



SCHOOL OF SCIENCE
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
COMP 311: PROJECT
HEALING HANDS MENTAL HEALTH SYSTEM.

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Date: April 25,2022.

THIS PROJECT IS SUBMITTED TO THE DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE, UNIVERSITY OF ELDORET (UoE), IN PARTIAL FULFILLMENT AS A REQUIREMENT FOR THE AWARD OF DEGREE IN BACHELOR OF SCIENCE IN COMPUTER SCIENCE.

DECLARATION.

We certify that this documentation does not incorporate, without acknowledgment any material previously submitted for a degree or diploma in any university, and to the best of our knowledge and beliefs, it does not contain any material previously published or written by another person or ourselves except where due reference is made in the text. We also hereby give consent for our documentation if accepted to be made available for interlibrary loans and for the title and abstract to be made available to the outside institution.

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DEDICATION.

We dedicate this project to our lecturer and supervisor Madam Lily Siele, and our friends and family for their continued support while working on the project. We also dedicate this project to the health sector for them to realize their need of addressing mental health issues and the importance of online mental health platforms.

ACKNOWLEDGMENT.

We thank the Almighty God for his guidance through the whole process. Our lecturers in the department of mathematics and computer science who took us through our studies and enabled us to acquire the skills needed to come up with this work. Special thanks to our supervisor madam Lily Siele for the technical support and encouragement. We also thank our friends for their continuous prayers and encouragement. Finally, we thank our parents for their financial support.

ABSTRACT.

The Healing Hands client management system for mental health is a web-based application that enables clients to interact with different therapists. This system is being managed by a super admin. This project follows an iterative waterfall model where stages of development are designed one at a time with the next occurring upon completion of the previous stage. It is developed using javascript programming language on both backend and HTML, CSS in the front-end.

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CHAPTER 1

1.0 Introduction

Mental health refers to cognitive, behavioral, and emotional well-being. It is all about how people think, feel and behave. Mental health can affect daily living, relationships, and physical health. Factors in people's lives, interpersonal connections, and physical factors can all contribute to mental health disruptions. These disruptions in turn affect the normal well-being of a person hence harming education and working place. This possesses a challenge to economic, political, and social development. We have come up with an idea for a mental health platform. People can find suitable therapists who can take them through therapy sessions. These sessions help them recover. Apart from therapy sessions they can also read articles and also interact with others who have the same issue.

The healing hands client management system for mental health will provide all necessary services like mental health advisory, group therapy, and personal therapy to the affected clients. The system is application-based. The clients log in with their details after which they can see all the services and the different therapists. They can also choose the therapist of their choice and book appointments. The therapists on the other hand can see the appointments. Therapists can also publish articles concerning certain mental issues and clients can read the articles. One must have an internet-enabled device like a computer or a mobile phone to enable access to this platform. The super admin will be required to log in to the system, add therapists, and take all the necessary personal information. The appointments will be pushed to the intended therapist. The super admin sees everything that is happening. The system will be user-friendly in that every client can read different articles, book appointments, and undergo different therapy sessions.

1.1 Background to the Study

Mental health care especially in the developed world is characterized by the rapidly increasing use of technology in client care, coding, billing, and management. The rise of mental health technology worldwide is increasing the efficiency of mental health service delivery, improving the quality of mental care, reducing medical errors, and providing better information for clients and physicians (Pollack and Lorch 2007:4).

A mental health information system is a must and the faster this is adopted the more successful the mental health care facility will be. (Swanson et al., 2010:9). DeLone and McLean is one of the most cited models in the fields of information systems seeking to provide a comprehensive understanding of information system success by identifying, describing, and explaining six successive variables categories: systems quality, information quality, user, user satisfaction, individual impact, and organizational impact. DeLone and McLean's (2003) model provides a comprehensive framework for measuring the performance of the information system and enhancing the understanding of information system success.

1.2 Motivation

- Help the society to improve the mental health service they get from the hospitals.
- Help reduce physical congestion in health facilities.
- Help clients who fear face-to-face interaction with the therapist get assistance.
- Help reduce the negative impacts brought as a result of mental health issues for example death.

1.3 Problem Statement

The existing system had the following problems solved by our system;

- Physically approaching the therapist
- There was no existence of group therapy.
- The source of information was only the therapists and no copies of articles were available.

1.4 Objectives

General objective

The project aims to design a client management system that helps solve mental health issues.

Specific objective

- i) To investigate problems faced by the existing mental health systems
- ii) To analyze the problems of the current systems and come up with possible solutions for the same.
- ii) To design and implement a computerized system for the best solution among the solutions after analysis.

1.5 Justification

The reasons that led to the need for coming up with this mental health client management system are;

- **A requirement in our studies**

It is a task that we have to accomplish to acquire our degree certificates at the University of Eldoret.

- **Improve mental health services**

Mental health issues have been on the rise and there has been a need to address this. This platform can assist clients to get well or rather get assistance.

1.6 Significance of the Study

- i) The study is important to our clients since they will be able to get the best mental health care information through the articles and also get the best solution within a short time.
- ii) The feature of online booking appointments saves time and energy. Instead of physically going to meet the therapist where there is a probability of not meeting him. Helps the therapist to respond to clients on time and help solve their problems.
- iii) Helps the therapist to update the information required by the clients in the articles.

CHAPTER 2: LITERATURE REVIEW.

2.0 Introduction

Mental health disorders, according to “Book: Mayo Clinic Family Health Book, 5th Edition” refers to a wide range of mental health conditions — disorders that affect your mood, thinking, and behavior. Examples of mental illnesses include depression, anxiety disorders, insomnia, and stress. Many people have mental health concerns from time to time. But a mental health concern becomes a mental illness when ongoing signs and symptoms cause frequent stress and affect your ability to function. A mental illness can make you miserable and can cause problems in your daily life, such as at school, work, or in relationships.

In Kenya, it is estimated that one in every 10 people suffer from a common mental disorder. The number increases to one in every four (20-25%) people among patients attending routine outpatient services.

In a 2017 report titled “Depression and Other Common Mental Disorders”, the WHO ranked Kenya fifth among African countries with the highest number of depression cases. The report went further to show that there exist high levels of depression, suicidal behavior, and high levels of mental distress in Kenya.

In their statement, students from 14 private and public universities called on the Government to review the progress of the Kenya Mental Health Policy with a view of identifying gaps that needed bridging.

“To the Government, we are calling on a status review of the progress of Kenya Mental Health Policy covers the period between 2015 and 2030. The policy is a commitment to pursuing policy measures and strategies for achieving optimal health status and capacity of every Kenyan,” they said.

2.1 Mental Health Disorders

From the article, “Acad Psychiatry. Author manuscript; available in PMC 2015 Oct 1.

Published in final edited form as Acad Psychiatry. 2015 Oct; 39(5): 503–511” about mental health problems and treatment considerations among college students, says that attending college and university can be a stressful time for many students. In addition to coping with academic pressure, some students have to deal with the stressful tasks of separation and individuation from their family of origin while some may have to attend to numerous work and family responsibilities. In this context, many college students experience the first onset of mental disorders. These mental disorders include the following;

i. Anxiety:

Many types of anxiety disorders can afflict college students. According to the Mayo Clinic, symptoms of anxiety include nervousness, unease, a sense of impending danger or doom, sweating and trembling, inability to maintain focus, uncontrollable worry, and insomnia. An article written by: Michelle Friedman **LCSW** and reviewed by: Dena Westphalen **Pharm. D. Says that**, in a 2020 survey of 36 universities, 34% of college students surveyed reported moderate to severe levels of anxiety. The combination of academic pressure, moving away from home, new social situations, and financial stressors can create the perfect storm for anxiety to the surface during the college years.

Having fears or being worried about an outcome of a situation does not equate to a diagnosis of an anxiety disorder. However, if these symptoms are lasting for six months or more and getting in the way of how you normally function, there is a possibility that professional help is needed. Thankfully, anxiety is quite treatable. Treatments for anxiety include therapy, medication, and lifestyle changes.

What Makes College Students Especially Vulnerable to Anxiety?

Living away from home for the first time (and perhaps feeling homesick), managing difficult coursework and schedules, increased social pressures, independent self care routines, the pressure to succeed on your own, and financial responsibilities are all stressors that make college students more vulnerable to anxiety and burnout.

If a student is having a difficult time adjusting to one or more aspects of college life, they may find themselves feeling down and experiencing anxious thoughts. These

thoughts usually include negative self-talk, self-doubt, worry, cycles of obsessing about various outcomes, and many other self-critical thoughts. As these thoughts continue to escalate, there is a possibility that the student will start to become more anxious and possibly isolate themselves to avoid being exposed.

In addition, students and younger populations may feel additional anxiety due to climate change, political events, or recent racial unrest. Uncertainty about the future can often lead to increased anxiety.

Even if the student knows that many of their peers are also dealing with school stress, personal experience with anxiety can cause them to feel isolated and alone due to the severity of the symptoms, especially if it is the first time. It is always a good idea to speak to someone if anxiety is impacting you.

Signs of Anxiety in College Students

Anxiety in college students is more than just feelings of nervousness or worry.

The symptoms that can present during this time tend to be debilitating, and without the right interventions can have a long-lasting impact on the student, even beyond the college years.

Some signs of anxiety to watch out for include:

- Nervousness or unease
- Inability to maintain focus
- Uncontrollable worry
- Sleep disturbances or insomnia
- Missing classes or assignments Isolation from family, friends, and classmates
- Changes in eating habits
- Cycles of negative thoughts

Anxiety vs. Normal Stress Responses

Stress is a part of life and everyone struggles with worries and anxiety at times.

However, when the reactions to the stress begin to overtake normal functioning, that is when stress can turn into anxiety.

Specific Types of Anxiety Common Among College Students

The presentation of symptoms in college students can differ greatly as everyone is impacted by anxiety related to their own unique experiences. Various types of anxiety are common, yet not diagnosed as separate disorders.

The following are some specific types of anxiety and the corresponding symptoms that identify each category:

Anticipatory Anxiety: Anticipatory anxiety is characterized by increased anxiety and panic about events that are expected to happen in the future, such as an upcoming exam or meeting with a professor.

Separation Anxiety: Separation anxiety can leave students feeling lonely or isolated, missing their familiar connections. It can stunt the social growth and development of a community in students. When students are not open to engaging in activities on campus with their peers, they become more isolated and therefore feel an even greater impact of the separation.

Test Anxiety: Test anxiety can have both physical and mental manifestations such as racing heart and inability to concentrate, often resulting in a heightened sense of panic or excessive fear, even when the individual is adequately prepared for the exam.

Social Anxiety: Social anxiety is an intense fear or anxiety of social situations. During the college years, there are added pressures to engage in social situations related to educational coursework and outside of academia. Peer pressure is heightened during this time and presents added pressures related to experimenting with drugs, alcohol, sexual situations, and academic dishonesty.

ii. Depression

According to “Book: Mayo Clinic Family Health Book, 5th Edition”, depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Also called a major depressive disorder or clinical depression, it affects how you feel, think and behave and can lead to a variety of emotional and physical problems. You may have trouble doing normal day-to-day activities, and sometimes you may feel as if

life isn't worth living. From the research report," Depression among university students in Kenya:

Prevalence and sociodemographic correlates Caleb J. Othieno a,n, Roselyne O. Okoth b, Karl Peltzer c,d,e, Supa Pengpid c,e, Lucas O. Malla f a", a random sample of 923 University of Nairobi students (525 male and 365 female) were interviewed using a questionnaire to record sociodemographic variables. Depressive symptoms were measured using the Center for Epidemiological Studies Short Depression Scale (CES – D 10). Results: The mean age was 23 (s.d. 4.0). Using a cut-off point of 10, the overall prevalence of moderate depressive symptoms was 35.7% (33.5% males and 39.0% females) and severe depression was 5.6% (5.3% males and 5.1% female). Depressive illness was significantly more common among the first-year students, those who were married; those who were economically disadvantaged, and those living off-campus.

iii. Stress

Stress is an inevitable part of life; it can take a toll on students' physical health, emotional wellbeing, and academic success unless they learn to manage it appropriately. College students experience stress related to changes in lifestyle, increased workload, new responsibilities, and interpersonal relationships. Extreme levels of stress can hinder work effectiveness and lead to poor academic performance and attrition. College students who experienced stressful life events also reported worse health outcomes and reduced quality of life.

2.2 Factors affecting mental health

Good mental health is more than just the absence of mental illness. It can be seen as a state of mental health that allows one to flourish and fully enjoy life. Everyone experiences down times in life. The ability to cope with negative experiences varies greatly from one person to another and, in large part, determines whether people enjoy their lives.

Some of the factors that affect the mental health of youth are as follows:

Self-esteem

This is the value we place on ourselves, our positive self-image, and our sense of self worth. People with high self-esteem generally have a positive outlook and are satisfied with themselves most of the time.

Feeling loved

Children who feel loved, trusted, and accepted by their parents and others are far more likely to have high self-esteem. They are also more likely to feel comfortable, safe, and secure, and are better able to communicate and develop positive relationships with others.

Confidence

Youth should be encouraged to discover their unique qualities and have the confidence to face challenges and take risks. Young people who are brought up to have confidence in themselves are more likely to have a positive attitude, and to lead happy and productive lives.

Family breakup or loss

Separation or divorce or the loss of a parent or sibling is extremely painful. Finding ways to cope and adjust to the changes wrought by these events is critical for everyone, but particularly for youth. How grief is handled can affect young people negatively for years to come. If children are having difficulty coping, professional help is recommended.

Physical ill-health

Diseases, injuries, and other physical problems often contribute to poor mental health and sometimes mental illness. Some physical causes (such as birth trauma, brain injury, or drug abuse) can directly affect brain chemistry and contribute to mental illness. More commonly, poor physical health can affect self-esteem and people's ability to meet their goals, which leads to unhappiness or even depression. In such cases, receiving the best possible treatment for both the physical problem and the resulting psychological consequences is key to optimal recovery to good mental health.

Abuse

The mental health of abused children is at great risk. Abused children are more likely to experience mental disorders or mental illness during childhood and into adulthood.

Abuse may be physical, sexual, psychological, or verbal. It may not always be evident or easily recognized. Regardless of the form it takes, abuse cannot be tolerated. Children need to be protected from abuse and helped to overcome its negative effects. Abuse can cause feelings of low self-esteem, lack of self-confidence, depression, isolation, and anger all feelings that impair a child's chance to lead a happy life.

Trust in others and feelings of being safe and cared for are key components to recovery from abuse. Few children can recover on their own. Support is critical, and professional counseling is sometimes required. If abuse is discovered early, the chances of a child returning to a healthy state of mind and avoiding serious mental disorders are greatly enhanced.

2.3 Conclusion

Mental health disorders have become a norm in society nowadays. In the current society we are living in, awareness of the prevalence of mental health disorders and how to handle such cases have not been taken with the seriousness it deserves. Therefore, through the Healing Hands platform, we are looking forward to enabling the society to get to a position of embracing mental health and understanding what mental health disorder means and how to get help when one is affected through the help of specialized mental health therapists across the world.

CHAPTER 3: ANALYSIS AND DESIGN

3.0 Introduction

Collins dictionary(Collins, 2021), describes analysis as the process of considering something carefully or using statistical methods to understand it or explain it.

We analyzed the expenses or problems related to our project, before the commencement of our work.

We followed the following stages:

- Fact-finding.
- Feasibility study.
- Feasibility report.
- Requirements specification.

Geektonight (Project analysis and its stages, February 2021) states that analysis should include stages of; project identification, project formulation, market and demand analysis, technical analysis, economic and financial analysis, and social benefit analysis.

3.1 Feasibility Study

Feasibility is defined as the practical extent to which a project can be performed successfully(Dinesh Thakur,2020).

We carried out a feasibility study as a preliminary investigation to help us decide whether the study of our system should be feasible for development or not. It helped us identify the possibility of developing our system and produce refined estimates for further development of the system. A feasibility study also helps to obtain the outline of the problem and decide whether a feasible or appropriate solution exists or not.

The types of feasibility studies we used are;

3.1.1 Economic feasibility.

Economic feasibility determines whether the required software is capable of generating financial gains for an organization. It involves the cost incurred on the software development team, estimated cost of hardware and software, cost of performing a feasibility study, and so on. For this, it is essential to consider the activities required to carry out software development and the benefits that can be achieved by developing the software. Software is said to be economically feasible if it focuses on the issues like;

- The cost incurred on software development.
- The cost required to conduct a full software investigation.
- Cost of hardware, software, development team, and training.

Our project is economically feasible as no costs were incurred since it is a project in partial fulfillment of our bachelor's degree.

3.1.2 Technical feasibility.

Technical feasibility assesses the current resources (such as hardware and software) and technology, which are required to accomplish user requirements in the software within the allocated time and budget. For this, the software development team ascertains whether the current resources and technology can be upgraded or added to the software to accomplish specific user requirements.

Technical feasibility also performs the following tasks:

- Analyzes the technical skills and capabilities of the software development team.
- Determines whether the relevant technology is stable and established.
- Ascertains that the technology chosen for software development has a large number of users so that they can be consulted when problems arise or improvements are required.

The project is technically feasible as all the requirements are available.

3.1.3 Operational Feasibility

Operational feasibility assesses the extent to which the required software performs a series of steps to solve business problems and user requirements. This feasibility is dependent on human resources (software development team) and involves visualizing whether the software will operate after it is developed and be operative once it is installed. Operational feasibility also performs the following tasks.

- Determines whether the problems anticipated in user requirements are of high priority.
- Determines whether the solution suggested by the software development team is acceptable.
- Analyzes whether users will adapt to new software.

This project is operationally feasible as it can solve user requirements and users can easily adapt to new software when need be.

3.1.4 Legal Feasibility

Legal feasibility is used to examine whether the project to be carried out conforms to the laws and regulations in the country.

Our project is feasible as we do not require a license since the project is only for educational purposes.

3.1.5 Schedule Feasibility

Schedule feasibility is concerned with the deadline until the final project is submitted.

The project is feasible as the time needed for its completion was enough.

3.2 Proposed system.

Describes the overall concept of the system as well as the procedure to be used to meet user requirements

The development of our new system involved various activities, which try to computerize the entire process keeping in view the database integration approach.

- The new system is useful for editing and organizing information.

- The new system makes it possible for therapists to reach clients from all over the world at specified times.
- The new system helps clients to see their appointments thus reducing the chances of missing their sessions.
- The new system provides security to information in that it has a well-designed database.
- The new system is cheap since only labor is required for operating the computing devices and an internet connection.

3.2.1 Requirements Analysis

3.2.1.1 Functional and Non-functional Requirements

I. Functional requirements

These are things that the system must do to meet to succeed and achieve tasks it has to do properly.

- Record clients' details.
- Update clients' information.
- Store clients' information.
- Update therapists' details.
- Mechanisms to secure therapists' information by preventing unauthorized access.
- Create, upload, store and update articles.

II. Non-functional requirements

Non-functional requirements define the quality attributes of a system.

- Unlimited service access.
- Provide an attractive and interactive user interface.
- Flexible service-based architecture for future enhancement.
- The flexibility of the system on various devices.
- Better design components to get better performance at peak time

3.3 Data Flow Diagram.

Data flow diagrams show the way information flows through a process or system.

DFDs visually represent systems and processes that would be hard to describe in a chunk of text. In this case, we used it to show how the system will accomplish its task, operation, and implementation.

Levels of a DFD diagram include;

Level-0 DFDs(context level diagram)- the most basic level that gives an overview of the flow of information.

Level-1 DFDs-a more detailed level showing the modules and their interaction with other modules, operators, and the database.



Figure 1.0: Data Flow Diagram level 0

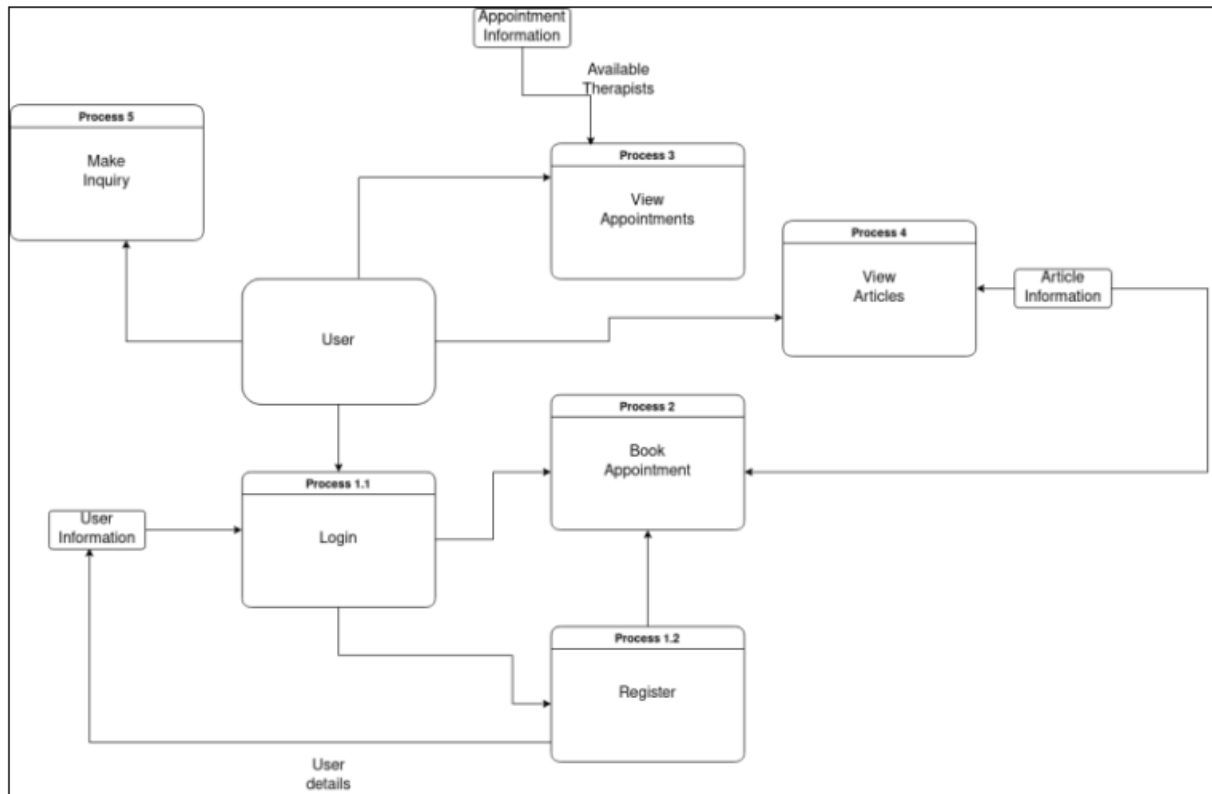


Figure 1.1: Data Flow Diagram level 1 User.

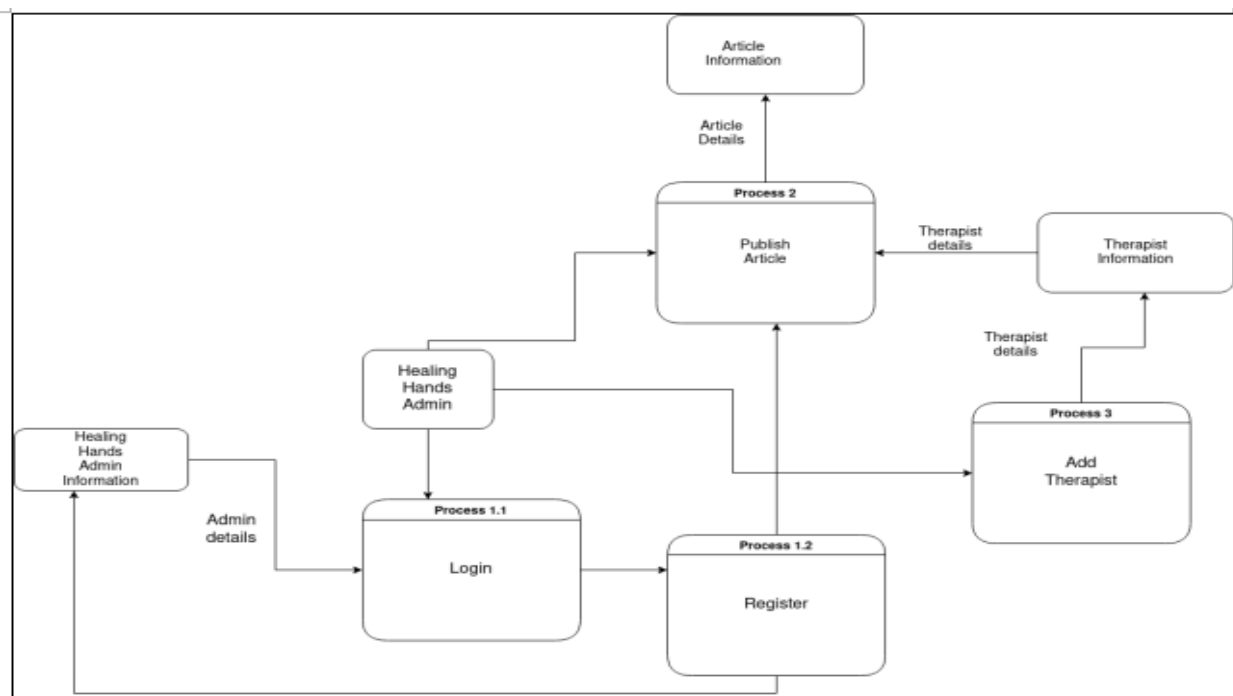


Figure 1.2: Data Flow Diagram level 1 Admin.

3.4 Use Case Diagrams.

A use case diagram is a graphical depiction of a user's possible interactions with a system. It is the primary form of system/software requirements for a new software program underdeveloped

Use case diagram for Admins.

The diagram below shows a use case diagram of a client management system.

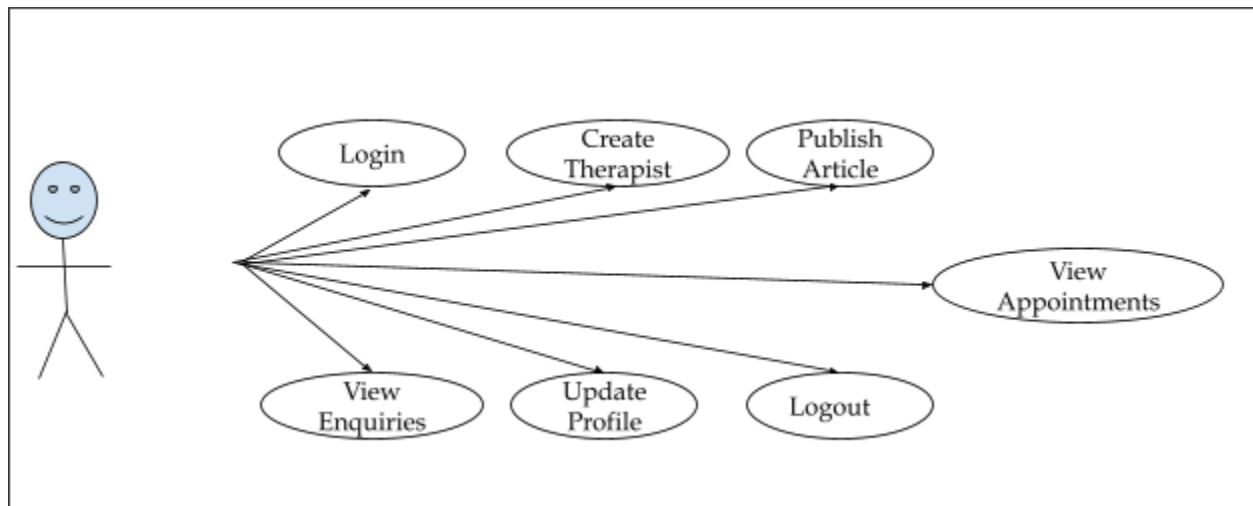


Figure 1.3 Use Case Diagram for Admin.

Use case diagram for clients.

The diagram below shows a use case diagram of a client management system.

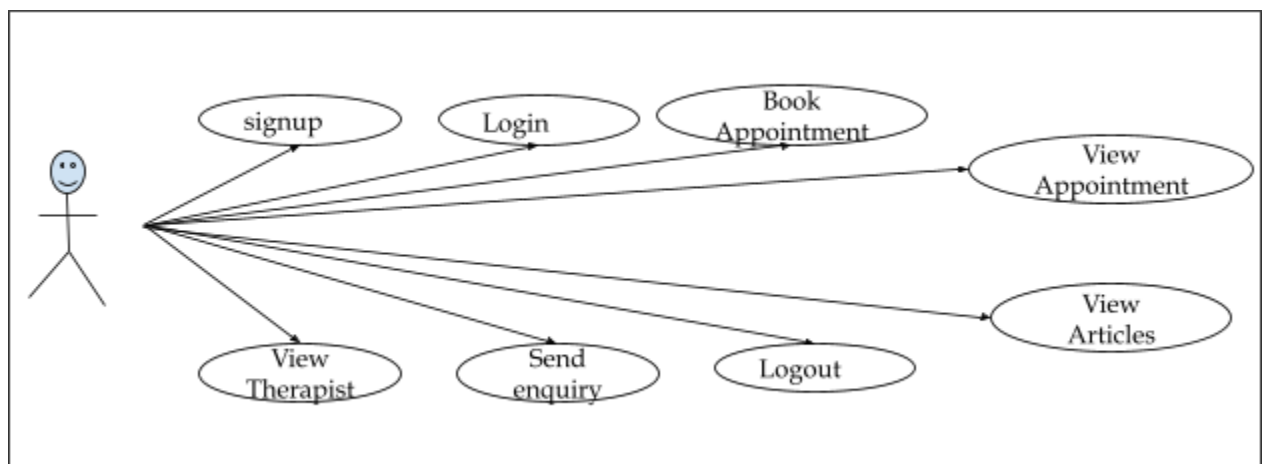


Figure 1.4 Use Case Diagram for Client.

3.5 Design Techniques

Object-oriented approach-the use of classes to represent objects- was used. This is due to its various advantages including ease in understanding the code by another programmer, easy maintenance, easy debugging, and coding.

Javascript language was selected as the development language due to its open-source nature and its great community support, in addition, it can be used with almost every server, is platform-independent, supports databases, and many more advantages which support server-side processing tasks effectively and efficiently.

The client end was developed using HTML and styled with Bootstrap and CSS. JavaScript was used for the validation of inputs before submission, which is a good practice to increase efficiency.

3.5.1 System Design

System design is the third stage of SDLC. In this stage, the software requirements are conceptualized into software implementation. The main aim of system design is to translate user requirements as challenges and find an optimal solution by arriving at the best possible design.

Some of the diagrams that are used in the design phase are class diagrams, sequence diagrams, ER diagrams and architectural diagrams. They are discussed in details below:

3.5.1.1 Sequence Diagram

A sequence diagram is an interaction diagram that depicts how various objects in a system interact with each other with respect to their order of interaction. The sequence diagram is useful because it shows the interaction logic between the objects in the system in the time order that the interactions take place(Bell, 2004).

The figure below shows a sequence diagram for the system:

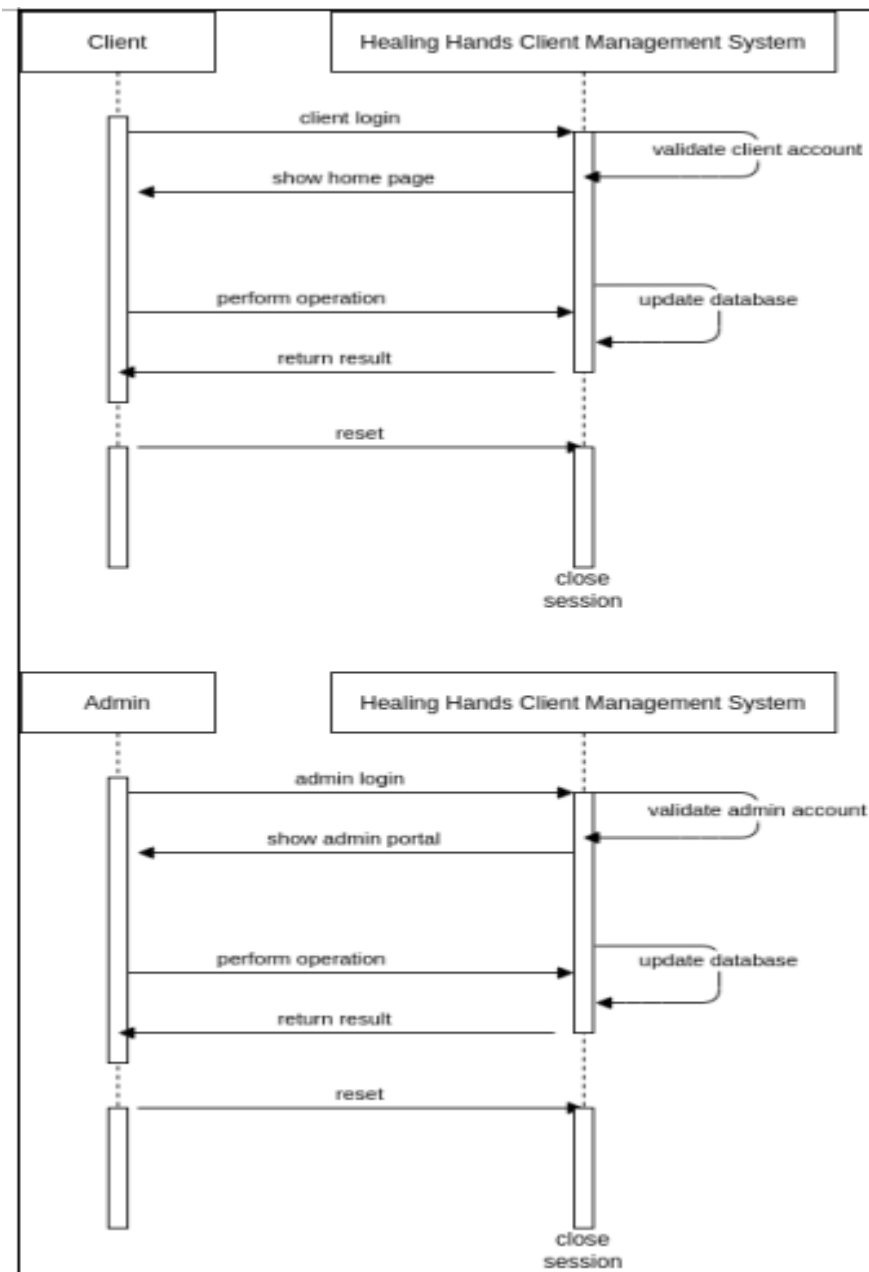


Figure 1.5: Sequence Diagram.

3.5.1.2 Class Diagram

These are UML diagrams that are used to represent structure of objects by describing their attributes and operations. It is the best and detailed way to express the system's structure.

The figure below is a class diagram, showing the structure of classes and their attributes:

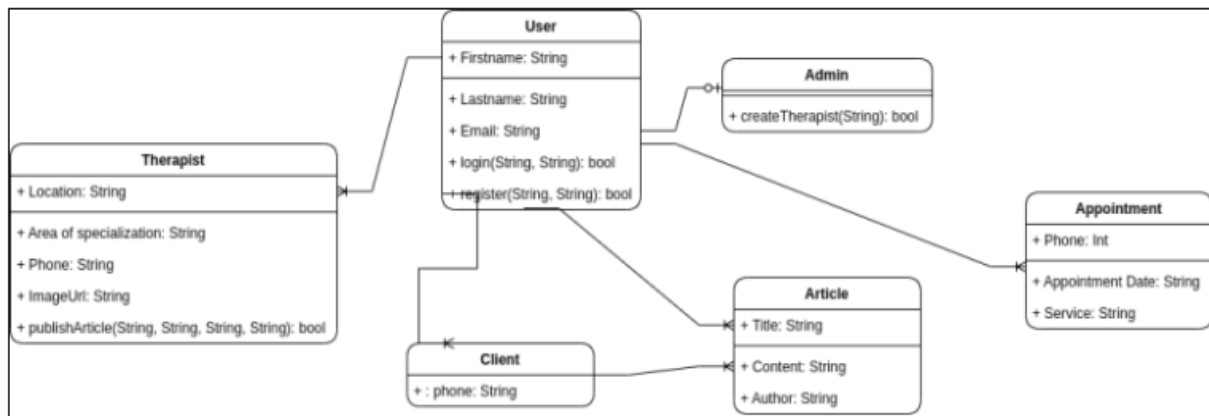


Figure 1.6: Class Diagram.

3.5.1.3 Database Design

Tehreem Naeem (Naeem, 2019) defines database design as a collection of steps that help with designing, creating, implementing, and maintaining a business's data management systems. She further explains that the main purpose of designing databases is to produce physical and logical models of designs for the proposed system. Below is the ER diagram of the client management system.

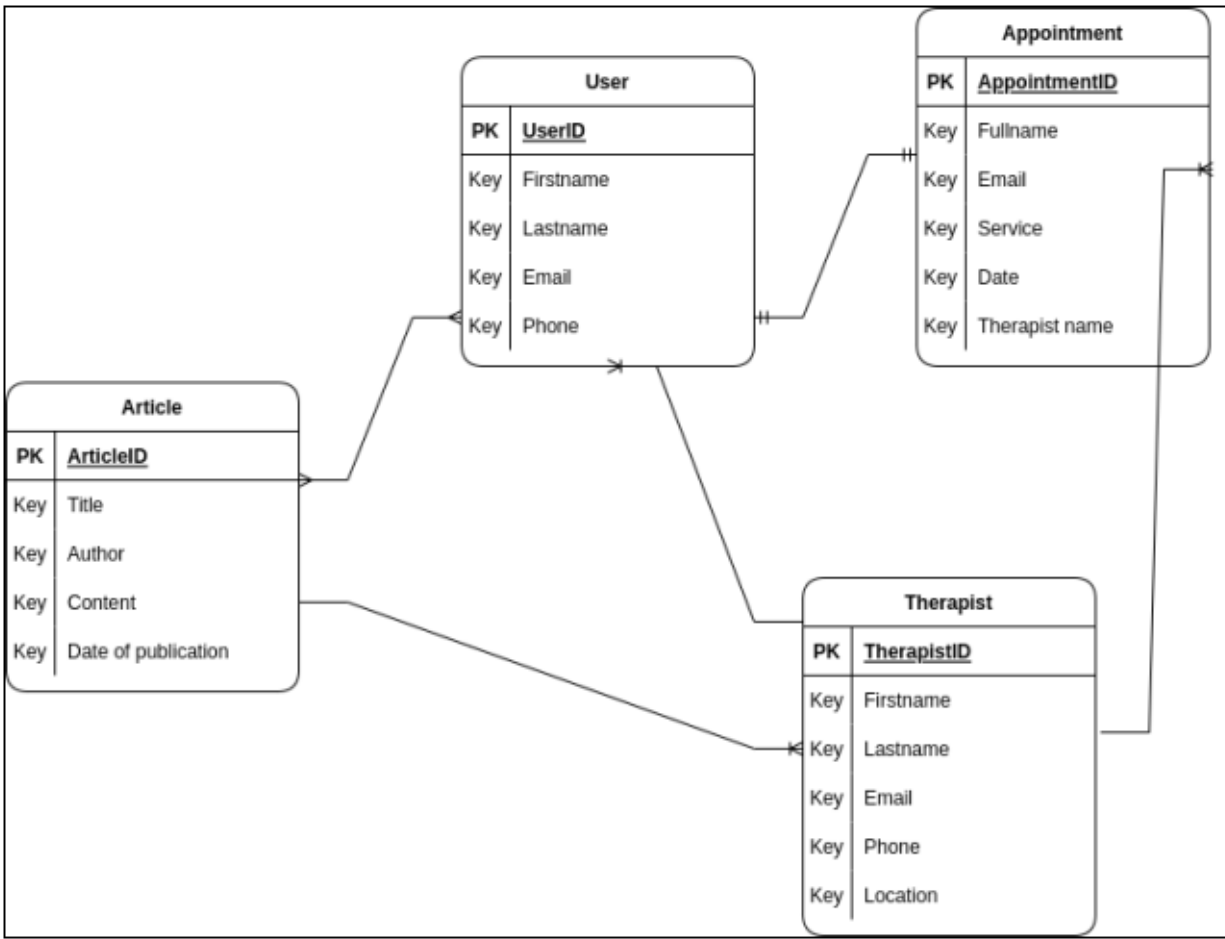


Figure 1.7: E.R Diagram.

3.5.1.4 Flowchart

Flowchart is used to supplement the working of the new system. The system made should thus be reliable, durable and above all, it should have least possible maintenance costs. It should overcome all the drawbacks of the Old existing system and most important of all, meet the user requirements.

3.5.1.5 Interface Design

Login Page

The client uses the page to login to the system so that they can get access to the client's home page.

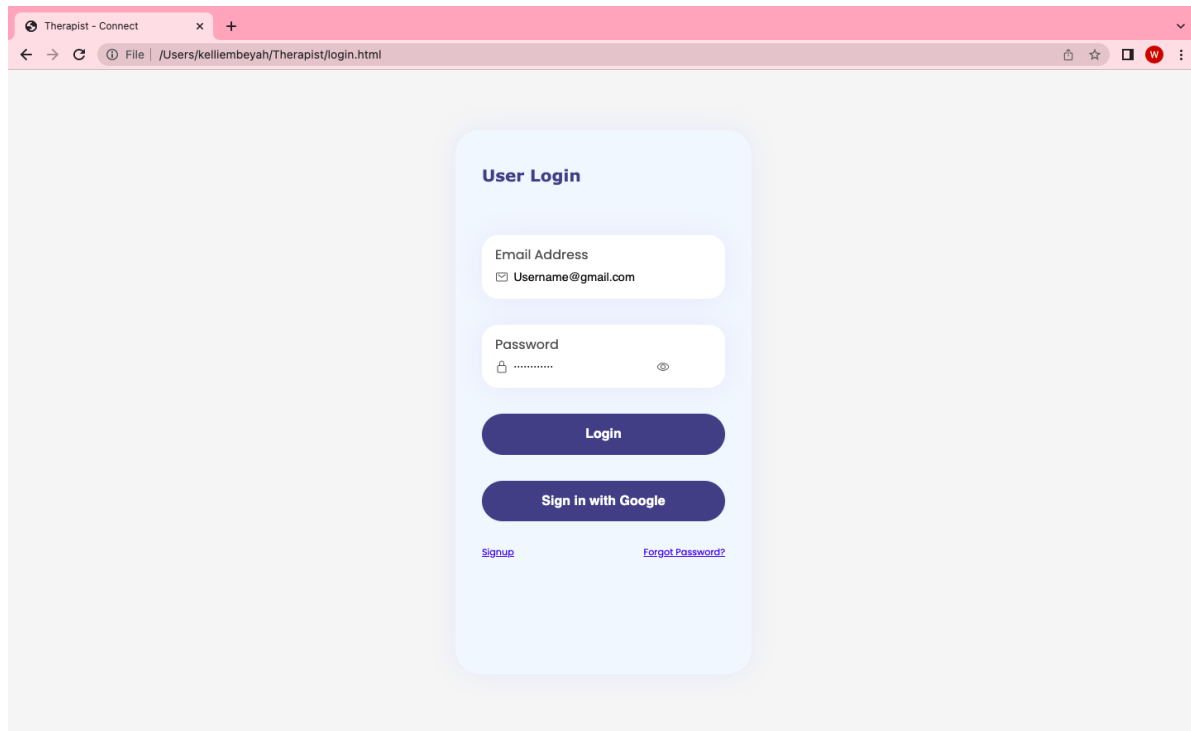


Figure 1.8: Client's Login Page.

Homepage

Administrator homepage

The therapist admin uses this page to register therapists, publish articles, view appointments and view enquiry.

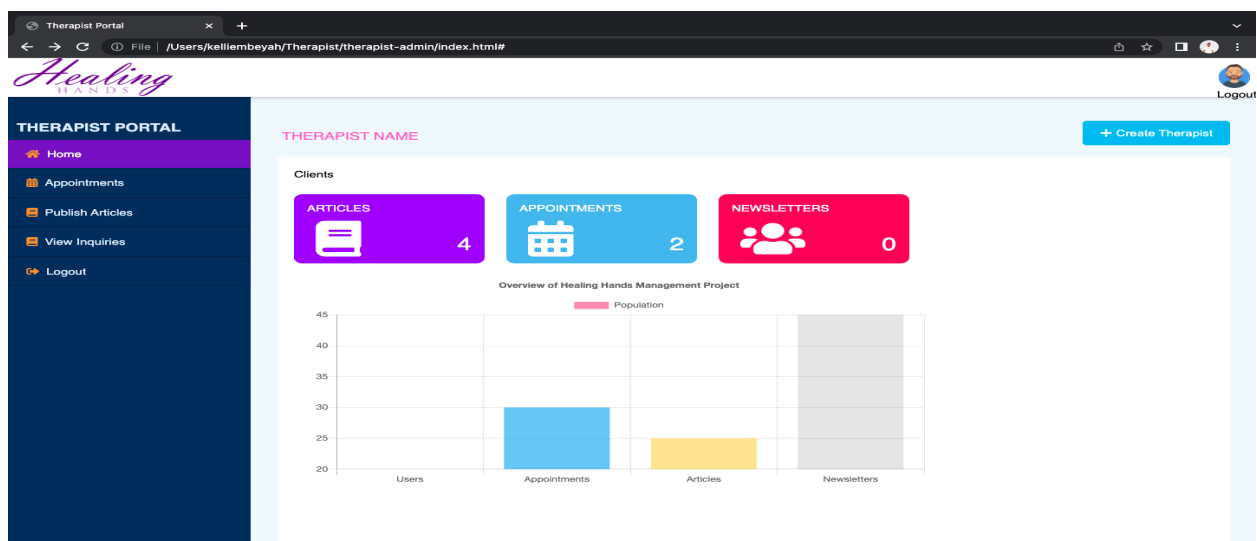


Figure 1.9: Therapist Admin's Homepage.

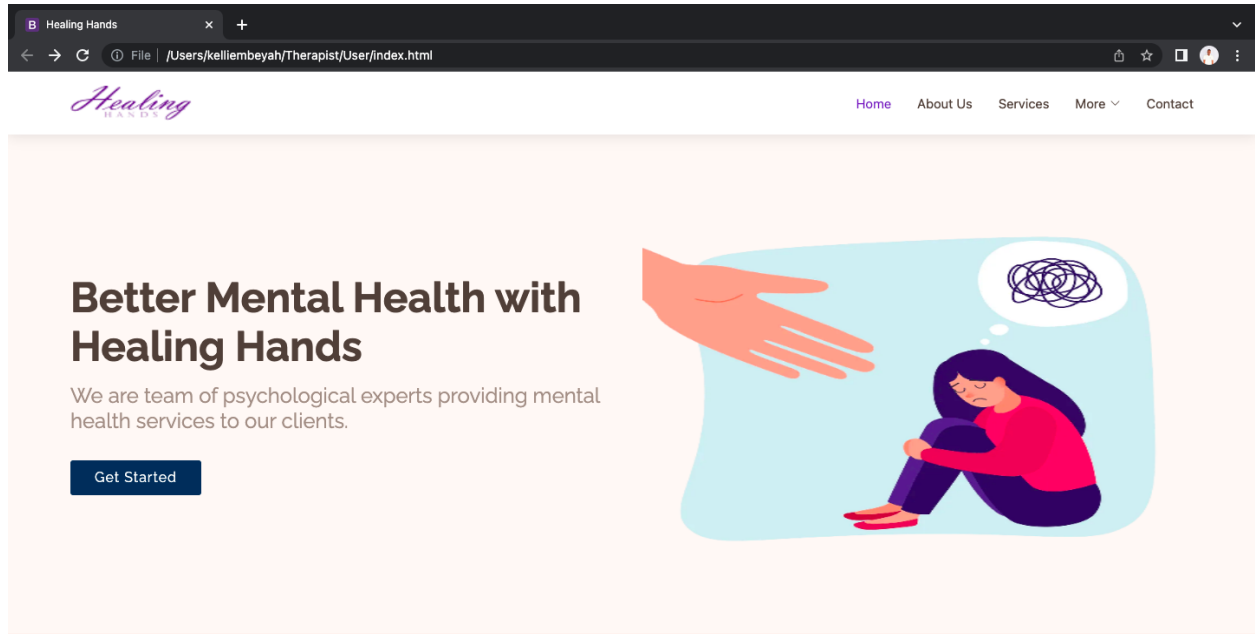


Figure 2.0: Client's Homepage.

CHAPTER 4: METHODOLOGY

4.0 Introduction

When developing a software system, there is a need to determine ways and procedures to follow. These procedures allow the developers to measure their progress in developing the system. This is to ensure that the most optimal system is delivered timely. It, therefore, requires the developing team to seek different approaches to meet the system requirements and measure their progress by setting deliverables for every stage.

4.1 Choice of Methodology

4.1.1 Life Cycle Models

There are various software life cycle models which include the spiral model, waterfall model, incremental model, and an iterative waterfall model.

Iterative Waterfall Model

We decided to use the iterative waterfall model for this project because this model enhances the completeness of one activity before moving to another, it is simple to use and manage, easy to detect errors, works well for small projects which include students' projects, and has clearly defined stages. The model segments the life cycle into a series of successive activities. Each activity results in a well-defined product.

The phases of the Iterative waterfall model are listed below:

1. Requirement definition
2. System and software design
3. Implementation and unit testing
4. Integration and system testing
5. Operation and maintenance

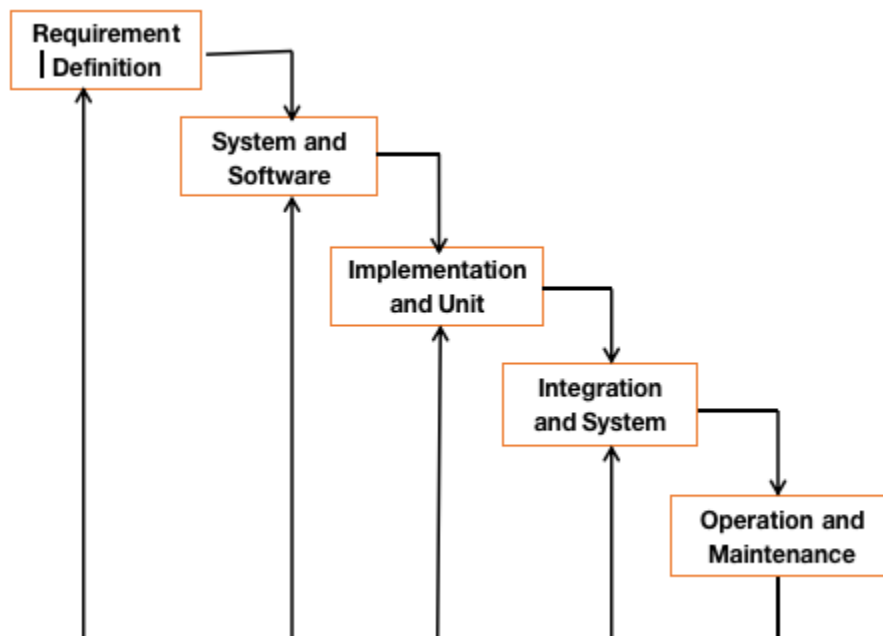


Figure 2.1: Iterative waterfall Model

The iterative waterfall model was chosen as the methodology in this project due to the following advantages:

- It is very easy to understand and use.
- Every phase contains a feedback path to its previous phase.

- It is simple to make changes or any modifications at any phase.
- The developer using this phase can complete a project earlier.
- Customer involvement is not required during software development.

Chapter 5: IMPLEMENTATION

5.0 Introduction.

This chapter discusses the implementation which can be described as the process of converting system design into the real-world system to be used in day-to-day business tasks. It includes the processes and procedures needed to take software applications from planning and development to the production stage. This is a critical task in developing a system and where the most of the time is consumed. The implementation phase is the final phase of the system development life cycle. Under implementation, the actual system actualized. However, the system analysts and developers are mandated to conduct regular maintenance of the system to either prevent or solve problems when they occur. It is, however, essential to understanding that the implementation phase covers coding, the system testing, and integration and installation. Testing aims at finding and correcting errors that might have evaded the developers.

5.1 Implementation Environment

Patients looking for mental health services will be able to interact with the application through a web browser as the application is web based.

The development environment used to develop the software was mainly a combination of open source softwares which are legal, therefore keeping away illegalities associated with the system.

Some of them are illustrated by the table below.

Hardware	Software
AMD A6-5350M APU with Radeon(tm) HD Graphics	Firebase
4 GB RAM	Microsoft Windows 10 PRO
500GB Hard Disk	Figma

Table 1.0: Hardware and Software Implementation

5.1.1 Development Tools

- Figma – for logo design.
- LucidChart - ER diagram modeling
- VS code – For coding

5.1.2 Technology

- Firebase – suite of web-based Apis used for authentication and back-end services.
- Bootstrap 4- a CSS framework for front end development
- CSS – for styling web pages
- HTML – front end markup language
- JavaScript – front end scripting language.

Chapter 6: DISCUSSION

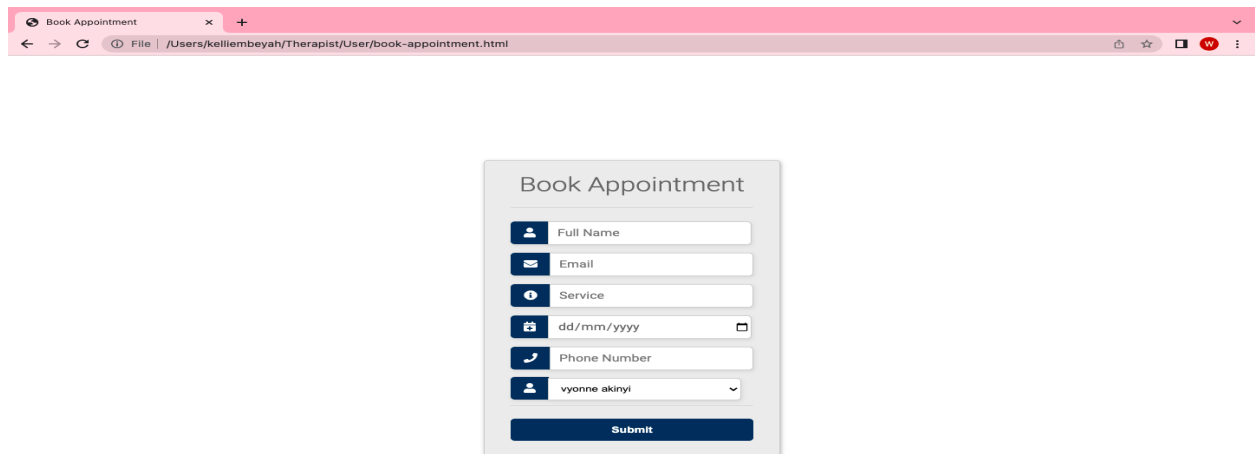
6.0 Introduction

This chapter is aimed at looking at the Healing Hands website's interaction with the user. The modules to be discussed are:

1. Book Appointment
2. My Appointments
3. Articles Blog

6.1 Book Appointment Module

The Book Appointment module can be accessed by any user who wants to book an appointment by date, email, phone and therapist. Below is the homepage.



The screenshot shows a web browser window with the title 'Book Appointment'. The address bar shows the file path: 'File | /Users/kelliembayah/Therapist/User/book-appointment.html'. The main content is a form titled 'Book Appointment' with the following fields:

- Full Name (text input)
- Email (text input)
- Service (text input)
- dd/mm/yyyy (date input with a calendar icon)
- Phone Number (text input)
- Therapist (dropdown menu showing 'vyonne akinyi')
- Submit (button)

Figure 2.2: Book Appointment Module.

From the above diagram, the user will key in his/her details, an appointment date of their choice and the therapist that best suits them. On clicking the Book Appointment link under the more drop down menu, the user will be directed to a dialog to see all available therapists during the selected day of appointment.

6.2 My Appointments module

This module is concerned with the following functionalities:

- Displays all appointments that were made by users.
- Allows users to cancel their appointments.

6.3 Articles Blog module

This module is concerned with the following functionalities:

- Display articles written by different therapists.

The figure below shows a part of the interface of the module:

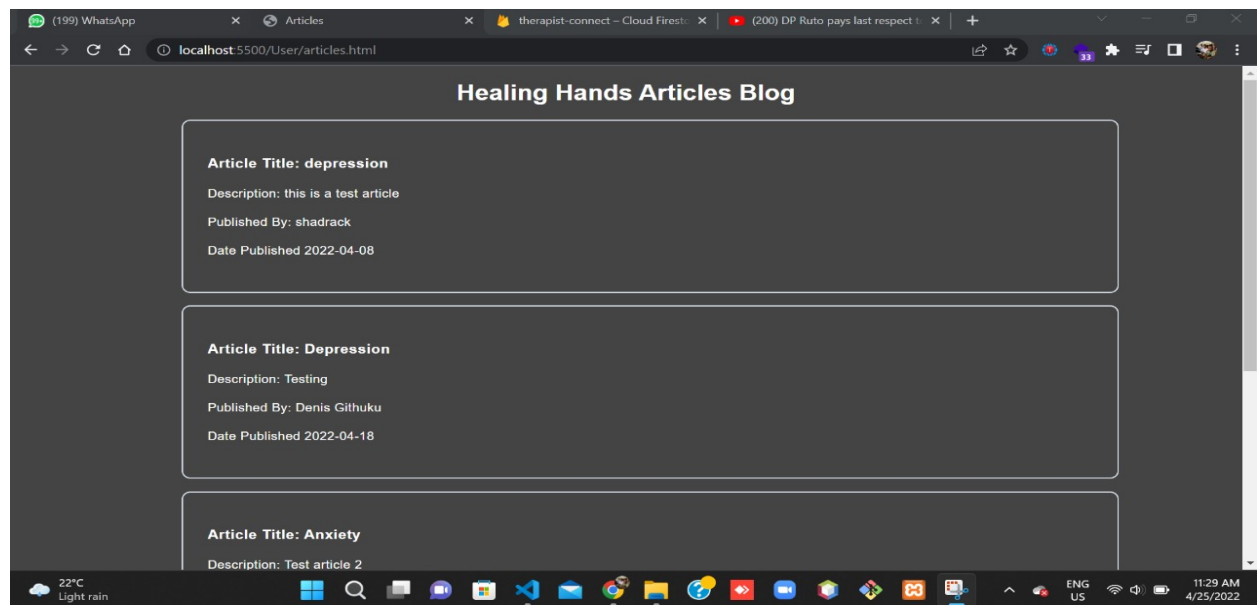


Figure 2.2: Articles Blog module

CHAPTER 7.0: CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

Many people are battling mental health-related conditions. It is so unfortunate that most people do not realize leading a healthy life involves being mentally healthy as well. There is a need to bridge the gap although the government is trying its level best to enhance the infrastructure and resource allocation for the development of mental health facilities. This project has been developed to help in the handling of mental health disorders mostly among the youth with a strong focus on college and university students.

7.2 Recommendations

I recommend that the stakeholders in the health sector improve this system so that the patients can easily access mental health services.

The government should implement more measures to mitigate the propagation of mental health-related illnesses.

Since this project took me less time to develop, I seek to be given more time to implement other modules to make the project more productive and reliable.

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