HOSPITAL MANAGEMENT SYSTEM
Software Requirements Specifications (SRS)

GROUP 1
Palak Jain - BECOMP -B - 01
Dhiraj Jha - BECOMP -B - 07
Palak Kabra - BECOMP -B - 13
Shrinjay Kaushik - BECOMP -B - 17

HOSPITAL MANAGEMENT SYSTEM

SRS Outline:

1. Introduction

Our project on the Hospital Management System can be used for managing the information related to health care. It has the ability to manage all the paperwork in one place thus reducing the work of hospital staff in arranging and analysing the paperwork of the patients.

This system can help in maintaining the medical records of the patient, the contact details of the patient and tracking the bill payments of a patient such that each patient is given a unique registration id and whose data can only be retrieved by the administrator or the receptionist using the respective username and password. Apart from retrieval, the receptionist or administrator can also add, update and delete any records. Such systems guarantee accuracy, reduce scope of error, data security and correct data retrieval, easy access to patient data and history and are most importantly time saving.

1.1. Purpose

The purpose of this is to describe the requirements for the Hospital Management System such that it can help in managing medical, administration as well as financial departments of the hospital. The SRS document will serve the purpose of:

1. Product Validation - Validates with the client that the product which is being delivered, meets the requirements by the clients. Clarity - Ensure clearness between the client and the development team to avoid any misunderstanding.
2. Customer Feedbacks
3. Accuracy - Ensuring accuracy of the software and the data.
4. Consistency
5. Modifiability - SRS can be modified as per the need of the development team and the client/user.

1.2. Project Scope

The Hospital Management System will help in collection of details of patients as well as maintenance of patients' history. It will also help in keeping track of various hospital resources and easy management of all the three departments of the hospital. This will increase the accuracy of the maintained process and save a lot of time in manual handling of patients details and improve the efficiency and the productivity of the organisation.

1.3. Document Conventions

The document is prepared using Microsoft Word 2010 and has used the font type 'Times New Roman'. The fixed font size that has been used to type this document is 12pt and for headings 16pt with 1.5 line spacing. It has used the bold property to set the headings of the document. Every image and data table are numbered and referred to in the main text.

1.4. Intended Audience

Our goal is to make a client satisfied hospital management system by fulfilling the client requirements and improving the current manual hospital management system with client needs by analysing. The intended audience if this document would be the client and the users of the suggested system that is the administrator and the receptionist, the heads of all the three teams, the consultants and the development team such that this can be later used as reference and give a concise and clear idea about the suggested system.

1.5. Additional Information

Our project on the Hospital Management System has the ability to manage all the paperwork in one place thus reducing the work of hospital staff in arranging and analysing the paperwork of the patients. Apart from retrieval of information of patients through registration id , the receptionist or administrator can also add, update and delete any records.

It will also help in improving the visibility and transparency in the complete management process and in all records and in streamlining the accurate reporting with the help of updated and accurate records. Apart from improving the management visibility of hospital, all information, and data regarding the patient, doctor and medicine could be seen by any department easily, it will not only save time in the hospital but also is cost-effective in decreasing the number of people working on the system of manual entry of data and paperwork, thus decreasing the human intervention into the system thereby avoiding human-caused errors.

1.6. References

1. Lauesen, S, (2003), Task Descriptions as Functional Requirements , IEEE Computer Society

2. Comsats-university-islamabad/software-engineering/srs-hospital-managment-system/10336420

2. Overall Description

The backbone of every successful management system is its ability to manage and control the smooth workflow of the various operations in the system. In the Hospital Management System(HMS) the main idea is to have a system that can manage smooth healthcare performance alongside administrative, medical, legal and financial control.

2.1 Product Perspective

The HMS is a self-contained application software that can manage the smooth working of the various services such as bed assignment, patient names, disease/ailment kind, personnel management, administrative issues. Hence there are various stakeholders involved in the proper functioning of the system.

2.2 Product Features

I. Doctor's Module:
- Display reports
- Give prescriptions
- Search reports of patients
- Add patient reports
- Update patient reports

II. Receptionist's Module:
- Add Appointments
- Delete Appointments
- Update Appointments
- Display records of patients
- Search records of patients

III. Patient's Module:
- Search Reports
- View Reports

2.3 Users Classes & Characteristics

HMS will be deployed in a hospital hence the administrative and the front-end staff will be the main users of this application software. Since, not everyone is computer-literate, some people will have to be trained on the management system for smooth workflow.

2.4 Operating Environment:

It is of utmost importance that the HMS deployed has a very user-friendly OS so as to remove any form of ambiguity when it comes to the proper management of the services. By doing so there will be fewer hurdles to deal with while carrying out the daily workflow activities. Having an easy to operate OS also ensures that other people within the organisation can also perform tasks with ease and training of newer employees is not tedious.

2.5 Design & Implementation Constraints

a. Anticipate difficulties and limitations in the system upgrade as well as the the improvements need to better coordinate the various services of clinical operations
b. Scalability
c. Should be able to handle concurrency
d. Should always log all transactions that take place on the system to provide an extra layer to security to the benefactors.
e. Make all the data available to the concerned parties at all appropriate times

3. External Interface Requirements

3.1 User interfaces
This includes a sample screen image and GUI. The user interface will contain:
1. Integrate appointment widgets in online Hospital management systems enabling easy scheduling for patients.
2. Manage all branches with a single platform to access entire data across your branches too.
3. Handle orders, automate report generations, enable smart notifications and online analytical reports through lab management.
4. Integrate all the details into a single platform and to add discharge summary and ensure proper IP bill closure.
5. Integrate the billing system to maintain and track separate bills for treatments, testing labs, and diagnostics.
6. Digital Prescription.
7. Automate operation scheduling and make use of Operation theatres efficiently through hospital management system.

3.2 Hardware interfaces
1. Laptop/Desktop PC
Purpose of the pc is to give information when Patients ask information about doctors, prescriptions or available laboratory tests.
2. Display Unit (LED/LCD Monitor/TV)
To display information about the hospital and for displaying the channel number when the patients come to see their consultants.

3. Laser Printer
For printing bills and reports.

4. Wi-Fi router
To be used for internetwork operations inside of a
hospital and simply data transmission from pc to server.

3.3 Software interfaces

A software interface illustrates the connection between product and software components including databases, tools, operating systems, libraries and integrated components. Identifies and describes the purpose of each data item or message coming in the system. A software interface characterises all the services needed and nature of communication.

4. Positioning

4.1 Business Opportunity

4.1.1 Financial Planning

The management system can help make business more systematic and can help in monitoring hospital expenses, billing of every patient and it's history, profit and losses, salary management of the staff, instrument expenses, outpatient billing and tax control. This system will help in balancing to provide the best possible care for the patients as serving the healthcare needs and requirements of the patients and keeping in mind many financial metrics, including hospital profitability, financial leverage, operating efficiency, costs and asset liquidity were all influencing factors in care quality.

4.2 Marketing Strategy

Rapid changes in the healthcare industry markets require agility and focus. The system will help in integrating omnichannel, highly-segmented, and specific online and offline efforts to drive engagement and growth, focusing on market-specific key performance indicators and return on investment.

Keeping patients engaged with relevant, personalised, and timely outreach during their journey through the system will help in retaining patients over the long-term and improve loyalty in the hospital, thus driving more qualified leads to generate revenue.

5. Non - Functional Requirements

5.1 Security

SRS012   Patient Identification

The system requires the patient to identify themselves using a unique identification document.

SRS013   Login-Id

All patients should have a working login-id and password which when stored in database would be hashed using SHA1 algorithm in case of loss or theft of data.

SRS014   Modification

Any modification (insert, delete, update) for the Database shall be synchronised and done only by the administrator of the system.

SRS015   Front-end Staff Privileges

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

SRS016   Administrator's Privileges

Administrators shall be able to view and modify all information in HMS.

5.2 Performance Requirements

SRS017   Response Time

The system shall give responses within 2 seconds after checking the patient's information.

SRS018   Capacity

The System must support 1500 people at any given time.

SRS019   User-interface

The user-interface screen shall respond within a maximum of 10 seconds with easy access as well as understanding to naive users with clear and concise labels for buttons and actions and simple messaging to improve the experience as well.

5.3 Maintainability

SRS020   Back-up

The system shall provide the capability to back-up the Data in case we lose crucial data or website gets hacked, having a backup readily available can solve the problems..
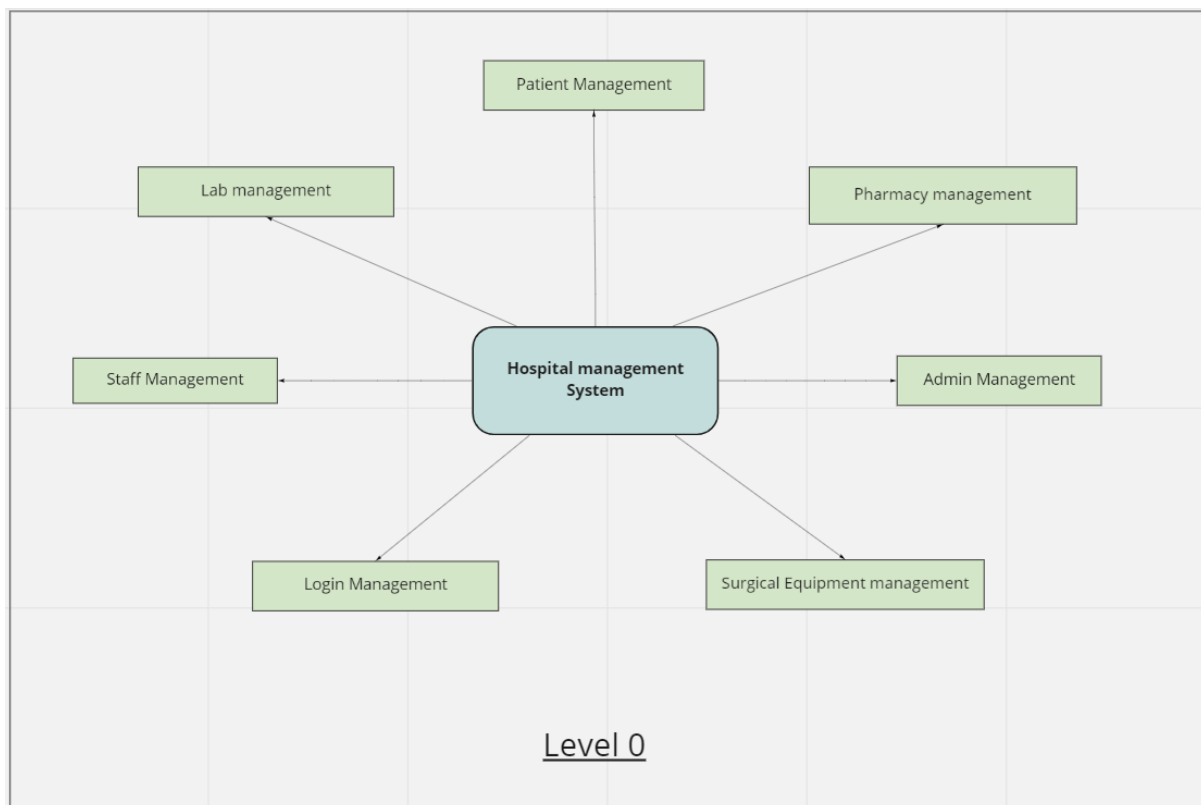
SRS021   Errors

The system shall keep a log of all the errors. System should be free of errors and if any should be immediately resolved to maintain security and ease of use.
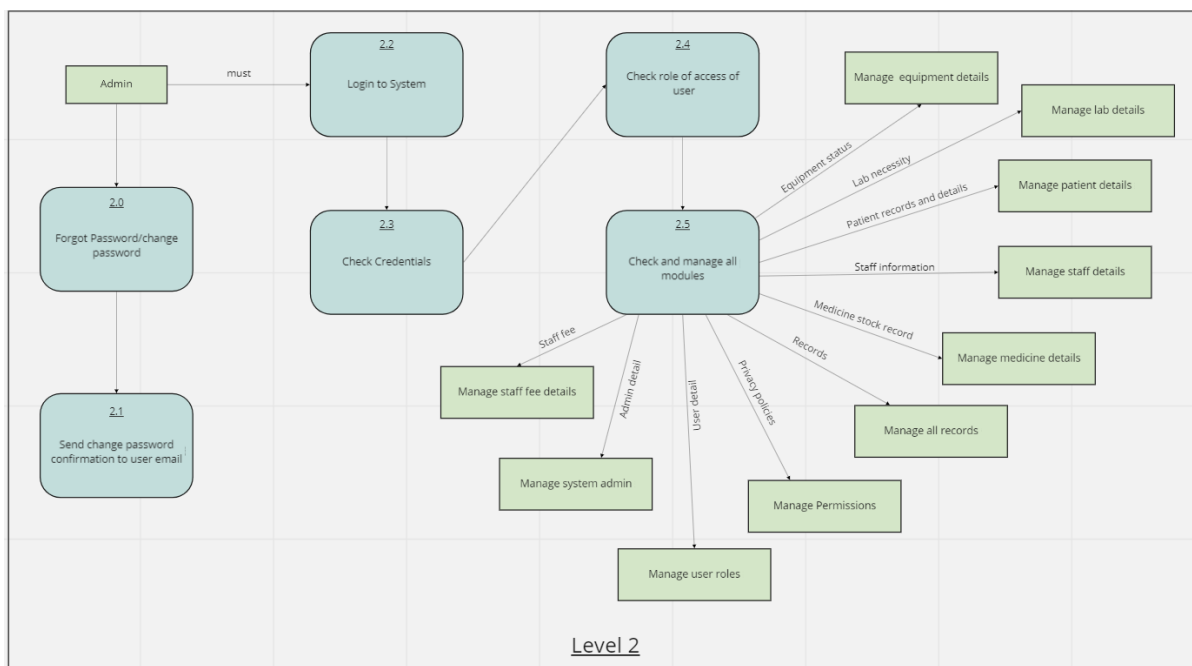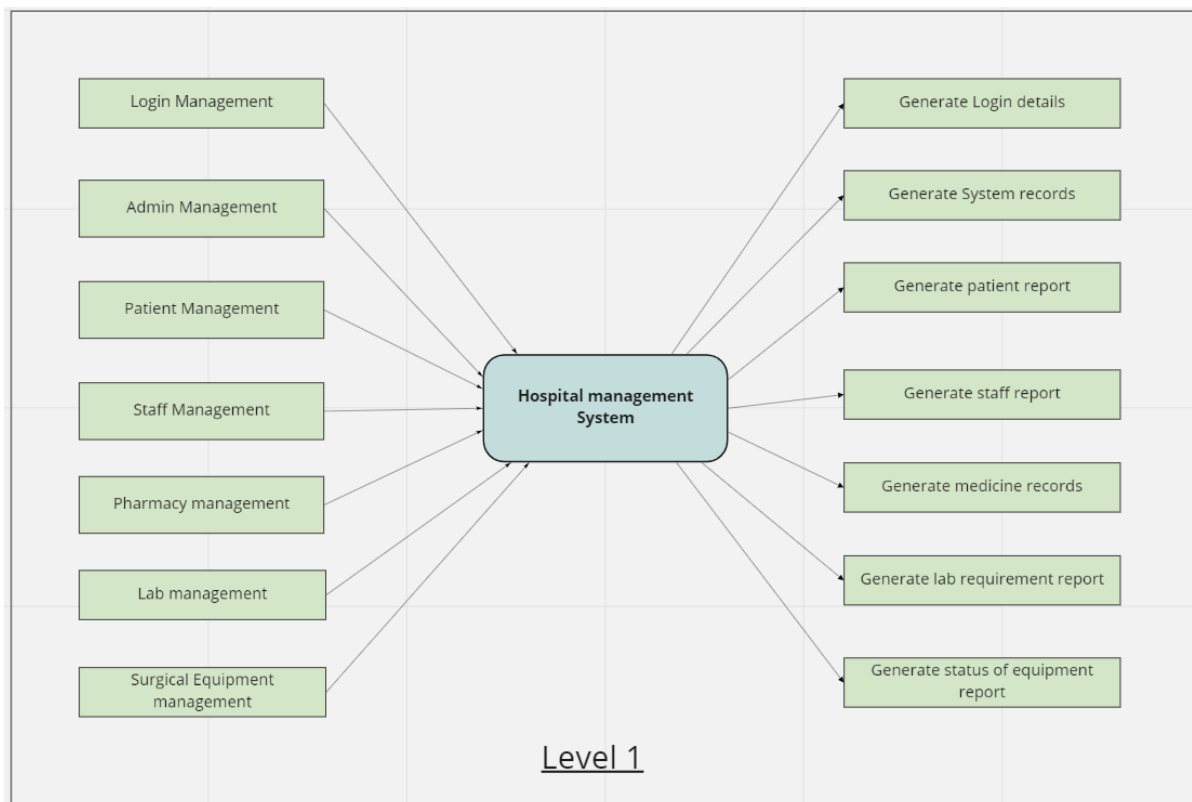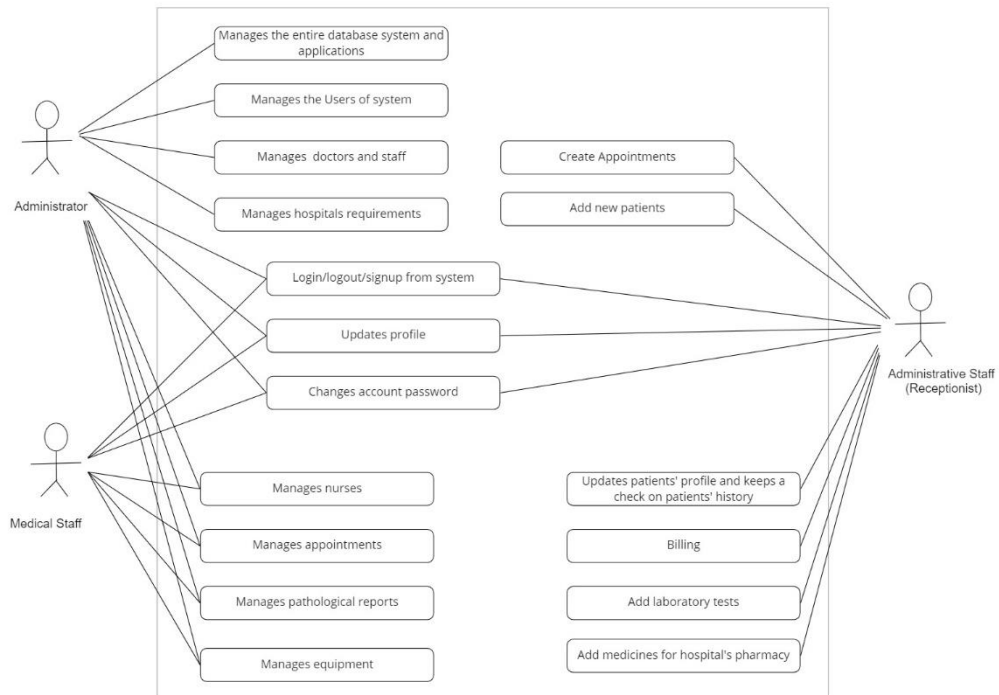
5.4 Reliability

SRS022 Availability

The system shall be available at all times. System should be available at all times regardless of the exceeding number of users or loss of data to ensure availability and performance ability.
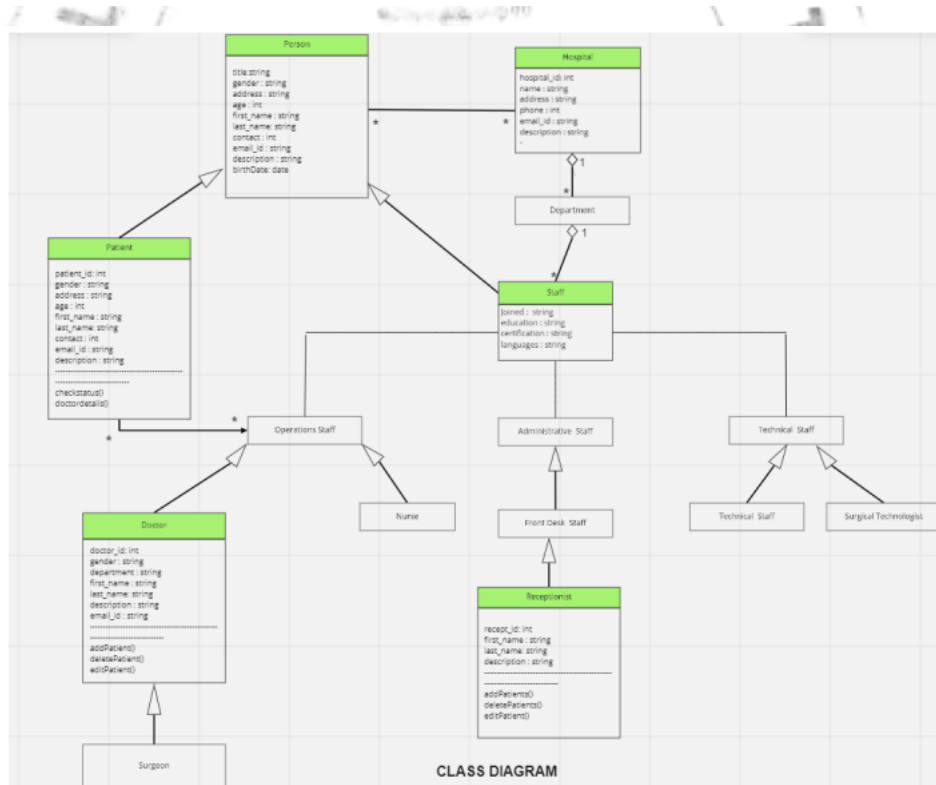
6. Other Requirements

Level 0

Level 1

- Login Management
- Admin Management
- Patient Management
- Staff Management
- Pharmacy management
- Lab management
- Surgical Equipment management

Hospital management System

- Generate Login details
- Generate System records
- Generate patient report
- Generate staff report
- Generate medicine records
- Generate lab requirement report
- Generate status of equipment report

Level 2

- Admin — must → 2.2 Login to System
- 2.0 Forgot Password/change password
- 2.1 Send change password confirmation to user email
- 2.3 Check Credentials
- 2.4 Check role of access of user
- 2.5 Check and manage all modules

From 2.5 Check and manage all modules:
- Equipment status → Manage equipment details
- Lab necessity → Manage lab details
- Patient records and details → Manage patient details
- Staff information → Manage staff details
- Medicine stock record → Manage medicine details
- Records → Manage all records
- Staff fee → Manage staff fee details
- Admin detail → Manage system admin
- User detail → Manage user roles
- Privacy policies → Manage Permissions

USE CASE UML DIAGRAM

CLASS DIAGRAM

State Diagram