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UNIVERSITY OF NAIROBI

DOCTORS BOOKING APPOINTMENT APPLICATION



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PROJECT SUPERVISOR

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THIS PROJECT PROPOSAL IS SUBMITTED TO THE SCHOOL OF COMPUTING AND INFORMATICS

#### Submitted in partial fulfillment of the requirements of the diploma in computer science

I, Abednego Kilonzo, do hereby declare that this project is my own work, and per my knowledge. It has not been submitted to any other institution of higher learning.

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Date ……………………………………………………………………

This project has been submitted as a partial fulfillment of requirements for diploma in computer science of the University of Nairobi with my approval as the supervisor

Supervisor name PROF. ELIJAH.OMWEGA .

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**ABSTRACT**

Currently hospitals accept their patients in a daily basis. They come to visit the hospital and are booked in by the available secretaries and then they are queued in for appointments to see doctors. Some disease you just want to see the doctor or regular basis and every day going a queuing to wait for an appointment and fail to meet the doctor can be very discouraging.

That time spend waiting can be saved in doing other things and then come to see the doctor later. This project aims to solve this problem by enabling people book for appointments with doctors for various diseases which are not usually too urgent.

**ACKNOWLEDGEMENT**

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**CHAPTER ONE**

**Introduction**

**Background study**

The idea of a doctor’s appointment booker application:-

Over the past years technology has been in a rampant increase from hardware and also software but the health sector has somehow lagged behind inclusively the doctors and patient interaction or a patient booking a n appointment with a doctor for especially those whose do not have private doctors which are the majority. To get an appointment with a doctor you must go the specific health facility and place the appointment request which has some draw backs including:-

* Long waits for the patients only at the end of it not getting to see the doctor.
* Failure to find a doctor in the health facility.
* A doctor failing to meet a specific appointment that they had reserved either as a result of forgetting.
* Favoritism in the health facility in booking of doctor appointments.
* Over burdening a specific doctor with too much work for them.

These and many others cause the current manual system to be ineffective and poor service delivery the involved parties.

The number of people needing health care is increasing becoming huge and sometimes need more than human effort to perform the task of booking appointments. This doctor appointment application will to some extend solve the current situation. This will enable patients t specifically make a appointment prior to time enabling the following both doctors and patients to come into consensus where both will not be adversely affected.

**Problem Definition**

In many hospitals all around the country there exists a manual system in booking of appointment where the patient or the individual that wants to see a doctor must visit a certain health facility and place an appointment which can either be successful, in that the doctor can see the individual based on the work load onto the doctor. This means that they use physical documents to store the appointment consuming space and resources that could be done away with when this application is introduced.

**Objectives**

1. To help individual view various hospital and the doctors details & live availability
2. Help individuals/patients book appointments

**Problem Justification**

The application will be of help if developed because:-

1. The application will help individual book appointments.
2. Doctors will be able to see their appointments.
3. The application will help doctors schedule their time and appointments based on the appointment request made
4. This will also improve a doctors image since a doctor can fill in his specialization and help doctor to patient interaction.

**Project Scope**

The application on completion will have the following modules:-

* The registration and login of both doctor and other individual where you select if you are a doctor.
* The doctor preview module where can view details of a specific doctor and the days and time when one can book an appointment
* The appointment booking module, which help one book an appointment with a selected doctor.

**CHAPTER TWO**

**LITERATURE REVIEW**

There has been a very manual way that is in place to help patient and doctor interactivity which has led to some individual or organization think of putting in place measures to bridge this gap. This has been through web systems application and phone applications. These systems are only for private organizations or cover limited scope of the general public.

There has been less innovation to cover both scopes of private and public organizations thus patients or the general public cannot be able to view doctors know more about hospital and what is offered by various hospitals.

Some Include:-

1. **SetMore(Free Online booking Appointment)-**this enables individual book appointments and notification are send to various parties via SMS.

The difference between my application is that:-

* You can view various hospital based on a county and based on specialization and book appointments.

1. **Zoho Doc.** this is a web system that helps in booking appointments but their a likehood that people will visit a n application more than a websysem.

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# CHAPTER 3: METHODOLOGY

## 3.0 dDveloping model

The methodology used to develop the system was the SSDM using waterfall model. The idea of the waterfall model is to clarify the requirements of each stage before proceeding to the next. There is no alteration of the previous phase after moving to the next phase. The refinement is done after the project is complete in the next iteration of the project.



The reasons and the advantages of using the following methodology for the project development are

* This model is simple and easy to understand and use
* It is easy to manage due to the rigidity of the model. Each phase has specific deliverables and a review process
* In this model phases are processed one at a time phases do not overlap
* It works well for smaller projects where requirements are well understood

However, the waterfall model has some shortcomings such as

* No working software is produced until late during life cycle

## REQUIREMENT ELICITATION

According to the waterfall model, Requirements Engineering is the phase in which the software requirements are acquired, analyzed, validated and a formal specification of them is produced. This phase is usually preceded by another one known as Market Analysis which defines the context for the Requirements Engineering phase. Finally, Requirements Engineering is succeeded by the Design Phase which is concerned with specifying the software solution to the requirements specification.

The popularity of the waterfall model lies in its principle that each of the phases are autonomous and can produce their deliverables using only the deliverables of their immediate predecessors, which guarantees that each phase can be completed and yield a specific outcome.

The waterfall model views Requirements Engineering as a comprehensionphase

### 3.1 resources

The project was developed using the following resources

Software

1. Microsoft windows 10
2. Sublime text 3 for the web platform
3. Wamp 2.5 server for php and mysqli
4. Android Studio 1.5.1 for the android application part.

Hardware

The system was developed using a Taifa core i3 black laptop with the following features

1. 500GB hard disk
2. 3.88 GB usable RAM
3. 64 bit operating system
4. Intel® core™ i3-3110M CPU @2.40GHZ

**4.0 SYSTEM ANALYSIS**

**4.0 FEASIBILIT STUDY**

**4.0.1 Introduction**

The feasibility study was done to system to determine and understand the system requirements adequately. Some tool used to gather the information were the Wide World Web (www) and talking with various people on the viability of the idea. The following were the results:-

**4.0.2 Economic Feasibility**

The application was weighed and it was found out that an android account and a webserver to host the database and the scripts was need which was approximately 5,000 Kshs annually.

**4.0.3 Technical Feasibility**

The necessary technology to implement the system was in place and the tools available which include a webserver, an android smart phone, and database.

**4.1 REQUIREMENTS ELICTATION**

The requirements of the new system were gathered and the constraints understood. The requirements were as follows:-

**4.1 REQUIREMENTSELICITATION**

**4.1.1 FUNCTIONAL REQUIREMENTS**

**4.1.2 NON FUNCTIONAL REQUIREMENTS**

**4.1.2.1 SECURITY REQUIREMENTS**

The application will enable user create a user name and set a password which they will use in logging in and out of the application. Doctors have their own registration and account logging in different from other users.

**4.1.2.2 SYSTEM CONSTRAINTS**

The application can be integrated with an available hospital system to enable send appointments in the queue to enable also the receptionist see what other appointments have been booked except the daily bookings that are made in the morning.

**4.2 USE CASES**

The following use cases were to for the purpose of system analysis.

**4.2.1** Patients **use case**

new user already a user(patient)

**new doctor registered doctor**

**The application administrator**

**5.0 SYSTEM DESIGN**

**5.1 The architectural model**

The proposed application architectural model is shown below:-

DocBook

Data Base

Patients

Module

Doctors Panel

Module

Hospitals

Module

**CONTEXT DIAGRAM FOR DocBook APPLICATION**

Booking Appointments

Booking Appointments

DocBook Application

Doctor

Applicant as a normal Person/Patient

**ENTITY RELATIONSHIP DIAGRAM**

HOSPITAL TABLE

Hospital ID

Hospital Name

Hospital County Location

COUNTIES TABLE

County ID

County Name

APPOINTMENT

Appointment ID

Doctor Name

Patient Name

Appointment Date

DOCTORS TABLE

Doctor ID

Doctor Name

Specialization

Hospital Name

## 5.3 Level 1 diagram of the medicare application

REGISTERPROCESSING

APPOINTMENT BOOKING PROCESS

PATIENTS

BOOKING APPOINTMENT

DETAILS DETAILS APPOINTMENTS

BOOKING

STATUS

VIEW APPOINTMENTS

REGISTER DETAILS

DOCTORS

FORMS

ALLOCATIONS

APPOINTMENT DETAILS

DETAILS

APPLICATIONS PROCESSING

### 5.4 Level 2 diagram of the medicare

### 5.4.1 Doctor Booking Appointment Process

Patient’s details

Patient’s details processing

REGISTERED USERS

Patient’s details

Appointment status Patient’s

details

Doctor’s details

**6.0 IMPLEMENTATION AND TESTING**

**6.1 IMPLEMENTATION**

**6.1.1 HARD WARE IMPLEMENTATION**

The android application will run on an hardware which is an smart phone running with Android Operating System.

The phone should have:-

1. A version of Android Operating System should 4.0(KitKat) and higher.
2. A RAM of 512 Mb and higher.
3. Internal memory of 512 and higher
4. 2G or higher network support.

**6.1.2 SOFT WARE IMPLEMENTATION**

The system has been developed on the XAMPP server for the back-end. XAMPP is a free and open source cross-platform web server solution stack package consisting of the apache HTTP server, My-SQLi database and interpreters for scripts.

The Programming Languages used include the following:-

* PHP for server side scripting or the back-end.
* Android Programming Language for the front-end.
* JSON for Interaction and data exchange between the PHP-Android Interface.

The other Software used includes the following:-

* Sublime Text 3.0
* Android Studio 1.5.1
* cPanel server for online hosting of PHP scripts.

**6.2 TESTING**

The testing was done later according to water fall implementation development methodology.

**6.2.1 UNIT TESTING**

This was done to the smallest testable unit in each module.it involved black-box and white-box testing Technique.

Booking module:-

* making a booking with a specific doctor

Registation of Users:-

Adminstrator Module:-

**6.2.2 PERFORMANCE TESTING**

(to fill in the details)

**6.2.3 INTERGRATION AND TESTING**

After the development of the individual module, they were put together so that the application was working correctly. All the module were checked for data exchange even between server……(not complete).

**6.2.4 TEST CASES**

Test case we developed to check the system efficiency and correctness of the system. The following below is the table of the test

**6.2.5 Cross Mobile Android Platform**

The mobile application was tested in various supported version of android operating system and the results were that it was fully compatible with them including the different manufactures in the market.

**6.2.6 Cross Browser compatibility testing**

Since the administrator work on a web module to enable the correct functionality different browser were used to test for compatibility and it worked well for:-

* Mozilla Firefox
* Google Chrome
* Internet Explorer 11

**CHAPTER 7**

**7.0 CONCLUSION**

**7.1 Achievements**

The application after the development process was complete and ready to released in the market having completely accomplished its requirements as stated in the object at the initial development phases.

The application solves different problems that user faces in hospitals of long queue and failure to be have an appointment with a doctor. The process has been automated to help to book advance appointments.

**8.0 REFEENCES**

In the development of this application the following references were:-

1. [www.3schools.com](http://www.3schools.com)
2. [www.tutorialspoint.com](http://www.tutorialspoint.com)
3. http://developers.google.com
4. [www.simpliedcoding.com](http://www.simpliedcoding.com)

**9.0 APPENDIECIE**