MENTAL HEALTH PORTAL

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A SYSTEM PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE IN THE SCHOOL OF COMPUTING & INFORMATICS OF GRETSA UNIVERSITY.

DECLARATION

This system project is my own original work and has not been submitted to any other university for any award.

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ABBREVIATIONS AND ACRONYMS

WHO: World Heath Organization

APK: Android Package Kit

GUI: Graphical User Interface

DB: Database

OPERATIONAL DEFINITION OF TERM

Mental Health: The psychological and emotional well-being of a person.

Administrator: The individual in-charge of the portal

ABSTRACT

Mental health portal is a platform designed to accommodate patients with mental health issues. The system can be accessed by three users; the patients, doctors and an administrator. The main aim of developing this system was to come up with a platform where students with mental health issues can get a fast and reliable mans of sharing their issues to a professional and in return reduce the rate of suicidal cases in universities. The system was developed using the waterfall model. Testing was carried out using users from Gretsa University who gave a positive feedback on the alpha test. The admin will manage the activities of the other users on the platform. The patient visiting the page will acquire services such as; learn about mental health, create an account, link up with a doctor through a chat room, run a stress test and share feedback. The doctors will be able to apply for a job, create account, update their clinic profile and chat with a patient. Future plans were discussed on the final chapter where the developer intends to make the system work both as a web application and a mobile application. He will also add new features to adapt to new tech as they emerge.

CHAPTER ONE: INTRODUCTION

This section covers on the background of this system project, the general and specific objectives, significance of this system, operation environment of the portal and the scope of the study.

1.1 BACKGROUND OF THE SYSTEM

According to statistics done by the WHO, the rate of individuals committing or attempting suicide in Kenya has risen by more than 50% in the past 10 years. It is shocking and alarming that the higher learning institutions are almost topping the boards with new cases of suicide by their students. Most of these deaths can be traced back to one root, mental health. The project at hand was driven by this motive and intends to reduce the number of suicides in Kenyan universities through offering a platform where depressed or patients with mental health issues can link up with therapists or doctors to book a session, to ask for opinions by conversing with experts. The portal will offer a section for the patients to register or create an account then after that be allowed to access the services of the portal such as; stress test which the patient will answer given questions then his/her response will be ranged out of 75. The patient can also choose a clinic or doctor for scheduling therapy session. The portal offers a chat room for patient-doctor conversations and a blog with the latest news.

1.2 PROBLEM STATEMENT

The most critical factor noticed by anyone is the actions or behavior portrayed by another person. In this ere, mental health has become a critical and a grave-worrying issue as some of the youth in universities even end up committing suicide because they were depressed and no one was there to listen to them. Imagine how many more we could lose if this issue is not handled quick and with care. In the existing systems, one has to know a therapist or be referred to one for the therapy sessions. A patient also has to physically attend the sessions in the named locations. This mental health portal is here to counter the limitations of the existing systems and help reduce the issue of university students committing suicide. Among other problems, the existing system has the following drawback:

- Time consuming: Patient has to first identify a therapist then arrange for the sessions which he/she has to attend in person.
- Privacy invasion: Patient has to be referred to a therapists as good therapists are hard to find and asking people for such details may be uncomfortable to the patient.

1.3 GENERAL OBJECTIVE

1. To facilitate the reduction of suicidal cases in Kiambu county Universities by designing and developing a mental health portal.

1.4 SPECIFIC OBJECTIVES

- 1. To investigate the existing mental health system in Kiambu County and remedy its limitations.
- 2. To find out the number of suicidal cases caused by mental health issues in Universities around Kiambu County.
- 3. To design, develop and test the mental health portal.

1.5 SIGNIFICANCE OF THE PROJECT

The time consumed by patients looking for the perfect therapist or doctor and the privacy

inversion caused in the process are among the issues this project will remedy. Therefore, this

research will be of benefit to any patient or student going through mental health issues such as

depression or stress. It will also be of benefit to doctors who will acquire patients from the

platform.

1.6 SCOPE OF THE STUDY

The study developed a web application which will be hosted and be accessed by anyone with

internet and a smart device. The portal will be open for access to anyone with mental health

issues and doctors who want to join. Due to time bounds, the system will in future be developed

into a mobile APK for ease access to anyone with a smart phone.

1.7 OPERATION REQUIREMENTS

1.7.1 Software requirements

• Windows 7,8 or 10

• Wamp v.1.0.0.0

• Text editor

1.7.2 Hardware requirements

1. RAM:4 GB

2. Internal hard disk drive - 10 GB free space

3. Processor – Intel i5 2.0GHz

4. System type: supports a 64-bit Operating system

3

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter contains a review of the existing literature review on the issue of mental health and existing systems that tend to relate to the one at hand. The chapter also covers the identified research gaps and the solutions brought forth by the system.

2.2 MENTAL HEALTH SYSTEMS AND LIMITATIONS

According to (Bitta, 2017), not to be termed as ignorance but little is understood on Kenyan state of mental health and systems. Kenya publicized the constitution which delegated the health sector into the 47 counties among which is Kiambu County. The most used psychiatrist system used in the country is the Vezeeta.com web app which is mostly used to schedule and book appointments. There are mobile apps found in Play Store such as Mental Health Tests which gives a patient the privilege to investigate his/her mental health levels. BYON8 is another app which assesses the symptoms of patients and links them with doctors. There are countable mental health care units in Kiambu county among them includes the Beta care Hospital and the Makuyu recovery. All these clinics are not easily accessed by the students in the higher learning institutions. This raised the need to come up with a portal that will cover the distance, time and cost issue brought forth by the location of these psychiatric centers.

2.3 SUICIDAL CASES IN UNIVERSITIES

The rate at which university students in Kenya have been committing suicide has been raising concerns in the academic sector (Osanya, 2018). The growing rates of students facing mental health issues and depression has left many university authorities with gray hair. Some have opted to hire therapists to handle the concerns and social life of these students while some are still assuming the whole issue. Students face a lot of unmentioned emotional and psychological challenges some even caused by relationships. According to the research on suicide by (Kabugi,

2018), academic pressure and substance abuse among many others, are the factors which lead to mental issues among the youth. To help counter the situation, Kabugi suggests that universities should come up with suicide preventing programs and counselling of the students. I couldn't agree more.

2.4 RESEARCH GAP

The systems that already exists to counter the issue of mental health are vezeeta.com and the rest commonly known are mobile applications. These systems only offer range of tests and offers appointments to patients. Most of them do not offer the platform for patients to directly interact with the doctors. This system tried to merge all the necessary components together to offer the best services to the patient.

CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

This section covers the research methodology that was employed in this study. This included

research design, methods of data collection included database design, input and output design,

coding and testing (Dibb, 2016).

3.2 METHODOLOGY EMPLOYED

The proposed methodology used is the waterfall methodology, it is a project management

approach where a project is completed in distinct phases and moved step by step towards

the ultimate conclusion of the system. It's a linear process which consists of several

phases. A new phase only begins once the prior phase is finished.

Waterfall model does not give chance for a developer to return to a prior completed

phase. The only means to redo a stage is to begin from the first phase (Wheelock, 2016)

The phases in the waterfall model include:

1. Requirement gathering

2. System analysis

3. System design

4. System implementation

5. Testing and maintenance.

These phases have been elaborated below;

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3.2.1 Requirements gathering

This is the first phase of the model. The requirements for the system under development were defined in this stage. Moreover, the gathering of data on existing systems and the form of improvements that can be merged with the new system was done in this phase.

3.2.2 System analysis

This phase is all about carrying out an analysis of the system problems and coming up with solutions to the problem. I did a background study and found out that there was need to develop a web-based application for mental health issues for specifically university students.

3.2.3 System design

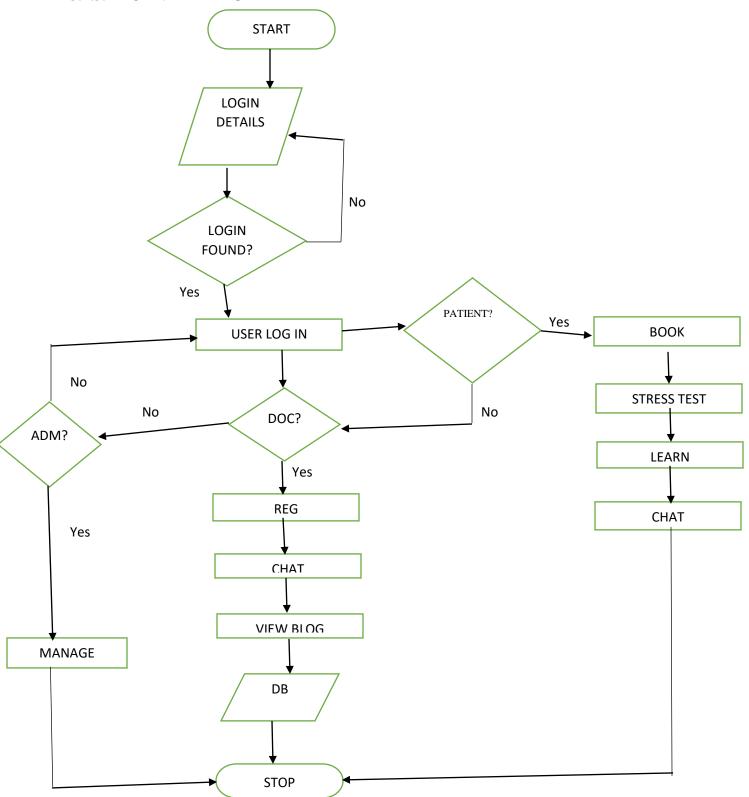
Logical design

In this phase, I considered the different tools for the portal development. I had the option of developing the system using platforms such as MySQL, Wamp and used languages such as PhP, html, Css. And Javascript

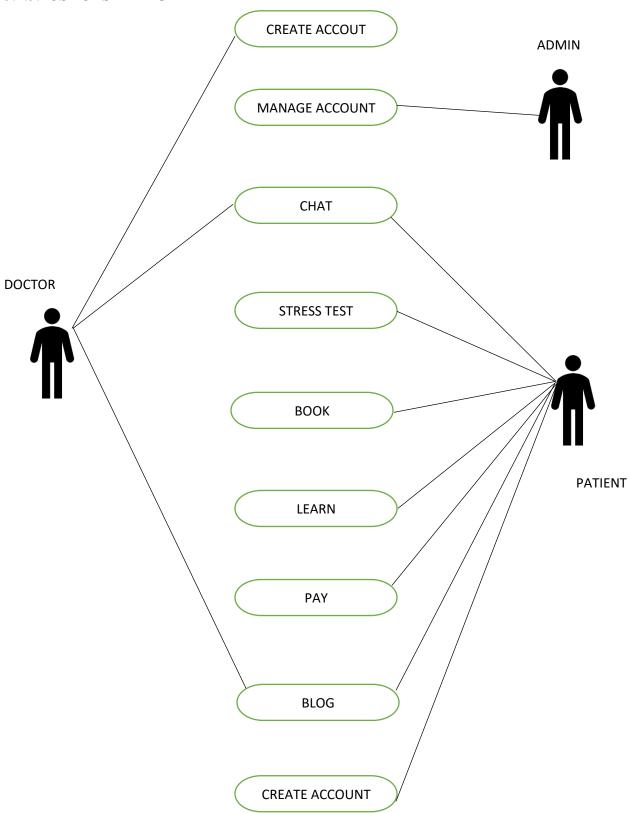
Physical design

It involves evaluation of the identified technologies and selecting the most appropriate technology to be used for development. I chose to develop a web application because it is a cross-platform application that can be accessed on any device.

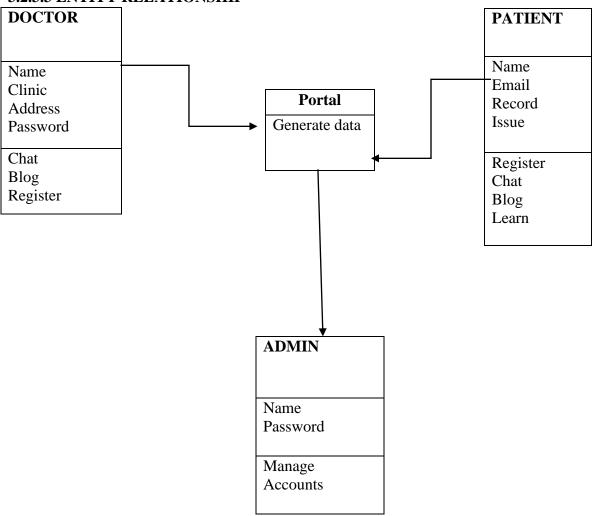
3.2.3.1 ACTIVITY DIAGRAM



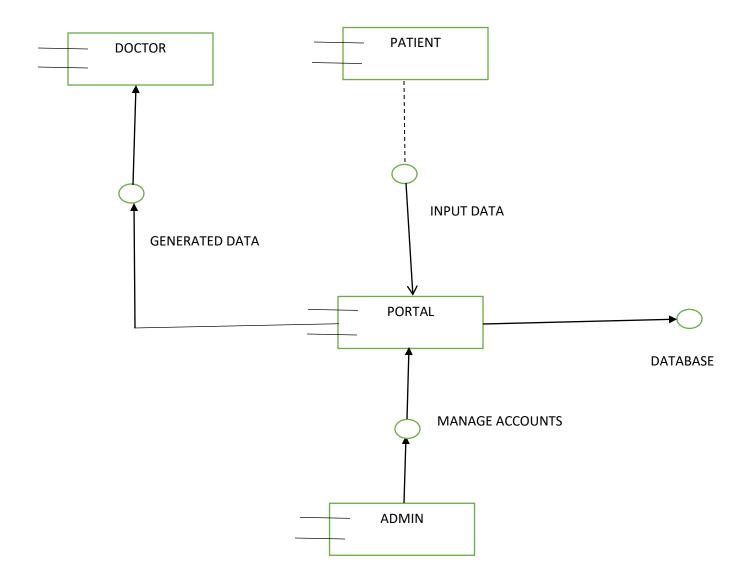
3.2.3.2USECASE DIAGRAM



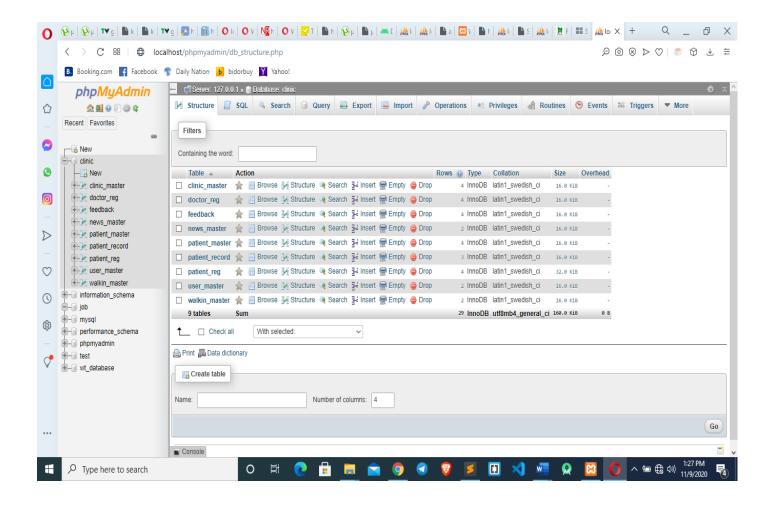
3.2.3.3 ENTITY RELATIONSHIP



3.2.3.4 COMPONENT DIAGRAM



3.2.3.5 DATABASE



3.2.4 Coding

This phase involves putting the mentioned technologies into use during development of the system. I developed the system using html, Css and Php at the front end, and MySQL database for the backend.

3.2.5 Testing

In this phase, the software is tested to see whether it performs the required functions and whether it conforms to the needs of the target users. I carried out testing and analyzed the results, as shown in subtitle 3.8.

3.2.6 Acceptance

In this stage, if the system works as intended to and satisfies the needs of target users, it is deployed for use. I decided to use a direct deployment technique.

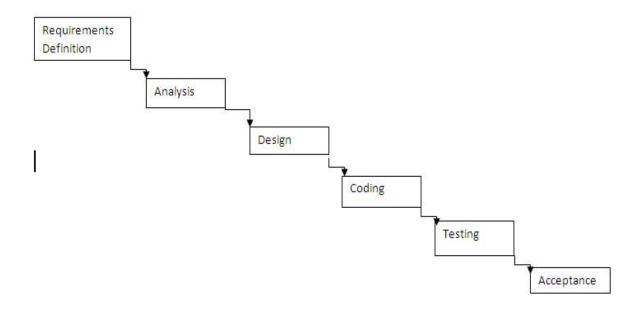


Figure 1: waterfall model

3.3 DATA GATHERING

Some of the techniques of data gathering I used were:

a. Interviews

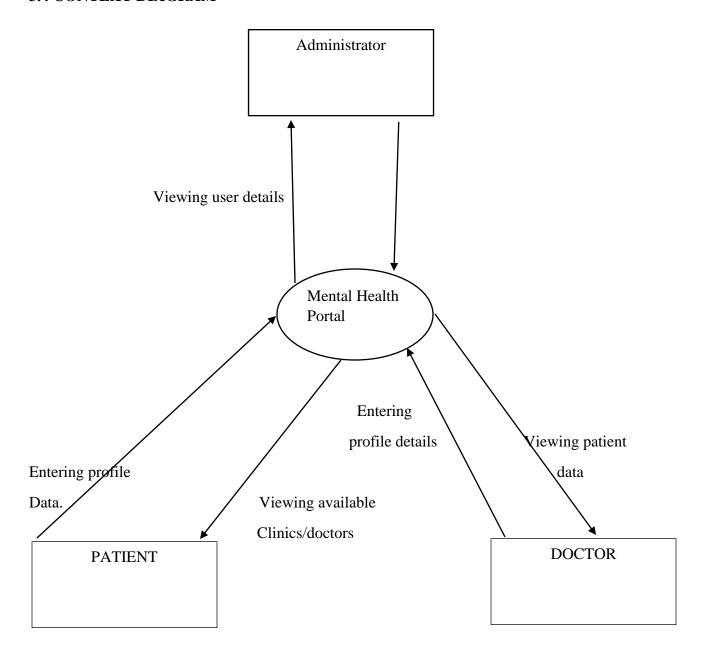
Interviews are one of the methods of data collection used in investigations and collection of data from individuals (and/or group) through face-to-face interaction. During preliminary investigation of the mental health portal, I used both structured and unstructured interviews.

Structured interview involves the use of questionnaires based on a predetermined and identical set of questions. While in unstructured interview I embarked on informal discussions to explore the in depth of the topic on the mental health portal in a spontaneous way.

b. Open-ended and closed-ended questionnaire

In addition to the structured and non-structured interviewing in the process of the interviews, two other methods I used which included open—ended and closed-ended questions but preference was for the open-ended which allows for collection of quantitative and qualitative data. It allows the interviewer to further explain on posed questions.

3.4 CONTEXT DIAGRAM



3.5 Database Design

The portal made use of MySQL database created using Wamp which is efficient as it provides real-time data and stores the data on a local host server which enabled time to time testing of the system. The portal has nine tables as described below:

3.5.1 Application table

The table contained the following details: patient id, application id, clinic id, status and description.

3.5.2 Doctor reg table

The table contained the following details: doctor id, surname, email address, username and password.

3.5.3 Feedback table

This table was designed for holding the data fed in by the patients as feedback.

3.5.4 Patient record table

This table had patient id, clinic id, record id and year.

3.5.5 Patient reg table

This table had the profile details of the patients who created an account using the portal.

3.5.6 Clinic table

This contained details of the clinics available that a patient can book an appointment. It included: clinic id, clinic name and description.

3.5.7 News table

This table embedded the news posted in the blog. It had: News id, news and date

3.5.8 User table

The table had the details of the administrator of the system: user_id, username and password

3.5.5 Walking table

The tables contained the appointments made by the patient.

3.6 INPUT AND OUTPUT DESIGN

The portal has a simple and attractive GUI that gives the users easy time to navigate through the

portal. Input sections of the system will be the following: Registration of new patients and

doctors, stress test, feedback and appointment booking.

Output parts of the system will be: stress test results, news on the blog and patients record.

3.7 CODING

The programming tools and languages used in developing the portal are as follows:

3.7.1 Programming Languages

The programming languages include:

3.7.1.1 HTML/CSS

The two languages were used for the designing of the user interface and styling of the interface

respectively. These languages were the best choice for the webapp as they are simpler to code

and errors can be corrected fast. They can be run using any web browser and can be incorporated

to work with many other languages. For the upcoming android version, the developer will opt for

JAVA.

3.7.1.2 PHP

This is a server-side scripting language designed for web development but also used as a general-

purpose programming language, it was in this case, used for linking the portal to the MYSQL

database to send, manipulate or retrieve data.

3.7.1.3 MYSQL

This is an open-source relational database management system, it was used for creating and

manipulating the database, it is used in the Wamp Server.

3.7.2 Tools used for coding

i). Text editor: Sublime Text 2.0.2

ii). phpMyAdmin – Wamp Server 1.0

3.8 TESTING

The system has gone through several testing steps, all of the them are aimed at valuation

of the system to determine how best or poor the system takes in the input for processing

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and eventually giving out the output while testing my system, I used various techniques of testing to ensure a verifiable procedure of development and giving valid output as per the statement of the functional and non-functional requirements.

The parameters used during testing of the functionality of the system include:

1. Reliability

During the whole process of registration to the final scheduling process the system is always available for all operations

2. Correctness of the system

This test was ensuring only correct final information is provided the house name. Location, prices and the image.

3. Completeness of the system

This was carried out to ensure the system meets the functional and non-functional requirements as specified before

4. Flexibility and scalability

This was for the backend part of the system where the system was tested to ensure, the capability of holding more data during extension of the system.

This system was tested unit by unit through running the different sections of code that is login module for authentication, viewing of registered farmers by the vet, registering and paying for the services by the farmer and allowing interaction between the vet and the farmer

3.8.1 Integration testing

This type of testing shows whether different modules of the system can be brought together to perform as one unit.

3.8.2 System testing

System testing was applied to confirm the conformance of the whole system to the requirements, test the harmony existing in between the different modules in achieving the ultimate objectives of the development process. This includes coordination of different roles that is patient registration and doctor registration and the admin being able to manage the accounts.

3.8.3 Acceptance testing

This testing can be viewed and categorized into two: a smoke test that was used as an acceptances test prior to introducing new build to the main testing process before integration. Secondly acceptances testing performed by the users, often on their own devices. I specifically used this test to check if I had met user requirement in the development of the software aesthetically and also in terms of functionality.

CHAPTER FOUR: OUTPUTS AND IMPACTS

4.1 INTRODUCTION

This chapter will describe the outputs of the various programming modules in the system and screenshots will be used where necessary to display a clear view of the system interface.

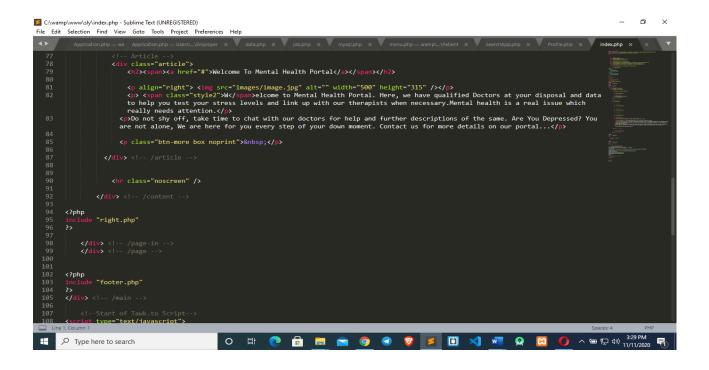
4.2 OUTPUTS OF MODULES

The following are the codes and interfaces of the system. They also will display the outputs and impacts of the modules to the general system.

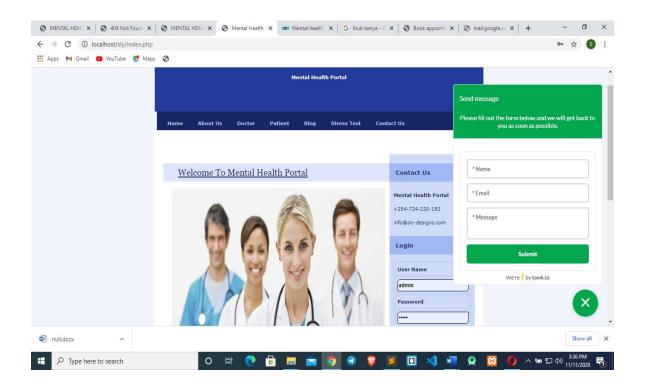
4.2.1 INDEX PAGE

This is the main page of the system.

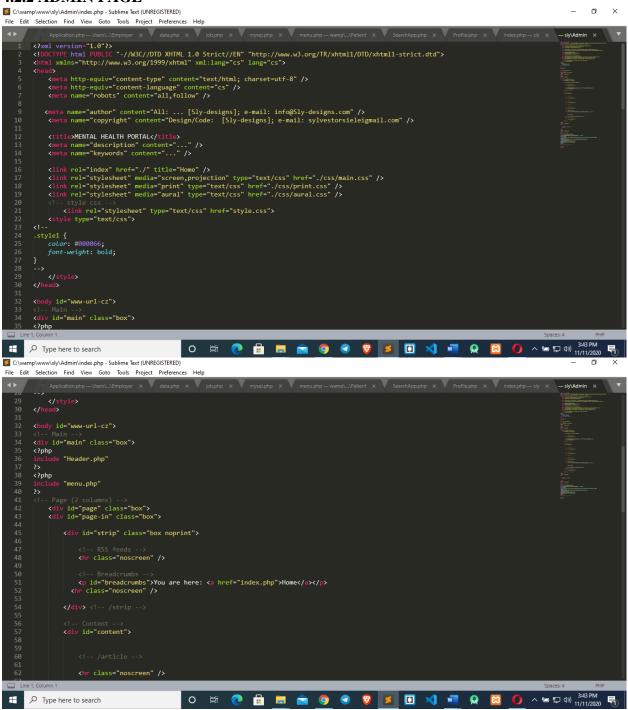
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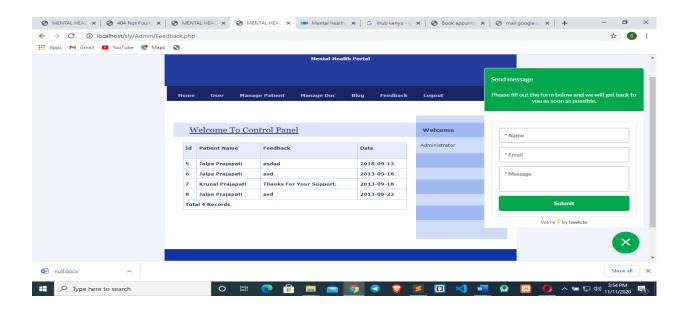


4.2.1.1 INTERFACE

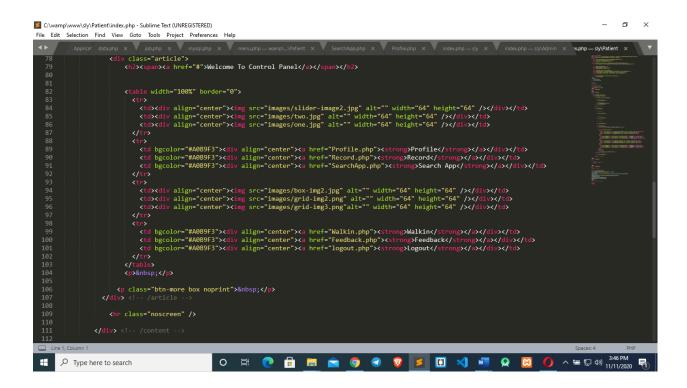


4.2.2 ADMIN PAGE





4.2.3 PATIENT PAGE



4.2.4 DOCTOR PAGE

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4.3 MEASURE OF SOFTWARE QUALITY AND RELIABILITY

The quality and reliability of the system was measured using its correctness in giving outputs when the user feeds in details. The time response for producing results was also considered. After development, the system was administered to users for pre-test to figure out the response rate of the system and its correctness. It was concluded that, besides issues such as internet connectivity, the system was reliable.

4.4 PERFORMANCE ANALYSIS

The system was deployed to 5 students in Gretsa University for the purpose of testing the performance of different sections of the system. The system responded well to the performance analysis with recommendations from the users to create a mobile app for the same.

CHAPTER FIVE: CONCLUSION AND FUTURE WORK

5.1 SUMMARY AND CONCLUSION

The development of the mental health portal used ideas brainstormed by the developer while other parts were an upgrade of existing ideas. The portal has three user points, the Admin who is in-charge and manages all the other users. He/she has the mandate to approve doctors who submit their applications and also review patient's data and add news for the patients to view. The patient being the main target, has the ability to create an account, take a stress test, chat with a doctor, share his/her previous mental health record and give feedback. He can also learn more about mental health. Doctors can apply for registration, monitor appointments and chat with patients. It is a web application which can be used to counter the emerging issue of suicides in universities due to depression.

5.2 FUTURE WORK

- The system will be developed to work both as a web application and a mobile application for both android and apple devices.
- The system will add payment methods such as M-PESA, PAYPAL and other credit cards for patients to pay for the services.
- The system will include google maps to locate therapists near the patient's locations and recommendations.

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