SOFTWARE REQUIREMENT SPECIFICATION

**PRESENTED BY: Aditya Kumar Anguria (12070121502)**

**Dipankar Gosh (12070121113)**

**Paras Mehendirata (12070121130)**

**Sarang Pande (12070121140)**

HOSPITAL MANAGEMENT SOFTWARE SYSTEM

ABSTRACT

This hospital has required a system that maintains its hospital management system as well as keeps the record of the hospital in database. This software manage all information about patient name, patient address, doctor information, staff information etc. It also stores the daily information of patient which is documented by the doctor.

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**1. Introduction**

**1.1 Purpose**

* The Software is for the automation of **Hospital Management**.
* It maintains two levels of users: 1. Administrator Level 2. User Level
* The Software includes maintaining patient details.
* Providing prescription, precautions and diet advice.
* Providing and maintaining all kinds of tests for a patient.
* Billing and report generation.

**1.2 Scope**

* The proposed software product is the **Hospital Management System (HMS).** The system will be used to get the information from the patients and then storing that data for future usage.
* The current system in use is a paper-based system. It is too slow and cannot provide updated lists of patients within a reasonable timeframe.
* The intentions of the system are to reduce over-time pay and increase the number of patients that can be treated accurately.
* Requirements statements in this document are both functional and non-functional.

**1.3 Overview**

* This **Software Requirements Specification** **(SRS)** is the requirements work product that formally specifies **Hospital Management System (HMS).**
* It includes the results of both business analysis and systems analysis efforts. Various techniques were used to elicit the requirements and we have identified your needs, analyzed and refined them.
* The objective of this document therefore is to formally describe the system’s high level requirements including functional requirements, non-functional requirements and business rules and constraints.

**1.4 Definitions, Abbreviations and Acronyms**

**HPMS** Hospital Patient Management System

**PHN**  Personal Health Number on Health Card

**Report**  An Account of Patients

**Database** Collection of information in a structured form

**Front Desk Staff** Administrative staff that work at reception

**Login Id** A User identification number to enter the system

**Password**  A word that enables one to gain admission in to the system

**GUI**  Graphical user Interface

**ID**  Patient Identification Number

**SRS**  Software Requirement Specification

**2. General Description**

**2.1 Product Perspective**

* This Hospital Management System is a self-contained system that manages activities of the hospital as patient info. Various stakeholders are involved in the hospital patient info system.

**2.2 Product features**

The system functions can be described as follows:   
    
**Registration:** When a patient is admitted, the front-desk staff checks to see if the patient is already registered with the hospital.

* If he/she is, his/her **Personal Health Number (PHN)** is entered into the computer.  Otherwise a new Personal Health Number is given to this patient.
* The patient’s information such as date of birth, address and telephone number is also entered into computer system.

**Patient check out:** If a patient checks out, the administrative staff shall delete his PHN from the system and the just evacuated bed is included in available- beds list.

**Generation:**  The system generates reportson the following information: List of detailed information regarding the patient who has been admitted in the hospital.

**2.3 Design and Implementation Constraints**

* **Database:**   
  The system shall use the MySQL Database, which is open source and free.
* **Operating System**   
  The Development environment shall be Windows 7.
* **Web-Based**   
  The system shall be a Web-based application.

**2.4 Assumptions and Dependencies**

* It is assumed that one hundred IBM compatible computers will be available before the system is installed and tested.
* It is assumed that the hospital will have enough trained staff to take care of the system.

**2.5 Software Process Model**

* The project is carried out using “SPIRAL DEVELOPMENT MODEL”.

**Spiral Development Model**

The **spiral model** is a software development process combining elements of both design and prototyping-in-stages, in an effort to combine advantages of top-down and bottom-up concepts. This model of development combines the features of the prototyping model and the waterfall model. The spiral model is intended for large, expensive and complicated projects.

A spiral model is divided into a number of framework activities. Typically, there are between three and six task regions. The figure depicts a spiral model that contains six task regions:

**Customer Communication:** Tasks required to establish effective communication between developer and customer.

**Planning:** Tasks required to define resources, timelines, and other project related information.

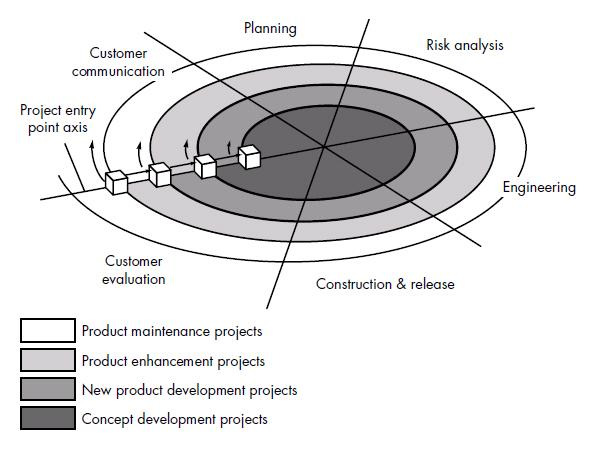
**Risk analysis:** Tasks required to assess both technical and management risks.

**Engineering:** Tasks required to build one or more representations of the application.

**Construction and release**: Tasks required to construct, test, install, and provide user support (e.g., documentation and training).

**Customer evaluation**: Tasks required to obtain customer feedback based on evaluation of the software representations created during the engineering stage and implemented during the installation stage.

The following diagram illustrates the information, document and product flow between the lifecycle process:



**2.6 Roles and Responsibilities**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr. No.** | **Phase of SDLC** | **Team members**  **Involved** | **Responsibilities** |
| 1. | Requirement gathering | Aditya, Dipankar | Prepare report of the initial developer meeting and SRS document. |
| 2. | Analysis | Paras, Dipankar | Project Plan with cost and effort.  estimation |
| 3. | Design | Sarang | Prepare use case diagram with specifications, |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | Data Flow Diagram, Activity Diagram, Design document. |
| 4. | Implementation | Sarang, Paras | Develop source code of the system. |
| 5. | Testing | Aditya | Prepare testing document. |
| 6. | Deployment | Dipankar, Aditya, Paras | Deliver System as an installable package, User manual and Guide. |

**3. Functional Requirements**

**3.1 Description**

**Registration**

**Add patients:-**

* The **HMS** shall allow front-desk staff to add new patients to the system.

**Assign ID:-**

* The HMS shall allow front-desk staff to give each patient an ID and add it to the patient’s record. This ID shall be used by the patient throughout his/her stay in hospital.

**Delete Patient ID:-**

* The administrative staff in the ward shall be allowed to delete the ID of the patient from the system when the patient checks out.

**Add to beds-available list:-**

* The administrative staff in the ward shall be allowed to put the beds just evacuated in available-beds list.

**Report Generation**

**Patient information:-**

* The HPMS shall generate reports on patients about the following information: patient’s PHN, patient’s name, ward name, bed number and the doctor’s name which was assigned to that patient.

**Bed Availability:-**

The HPMS shall generate reports on bed availability with the following information: ward name, bed number, occupied/unoccupied.

**Database**

**Patient Mandatory Information:-**

* Each patient shall have the following mandatory information: first name, last name, phone number, personal health number, address, postal code, city, country, patient identification number.

**Update Patient Information**:-

* The HPMS shall allow the user to update any of the patient’s information.

**3.2 User Characteristics**

The System will be used in the hospital .The administrators, doctors, nurse and front desk will be the main users. Given the condition that not all the users are computer literate. Some users may have to be trained on using the system. The system is also designed to be user friendly. It uses a Graphical User Interface (GUI).

**Front-Desk Staff:**

They all have general reception and secretarial duties. Every staff has some basic computer training. They are responsible for patients check in or notification of appropriate people (e.g. notify administrator or nurse when an event occurs).

**Administrators:**

They all have post-secondary education relating to general business administration practices. Every administrator has basic computer training. They are responsible for all the scheduling and updating day/night employee shifts. Administrators in the wards are responsible for assigning doctors and nurses to patients.

**Nurses:**

All nurses have post-secondary education in nursing. Some nurses are computer literate such as consulting nurses to whom patients give short descriptions of their conditions are also responsible for assigning patients to appropriate wards if the beds are available, otherwise putting patients on the waiting list. Nurses in wards will use the HPMS to check their patient list.

**Doctors:**

All doctors have a medical degree. Some have further specialized training and are computer literate. Doctors will use the HPMS to check their patients list.

**4. Interface Requirements**

**4.1 User Interface:-**

* The software provides good graphical interface for the user. Any administrator can operate on the system, performing the required task such as create, update, viewing the details of the book.
* Allows user to view quick reports like Book Issues/Returned etc. in between particular time.
* Stock verification and search facility based on different criteria.

**4.2 Hardware interface (Min):-**

* Operating system: Windows
* Hard disk: 40 GB
* RAM: 256 MB
* Processor: Pentium(R)Dual-core CPU

**4.3 Software interface:-**

* Java language
* Net beans IDE 7.0.1
* MS SQL server 2005

**4.4 Communication interface:-**

* Windows

**5. Software Requirement Analysis**

**5.1 Define Problem**

* We develop the hospital management system for the hospital staff and other department that for record for all the user.
  1. **Define module and functionality**

The system functions can be described as follows:   
    
**Registration:** When a patient is admitted, the front-desk staff checks to see if the patient is already registered with the hospital. If he/she is, his/her Personal Health Number (PHN) is entered into the computer. Otherwise a new Personal Health Number is given to this patient. The patient’s information such as date of birth, address and telephone number is also entered into computer system.

**Patient check out:** If a patient checks out, the administrative staff shall delete his PHN from the system and the just evacuated bed is included in available-beds list.

**6. Non-functional Requirement**

**6.1 Performance**

* **Response Time:-**  
  The system shall give responses in 1 second after checking the patient’s information.
* **Capacity:-**   
  The System must support the entries of 1000 people at a time.
* **User- interface:-**  
  The user-interface screen shall respond within 5 seconds.
* **Conformity:-**  
  The systems must conform to the Microsoft Accessibility.

**6.2 Security**

* **Patient Identification:-**   
  The system requires the patient to identify himself/herself using PHN.
* **Logon ID:-**  
  Any user who uses the system shall have a Login ID and Password.

* **Modification:-**  
  Any modification (insert, delete, update) for the database shall be synchronized and only by the administrator in the ward.
* **Front Desk staff rights:-**  
  Front Desk staff shall be able to view all information in HPMS, add new patients to HPMS but shall not be able to modify any information in it.
* **Administrators**' **Rights:-**  
  Administrators shall be able to view and modify all information in HPMS.

**6.3 Reliability**

* How general the form generation language is i.e. Simplicity vs. Functionality of the form language. This speeds up form development but does not limit functional.

**6.4 Availability**

* The system shall be available all the time.

**6.5 Safety**

* Humans are error-prone, but the negative effects of common errors should be limited. E.g., users should realize that a given command will delete data, and be asked to confirm their intent or have the option to undo the action performed.

**6.6 Software Quality**

* Good quality of the framework. This produces robust, bug free software which contains all necessary requirements for customer satisfaction.

**6.7 Reusability**

* Is part of the code going to be used elsewhere? This produces simple and independent code modules that can be reused.
  1. **Maintainability**
* **Back Up**  
  The system shall provide the capability to back-up the data.
* **Errors**  
  The system shall keep a log of all the errors.

**7. Conclusion**

This **SRS document** gives the details regarding **Hospital Patient Info Management System**.

In this all the functional and non-functional requirements are specified in order to get a clear cut idea of how to develop this project.

**8. References**

Along with various books and online documents, the following websites have been used to gather information mentioned in the project:-

1. www.google.com
2. www.wikipedia.com
3. www.techwhirl.com
4. www.tricity.wsu.edu
5. www.quintegrasolutions.com
6. www.diagram.ly