The Development of Web Based Pregnancy Medical Checkup System (PregMedSyst)

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Abstract: This project was carried out with the goal of developing a web-based pregnancy medical checkup system that allows patients to schedule their medical appointments online. This web-based system includes patient registration and storing their information in the system. The software can assign a unique id to each patient and store their personal information. A username and password are required to access the system; it is only accessible by an administrator. The data can be retrieved easily and the interface is very easy to use. The data is well protected for personal use.

Keywords: Web based, Pregnancy, Medical Checkup

1. Introduction

In the era of globalization and advanced technology, efficient record keeping cannot be overemphasized. Every day, hundreds of patients enter healthcare facilities, putting the administration under pressure to meet their needs. The employees have to manage and integrate clinical, financial and operational information that grows with the practice. When compared to paper medical records, which are stressful, bulky to use, and difficult to manage, electronic medical records are much easier to manage and improve workflow efficiency by integrating various tasks. This has led to an increase in investments in computers and health information systems [1]. measured by the photodiode, which can be used to calculate changes in the muscle activity during eye movement stimulation.

Creating a system to keep patient and health personnel records would benefit health centers and hospital management by providing secure, easy, and remote access to the data. Due to that situation a system designed to aid in the improvement of health-care systems by increasing the capacity of health-care workers to make informed decisions. Health information technology is the application of information processing that involves both computer hardware and software and is concerned with the storage, retrieval, sharing, and use of health care information, data, and knowledge for communication and decision making. It is a computerized system that manages patient information and administers

it [2]. Pregnancy Medical Checkup System (PregMedSyst) is designed to provide real-time information to administration and staff in order to make their jobs more interesting and less stressful. It is used in hospitals to input, process, and display patient data. Electronic medical records, patient data, prescriptions, lab results, and other information are managed and tracked using this system. The management of the health center can make good use of it, and it helps practitioners' network better to share knowledge. The patient's identity, which includes the patient's first name, sex, age, address, and other details, as well as the patient's entire medical history, must be included in the medical records.

In healthcare, computer scientists have developed a variety of systems for various reasons. There are more than 50 websites dedicated to cancer in the United States [3]. For example, a system designed and built specifically for use in cancer communities [4]. A system for patient follow-up was also put forth [5]. When a woman is pregnant, she is more likely to seek medical help. A review of the literature, on the other hand, reveals that only a small number of studies have been conducted on pregnant women.

Furthermore, pregnant women are unsure of what they should and should not do during their pregnancy. This is especially for first-time mothers. Malaysian pregnant women visit a healthcare center once a week to have their pregnancy and health checked. Healthcare providers examine mothers' blood pressure, sugar, urine, pregnancy heartbeat, another physical development factors such as mothers' height and weight, as well as the fetus measurement, during the check-up. This information will be lost if mothers do not visit the practitioner. Most mothers are unaware of the development of their fetus. Furthermore, in developing countries, the mothers do not have access to the Internet. According to the same preliminary study, less than10% of pregnant mothers have Internet access. Thus, the motivation to access the information is very low among mothers.

The objective of this study is to develop to design a pregnancy medical record with a reconfigurable feature that will suitable for any health practitioner and patient. Some objectives have to be achieved such as to design database system for pregnancy record. Besides, this study also to develop the database to support the system for store the data. Lastly, this study needs to integrate between GUI and database using web-based system.

2. Web-based System

2.1 Server monitoring

Monitoring of the server covers the gathering of a few performance areas as well as security information. Basically, the server CPU information, memory information, network interface details and server user login information are gathered and recorded. The implementation of each performance and security benchmark is described in the following sections.

2.2 Network monitoring

One of the main parts of this project is to monitor network activity and host status. When a physical network is formed, administrators want to acquire information like host availability, bandwidth, etc. The procedure is to checking the availability of the hosts and gather certain information about those hosts.

2.3 Design architecture

Patient will use computer to register in Pregnancy Medical Checkup System (PregMedSyst). The server will receive information about the patient including their name, address and email address via the Internet. The information will be saved in the database. Authentication is required in Pregnancy Medical Checkup System to ensure that patient receive accurate information. Pregnancy Medical Checkup System will store a lot of personal information. The design architecture shows in Figure 1.
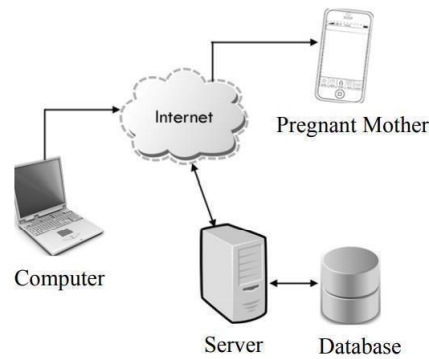
Figure 1: Design architecture of Pregnancy Medical Check Up System

2.4 Functional component

A Pregnancy Medical Check Up System is a web application that manages doctors and patients. PHP and the MySQL database are used in this project. The entire project is made up of three modules are described in Table 1.

Table 1: Functional component of Pregnancy Medical Check Up System

| S/N	Components	Description
1	Admin module	View all details of medical record, creates, deletes, updates, and read information at any time without any restriction.
2	User module	Contains details of patients who come for clinical treatments or services.
3	Doctor module	Used to enter lab details and reports of patients.

2.5 Project requirements

For this web-based system, there are project requirements need to use in this project. Table 2 shows the project name and requirement that used in this system.

Table 2: The project and its requirements

S/N	Project name	Requirements
1	Language used	PHP5.6, PHP7.x
2	Database	MySQL 5.x
3	User interface design	HTML, AJAX, JQUERY, JAVASCRIPT
4	Web browser	Mozilla, Google Chrome, IE8, Opera
5	Software	Xamp/Wamp/Mamp/Lamp (anyone)

2.5 ER diagram for Pregnancy Medical Check Up System with relationship

Figure 2 illustrates the entity relationship diagram for the Pregnancy Medical Check Up System.
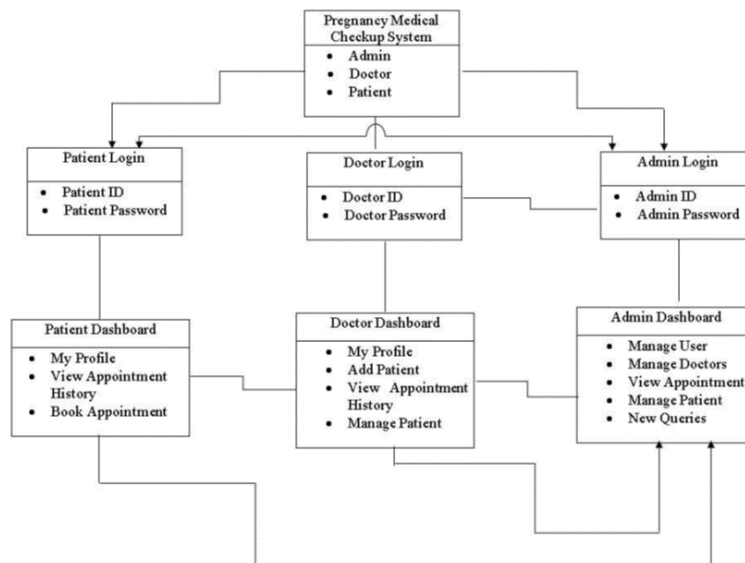
Figure 2: Pregnancy Medical Checkup System Entity Relationship Diagram

3. Results and Discussion

3.1 Development of the web-based pregnancy medical system database

PHP/MySQL HTML and CSS are the software development tools used in this paper. These software tools were chosen and used due to their distinct features and ease of use. The entire system's programming was completed on local server. PHP/MySQL was tested on computers running Windows in the final implementation [6]. The Windows operating systems were used to ensure that PHP/MySQL, HTML, and CSS were compatible with these two operating systems.

MySQL was used to build the database, which included all of the tables required by Pregnancy Medical Checkup System (PregMedSyst). MySQL is built around three guiding principles: performance, usability, and simplicity. The designed tables in the database were linked to the interface to improve interaction between PMCS users.

Each table has a primary key, the data types of all entities, and the character length. SQL/MySQL server's scalability and ease-of-use features allow it to work efficiently on a client without consuming too many resources. SQL/MySQL server distributes available resources, such as memory, network bandwidth, and disc I/O, among multiple users in an efficient manner. Figure 3 shows the main menu web- based system.


Figure 3: Main Menu of web-based Pregnancy Medical Checkup System

3.2 System login

The main system login page of the designed Pregnancy Medical Checkup System is depicted in Figure 4. This login page accepts the user's username and password in order for the user to log into the system and access any file. The information it accepts is sent and compared to the ones in the database; if such a user exists, the system grants access; otherwise, access is denied. It is critical to understand that for a system to be secure, requirements such as Access, Identification, Authentication, and Authorization are required. The following procedures were followed in order to gain remote access to the system login page or over a health local area network.

i.   The internet is accessible.

ii. The browser has been launched (internet explorer, fire fox, etc.)

iii. The server's required IP address is entered.

iv. Enter a username and a password.
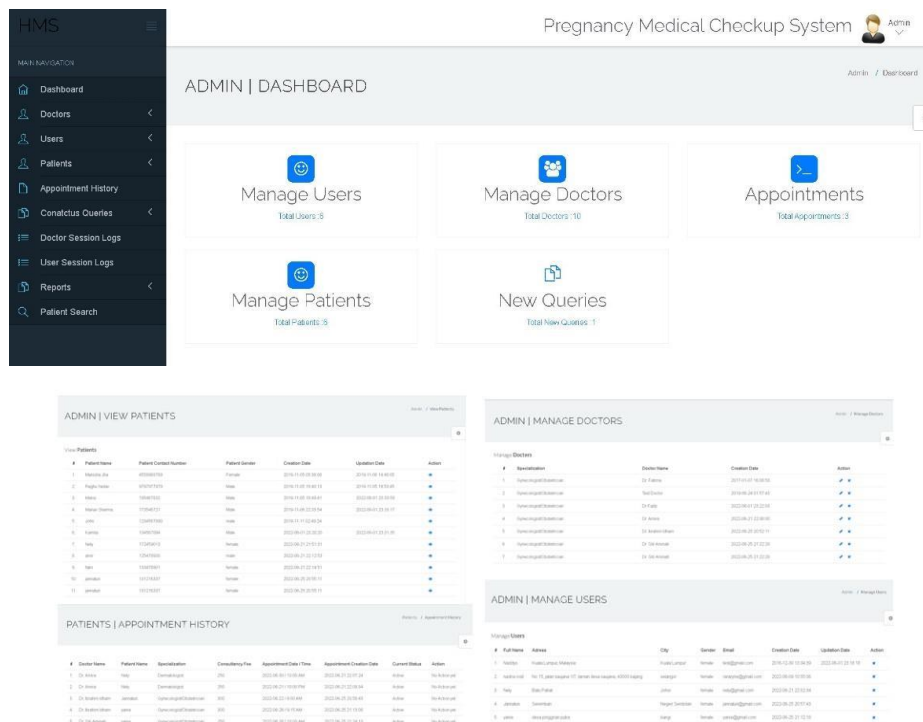
v.   Login

If the proper identification is provided, the main form is opened and the appropriate form is activated. Only after that does the user have access to the main menu or the dashboard.
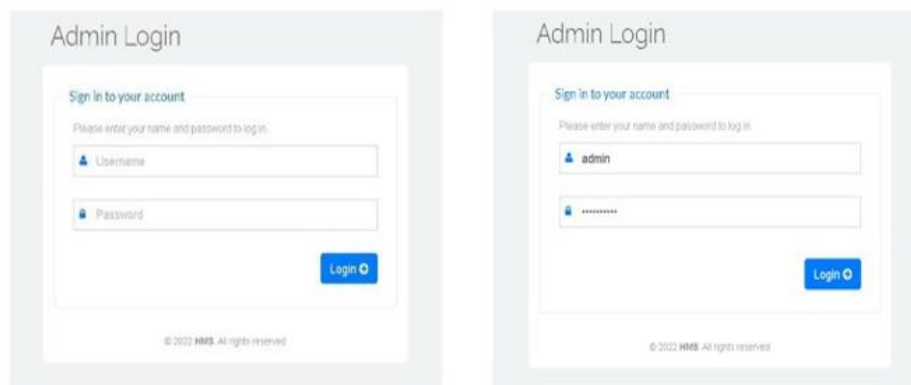
Figure 4: System login

3.3 The main menu of the Pregnancy Medical Checkup System

The main menu of the programmed is depicted in Figure 5, which explains the other menus as well as the accessibility options granted by the remote user or administrators. The side bar to the left of the main menu offers a quick display of events or actions to be performed, while the middle of the programmed is a list of various options in the menu bar to perform certain options. A click on any of these will take the user to the appropriate menu for the required activities the menu shown in Figure 5.
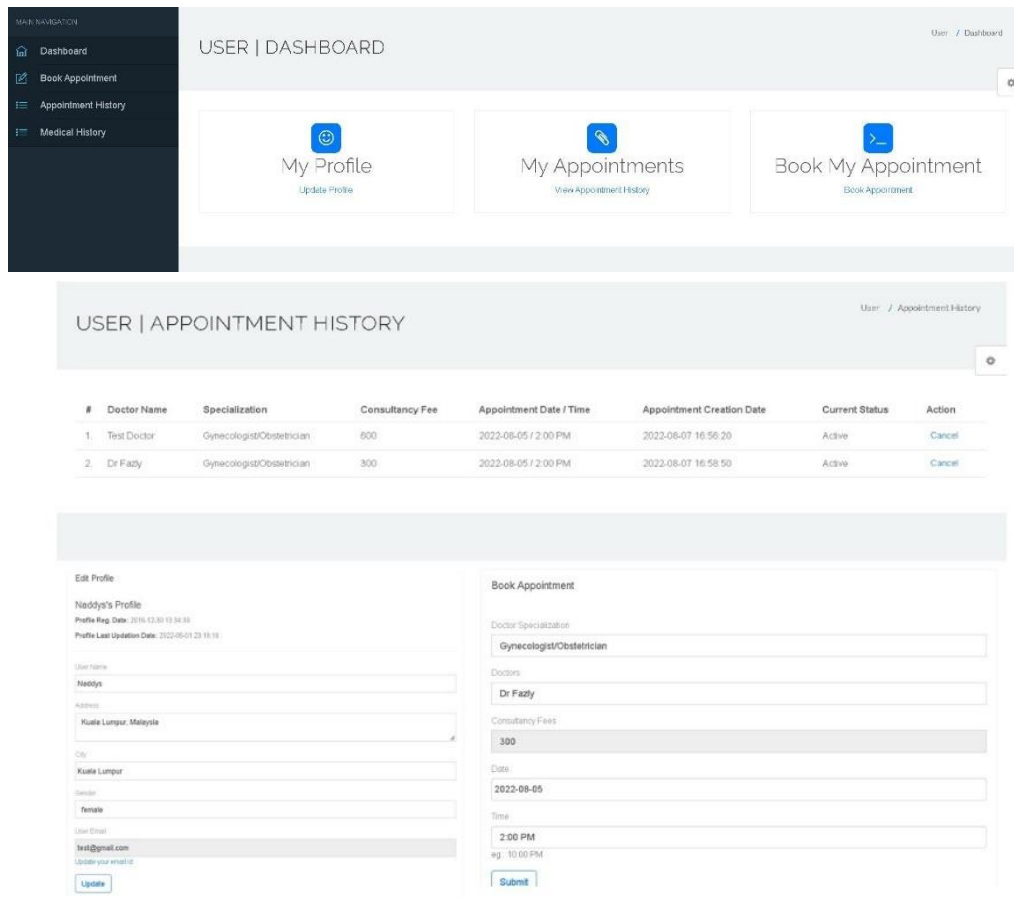
Figure 5: Main Menu Administrator

3.4 New patient log in

The patient who is visiting the website for the first time must sign up before they can log in, as shown in Figure 6. After signing up and receiving the username and password, the patient can access this website. After logging in, the main menu patient there is three features such as patients can edit their profile, book appointments, view appointment history, and review their medical history which is shown in Figure 7. Patients can edit and update their profile details by clicking on my profile. The importance of patient information is to keep all patient electronic folders in the database.
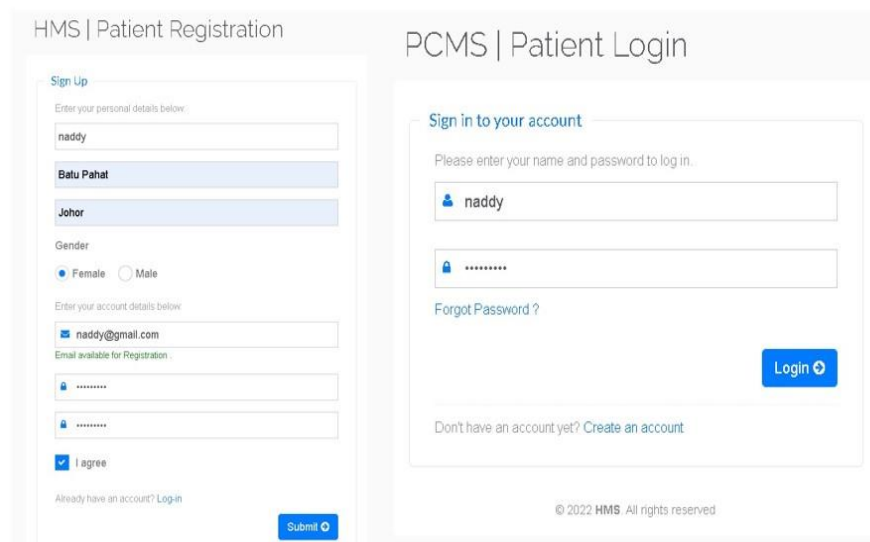

**Figure 6: Sign Up for Patient Registration and Patient Log in**

Figure 7: User or Patient Main Menu

3.5 Doctor log in

To gain access to the doctor account, the doctor must first register their account with the system administrator in order to create a username and password, as shown in Figure 8. The doctor dashboard, as shown in Figure 9. On the dashboard has third main functions doctor can access such as My Profile, View Appointment, add patient and manage patient.
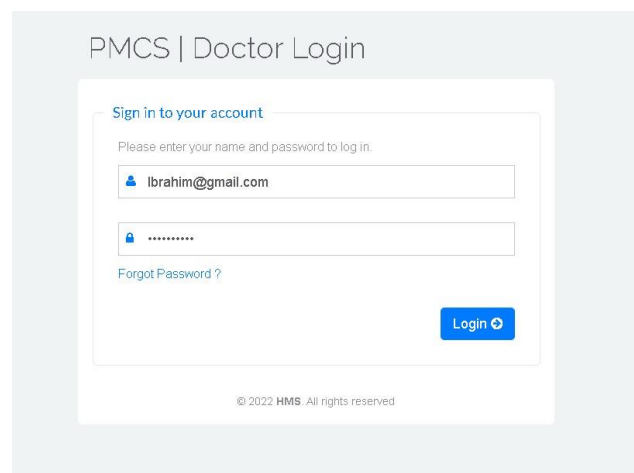
Figure 8: Doctor log in account
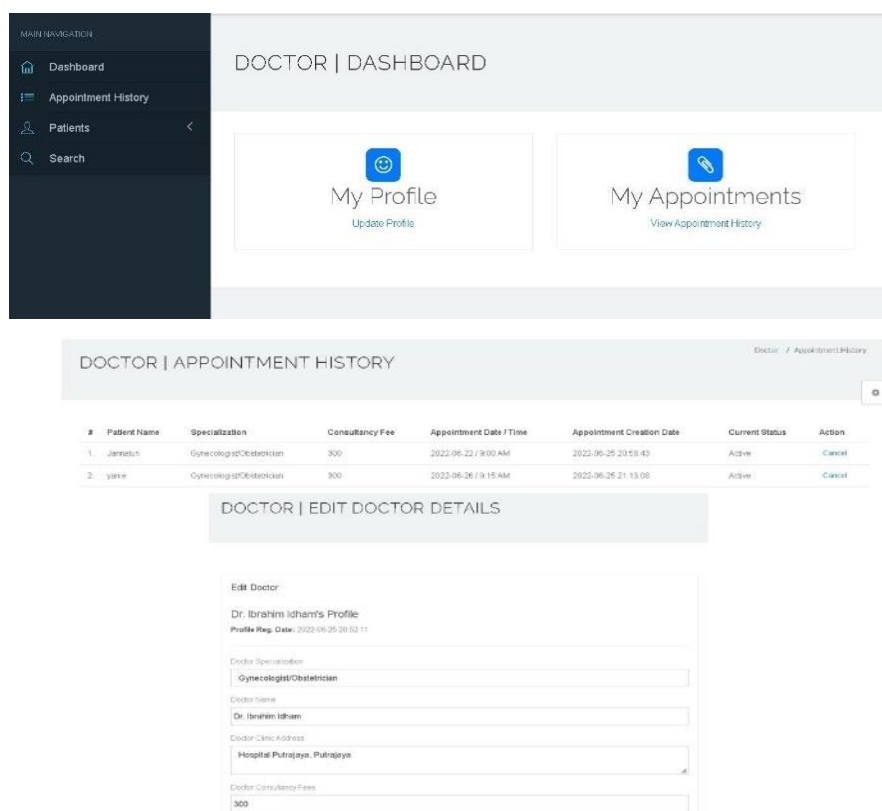
Figure 9: The main menu in doctor dashboard

4. Conclusion

In this study, a system called the Pregnancy Medical Check Up System was developed to help expectant mothers, wherever they may be, keep track of their prenatal checkups. Additionally, the system will notify mothers with appropriate diets and exercise for mothers because it updates mothers based on pregnancy maturity. The first day of pregnancy indicates the maturity level. Both mothers and medical professionals agreed that the system was helpful to them when it was tested on prospective users. Additionally, they are happy with the system. According to this study, this kind of system has a significant positive impact on social services and information sharing within the community. Additionally, this system serves as a supplement to current websites that offer information on related subjects.

Acknowledgement

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