# A Web Based Online Doctor's Appointment and Medical Database Management System (A Case Study of Federal Polytechnic Ilaro Clinic)

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***Abstract-*** ***Due to over-waiting and long queue of patients waiting to see their doctor for health diagnostic and prescription and manual method for making an appointment with doctors which sometimes may cause missing of appointment due to no prior notice of non-availability of doctors that the appointment is been made with, large waiting time which may cause additional stress for the Clinic staffs to maintain the crowd at the reception. Consider patients that leave their place of work and offices just to see their doctor and on getting to the clinic discovers that the queue is very long, how frustrating they feels. In order to replace the manual medical file keeping system with an online database management system, the goal of this research is to design a web-based online doctor's appointment and medical database management system utilizing a case study of the Federal Polytechnic Ilaro school clinic. The software is a web-based application, and the administrator is in charge of both the doctor and patient's registration and login information. By providing the essential information, such as timings, category, etc., doctors can register. By entering their username and password, the doctor can log in. If an appointment is available, the doctor can see the patient request and will notify the patients. The patient must first log in and register before selecting the doctor by specifying the patient's ailment and the doctor's location. Then it displays a list of doctors who match patients with their problems, allowing the patient to choose one. The information is then sent to an online controller, who notifies the doctor after the doctor accepts the request. The controller then notifies the patient of their appointment time and declares that the booking is confirmed.***

***Indexed Terms-*** ***Web, medical appointment, patient, data base management***

## I. INTRODUCTION

Any type of information system that employs Internet web technologies to provide information, services, or applications to end users is referred to as a web-based information system. An online program called a web-based medical appointment system is in charge of assisting patients in making an online appointment with a doctor, matching their health problem, and providing them with the relevant doctors who can help them with diagnosis and prescribe a possible solution, as opposed to the manual method previously used. The use of this Medical Appointment Scheduling provided several benefits to patients and those who work in this area. Automation of the registration process in Medical Appointment Scheduling System hospitals greatly benefited in the preservation of all patient information and the records of anyone who has previously received treatment in the clinic department. Efficiency and patient satisfaction in the provision of medical care are prerequisites in the current healthcare environment. Healthcare businesses are about to face a problem due to the high rate of missed appointments and the exorbitant amount of time patients waste during consultations (Chao, 2014). To intervene and offer seamless care for both inpatients and outpatients, an integrated healthcare system is necessary. A system for scheduling appointments is therefore crucial for providing timely and efficient access to medical treatments. Hospitals and other medical organizations are very interested in the topic of outpatient appointment scheduling (Koole, 2012). A web-based appointment booking system has become a current

craze in recent years and is regarded as one of the important cycles in the medical services sector.

Online appointment tools come in a wide variety and are widely available on the market today. They are generally less expensive and very simple to set up. An online booking system offers value-added services, affordable accessibility, and a host of other advantages to doctors and patients. By getting rid of the inconvenience of extended waits, it shows the patient how much is appreciated. Due to their accessibility and low cost, online appointment systems are likewise becoming more and more popular. Several studies shows that, long waiting time before consultation by patient are the primary source of patient's discontent. (Cayirli, 2013) referred to access time as the time between a patient making an appointment request and being checked in. Whereas, waiting time according to (Shafaq, 2016) are the period between consultation and the appointed time, ignoring a patient's early arrival. Particularly in today's hurried world, a well-designed appointment system is intended to maximize patient satisfaction by reducing clinic and hospital costs and time. Therefore, the need of efficient and more convenient approaches in health sectors should not be over emphasize.

## II. METHODOLOGY

This section will emphasis on methodology used for developing the proposed system. This method is very essential, because it is the method that will aid and assist in the system's development so that it is finished and works properly. System development life cycle (SDLC) methods come in a variety of forms. Waterfall model was selected for this system's development. The chosen model must suit the development of this writeup.

## III. SYSTEM ARCHITECTURE

This gives a high-level overview of the new system, outlining its main parts as well as the services they offer and the connections between them. As shown in the diagram below, the system is constructed utilizing a three-tier design that includes our interface, process management, and database management system.

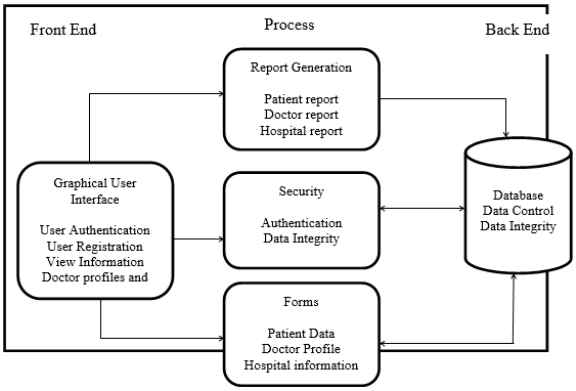


Fig. 1.1: System Architecture

## IV. FRAMEWORK OF THE SYSTEM

The admin, patient, and doctor entities make up this structure. To get access to the system, all entities must first register. In this project, the administrator may manage patients and doctors, as well as access all of the system's reports. The view report procedure will request information from present it to the administrator from the Patient Record data repository. Additionally, by accepting the patient's confirmation booking, admin manages appointments. Patients can register, edit, and access their information on this system. Patients may also control their appointments by asking the time, date, and location of their appointments. The patient can read the confirmation once the admin has approved the user's request for an appointment based on the doctor's availability. Patients can access their medical records and appointment information using this system. This system allows doctors to register, edit, and access their information. After admin assigns the appointment to attend, the doctor may handle it in this system. The doctor can then update the patient's condition and save the information to the patient's record. The device can also show a doctor's report.

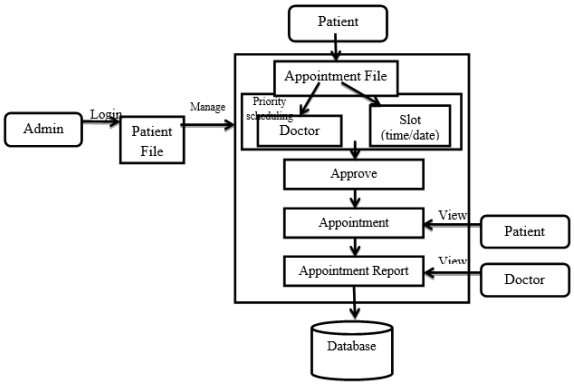


Fig. 1.2: The Framework of the System

4.1 ENTITY RELATION DIAGRAM (ERD)

Entity Relationship Chart (ERD) the entity relationship diagram for this system is shown in the figure below. Admin can oversee numerous patients at once. One appointment may be scheduled per patient. A single administrator will then oversee a large number of appointments, and after receiving confirmation, the doctor will be assigned. Many appointments can be scheduled by one doctor.

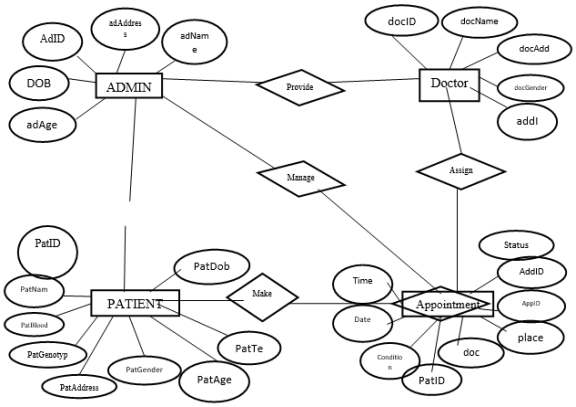


Fig. 1.3: Entity Relation Diagram (ERD)

4.2 DATA FLOW DIAGRAM (DFD)

PATIENT, ADMIN, and DOCTOR are three entities in the DFD. Login, Manage Patient, Manage Doctor, Manage Appointment, Generate Report, and Manage Profile are the six procedures of the system. User Record, Patient Record, Appointment Record, and Admin Record are the five data stores established in the system. The following is a diagram of the system flow:

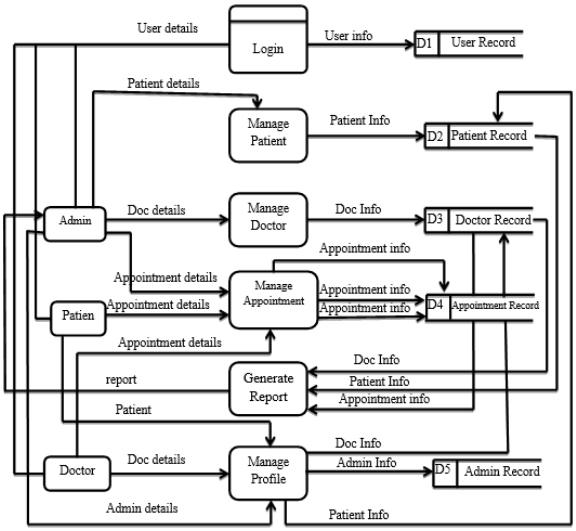


Fig. 1.4: Data Flow Diagram

## V. RESULTS AND DISCUSSION

Web based medical appointment system was designed using software and hardware components which includes; Visual Studio Code version 1.62.0, XAMPP Control Panel Version 3.3.0., PHP Web Language, Javascript Web Language, HTML5 Web Language, and MFS100 respectively.

Hardware component that is been used are; Core i5 Laptop Computer System. MySQL Server was used for the implementation of the system at the back-end to design various tables into SQL Server. SQL database management system is popular for many reasons; it is fast and easy to set up, use and administer. In addition, it runs on many operating system platforms such as Windows and UNIX, and SQL based programs can be written in many languages. At the front-end, Javascript is the technology being used in implementing the system as it is the most important technology used for developing web pages. Most of the front-end framework uses Hypertexts Markup Language (HTML), which allows the user to separate the content of the website from its style.

## VI. PRESENTATION OF RESULTS

Testing and implementation are carried out to make sure the system develops in accordance with the stated requirements and accomplishes the system's goal. Unit

testing, system testing, and testing methodologies are all incorporated in the process. Testing is the process of using input data to detect bugs in the system. In addition, testing builds the product design according to design standards created in a previous phase, painstakingly verifies them to make sure they are error-free, and ought to be completed before the system is used to its maximum potential.

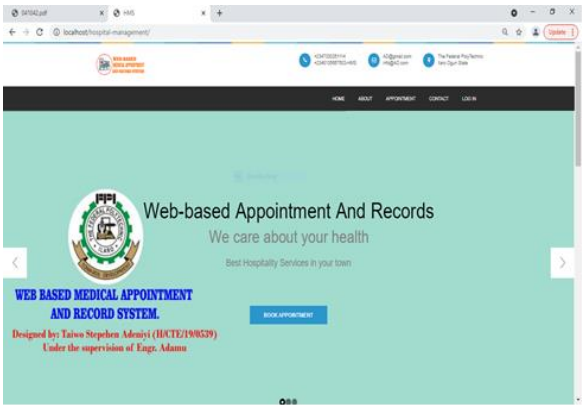


*Plate 1.1: Homepage of the system*

Login Panel

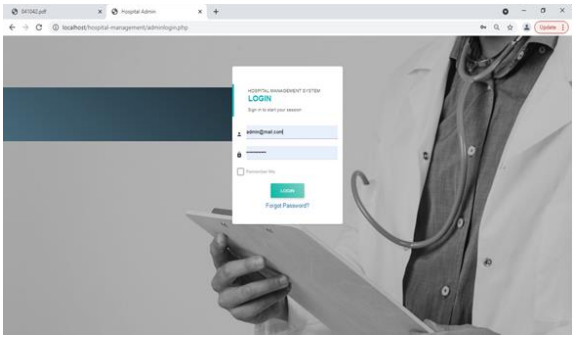

*Plate 1.2: Login panel of the system*

Admin Panel

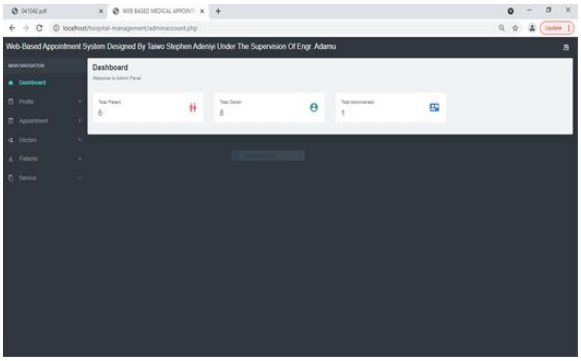

*Plate 1.3: Admin panel*

Doctor Panel

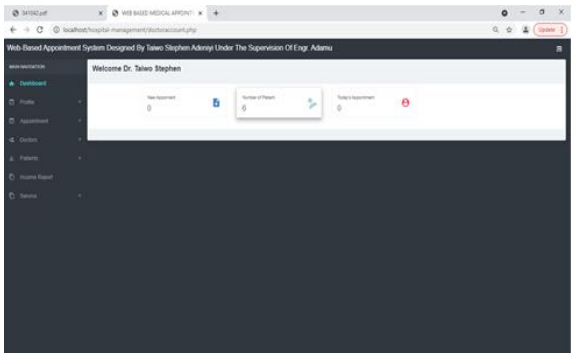

*Plate 1.4: Doctor Panel*

Appointment booking form Panel

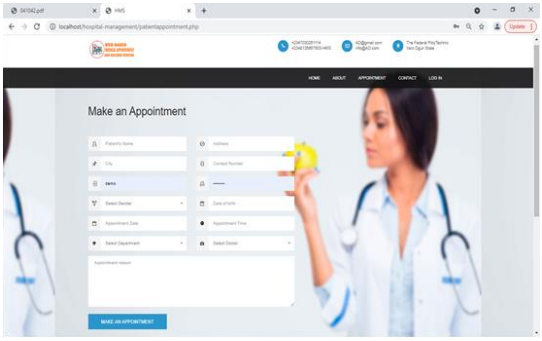


*Plate 1.5: Booking appointment form panel*

6.1 Discussion of Results

Despite the challenges encountered, the aim of the project was achieved. The results of the proposed system obtained after necessary modifications were satisfactory.

- *Patient's Account*

The user can log in to the system and view the status of their appointments after creating their first appointment. Every appointment has a pending status by default. In order to begin their treatment, the doctor must either authorize or reject it afterwards. Additionally, the patient has the option to cancel any moment.

- *Admin Panel*

The system is entirely within the admin's control, on the other hand. He or she has access to all of the hospital's current records. An admin can oversee the management of patients, physicians, their offices, forms of treatment, and medical records.

- *Doctor's Panel*

Each physician will have a unique account that gives them access to the system. The doctor can see all of

the upcoming appointments here. The doctor has the discretion to accept or refuse each appointment.

## CONCLUSION

It can be seen that the project was able to fulfil the specification and objectives that it is been placed upon despite the problem been encountered and the limitation part. All the available features to make the system work more efficient is been created including the database in which they meet all the requirements and objectives. A Web-Based medical appointment system that allows the patient to book an appointment with doctors in hospital in an efficient way through a simple user interface was achieved.

## RECOMMENDATIONS

The Web-based Medical appointment system is able to take records of patient and doctors into a database, allow patients to book an appointment to a doctors of their choice who can help them to solve their health problem and for this reason this project can be deployed in hospital for the purpose of reducing waiting time and to store all the patient details into a data base for easy assessment and for booking an appointment with doctors.

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