganda Christian University.

Step 4: Security Testing: Rigorous security testing was conducted to identify and address vulnerabilities in the application, ensuring the confidentiality and integrity of user data within the specific context of Uganda Christian University.

## **5.6 Limitations**

While the "Let's Talk" online counseling management system application tailored for Uganda Christian University offers significant benefits, it also has certain limitations:

**Connectivity:** The application relies on a stable internet connection, which may pose challenges in areas with limited connectivity or unstable network infrastructure.

**User Engagement:** The success of counseling sessions and user engagement depends on the active participation and motivation of students. The application cannot guarantee user engagement or motivation.

**Data Privacy:** Despite implementing robust security measures, there is always a potential risk of data breaches or unauthorized access to sensitive user information.

Therefore, Uganda Christian University should ensure compliance with data protection regulations and establish appropriate security protocols.

# Chapter 6: System Overview

## 6.0 Introduction

This chapter provides an overview of the "Let's Talk" online counseling management system application, including a summary of the implemented features and their benefits. It also offers recommendations for future enhancements and concludes with a summary report of the application's development and potential impact.

### Summary of Implemented Features and Benefits

The "Let's Talk" online counseling management system application was designed to facilitate efficient and secure counseling sessions between counselors and clients.

The key features and benefits of the application include:

**User Registration and Authentication:** Users are now able to create accounts and securely log in, ensuring access control and personalized experiences.

**User Profile Management:** Users can manage their profiles, including personal information and preferences, providing a comprehensive overview to counselors.

**Counseling Session Scheduling:** Clients can easily schedule counseling sessions based on their availability and select from a pool of available counselors.

**Real-time Chat and Video Conferencing:** Secure and private communication channels enable effective counseling sessions through text-based chat and video conferencing.

**Counseling Session Records and Reporting:** Comprehensive records are maintained, including session details, progress notes, and associated documents, allowing counselors to track and monitor client progress.

User-Friendly Interface: The application offers an intuitive and user-friendly interface, ensuring a smooth user experience and easy navigation.

## **6.1 Recommendations**

Based on the development and implementation of the "Let's Talk" application, the following recommendations were made for future enhancements:

Mobile Application: Development a mobile application version of the "Let's Talk" application to provide users with more flexibility and accessibility.

AI-Powered Features: Integrate artificial intelligence (AI) capabilities, such as sentiment analysis and emotion detection, to provide valuable insights during counseling sessions.

Multilingual Support: Implementation of multilingual support to cater to users from diverse linguistic backgrounds, improving accessibility and inclusivity.

Enhanced Reporting and Analytics: Further enhance the reporting and analytics capabilities to provide counselors and administrators with valuable insights and performance metrics.

Integration with Campus Systems: Explore the possibility of integrating the "Let's Talk" application with existing campus systems, such as student information systems or learning management systems. This integration can facilitate streamlined data sharing and enhance the overall user experience.

## **6.2 Conclusion**

The "Let's Talk" online counseling management system application will offer a valuable platform for counselors and clients to connect and engage in counseling

sessions conveniently and securely. The implemented features will provide an efficient workflow, ensuring ease of use for users. The application has been enabled to have a potential to improve the accessibility and availability of counseling services, benefiting individuals seeking mental health support.

### **6.3 Summary**

The development of the "Let's Talk" application involved a thorough process, starting from requirements gathering to implementation, testing, and validation. The application successfully implemented features such as user authentication, profile management, session scheduling, real-time communication, and record keeping. Testing methodologies were employed to ensure functionality, usability, and security. User feedback and validation helped refine the application's usability and user experience.

The recommendations for future enhancements provide a roadmap for further development, leveraging mobile platforms, AI capabilities, and enhanced reporting. These improvements will expand the application's reach, personalize counseling experiences, and provide valuable insights for counselors and administrators.

Overall, the "Let's Talk" online counseling management system application has the potential to make a positive impact on mental health services by offering convenient and secure counseling sessions. Continuous improvement and adaptation to evolving user needs will contribute to its long-term success and effectiveness.

## CHAPTER 7: APPENDIX

### 7.0 Appendix

Table 8: A.1 Budget

Item	Estimated Cost Range
System analysis and planning	\$5000 - 15000
User interface design and testing	\$15000 - \$50,000
System architecture and development	\$50,000 - \$500,000
Database design and development	\$20,000 - \$100,000
Integration with third-party systems	\$10,000 - \$50,000
Testing and quality assurance	\$10,000 - \$50,000
Regulatory compliance	\$10,000 - \$100,000
Security infrastructure	\$20,000 - \$100,000
Hardware and software	\$10,000 - \$50,000
Staffing and training	\$50,000 - \$200,000
Contingency and unforeseen cost	\$50,000 - \$100,000
Total	\$250,000 - \$1,285,000

Table 8 shows the budget illustrating items and cost of items being used in the course of the project to accomplishment.

Table 9: A.2 Project timeline

Phase	Timeline
Requirements gathering	1-2 months
System analysis and planning	1-2 months
User interface design	2-4 months
System architecture design	2-4 months
Database design and development	2-6 months
Integration with third-party systems	1-3 months
System development	6-12 months

Testing and quality assurance	2-4 months
Regulatory compliance	2-4 months
Security infrastructure	1-3 months
Hardware and software acquisition and setup	1-2 months
Staffing and training	2-4 months
Development and implementation	1-3 months
Maintenance and support	Ongoing

Table 9 shows the activities and the time taken to implement each activity.

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