



**ISLAMIC UNIVERSITY OF TECHNOLOGY
ORGANIZATION OF ISLAMIC COOPERATION
DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**



TOPIC:

THE DOCTOR ADVISOR:

An online doctor advisory and appointment system

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A Project / thesis report submitted to the faculty of computer science and Engineering for the study leading to a project in partial fulfillment of the requirement for the award of the Bachelor's in Technical Education with a specialization of Computer Science and Engineering.

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DECLARATION

We, Nambobi Mutwalibi and Oumar Marcel student No.153406 and 153431 respectively declare that this research is our original work and has never been submitted by anybody for the award of a Diploma or degree in any Institution of higher learning or University in this Country or elsewhere.

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DEDICATION

Nambobi Mutwalibi: This work is dedicated to the entire family members in my village where most men are assumed to be coming from; the Bugisu land, the Mbale land.

Oumar Marcel: This work is dedicated to my dear family and friends back in Africa, Comoros especially in my village Kove, Grande Comores.

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LIST OF ABERIVATIONS

MVC	Model View Control
MIS:	Management Information System
IS:	Information System
TCP/IP:	Transmission Control Protocol / Internet Protocol
CIS:	Computer Information System
WWW:	World Wide Web
PAU:	Programmer Administration Unit
MYSQL:	My Structured Query language
PHP:	Hyper Text Per-processor
HTML:	Hyper Text Markup Language
CSS:	Cascading Style Sheet
DSS:	Decision support systems
EIS:	Executive information systems
DFD:	Data Flow Diagrams
HDD:	Hard Disk Drive
RAM:	Random Access Memory
CPU:	Central Processing Unit
GHZ:	Giga Hertz

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ABSTRACT

Doctor advisor is a clean and fresh, easy to use web app that allows you or your users to search for different doctors in developing countries like Uganda, Comoros and Bangladesh in a matter of seconds. This piece of software can be useful in particular for Doctor Agencies, Hospitals, clinics, maternity care, and consultancy about patient related business.

A patient can create an appointment directly from website if he or she has patient ID. Otherwise he has to be your patient meaning he or she will have to first sign up.

Patient will get a Patient ID by which he or she can get doctor appointment or any inquiry. Finally patient will get an Appointment Letter what he can bring to doctor or He can only bring the Patient ID.

CHAPTER ONE

1.0 Introduction

The existing system in developing countries like Uganda, Comoros and Bangladesh are ensuring that doctor advisory information and contacts is managed and kept strategically , implemented manually and offline. The administration officer capture and keep records in files. This system faces a lot of challenges. The manual implementation of this system by Medical and IT officer can lead to change or modification of information. Secondly the papers used in this system can easily get lost or be destroyed and the entire system is very tedious to manage. Lastly Most Doctor have no online presence.

1.1 Problem statement

Doctor in developing countries face a lot of problems with handling appointments as well as patients find it difficult to carryout consultation, book appointment and find the most experienced doctor available in his or her area. Medical business is a social business or service this creates scheduling of available doctors to default and carrying on emergency consulting with a knowledge base. Hence an online automated Management system has been suggested to automate all the processes and link medical professions in one boat.

1.2 Objectives

1.2.1 Main Objective

To develop an automated Online Doctor Management System to capture and store Doctor Contacts Information and a one stop Centers for all doctors in a locality.

1.2.2 Specific Objectives.

- a) Developing a Finding/ search Module for patients.
- b) Creating a patient appointment booking
- c) Developing a check in form for doctor/ patient submissions.
- d) Providing an appointment management system.

- e) Doctors are able to schedule time (leave ,Vacation, active, inactive)
- f) Doctors/patients can access past appointment Management
- g) For online reputation management, users can Rate and also reviews.
- h) Creating a real time messaging system.
- i) Providing statistical trends of specialization, doctors and hospitals.

1.3 Scope of the study

The study is to cover search section for a doctor by location based, his name or specialization, diseases, symptom (signs), capture strings, schedules (sifts of appointment experience and by type and make an appointment) from the landing page. Notice doctor about appointment duration.

Advise on the nearby doctor by levels (detect who to treat it), consultation fees ranges, Blog sections about herbs, remedies and healthy safety measure. This project will embark on targeting the developing countries.

1.4 Significance of the study.

Marketing in medical field practice. Most doctors never give much focus to marketing their practices online. Providing a selective platform for patients in a specific discipline and locality. Provide a long term full filling practice and provide on optimization to attract new patients The system is to provide a security mechanism that prevents all un-authenticated access to the records.

CHAPTER TWO:

LITERATURE REVIEW

2.0 OVERVIEW

This chapter has to do with reviewing the different literature which researchers consider relevant and most important for the purposes of study. Literature opens to Doctor advisory services and appointment systems, databases, MVC technology as well as online information managements systems.

2.1 Doctor advisory services

Today's increasingly advanced science and technology, Internet of things technologies gets more extensive application. Computerized, networked and real-time hospital information management is the important and indispensable means to build a modern hospital. The hospital must realize the comprehensive information management and provide the patients with modern service, improve the service level for patients, conveniently, accurately and quickly provide medical services for patients and medical treatment charge information, and further strengthen trust and support of the patient to the hospital. The basic functions of the system include eight aspects, such as clinics registered, outpatient, hospital ward, clinic settlement, hospital ward, registered medical department, administrators' parts and other settings section. The system fully uses the computer technology, Internet of thing technology, database technology and adopts flexible modular structure design method, so as to provide users with powerful data manipulation function, friendly interface, simple and convenient use (ZHANG, 2011).

2.2 Appointment Systems

According to Finkelstein's study, it exposed two aims: to measure patient preferences for medical appointment reminder systems and to assess the predictive value of patient usage and familiarity with other service providers contacting them on responsiveness to appointment reminder systems. They used a cross-sectional design wherein patients' at an urban, primary-care clinic ranked various reminder systems and indicated their usage of technology and familiarity with other service providers contacting them over text

messages and e-mails. They assessed the impact of patient usage of text messages and e-mails and patient familiarity with other service providers contacting them over text messages and e-mails on effectiveness of and responsiveness to appointment reminder systems. They found that patient usage of text messages or e-mails and familiarity with other service providers contacting them are the best predictors of perceived effectiveness and responsiveness to text message and e-mail reminders. When these variables are accounted for, age and other demographic variables do not predict responsiveness to reminder systems {Finkelstein, 2013 #51}.

2.3 Management systems

A management system is the framework of processes and procedures used to ensure that an organization can fulfill all tasks required to achieve its objectives. So management system is not only concerns with information and communication technology that which the institution uses but also the way in people interact with this technology to suite the functions of the business. The organized collection, storage and presentation of data and the decision making knowledge, progress analysis, planning and evaluation of activities. However a management system can be either manual, computerized or a combination of both.

2.4 Challenges to information systems

The application and maintenance costs of management system become highly more, if the system is not maximally utilized in day to day operations of the organization. The systems should be optimally used to attain its effectiveness.

In case of high levels of staff ignorance about the functionality of the systems, management of information systems is not an easy task, and online presence of doctors. And hence this usually calls for detailed training of the doctors or healthy practitioners to simplify the work of system administrator.

Speculation about the growth of the organization from a smaller to a bigger institution, this often renders implementation of management system harder due to the fact that there is uncertainty about the size of the organization might develop.

2.5 MVC technology

Model View Controller is a pattern that consisting of 3 different of types of classes, each class summarizes what they do. [1] Model manages data handling, like data from databases. View manages how the data should be shown for the user. Controller is the middle component, collecting data from Model and making the data readable before sending it to the View. This paper will be about testing the performance of CodeIgniter and CakePHP {Nylén, 2012 #53}. With the development of the application of computer technology, the concepts of e-government and e-office have become one of the new hot spots in the job of our government. First, this paper introduces the development and characteristics of the rich client technology. Second, focuses on building rich client application model under AJAX techniques and MVC design pattern. Finally, implement the e-Government system which based on EXTJS framework. It also provides guidance for designing and developing some similar systems in the future {Xiao-yang, 2013 #52}.

2.6 Database.

According Jeffrey (1997) says, database is part of management system .and it is defined as the container of data files such as product catalogs, inventories and item/customer records. Furthermore they say that every business would be a failure without a fully secure and reliable system. Today online information systems are the heart of most businesses worldwide. According to Kohno et al (2004), it is not easy to have secure system, but a system developer must ensure that it is achieved. As a piece of advice to system developers we recommend, to have a clear subject areas, requirements and planning before starting off the designing the systems.

According to Braker and Helleirstein (1998), databases have experienced a rapid increase in the growth since the development of a rational database. The strategy of database systems and applications has produced a large scope of specialized technological areas that have often become the exclusive domain of research specialization. Cited examples include active database, object oriented, temporally database, deductive database areas. Systems like advance database systems were written by leading specialists who have made significant contributions to the development of technology area.

Assertions of Siau (2003) are that many databases that we find on the web today are derived from other databases. New databases are often created because there is need for

customized data and often the sort of databases created are with new data processing applications added. In this case a system one which is able to execute along superimposed information or annotation of data is very important in many ways. Siau (2003) emphasizes an annotation management system that is only capable of executing a series of notations of data being transformed, however one which is also capable of attaching new comments on derived data back to the source data.

More so Jacob (1993) affirms that the designers' team may choose from the varying of methods to support their efforts. However some should be implemented early enough while others should be employed later, and many may be used effectively at various stages of development.

2.5 Database management systems

A database is a collection of record facts typically describing the activity, event of one or more related organizational data.

David M. Kroenke (2000) defines a database as a self-describing collection of integrated records. It contains addition to the users' source data, a description of its own structure called a data dictionary also called Meta data.

Basically (DBMS) database management system accepts requisitions for data from the application program and the operating system to transfer the appropriate data. With the effective utilization of DBMS, information systems can be changed much more easily as the institutions' information requirements evolve from time to time. While availing the different data types previously stored without descriptions to the existing system.

2.6 Database and efficiency

Due to the fact that data resides in a central database the various programs in the application can access data in different data files, therefore the data available in one file needs no duplication in another. This reduces redundancy however this doesn't mean that all redundancy can be eliminated, because there could a business, or technical factor creating that some amount of data redundancy. Reduction in redundancy creates data consistence, so it should be kept at a lower level in every system for it proper functions. Similar data types can be shared with programs since the data store is in a centralized manner. And newer applications can be developed to operate against the same data.

2.7 Types of databases

Alex Leon Mathew Leon (2006) says, the growth of distributed processing, and user computing, support and executive information system has led to the development of different major types of databases. Among others include:

- i. Rational databases; these are databases that depend tables, called relations. And these are most commonly used types databases applied to microcomputer systems.
- ii. End-user databases; these comprises of data files developed by end-users at the workstation for example end-user files generated from spreadsheets.
- iii. Operation databases; are databases which store detailed data needed to support the operation of entire organization.
- iv. Data ware house databases; these include databases which store both previous and current data extracted from various operational and management databases of the organization. Today big data application facilitate a platform for working with large volumes of data (Wrembel, R., & Koncilia, C. (2007)

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Techniques used for the analysis, design as well as implementation of an online doctor advisory management system, will be presented in this chapter. More so among others include the various approaches employed during system data collection, system development, as well as system implementation will be elaborated.

3.1 System development

Rapid application development tools are used in the implementation of the system as well as structured system analysis and design methods were deployed in the process of data collection.

3.2 System Study

3.2.1 The current system

The current systems available in most developing countries like Uganda, Bangladesh and Comoros are mainly the offline and file based system whereby many doctors lack a digital citizenship (online presence or market) and all files are handled as a single item. Many lack domain names to structure themselves online and patient need emergency contacts in a particular location. There is less inter-connection between the different doctors in a particular demography and department. It should however be noted that all the doctors have different experience and expertise.

3.2.2 Sampling

Getting part of the target population to represent the rest was used. Under this technique, the researcher established eligible users and beneficiaries of the existing manual system, to whom he embraced for the necessary data. The sampling included also online applications like Doctolola and Musawo

3.2.3 Observations

Personal real time streaming of the existing systems' operation flow was encountered. In this case the researcher got into contact with the physical process of the current systems,

where by the developer interacted with the current systems in the region. During this time the researcher spared time to interact with the current retrieval information from the online system and the number of doctors available online in similar systems.

3.2.4 Interview

Oral face to face interactions between the researcher and interviewees, to establish how the existing system operates was encountered , with use of structured interview techniques of setting specific questions to be answered by the respondents. Such questions included among others open ended questions that allowed the interviewee answer in any way that seemed right. We also carried out phone call interview with the administrators and doctors on the current systems when trying to book appointments.

3.3 Requirement specification.

Definition of the business requirements for the new system was also encountered by the researcher. In this, system developer was in position to establish what do end users prefer and expect from the new system.

System requirement for the new system that out-line the hardware and software needed for the system to effectively operate were also specified.

3.3.1 System requirements

These include both hardware and software specifications since they are the components which make up the system.

3.3.2 Software specifications

The software to be applied the organization to run the hardware components is as below;

- i. Windows 10
- ii. Internet browser like Mozilla, Microsoft Edge, Chrome
- iii. Xampp server
- iv. Sublime text 3
- v. Navicat
- vi. Adobe Photoshop CC
- vii. Windows server 2003

- viii. Script languages such as Java Sript, MVC PHP (codeigniter), AngularJS, Ajax, and MySQL
- ix. Bootstrap

3.3.3 Hardware specifications

- i. Asus Intel(R) Core(TM) i5 CPU was used
- ii. Input devices such as keyboards, mouse, scanners
- iii. Printers like inkjet HP series
- iv. 4GB of RAM
- v. Network Bandwidth 100 mbps
- vi. 350Gb hard disk space

3.4 Functional requirements

Functional requirements that elaborate what the system does. These were first negotiated upon by the users of the system, and they identified one that suite the functions of their job.

This was all done in the interview analysis, observation processes and recommendation from the supervisor. That at least the version of online doctor advisory management system should have the following functional specifications:

3.4 .1 Site administer Requirement

- ✓ Custom support to all users
- ✓ Settings for ad create, update, delete, filter from the All sections
- ✓ User Management (accounts, reviews 'ratings', comments, authenticate doctors(seeing his or her certificate, experience etc)
- ✓ Custom categories section to add categories]
- ✓ Custom Package creation with option to create different types of package (Featured Doctors and others)
- ✓ Email tracker section to manage the emails sent from doctor's information form
- ✓ Bulk email support for marketing purpose
- ✓ Blog/Article/News management section (this sections will have how to use the system and other information everybody needs to know about health, Herbs,fitness)
- ✓ Custom widget management for sidebars
- ✓ Site settings section to manage all the settings from the backend

3.4.2 Doctor panel requirements

- Doctor can view appointment list.
- Doctor to doctor communications.
- Doctors Scheduling Management
- Patients Management (reply, feedback)

3.4.3 Patient panel.

- Patient can make doctor appointment.
- Patient also can view feedback from the doctors.
- Can review Doctor (rate, write a review).
- Time availability (some work 24hr /some don't i.e dr. hospitals are stated for availability)

3.5 Non-functional constraints

These are requirements which may limit the boundary expansion of the system so as to be absolved in the organization.

- Interface should be consistent
- Easy to use and understand.
- The definition of systems properties and constraints are stated as below:
- Reliability
- Performance
- Robustness
- Readability

3.6 System design.

Methods such as defined approach of procedures, techniques, tools and documentation aides that facilitated the design were used in the process of design being split into phases such as the conceptual, logical, and physical design phases that were used as a standard for organizing of the format of the analysis and model for asset of requirements. However the system should be in position to:

- a) Searching capabilities
- b) Retrieve and generate reports from the database.
- c) Capture and store data into the database.
- d) Ensure security to all organizational records

- e) Avail possibilities updating the system.
- f) Create a chatting environment for users to community.

3.8 Design model

A prototype is an essential version.

3.8.1 User training

With the application of a prototype users are given chance to interact with the system during the development process.

This gives users a chance to get the feel of the up-coming system since it will act as the replacement of part of the work load. Thus this will reduce the level of user abandonment of the system.

3.8.2 System testing

With the aid of a prototype the activity of system testing will be easier because there will be practical exposure of the users.

3.8.3 Conceptual design

Conceptualization of data models of the complaints management system is done at this level where the researcher is independent of the implementation details such as application software, and hardware, target of the database management system, programming language to be applied, performances and other physical aspects, the design is done. Instead the conceptualization consists of activities such as relation and entity type identification, and associating attributes with the entities or relation types, establishing attribute domains, candidate and primary keys, checking the model for redundancy among others.

3.9.4 Physical design

Besides decision making on the system implementation plan, at this level the developer made descriptions of base relations and associated integrity constraints and security measures. For that matter therefore activities such as the designation base relations entities

user views, and the security mechanisms as well as considering the introduction of redundancy controls was introduced.

3.9.5 Logical design;

At this phase the researcher concentrates on the construction of model information consents with the records management system sections based on the rational data models which are independent of any online database management system as well as other physical issues.

CHAPTER FOUR

SYSTEM ANALYSIS AND IMPLEMENTAION

4.0 Overview

This chapter gives a clear description of the software tools used and implementation of the system that has been built that is forms and their source codes.

4.1 The architectural design of proposed system

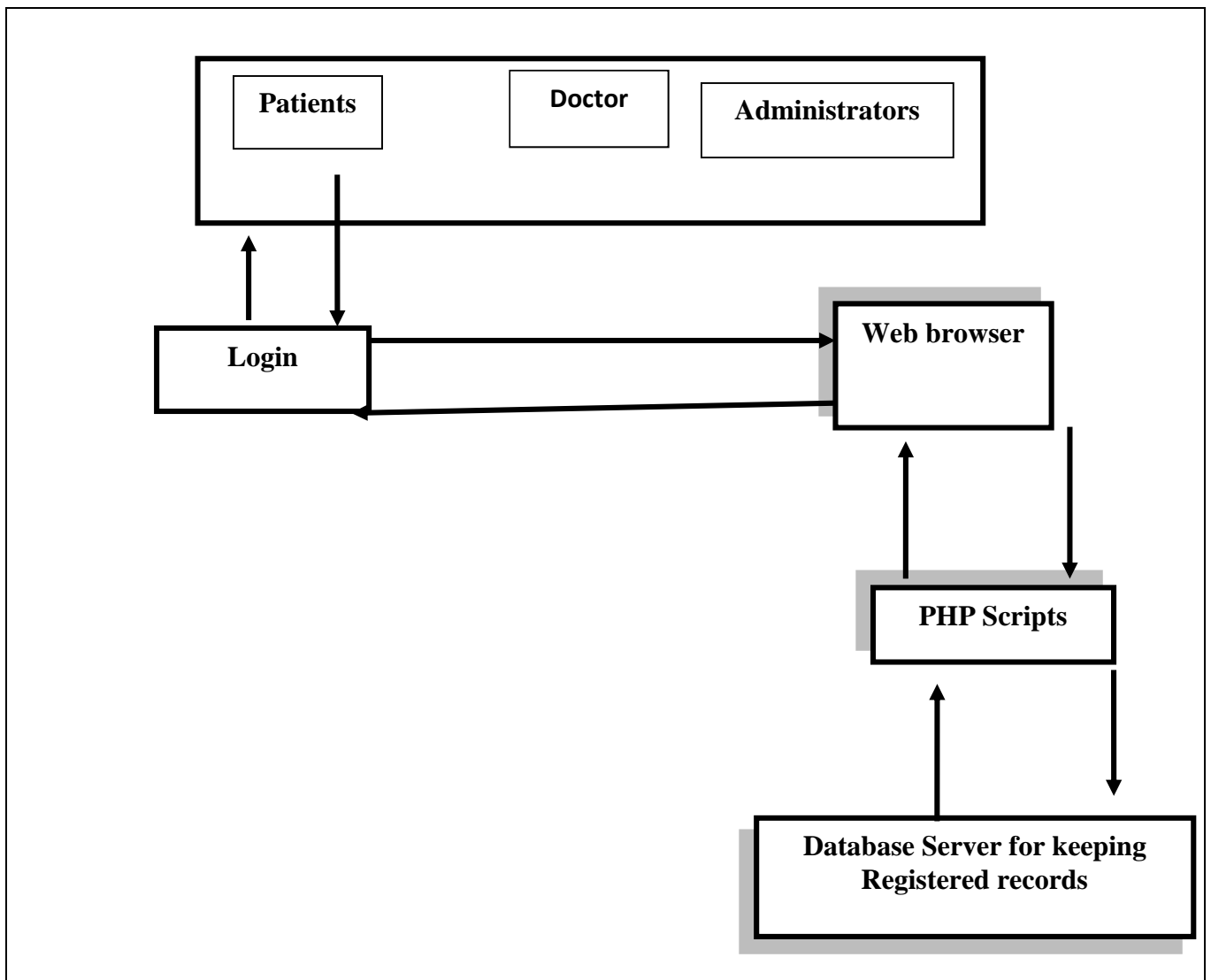


Figure 1: The architectural design of proposed system

Within the design context, most of the software, the structure of the computerized records management support system is divided into majorly 3 layers.

4.1.1 User interface.

These are input screens which act as collecting portals for the system, these enable the system to be accessed by both the internal and external users for example Patients, Doctor and the Administrator respectively via their web browsers

Figure: a login screen interface

4.1.2 Basic tools.

With the basic tools these are the inter-links such as software, and the network. These create a connection between the users to the system database for the manipulation of data and execution of tasks. Such examples include PHP scripts, web browsing applications and a network infrastructure among others. The PHP does the work of validation and passing to the specified location.

4.1.3 Database.

This is the storage section which is the feeder of the screen when data is being viewed or searched for along the system. Updates and changes are also recorded here. In general this is the most sensitive part of the system which has to be securely protected both physically and logically.

The main importance of this approach is if at all one layer can be changed without affecting the functionality of the other section of the application that is a credit.

4.2 Conceptual design

Activities such as:

Identifying entity types; identifying relationship types; identification and associating attributes with entity or relationship types, determining attribute domains; determining candidate and primary key attributes; checking the model for redundancy; validation of local conceptual model against user transactions; and reviewing the local conceptual data model with the users. Are involved this section.

4.2.1 Conceptual database design

There is identification of entities, attributes and relations between data and the constraints on the data yet to be stored I the database. The new system design involves the following:

4.2.2 Entity Relationships modeling;

This form a set of constructs used in the interpretation, specifications and documentation of logical data requirements for the data stored within the database processes the next system. This process involves the identifying asset of relations that constitute the attributes as they are used in data definition language.

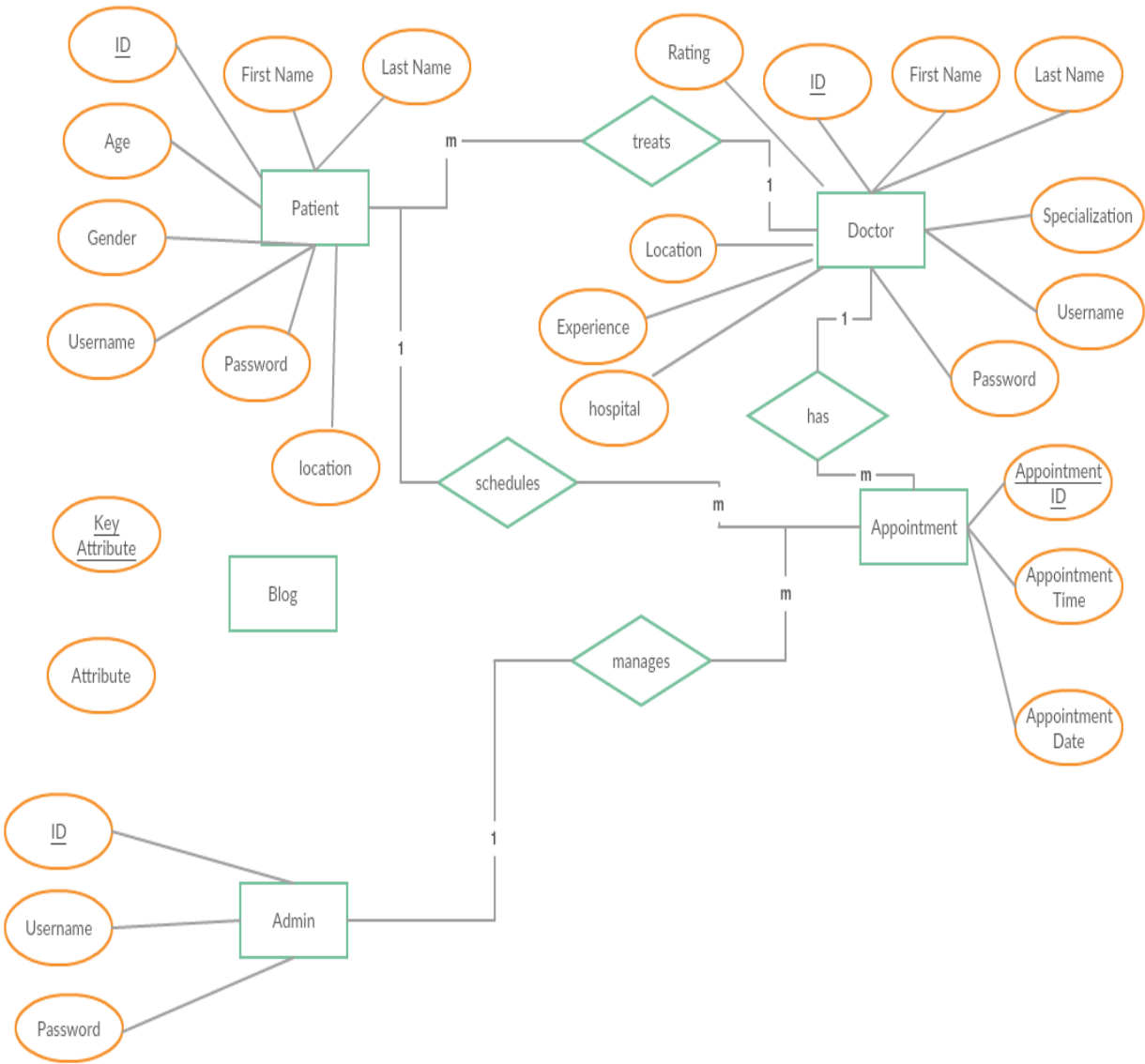


Figure 2: ERD

4.3 Tools used in analysis and design of the system.

The process of system development involved tool such as:

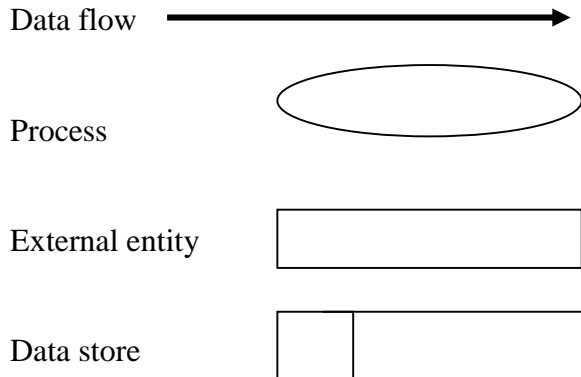
- i. Entity relationship diagram
- ii. Data flow diagrams.

4.3.1 Logical design

Ken North, say through examination of databases and data management will include many flavors of data and information models, including conceptual, logical, physical, mathematical, and application models. Database technology is constantly evolving, with new approaches and refinements to existing platforms. The choice of a data access solution depends in part on the underlying data model; whether a data store operates with sets, graphs or other types of data. Data management technology has undergone evolutionary development since the 1950s. The modern database management system (DBMS) represents mature, but not static, technology. Besides the emergence of new approaches to data persistence, there are continued refinements to mature DBMS platforms.

Under this phase activities such as constructing a model of the information required in the microfinance management system based on a defined data model, however independent of any database management system and other physical considerations. Hence the detailed design specification including ;removal of features that are not compatible with the rational model, development of relations for logical data model, validating relations against user transactions, defining integrity constraints ,review of local logical data model with user

TOOLS FOR DATA FLOW DIAGRAMS



4.4 Security requirements

Doctors, Administrators will be prompted to register with the system and then login with their credentials as a validation requirement

After the registration process the users can login and be able to use the system further more with password, and username.

4.5 Database design implementation

The database was designed to solve the capture and retrieval of information problems which leads to errors in some information and create difficulty in accessing the stored records, which is a characteristic of the manual system. With the application of various software programs such as macromedia, and Wamp sever, the implementation of the complaints management system was achieved.

4.6 Software tools

The developer used a variety of software tools in varying capabilities and at a different stages, each of these tools was fundamental in the implementation process as explained:

4.6.1 MYSQL

This is a database management software that maintains track of data in a highly organized a manner, this application runs as a server providing multi-user access to number of database. PHP is a scripting language that is used to manipulate information held within the database and automatically generates web pages a fresh every time an element of the content is required from the browser.

4.6.2 System Testing

The system had to be tested to confirm whether it meets its requirements, and a prototype was developed and exposed to the intended users to verify its functionality and later to be demonstrated to the users. However with this prototype it is not intended for usability but rather to capture users' opinions.

The exercise was first done in the coding phase to ensure that the codes produce the desired functionality.

The system administrators have control over the system, there after the regulation to users' access the system at a given time.

4.3 Screen shot for doctor module

Figure 4: The researchers used design to implement the system and the user interface as well as forms and reports. The interface forms and reports were implemented and tests done as discussed below.

The login form allows authorized users to log into the system. On this page the user is expected to choose the role under which he or she falls (Staff or admin). After, one is expected to enter the right user name and password. If any of those is not right the system is not allowed the person to login else the user will be allowed to login to the system.

The screenshot displays the user interface for the Doctors module. On the left is a dark blue sidebar menu with a user profile for Dr. Mustapha Sali and a 'GENERAL' section containing 'Dashboard', 'Manages', and 'Tables'. The main content area is light gray and features a form titled 'Add your availabilities' with input fields for 'Date', 'Start time', and 'Time End', along with 'Send' and 'Cancel' buttons. Below this is a section titled 'Your Apoinment Availabilities' containing a table of availabilities.

#	Days	Start date	End Date	Actions
1	Wednesday 22nd Nov	04:00	18:40	Delete Edit
2	Monday 20th Nov	05:00	13:20	Delete Edit

Figure 4: Doctors module

Figure 5: showing the login in interface

The administrator’s interface form is displayed when the user has logged in as a doctor. The system captures the registration number of the logged in administrator and displays it on the form. The figure below shows the form features which are interface uses to do a various task to the doctors in terms of managing patients.

The image shows a login form with a dark header bar containing a pencil icon and the text "Please, login to your account". Below the header, there are two input fields: "Mobile or email address" with the placeholder text "Mobile/email", and "Password *" with the placeholder text "Password". Below the password field is a checkbox labeled "Rememebr me". A large teal button with the text "LOGIN" is positioned below the checkbox. At the bottom of the form, there is a note: "* You do not have an account yet. Please Sign up".

Figure 5: Doctor login form

Figure 6: Shows administrator’s interface

The interface of the other user that is to say the staff is shown below. He/she can add a staff and a doctor, view all the runnings of the system.

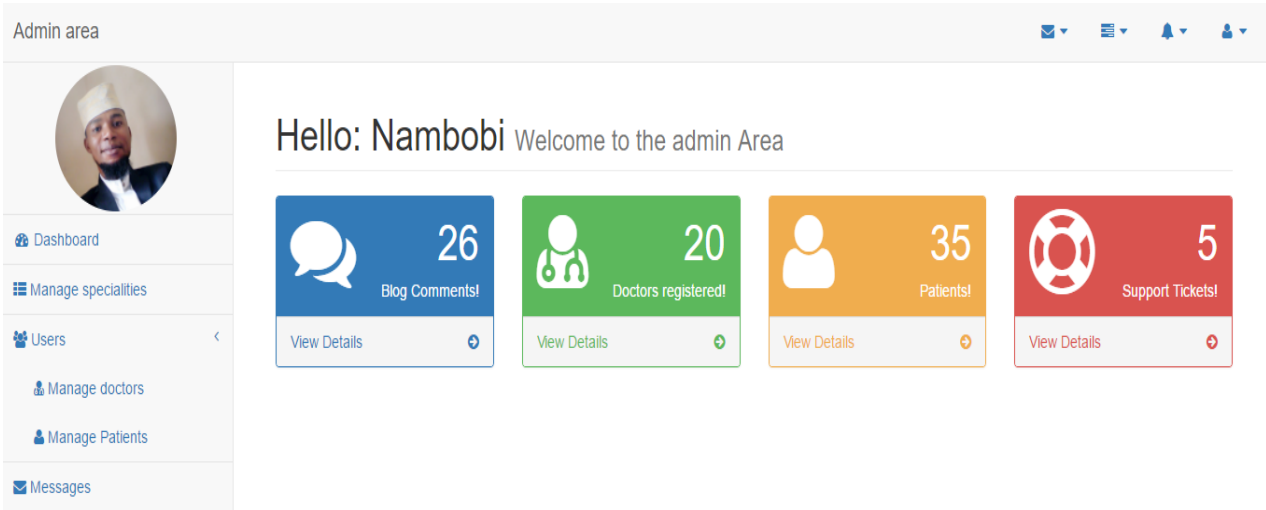


Figure 6: Admin interface

Figure 7: shows the Appointment slot times.

If a doctor wants to add schedule for appointments, he logs into the system and specifies the date and time slot. He or she must be with the valid user name and password.

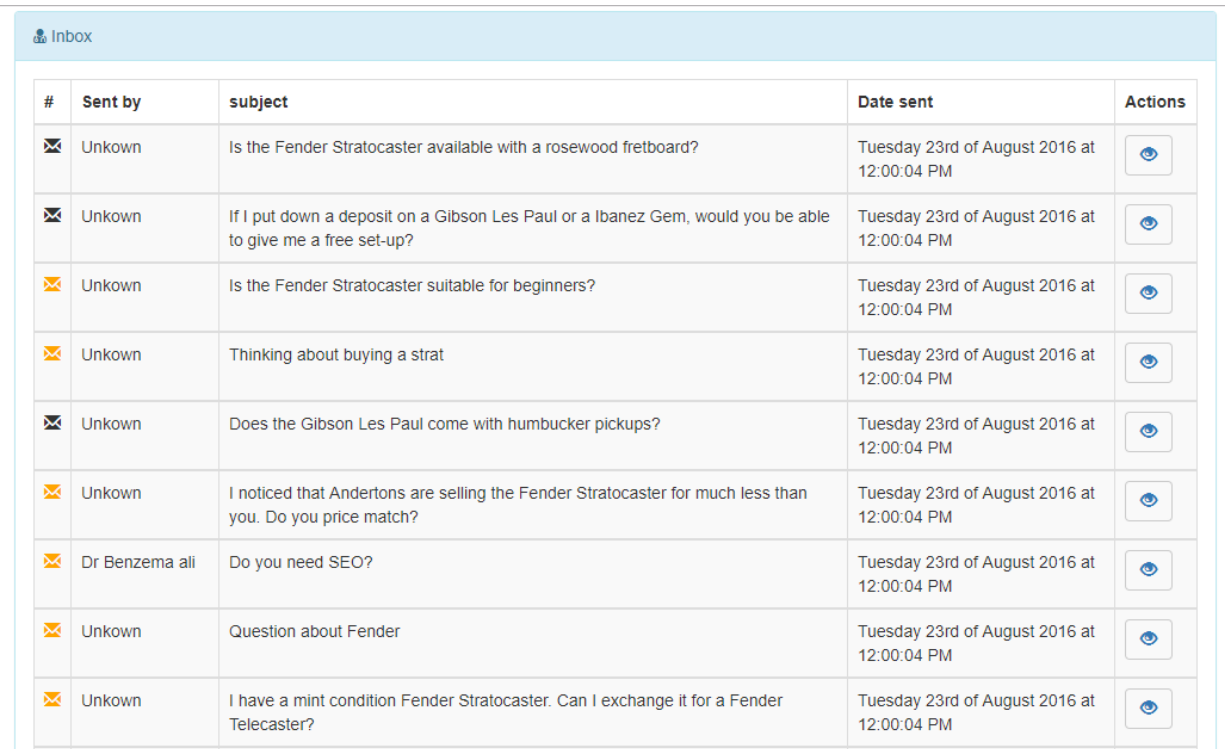
TODAY Fri 10 Nov	9:00 AM 9:15 AM 9:30 AM 9:45 AM	10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:00 AM 11:15 AM 11:30 AM 11:45 AM			5:00 PM 5:15 PM 5:30 PM 5:45 PM	6:00 PM 6:15 PM 6:30 PM 6:45 PM 7:00 PM 7:15 PM 7:30 PM	
TOM Sat 11 Nov	9:00 AM 9:15 AM 9:30 AM 9:45 AM	10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:00 AM 11:15 AM 11:30 AM 11:45 AM			5:00 PM 5:15 PM 5:30 PM 5:45 PM	6:00 PM 6:15 PM 6:30 PM 6:45 PM 7:00 PM 7:15 PM 7:30 PM	
Mon 13 Nov	9:00 AM 9:15 AM 9:30 AM 9:45 AM	10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:00 AM 11:15 AM 11:30 AM 11:45 AM			5:00 PM 5:15 PM 5:30 PM 5:45 PM	6:00 PM 6:15 PM 6:30 PM 6:45 PM 7:00 PM 7:15 PM 7:30 PM	

[Next Day](#)

Figure 7: Appointment time slots

Figure 8: shows the messaging system

If the user wants to enter message an admin in the system, he/she will select the message dashboard on the menu as below.



#	Sent by	subject	Date sent	Actions
✉	Unkown	Is the Fender Stratocaster available with a rosewood fretboard?	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Unkown	If I put down a deposit on a Gibson Les Paul or a Ibanez Gem, would you be able to give me a free set-up?	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Unkown	Is the Fender Stratocaster suitable for beginners?	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Unkown	Thinking about buying a strat	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Unkown	Does the Gibson Les Paul come with humbucker pickups?	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Unkown	I noticed that Andertons are selling the Fender Stratocaster for much less than you. Do you price match?	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Dr Benzema ali	Do you need SEO?	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Unkown	Question about Fender	Tuesday 23rd of August 2016 at 12:00:04 PM	
✉	Unkown	I have a mint condition Fender Stratocaster. Can I exchange it for a Fender Telecaster?	Tuesday 23rd of August 2016 at 12:00:04 PM	

Figure 8: Internal messaging system

4.7.1 Testing procedure

During this process it required installation of

This stage has a lot to deal with the hands-on, practical and physical execution of the system. Here identify the working conditions under which the system under development is meant to operate.

4.7.1 Hardware requirement

Hardware is any hand-held or physical devices that are connected together on the computer system. Such devices can include mouse, printer, cables and scanners among others.

Here is the identification of the different hardware that is required for the system to output optimum yields

4.7.2 Software requirements

This defines the different software that has to work together with the academic system developed for excellent productivity of the system.

4.7.3 Operating system

The system is developed to operate on different operating system platforms such as Linux, windows xp, and windows vista home enterprise version

4.7.4 Antivirus software

This is the application which protects the system from virus, malwares, which may alter the data and at worst leading to break down of the system.

CHAPTER FIVE

DISCUSION, CONCLUSION AND RECOMMENDATION

5.0 INTRODUCTION

This chapter reflects back the specific objectives of the system developed and emphasizing the consideration of possible areas for further research, discussion, constraints, challenges, recommendations and conclusions.

5.1 Discussions

It is with this effect that the system extends the medical institution miles away closer to the vulnerable users. Embracing this technology means applying this innovation while creating more of the system in question is a knowledge creation section. The researcher implemented on the following;

1. Registration module
2. Search functionality
3. Blog system
4. Messaging system
5. Admin work bench
6. Doctor module

5.2 Limitations

During data collection process the staff was reluctant to release any information, with the fear that they might leak confidential information.

There was lack of adequate time to complete all the features of the system since some extra potential time was lost in elaborating the functions of the tools deployed.

Lack of sufficient funds scope creped the project especially during data collection, development and implementation periods.

There was no proper documentation for the existing system which bottlenecked the system development life cycle.

In appropriate budget for the system development process by the researcher, were extra funds were to incur in the printing, binding, communication and transport thus an extra solicitation of funds approximately Shs 3000tk instead of the initial 1000 tk which was in the budget.

5.4 Recommendations

The system has a lot of room for further improvement though as it stands it can be used as prototype to develop an online doctor advising Management system for developing countries like Bangladesh, Uganda and Comoros, and more features can be added within since less time was available for the researcher to complete the project.

However an experience systems' administrator must be put in charge of the system to monitor the system.

5.5 Conclusion

A design solution to the bureaucracy problems faced by the patients when it comes to health and safety act as per the constitution right of these country.

Objectively the system is not up to the expected standards, with limitations in software technologies, and time, both internally and externally to enhance communication.

Lastly the system was developed as a prototype which was tested and implemented, however it needs to be worked on to deliver a fully functioning system.

5.6 Conversion

The parallel model of conversation should be adapted that is to say; the new system should be use concurrently with the existing traditional systems for better organizational performance.

5.7 Areas for further research.

These include the communication facility for the users of system, chartroom, further enhancement of the system and don't cater for prosecutions and any legal adviser to the external users. And also hope that this project will serve as the reference guide in the development of this system and other advisory services.

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APPENDICES

APPENDIX A: SAMPLE QUESTIONS RESEARCHER USED;

1. How do you keep patients records?
2. How do you deal with the registration patients office?
3. Do you feel comfortable with the system you're using in the day to day process at the office?
4. What are the major problems with the system you're using at the office?
5. How long have you been using this kind of system?
6. What would you want the new system to do for you?
7. Is there any need to improve on the system if yes, how can I help?

APPENDIX B: SYSTEM SAMPLE CODES

Appointment code

Model

```
public function submit()
{
    $submit = $this->input->post("submit",TRUE);
    if ($submit == "Submit") {
        $this->form_validation->set_error_delimiters("<div class='alert alert-
danger'>","</div>");
        $this->form_validation->set_rules("full_name",'Full name','required');
        $this->form_validation->set_rules("email",'email','required|valid_email');
        $this->form_validation->set_rules("mobile",'Mobile','required|numeric');
        $this->form_validation->set_rules("password",'Password','required');
        $this->form_validation->set_rules("confirm_pw",'Confirm
password','required|matches[password]');
        if ($this->form_validation->run() == TRUE) {
            $this->_process_create_account();
            echo "<h1>Account success</h1>";die();
        }else{
            $this->start();
        }
    }
}
```

View

```
<form action="<?= $logine_location?" method="post" role="form" class="contactForm lead">
<div class="row">
    <div class="col-xs-12 col-sm-6 col-md-12">
        <div class="form-group">
            <label>Mobile or email address</label>
            <input type="text" name="mobile" id="mobile" class="form-
control input-md" placeholder="Mobile/email" data-rule="minlen:3" data-msg="Please enter at
least 3 chars">
                <p><?= form_error("mobile") ?></p>
            <div class="validation"></div>
        </div>
        <div class="form-group">
            <label>Password *</label>
            <input type="password" name="password" id="password"
placeholder="Password" class="form-control input-md" data-rule="required">
                <p><?= form_error("password") ?></p>
            <div class="validation"></div>
        </div>
    </div>
</div>
```

```

        <div class="form-group">
        <label class="checkbox-inline">
        <input type="checkbox" name="remember" value="remember-
me">Rememebr me
        </label>
        </div>
        </div>
        </div>
        <button type="submit" name="submit" value="Submit" class="btn
btn-skin btn-block btn-lg">Login</button>
        <p class="lead-footer">*
You do not have an account yet.Please <a href="<?php echo base_url()
?>your_account/start"><strong>Sign up</strong></a></p>
        </form>

```

Controller

```

public function submit_login()
{
    $submit = $this->input->post("submit");
    if($submit == 'Submit'){
        $this->form_validation->set_error_delimiters("<p class='alert alert-danger'>","</p>");
        $this->form_validation->set_rules('mobile','Mobile','required|callback_username_check');
        $this->form_validation->set_rules('password','Password','required|min_length[8]');
        //Perform validation rules here
        if($this->form_validation->run() == FALSE){
            $this->login();
        }else{

            $col1 = "mobile";
            $value1 = $this->input->post("mobile",TRUE);
            $col2 = "email";
            $value2 = $this->input->post("mobile",TRUE);
            $query = $this->doctors->get_with_double_condition($col1, $value1,$col2,$value2);
            foreach ($query->result() as $value) {
                $user_id = $value->doctor_id;
                $logged_in = TRUE;
            }
            $remember = $this->input->post("remember",TRUE);
            if ($remember == "remember-me") {
                $login_type = "longterm";
            }else{
                $login_type = "shortterm";
            }
            //Send to the pprivate page;
            $this->_you_can_go($user_id,$login_type); } } }

```