SOFTWARE REQUIREMENTS SPECIFICATION

Hospital Management System

Introduction:

This is a Software Requirements Specification (SRS) for the Hospital Management System. It describes the functions, goals and tasks that the system can perform. This is used to describe the scope of the project and to plan for the system's design and implementation.

The following features are the high-level requirements that this system satisfies:

- Work Scheduling - Assigning nurses to doctors and doctors to patients

- Admissions - Admitting patients, assigning the patients to appropriate wards.

- Patient Care - Monitoring patients while they are in the hospital

- Surgery Management - Planning and organizing the work that surgeons and nurses perform in the operating rooms

- Ward Management - Planning and coordinating the management of wards and rooms

- Waiting list -   Monitoring to see if there are any patients waiting for available beds, assigning them to doctors and beds once these become available

The Requirements are classified into two categories:

- Functional requirements
- Non-functional requirements.

Non-functional requirements can be used to improve the functioning of the computer system, but not the management of the hospital as a whole.

Functional requirements, on the other hand, are requirements directly related to the hospital management.

The primary areas of concern are performance, security and user-interface.

Hospital Management System Software Requirements Specification

1. Introduction

Purpose

The purpose is to describe all the requirements for the Hospital Management System. The following are some of the stake holders:

- administrative staff
- doctors
- nurses
- surgeons
- developers.

The hospital management and its team members uses this document as the primary means to communicate confirmed requirements to the development team. The development team expects many face-to-face conversations that will undoubtedly be about requirements and ideas for requirements. However only the requirements that appear in this document or a future revision, will be used to define the scope of the system.

Scope

The system will be used to allocate beds to patients on a priority basis, and to assign doctors to patients in designated wards as need arises. Doctors will also use the system to keep track of the patients assigned to them. Nurses who are in direct contact with the patients will use the system to keep track of available beds, the patients in the different wards, and the types of medication required for each patient. Doctors must make rounds to pick up patients' treatment cards in order to know whether they have cases to treat or not. 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.

Definitions, Acronyms, and Abbreviations

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 desk

Logon ID   A user identification number to enter the system

Password   A word that enables one to gain admission into the system

ID Patient Identification number

GUI   Graphical User Interface

SRS   Software Requirements Specification

General Description

2.1 product perspective

This Hospital Patient Management System is a self-contained system that manages activities of the hospital as bed assignment, operations scheduling, personnel management and administrative issues. Various stakeholders are involved in the hospital system.

2.2 Product Functions

The system functions can be described as follows:

Registration: When a patient is admitted, the <u>front-desk staff</u> checks to see if the patient is already registered with the hospital. If he is, his/her Personal Health Number (<u>PHN)</u> 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.

Consultation: The patient goes to consultation-desk to explain his/her condition so that the consulting nurse can determine what kind of ward and bed should be assigned to him/her. There are two possible circumstances:

   a)   If there is a bed then the patient will be sent to the bed to wait for the doctor to come.

   b)   If there is no bed, the patient is put on a waiting list until a bed becomes available.

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.

Report Generation: The system generates reports on the following information: patients, bed availability and staff schedules after every six hours. It prints out all the information on who has used which bed, when and the doctor that is taking care of a given patient as well as expected medical expenses.

2.3 User Characteristics

The system will be used in the hospital. The administrators, doctors, nurses and front-desk staff 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 patient's 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 of 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. 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 system 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 system to check their patient's list.

2.4 General Constraints

* The system must be delivered by deadline.
* The system must be user-friendly

2.5 Assumptions and Dependencies

- It is assumed that 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

3. Specific Requirements

3.1 Functional Requirements

Registration Add

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

Assign ID

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

Consultation Assign Ward

The consulting nurse shall use system to assign the patient to an appropriate ward.

Assign to Waiting List

The consulting nurse shall use system to assign Patient to a waiting list if no bed is available.

Medical matter management

AssignDoctor
The administrative staff in the ward shall use system to assign a doctor to a given patient.

Assign Nurse
The administration staff in the ward shall use system to assign a nurse to a given patient.

Inform Doctors
The system shall inform doctors of new patients.

Inform Nurses
The system shall inform nurses of new patients.

Emergency Case
In an emergency case, the administrative staff shall use system to assign an emergency room, doctors and nurses to the patient immediately.

Surgery case
In a surgery case, the administrative staff shall use

system to assign a surgery room, surgeon and nurses to the patient.

Generate Report (normal)
The system shall generate the patient's situation record every two hours for normal patients.

Generate Report(Severe)
The system shall generate patient's situation record every half hour for severe patients.

Record procedure
The whole treatment procedure for the patient shall be recorded by the system.

Inform patient
The system shall automatically inform the patients who are on the bed waiting list of available beds whenever they become available.

Check Out 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 beds-available list.

Report Generation Patient

information
Every six hours the system shall generate <u>reports</u> on patients about the following information: patient's PHN, patient's name, ward name, bed number and the doctor's name.

Bed Aavailability
Every six hours the system shall generate reports on bed availability about the following information: ward name, bed number, occupied/unoccupied

Staff Schedule
Every six hours the system shall generate reports on staff schedule about the following information: staff ID, staff name, staff type, duty shift.

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 system shall allow the user to update any of the patient's information

Search for Patient
The system shall allow the user to search for patient's information by last name or PHN or patient ID.

Staff Mandatory Information
Each staff in hospital shall have the following mandatory information: identification number, first name, last name, phone number, address, postal code, city, country, employee type, duty schedule.

Update Staff Information
The system shall allow the user to update any of the staff's information as described in SRS023.

Employee Information
The system shall allow the user to search for employee information by last name, or ID number.

Ward Types
The ward is categorized into four types: Maternity, Surgical, Cancer and Cardiac.

Ward Information
Each ward in system shall include the following mandatory information: ward name, ward number, list of rooms in ward.

Room Information
Each room in system shall include the following mandatory information: room number, list of beds in room, full/not full.

Bed Information
Each bed in system shall include the following information: bed number, occupied/unoccupied, patient PHN.

3.2 Design Constraints

Database
The system shall use the MySQL Database, which is open source and free.

Operating System
The Development environment shall be Windows 2000.

Web-Based
The system shall be a Web-based application.

3.3 Non-Functional Requirements

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 Logon ID and Password.

Modification
Any modification (insert, delete, update) for the Database shall be synchronized and done only by the administrator in the ward.

Front Desk staff Rights
Front Desk staff shall be able to view all information in system, add new patients to system but shall not be able to modify any information in it.

Administrators' Rights
Administrators shall be able to view and modify all information in system

Nurses' Rights
Nurses shall only be able to view all information in system.

Doctors Rights
Doctors shall only be able to view all information in system

3.4 Performance Requirements

Response Time
The system shall give responses in 1 second after checking the patient's information.

Capacity
The System must support 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 guidelines

3.3.2 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.

3.3.3 Reliability

Availability

The system shall be available all the time.