

SOFTWARE REQUIREMENTS SPECIFICATION

For

Hospital Management System

1. Introduction

1.1 Purpose:

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

- Administrative staff
- Doctors
- Nurses
- Surgeons
- Developers.

Hospital officials and their team members use this document as a key means of conveying guaranteed needs to the development team. The development team anticipates a number of face-to-face discussions that will undoubtedly be about needs and ideas.

1.2 Scope:

The product of the software is the Hospital Management System. The system will be used to allocate beds to patients first, and to provide doctors to patients in designated wards when needed. Physicians will use this program to keep track of their assigned patients. Nurses who communicate directly with patients will use the system to keep track of available beds, patients in different wards, and the types of medications needed for each patient. Doctors should do rounds of collecting patients' medical cards to know if they have any cases to treat or not. The aim of the program is to reduce overtime pay and increase the number of patients who can be treated more accurately. Requirements statements in this document are both functional and non-functional.

1.3 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

2. 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 front-desk staff checks to see if the patient is already registered with the hospital. If he 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 the computer system.
- **Consultation:** The patient goes to the 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:
 - If there is a bed then the patient will be sent to the bed to wait for the doctor to come.
 - 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 member 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 an 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 the system to assign the patient to an appropriate ward.

Assign to Waiting List: The consulting nurse shall use the system to assign a Patient to a waiting list if no bed is available.

Medical matter management

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

Assign Nurse: The administration staff in the ward shall use the 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 the 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 a 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 reports on patients about the following information: patient's PHN, patient's name, ward name, bed number and the doctor's name.

Bed Availability: 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 the system shall include the following mandatory information: ward name, ward number, list of rooms in ward.

Room Information: Each room in the 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

3.3.1 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 the system, add new patients to the 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 the system.

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

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

3.3.2 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.

3.3.3 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.

3.3.4 Reliability:

Availability: The system shall be available all the time.