

Hospital Management System



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INTRODUCTION

1. Introduction

The introduction of the Software Requirements Specification (SRS) provides an overview of the entire SRS purpose, scope, definitions, acronyms, abbreviations, references and overview of SRS. A **Software Requirements Specification (SRS)** - a requirements specification for a software system - is a complete description of the behaviour of a system to be developed. It includes a set of use cases that describe all the interactions the users will have with the software. Use cases are also known as functional requirements. In addition to use cases, the SRS also contains non-functional (or supplementary) requirements. Non-functional requirements are requirements which impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints). The aim of this document is to gather and analyse and give an in-depth insight of the complete **Hospital Management Software System** by defining the problem statement in detail. This is a documentation of the project **Hospital Management System** done sincerely and satisfactorily by my group members. A Software has to be developed for automating the **Hospital Management System**.

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
- 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

1.1 Objective:

The Hospital Management System (HMS) is designed for Any Hospital to replace their existing manual, paper based system. The new system is to control the following information; patient information, room availability, staff and operating room schedules, and patient invoices. These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resources currently required for such tasks

1.2 Scope:

The product is titled Hospital Management Software (HMS). The product will perform the following tasks

- The reception module handles various enquiries about the patient's admission and discharge details.
- The Administration module handles all the master entry details for the hospital requirement
- The Laboratory module enables the maintenance of investigation and test results.
- The Registration module helps in registering information about patients and handling both IPD and OPD patient's query.
- The Discharge Summary module helps in generating patient's discharge summary, which includes patient's health at the time of discharge, medical history.
- The intentions of the system are to reduce over-time pay and increase the number of patients that can be treated accurately.

1.3 Glossary:

- HMS Hospital Management System
- DFD Data Flow Diagram
- CFD Context Flow Diagram

1.4 Overview:

- Project is related to Hospital Management System.
- The project maintains two levels of users:-
 - Administrator Level-Doctor
 - User Level-Data Entry Operator
- Main facilities available in this project are:-
 - Maintaining records of indoor/outdoor patients.
 - Maintaining patients diagnosis details, advised tests to be done.
 - Providing different test facilities to a doctor for diagnosis of patients.
 - Maintaining patient's injection entry records.
 - Maintaining patient's prescription, medicine and diet advice details.
 - Providing billing details for indoor/outdoor patients.
 - Maintaining backup of data as per user requirements (between mentioned dates).
 - If user forgets his/her password then it can be retrieved by hint question.
- Results of tests, prescription, precautions and diet advice will be automatically updated in the database.
- Related test reports, patient details report, prescription and billing reports can be generated as per user requirements.
- User or Administrator can search a patient's record by his/her name or their registration date.



OVERALL DESCRIPTION

2. Overall Description

This document contains the problem statement that the current system is facing which is hampering the growth opportunities of the company. It further contains a list of the stakeholders and users of the proposed solution. It also illustrates the needs and wants of the stakeholders that were identified in the brainstorming exercise as part of the requirements workshop. It further lists and briefly describes the major features and a brief description of each of the proposed system.

2.1 Product Perspective:

2.1.1 Hardware interfaces

- Hard disk: The database connectivity requires a hardware configuration that is on-line. This makes it necessary to have a fast database system (such as any RDBMS) running on high rpm hard-disk permitting complete data redundancy and backup systems to support the primary goal of reliability.
- The system must interface with the standard output device, keyboard and mouse to interact with this software.

2.1.2 Software interfaces

- Back End: xzamp server or oracle MySQL
- Front End: java NetBeans

2.1.3 Memory Constraints

- No specific constraints on memory

2.2 Project Functions:

The system functions can be described as follows:

Administration: - The administration modules handles all the master entry details including

- Employee Detail Recording
- Doctor Type
- Doctor Master
- Referral Doctor.

Reception: - The reception module handles various enquiries including

- Doctor visit schedule
- Doctor Appointment Scheduling
- Enquiry of Patient
- Find History of Patient Enquired.

Registration:

When a patient is admitted, the front-desk staff checks to see if the patient is already registered with the hospital he 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.

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.

Discharge Summary:

The module helps in generating patient's discharge summary, which includes patient's health at the time of discharge, medical history, various diagnosis and drug prescriptions, history of present illness and course in hospital

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 Constrains:

- Any update regarding the patient information from the hospital are to be recorded to have updated and correct values.
- GUI is only in English.
- Login and password is used for identification of user and there is no facility for guest.
- The system must be delivered by deadline.
- The system must be user-friendly

2.5 Assumptions and Dependencies:

- All the data entered will be correct and up_to_date. This software package is developed using C# as front end, Oracle MySQL as the back end.
- 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



REQUIREMENT SPECIFICATION

3.1 Function Requirements

3.1.1 Performance requirements:

The capability of the computer depends on the performance of the software. The software can take any number of input provided the database size is large enough. This would depend on the available memory space.

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

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

3.1.2 Design constrain:

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

Operating System: -The Development environment shall be Windows 2008

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

This will help the doctors or users to view the records of the patients immediately whenever necessary. They can also calculate the bill of the particular patients. This software also has the ability to add, update and delete the record whenever needed. This project will help to smoothen the process of the hospital activates.

3.1.3 Hardware requirements:

For the hardware requirements the SRS specifies the logical characteristics of each interface b/w the software product and the hardware components. It specifies the hardware requirements like memory restrictions, cache size, the processor, RAM size etc... Those are required for the software to run.

Minimum Hardware Requirements

- OS – windows XP
- Hard disk – 80 GB
- RAM – 1 GB
- Keyboard – Standard QWERTY keyboard for interface
- Mouse – Standard mouse with 2 buttons

Preferred Hardware Requirements

Processor Pentium IV

Hard disk drive 50 GB

RAM 500 MB

Cache 512 kb

3.1.4 Software requirements:

- Any window based operating system with DOS support are primary requirements for software development. Windows XP, FrontPage and dumps are required. The systems must be connected via LAN and connection to internet is mandatory.

3.1.5 Other requirements:

- Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.
- Appendix A:
 - Glossary: - Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.
- Appendix B:
 - Analysis Models: -Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state transition diagrams, or entity-relationship diagrams.
- Appendix C:
 - To Be Determined List: - Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.

3.2 Non-Function Requirements

3.2.1 Security:

The system use SSL (secured socket layer) in all transactions that include any confidential customer information. The system must automatically log out all customers after a period of inactivity. The system should not leave any cookies on the customer's computer containing the user's password. The system's back-end servers shall only be accessible to authenticated management.

3.2.2 Reliability:

The reliability of the overall project depends on the reliability of the separate components. The main pillar of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes. Also the system will be functioning inside a container. Thus the overall stability of the system depends on the stability of container and its underlying operating system.

3.2.3 Availability:

The system should be available at all times, meaning the user can access it using a web browser, only restricted by the down time of the server on which the system runs. A customer friendly system which is in access of people around the world should work 24 hours. In case of a of a hardware failure or database corruption, a replacement page will be shown. Also in case of a hardware failure or database corruption, backups of the database should be retrieved from the server and saved by the Organizer. Then the service will be restarted. It means 24 x 7 availability.

3.2.4 Maintainability:

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the project will be done. Also the software design is being done with modularity in mind so that maintainability can be done efficiently.

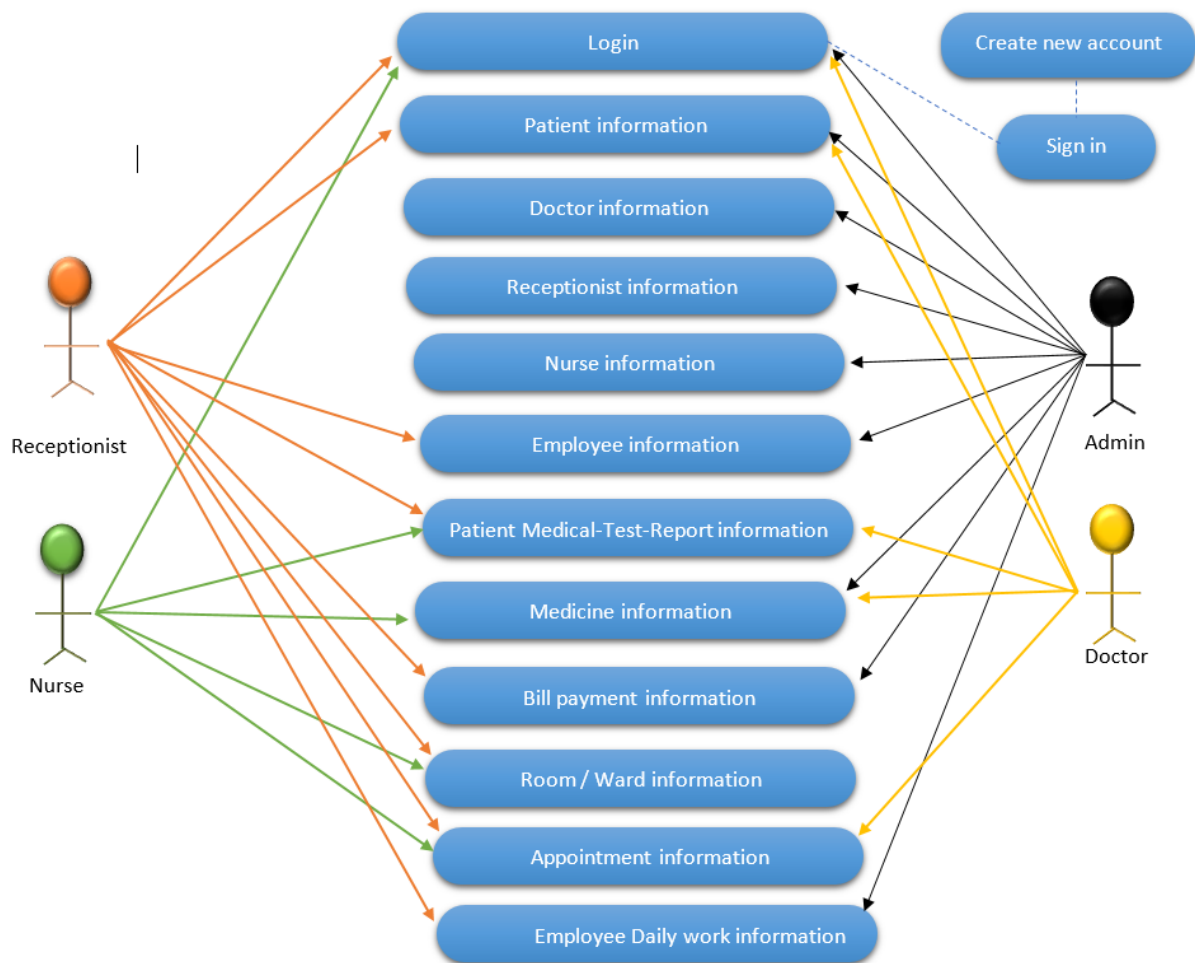
3.2.5 Supportability:

The code and supporting modules of the system will be well documented and easy to understand. Online User Documentation and Help System Requirements.

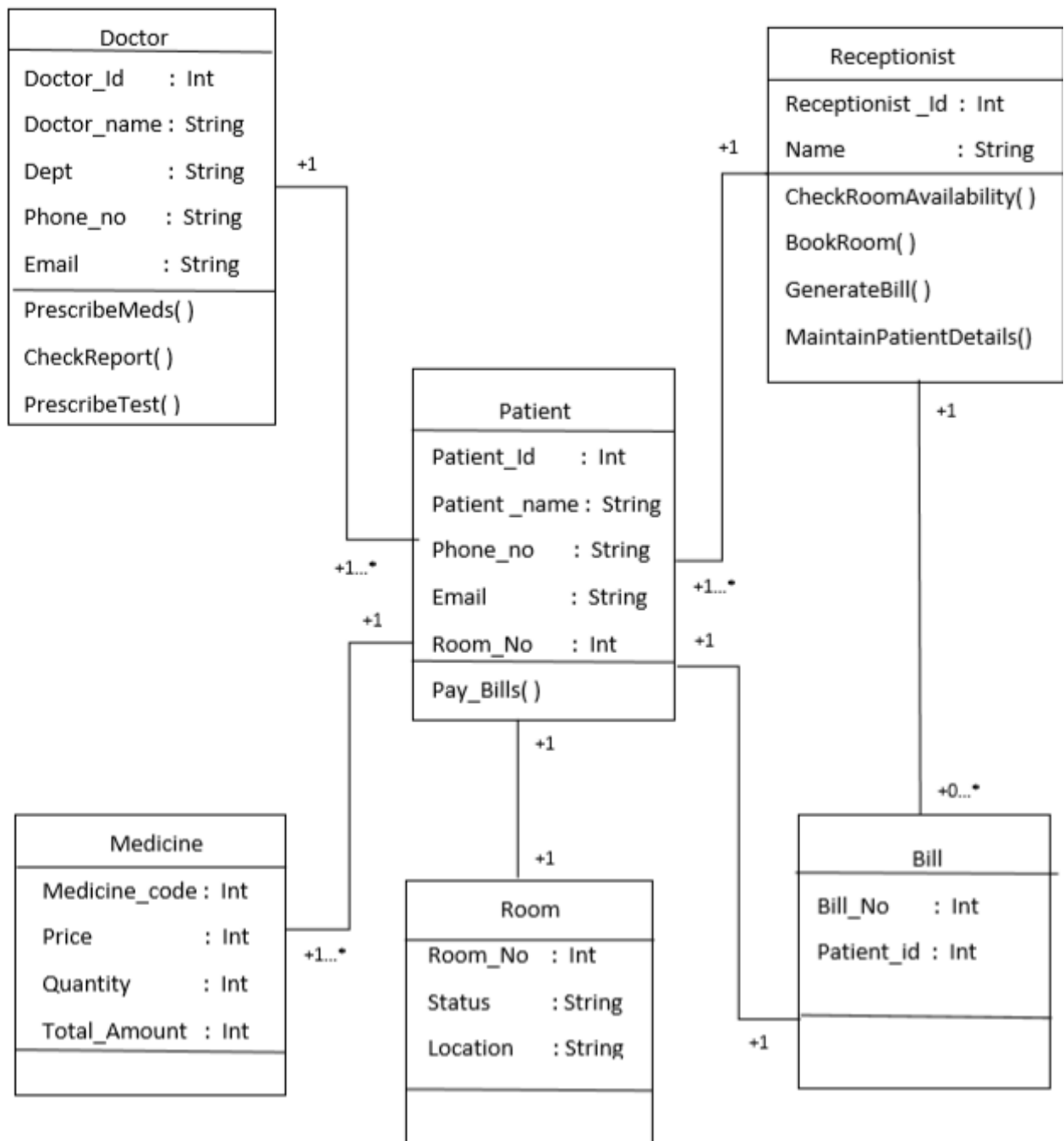


DIAGRAM

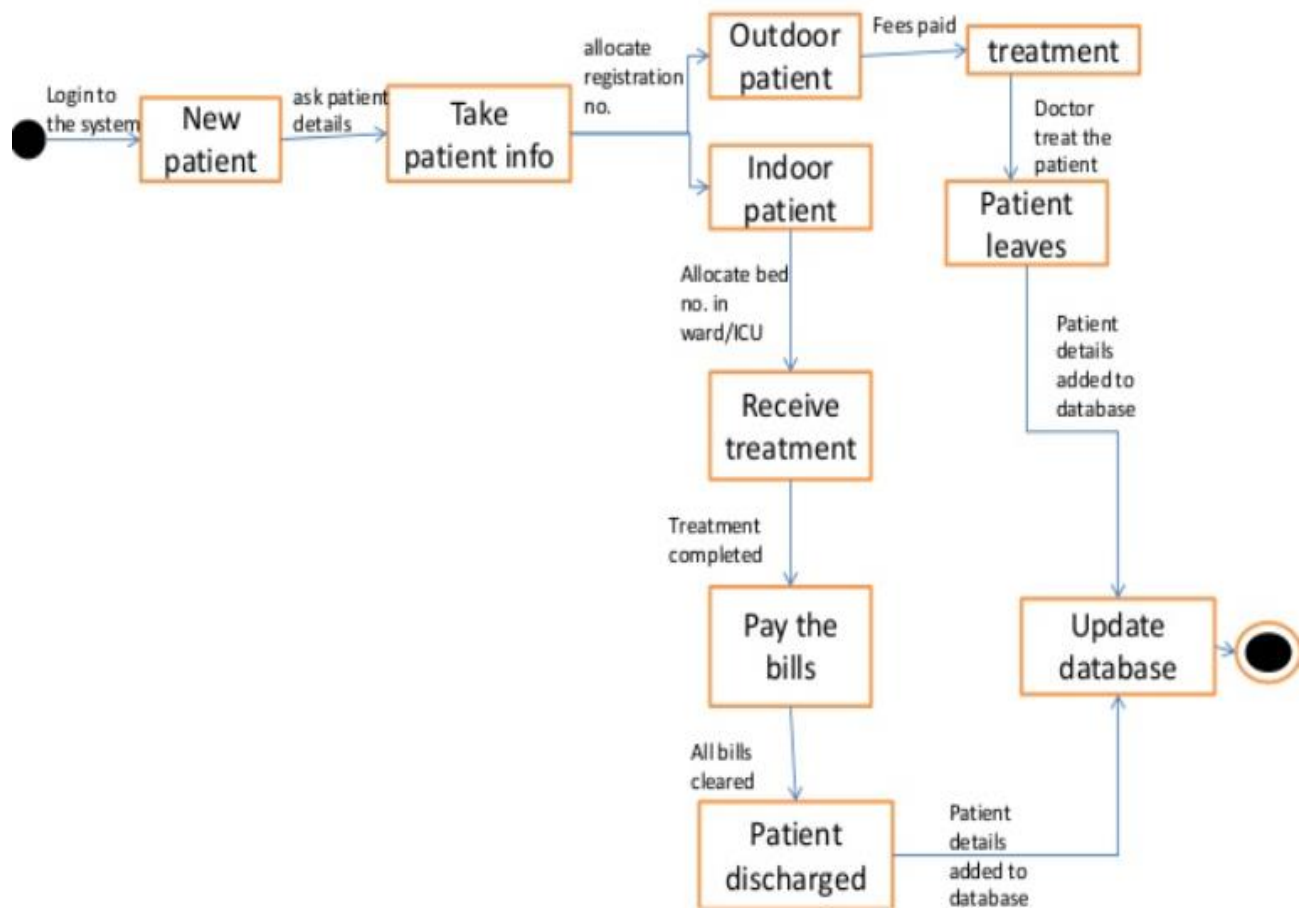
4.1 Use-case Diagram



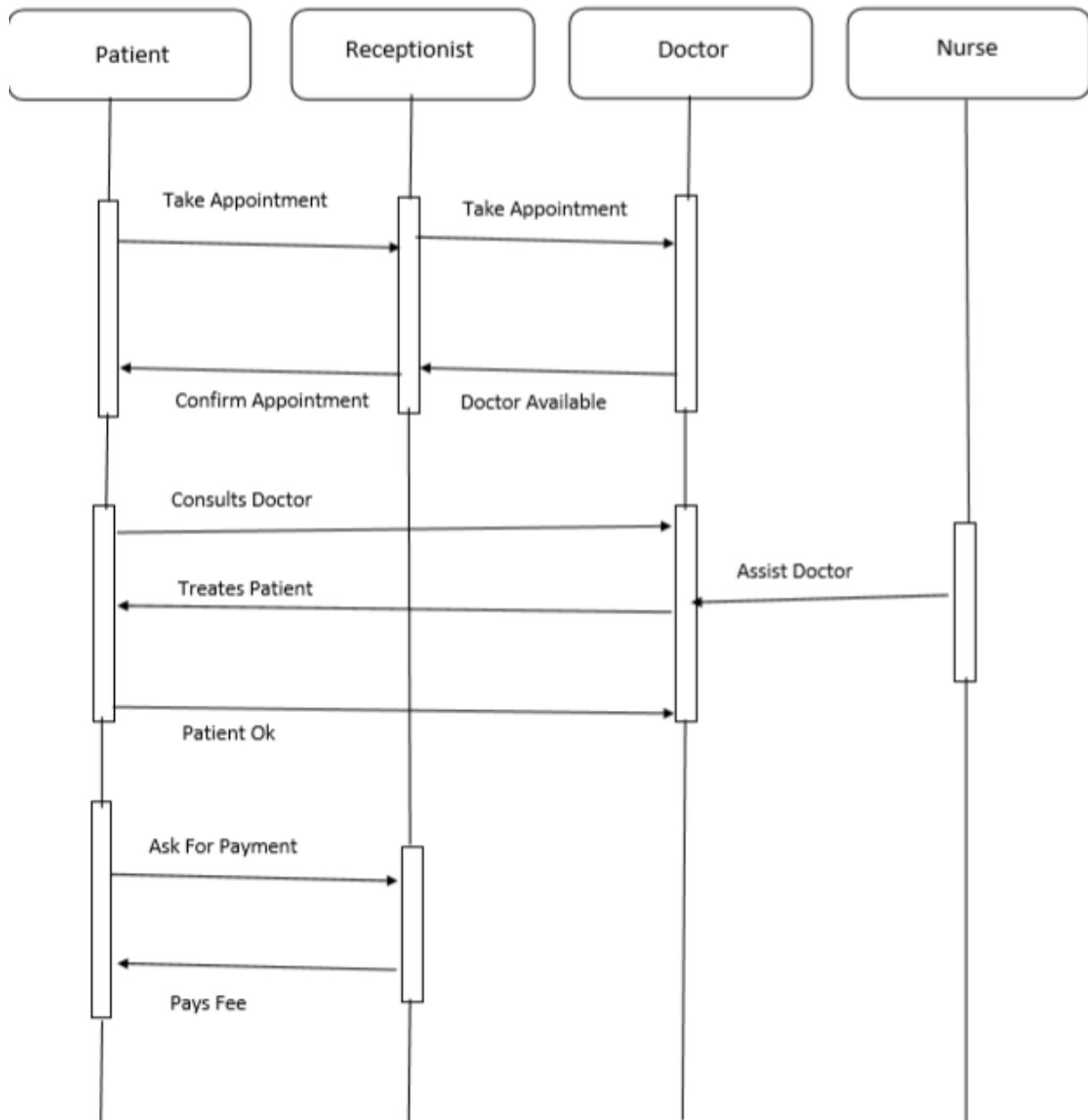
4.2 Class Diagram



4.3 State Diagram

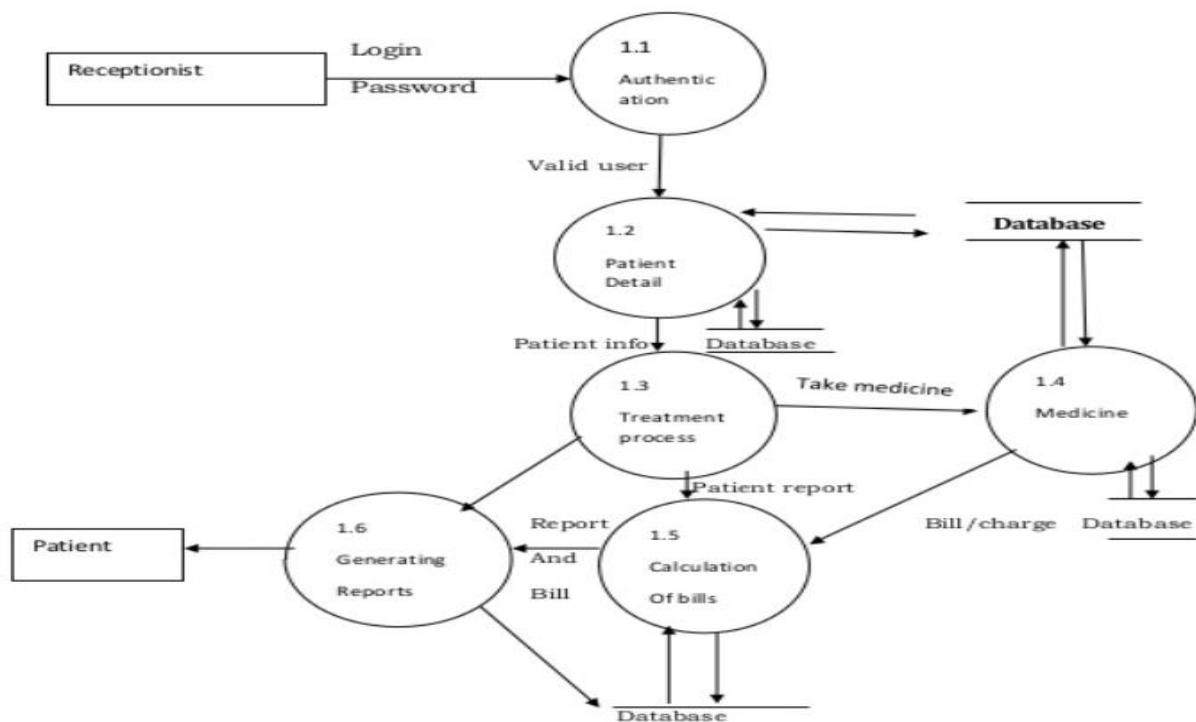


4.4 Sequence Diagram

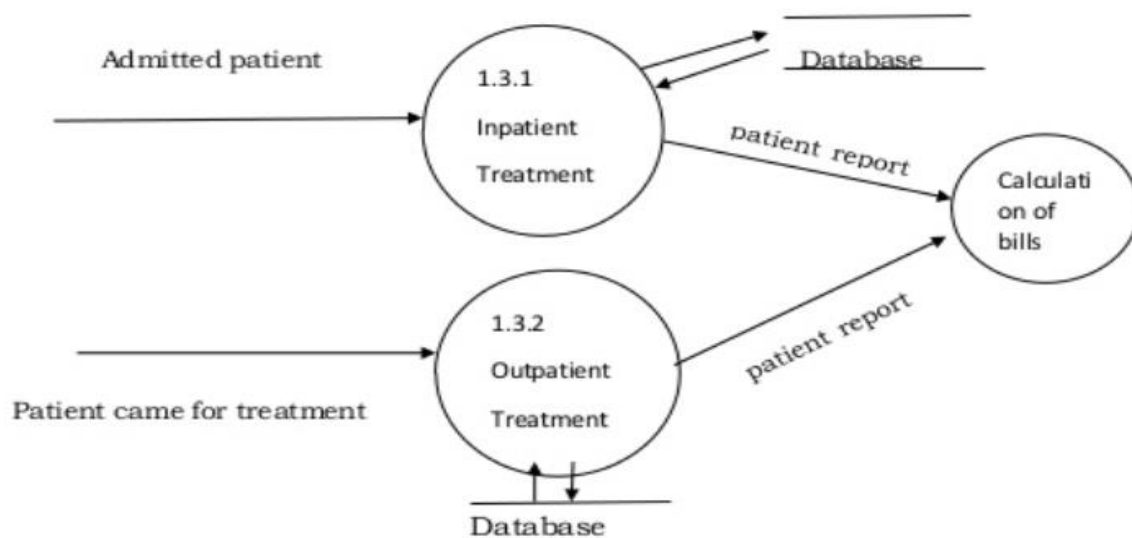


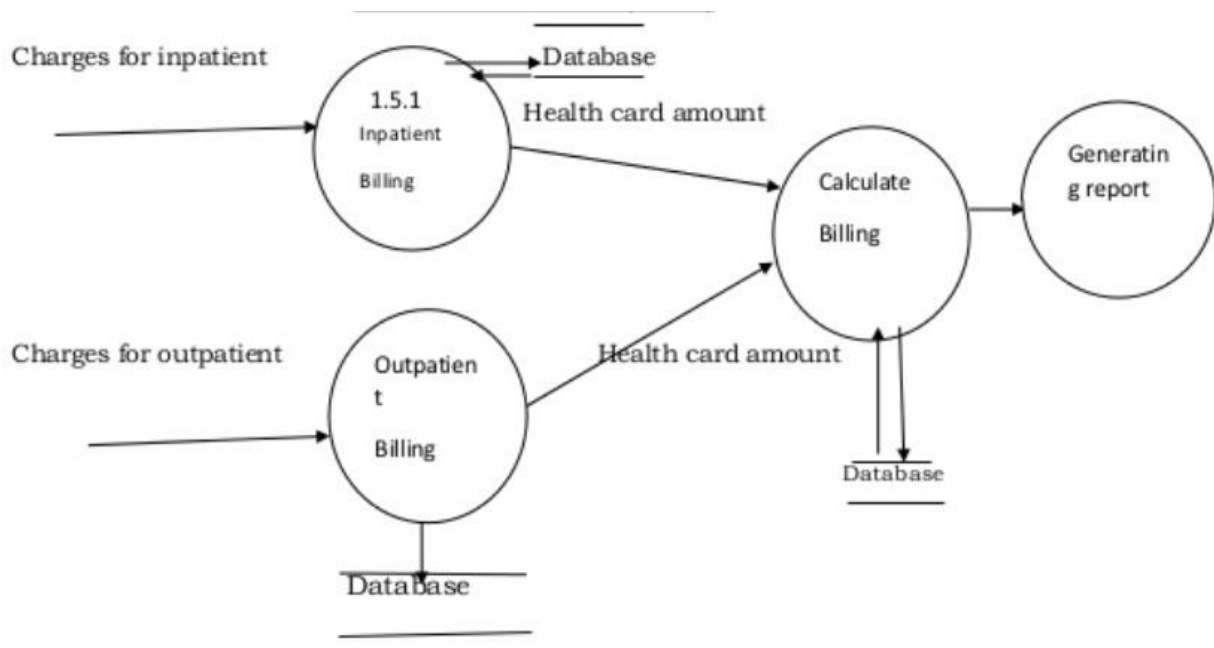
4.5 Data Flow Diagram

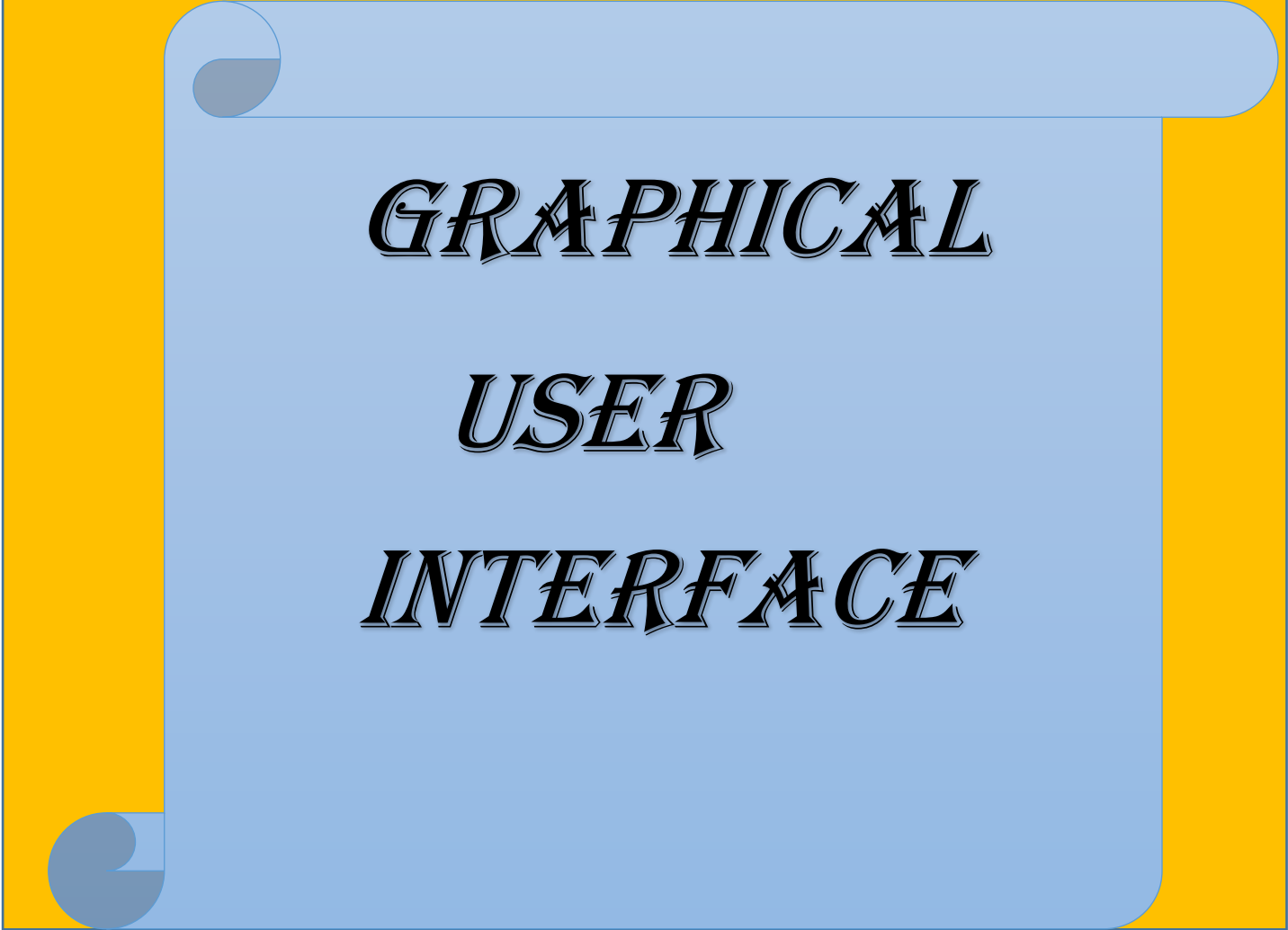
Level 0:



Level 1:



Level 2:

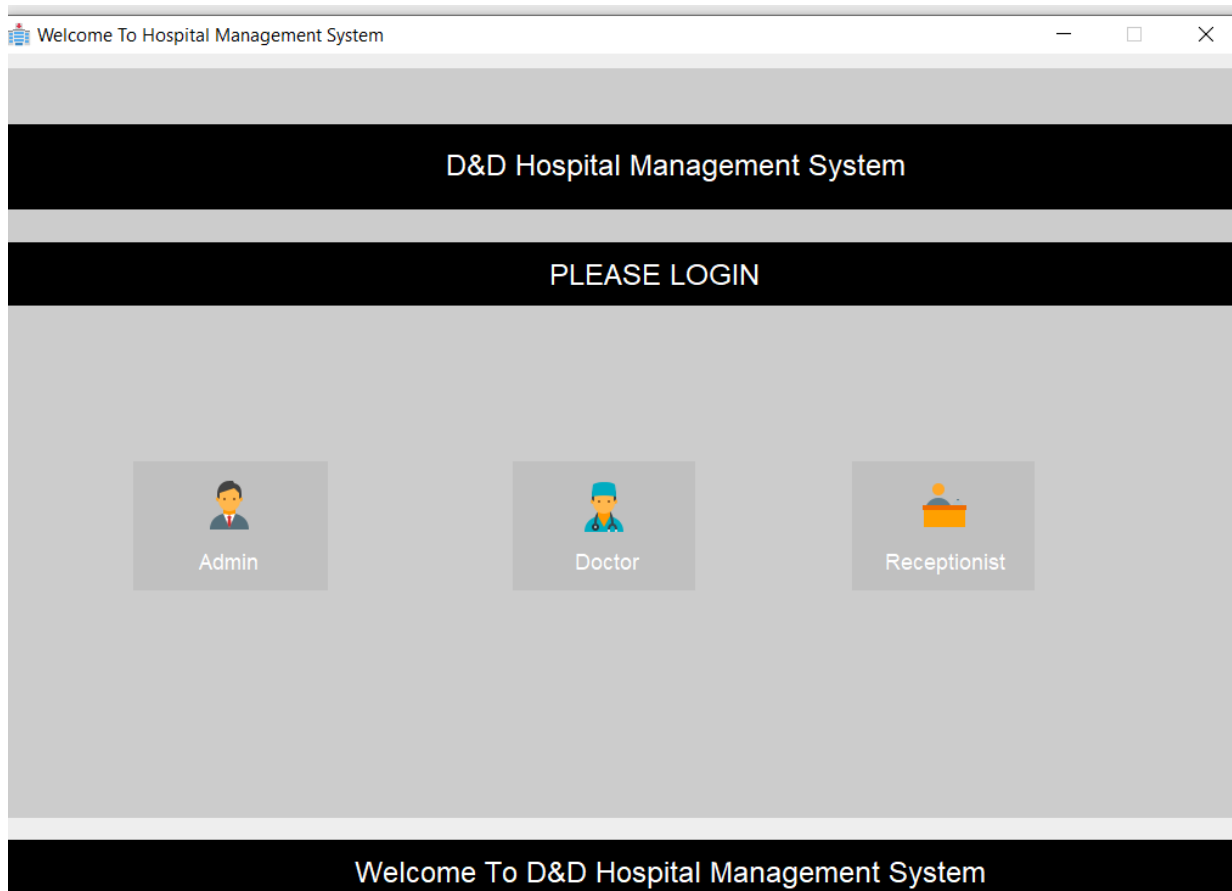


GRAPHICAL USER INTERFACE

5.1 Screen Short

The system shall provide a uniform look and feel between all the web pages.

Login:



Welcome Admin !

D&D Hospital Management System

Username:

Password:

[Home](#) [Login](#)

Registration:

Add Doctor

Joining Date Department

Id Phone Number

Name Email Username

Age Marital Status Password

Gender Address

Blood group Ward/Room no

[Clear](#) [Add](#)

Add Receptionist

Date

Blood Group

Id

Phone Number

Username

Name

Email

Password

Age

Address

Gender

Select Item

Marital Status

Select Item

Clear

Add

Add Patient

Date

Address

Id

Phone Number

Name

Marital Status

Select Item

Age

Disease Name

Gender

Select Item

Ward/Room no

Clear

Add

Search Patient and Doctor:

Search D&D Hopital Doctor Team

Name of Doctor

Search

Title 1	Title 2	Title 3	Title 4

Search Patient

Name of Patient

Search

Title 1	Title 2	Title 3	Title 4

Other Screen:

Welcome To D&D Hospital Admin Portal

Patient Info

Doctor Info

Receptionist

Welcome To D&D Hospital Doctor Panel

Add New

Update

Delete

Search

View

Set Appointment

Department

Select Department

Search

Select a Doctor and Press Next

Title 1	Title 2	Title 3	Title 4

Next

Search Patient

Name of Patient

Search

Title 1

Title 2

Title 3

Title 4

Next

Appointments

Patient Name:

Patient Name

ID:

Patient Id

Age:

Patient Age

Gender:

Patient Gender

Details



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