

## **CSE2101 - Software Engineering Project Plan**



### **Submission 2:**

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## **2. Overall Description**

### **2.1 System Perspective & System Functions**

The P.M.R.S (Patient Medical Records System) that was proposed is similar to the current healthcare system called the Perinatal Information System (STP) that was published in 1983 by C.L.A.P & WHO, to improve the quality of care for mothers and newborns. This system is used by many Caribbean Countries and is currently being tested at the GHPC.

The Patient Medical Records System, goals are:

- To improve upon the current System data system called (STP).
- Enhance GHPC's information record system.
- To aid healthcare workers to deliver optimum medical care to their patients and community.
- To be Reliability and User-friendly
- To Enhance GHPC'S information security etc.

### **2.2 Product Functions**

The system will be designed to allow members of the GPHC to:

- Login using unique ID and Password.
- Interact with a digital interface and devices (e.g., computers & tablets).
- To fill out medical records forms.
- View Appointments.
- Randomly Assign id numbers to patients.
- Saved All information on private cloud and servers. Which can be easily accessed by authorized staff and provide security for patients & hospital records.
- Have access during working hours(24hrs).

### **2.3 User Classes and Characteristics**

The P.M.R.S application is developed to be user-friendly. The users of the P.M.R.S System are the Health Staff, Technical Staff, Administrator and Patients (pregnant women). The users will be provided with a login ID and password. All Users should have basic Computer knowledge & Medical knowledge.

Users of the P.M.R.S (Patient Medical Records System) would have access to:

- Administrator/CEO:
  - Administrative access to the system.

- GPHC's Health Staff:
  - View files (monitor patients) & appointments
  - Make changes (add/ delete the patient file)
  - Update files
- IT Professionals & Technical Staff:
  - Update & maintain System functionality
- Patients:
  - Book & view Appointments

## 2.4 **Design and Implementation Constraints**

- Regulatory policies
  - Doing regulating testing and functionality of the PRMS system to stay updated with WHO & GPHC standards as well as Guyana health laws.
- Hardware limitations
  - High cost
  - Cybersecurity: most medical devices are connected to the internet which can leave them vulnerable to attacks.
- Operating System
  - The Development environment shall be Windows 11.
- Updates regarding the patients & hospital information are to be recorded and have correct values.

## 2.5 **User Documentation**

User documentation is the content that you provide the end user (our patients) in order for them to be more successful with our service. We offer user guides, reviews from previous patients and instructions for the step-to-step process if needed to ensure the patient has as much knowledge as

possible so they are comfortable with our service. These are provided through online documentation or physical copies provided at the receptionist desk or your doctor.

## **2.6 Assumptions and Dependencies**

- It's assumed that the hospital will have computers that are compatible to run the system.
- It is assumed that the Hospital will have enough trained staff to take care of the system.
- It assumes GHPC has individuals that are trained in a set of specific skills to attend to the various patient needs.
- It is assumed that there is necessary equipment provided for the different types of departments in GHPC.
- It is assumed that a risk management information system is in place for unseen events that can affect the productivity of GHPC.
- It is assumed that prescription drugs are available for every patient that is in need of these drugs due to a medical condition.
- It is assumed that a system is in place where patients can get assistance depending on the level of medical attention they need.

## **3 System Features**

### **3.1 System Features (1)**

Muhti-user Level Access-So basically its administrative account and stand accounts. The administrative account basically manages standard user account, create new user account and manage their password and standard account is basically use to data input and create reports for the data that was imputed

### **3.1 System Feature (2)**

Search Function

Analyze the report

Logging users account activities

## **4. Other Non-Functional Requirements**

### **4.1 Performance Requirements**

With a large-scale operation organization such as Georgetown Public Hospital Corporation (GHPC) there are various departments that operate under GHPC, which have different performance requirements to be met within these departments. However the department that we are focusing on is the maternity department. The major performance aspects that is important in the maternity department can be listed and explain below:

- Response Time
- Workload
- Reliability
- Platform
- Scalability

#### **Response time**

What is Response time?

We can say it is the time that someone, a group or a company reacts or responds to various issues, problems or situations that may affect the ongoing progress of someone, a group or a company in an acceptable time. In a department such as the maternity department response time needs to be in place to assist patients who are in need of medical attention in a fast and timely manner to have a smooth flow of influx and outflux of patients in an allocated time slot.

#### **Workload**

What is the workload?

Workload is the amount of work to be done by someone, a group or a company. In the maternity department there is an amount of work that needs to be executed by the department, it can be per a day, week, month, or year depending on the request from GHPC. Depending on the influx of patients per a day the workload may differ for this department and may be less or more depending on the current staff present at the said time. Hence the performance of this department depends on the load that is delivered per a day, week, month or year.

#### **Reliability**

The probability of success from patients that are being treated without any issues, problems or situations that can arise during an amount of time. However, reliability can be difficult to specify but this depends on functionary of the department and the load of work that is taken in.

## **Platform**

The level of skills and equipment that is available within this department that can be used on patients to perform the necessary steps of medical care on these patients within a specific period of time. Consideration must be given whether the equipment will be used exclusively or whether the patient requires a staff with the set of skills needed to perform the task.

## **Scalability**

In order to know if this department can be expanded, we need to look at the performance rate, patients per a day, week, month or year to determine whether or not it is feasible to hire more staff, purchase more equipment and acquire more space for this operation. This may differ depending on the workload and populations that visit this department.

## **4.2 Safety Requirements**

The safety of our patients relies on the non-functional requirements in our system. These nonfunctional requirements specify the different attributes that contribute to the function and safety. They include:

**Performance:** The faster the system returns results, the faster we can diagnose, access medical data and organize meeting times with our patients.

**Compatibility:** The best operating systems with the latest versions are needed to ensure the best quality results for our patients' safety.

**Reliability and availability:** How often the system experiences failures, the time to repair those failures and the user availability are all accounted for in the database. If a system failure does occur, our team of experts organize solutions immediately to service our patients since their health is our main concern.

**Usability:** How easy and convenient it is for a patient to use our system is also very important for their safety because the faster they navigate through our system processes, the faster they get the medical attention they need.

## **4.3 Security Requirements**

Data security requirements are needed to protect patient data from corruption, loss or unauthorized access that threaten to alter the data. Some security requirements needed to prevent these include:

- Backup
- Encryption
- Authentication

- Physical security
- Access control
- Auditing

#### **4.4 Software Quality Attributes**

Maintainability-Maintenance is performed on the software monthly, regular back up and feature improvement

Reliability-Check to see if the product is reliable enough for usage in any condition

Security-Make sure the software is secured and certain features can be only be the administrator and it is stored on a secured server

#### **4.5 Business Rules**

This is a list of policies and practices that an organization should follow when developing a software. It basically a criteria and conditions for making decisions