A

Micro project

On

# SRS (Software Requirement Specification) Document on Hospital Management System

Submitted By

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Diploma Course in Computer Technology

(As per directives of I Scheme, MSBTE)


**Sinhgad Institutes**

Sinhgad Institutes

Sinhgad Technical Education Society's

**SOU.VENUTAI CHAVAN POLYTECHNIC**

**PUNE - 411041**

**ACADEMIC YEAR 2022-2023**

# Maharashtra State Board of Technical Education

## *Certificate*

This is to certify that **Mr. Tejas Argade** with Roll No. **46** of Semester **IV** of Diploma in **Computer Technology** of Institute **Sou. Venutai Chavan Polytechnic (Code: 0040)** has successfully completed the **Micro-Project** in **Software Engineering (22413)** for the academic year **2022-2023** as prescribed in the curriculum.

Program Code: CM
Course Code: CM/4/I
Place: Pune

Enrolment No: 2100400142

Date:_____ Exam Seat No: 169250

| Ms. A. D. Mate | Mrs. A. V. Kurkute | Mrs. M. S. Jadhav |
|---|---|---|
| **Course Teacher** | **HOD of Department** | **Principal** |

# Maharashtra State Board of Technical Education

## *Certificate*

This is to certify that **Mr. Narayan Malvankar** with Roll No. **31** of Semester **IV** of Diploma in **Computer Technology** of Institute **Sou. Venutai Chavan Polytechnic (Code: 0040)** has successfully completed the **Micro-Project** in **Software Engineering (22413)** for the academic year **2022-2023** as prescribed in the curriculum.

Program Code: CM
Course Code: CM/4/I
Place: Pune

Enrolment No: 2100400101

Date:_____

Exam Seat No: 169334

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## *Certificate*

This is to certify that **Mr. Harshwardhan Kharat** with Roll No. **35**of Semester **IV** of Diploma in **Computer Technology** of Institute **Sou. Venutai Chavan Polytechnic (Code: 0040)** has successfully completed the **Micro-Project** in **Software Engineering (22413)** for the academic year **2022-2023** as prescribed in the curriculum.

Program Code: CM
Course Code: CM/4/I
Place: Pune

Enrolment No: 2100400109

Date:_____ Exam Seat No: 169305

| Ms. A. D. Mate | Mrs. A. V. Kurkute | Mrs. M. S. Jadhav |
|---|---|---|
| **Course Teacher** | **HOD of Department** | **Principal** |

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# Annexure - I

## Micro-Project Proposal

## Software Requirements Specification on Hospital Management System

### 1.0 Aim of the Micro-Project:

The aim of the Micro-project is to write a Software Requirements Specification on Hospital Management System

### 2.0 Intended Course Outcomes:

a) Select suitable Software Process model for Software development.
b) Prepare Software Requirements Specifications.
c) Use Software modeling to create data designs.

### 3.0 Proposed methodology:

1. Study and understand the main aim of this topic.
2. Study the software properly.
3. Do research and gather the information.
4. Write down all the information and diagrams properly.
5. Prepared a Project plan.
6. Prepared the final project report.

## 4.0Action Plan:

| Sr. No. | Details of Activity | Planned Start Date | Planned Finish Date | Name of responsible Team members |
|---|---|---|---|---|
| 1 | Study about the Software App | | | Tejas Argade |
| 2 | Identify and collect requirements of the project | | | Narayan Malvankar |
| 3 | Design structure of the project | | | Harshwardhan Kharat |
| 4 | Prepare use case diagram. | | | Tejas Argade |
| 5 | Decide the proper sequence of the project. | | | Narayan Malvankar |
| 6 | Prepare the Final Report | | | Harshwardhan Kharat |

## 5.0 Resources Required

| S. No. | Resources required | Specifications |
|---|---|---|
| 1 | Computer system | Intel(R) Pentium CPU, RAM 8 GB |
| 2 | Operating System | Windows 11, 64 Bit Operating System |
| 3 | Software's | MS word, Star UML |

## 6.0 Team members:

| S. No. | Roll. number | Name of Student |
|---|---|---|
| **1** | 46 | Tejas Argade |
| **2** | 31 | Narayan Malvankar |
| **3** | 35 | Harshwardhan Kharat |

# Annexure - II

# Micro-Project Report

## 1.0 Aim of the Micro-Project:

The aim of the Micro-project is to write Software Requirements Specification on Hospital Management System

## 2.0 Rationale:

The rationale for creating a Software Requirement Specification (SRS) document for a Hospital Management System is to clearly define and document the software requirements and functionality needed to develop the system. This document serves as a blueprint for the development team, ensuring that all stakeholders have a clear understanding of the system's features, functions, and constraints. It also helps to identify potential problems and inconsistencies early in the development process, minimizing the risk of costly rework or project failure. Overall, an SRS document helps to ensure that the hospital management system is developed on time, within budget, and to the satisfaction of all stakeholders.

## 3.0 Course Outcomes Achieved:

a) Prepare software requirement specification

## 4.0 Literature Review:

It is a Framework for Developing Hospital Management System Using UML and OCL" by Prashant Kumbhar and Ravindra Gawande (2012)
This research paper discusses the use of Unified Modeling Language (UML) and Object Constraint Language (OCL) to develop a Hospital Management System. The authors emphasize the importance of creating a detailed SRS document to ensure that all stakeholders have a clear understanding of the system requirements.

the literature suggests that creating a detailed SRS document is crucial for the successful development of a Hospital Management System. The document should clearly define all system requirements and constraints and should be well-communicated to all stakeholders to ensure that the system meets their needs and expectations. The use of standardized development methodologies, such as UML and OCL,

and the application of RE techniques can help to ensure that the SRS document is comprehensive and accurate.

## What is SRS?

SRS stands for Software Requirements Specification. It is a comprehensive document that outlines the functional and non-functional requirements for a software application. The purpose of an SRS is to provide a clear and concise description of what the application is expected to do and how it is expected to behave. The document serves as a communication tool between the development team and the stakeholders, ensuring that everyone is on the same page regarding the requirements for the software. The SRS is a crucial component of the software development life cycle, as it guides the development team in creating a software product that meets the needs and expectations of the stakeholders.

## NEED OF SRS?

The need for an SRS lies in its ability to clearly define the functional and non-functional requirements of a software application. The SRS provides a clear and concise description of what the software is expected to do and how it is expected to behave. It serves as a communication tool between the development team and the stakeholders, ensuring that everyone has a common understanding of the requirements. The SRS helps to ensure that the development team creates a software product that meets the needs and expectations of the stakeholders. It also provides a basis for testing the software, as the SRS serves as a reference for the expected behavior of the software. Overall, the SRS is a critical component of the software development life cycle, as it guides the development team in creating a software product that is of high quality, meets user needs, and is delivered on time and within budget.

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# •SRS on Hospital Management System

## • Introduction

The SRS is produced at the culmination of the analysis task. The function and performance allocated to software as part of the system engineering and refined by establishing a complete information description, a detailed functional description, a representation of system behavior, indication of performance requirements and design constrains, appropriate validation criteria and the other information related to requirements. The SRS is technical specification of requirement of Hospital Management system. This specification describes what the proposed system should do without describing how it will do it. It also describes complete external behavious of proposed system.

## • Purpose:

The main purpose of our system is to make hospital task easy and is to develop software that replaces the manual hospital system into automated hospital management system. This document serves as the unambiguous guide for the developers of this software system.

## • Scope:

The document only covers the requirement specification for the hospital management system. This document does not provide any references to the other component of the hospital management system. All the external interfaces and the dependencies are also identified in this document

- **Feasibility Study:**

The overall scope of the feasibility study was to provide sufficient information to allow a decision to be made as to whether the hospital management system project should proceed and so, its relative priority in the context of the other existing hospital management system.

The feasibility study of this project had undergone through various steps which as describe as under:

a) Identify the origin of the information at different level.

b) Identify the expectation of user from computerized system.

c) Analyze the drawback of system .

- Product functions

The system will allow access only to authorized users with specific roles (Administrator,

Operator). Depending upon the users role, he/she will be able to access only specific

modules of the system.A summary of the major functions that thesoftware will perform:A login facility for enabling only authorized access to the system.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 Name is entered into the computer. Otherwise a new Patient ID is given to this patient.

# 4. Non-Functional Requirements

## 4.1. Performance Requirements

The user must have a device which is at least to play a 144p resolution video.

The user must have at least 500kbps of net connection in order to play the video without buffering.

### 4.2. Safety Requirements

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a server crash, there cover method restores a past copy of the data base that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed-up log, up to the time of failure. And in the meanwhile, the server switch to the backup servers to keep the site working.

### 4.3. Security Requirements

Security systems need database storage just like many other applications. However, the special requirements of the security market mean that owner must choose their database partner carefully. All the Private data uploaded by the user is absolutely confidential to the other users. User can also report for if the find any suspicious activity in the YouTube, so the security department can take care of that.

### 4.4. Software Quality Attributes

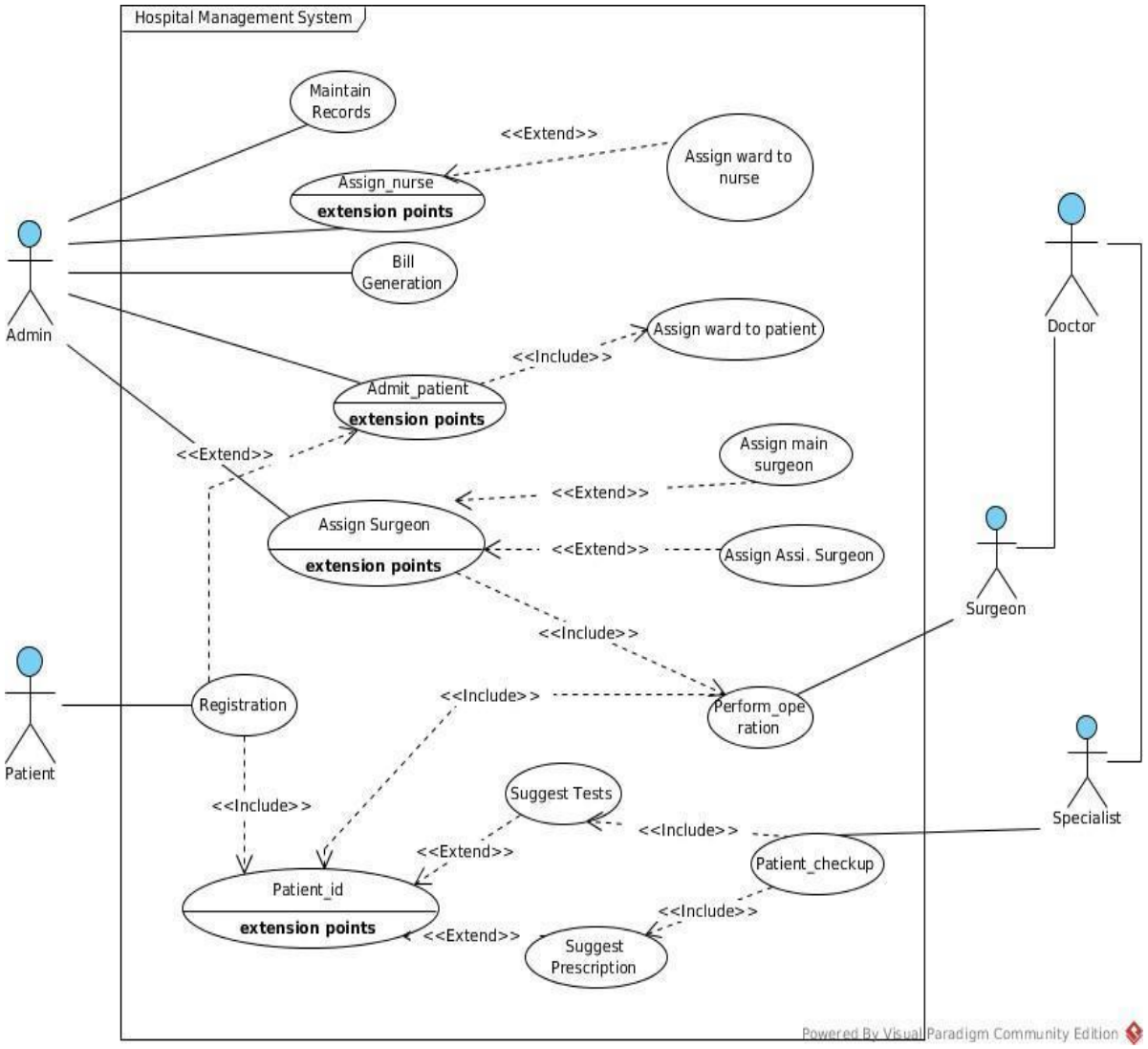
Availability: The site is available for the users 24x7.

Maintainability: The developers and a team of software engineers work on the maintenance and the updates of the site.

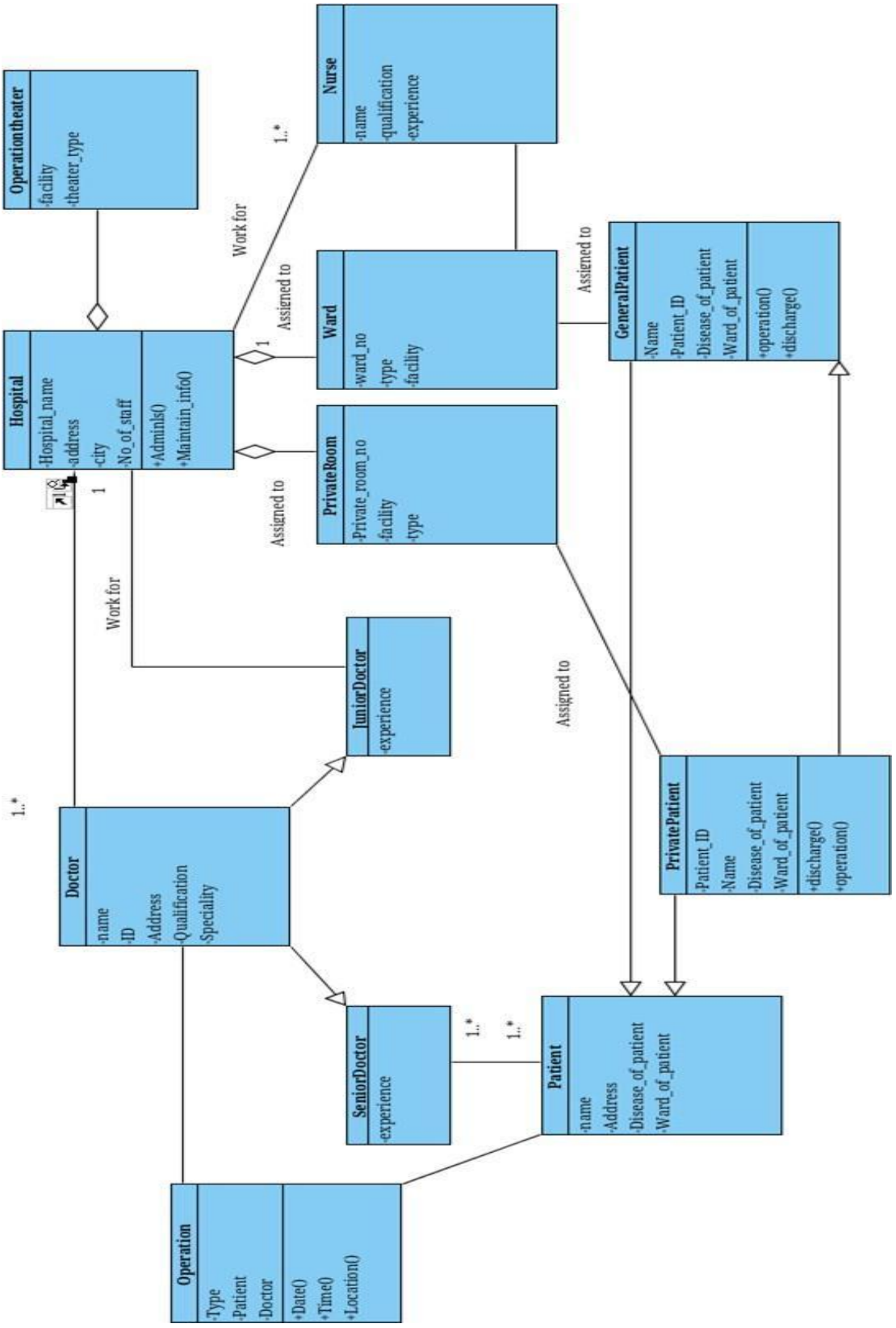
Usability: The site can be used anywhere if the connectivity to the internet and a device.

## User classes and characteristics

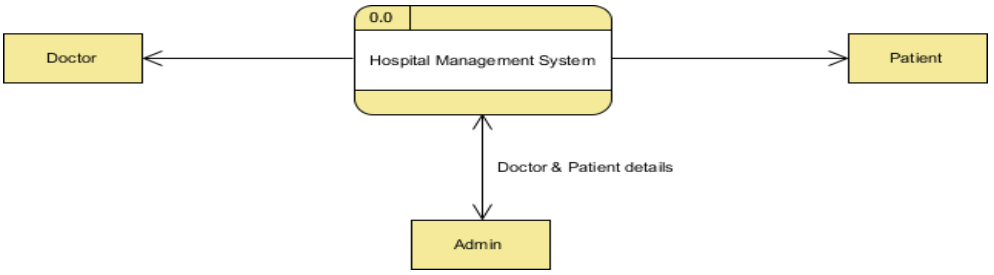
# 1. Use Case Diagram:



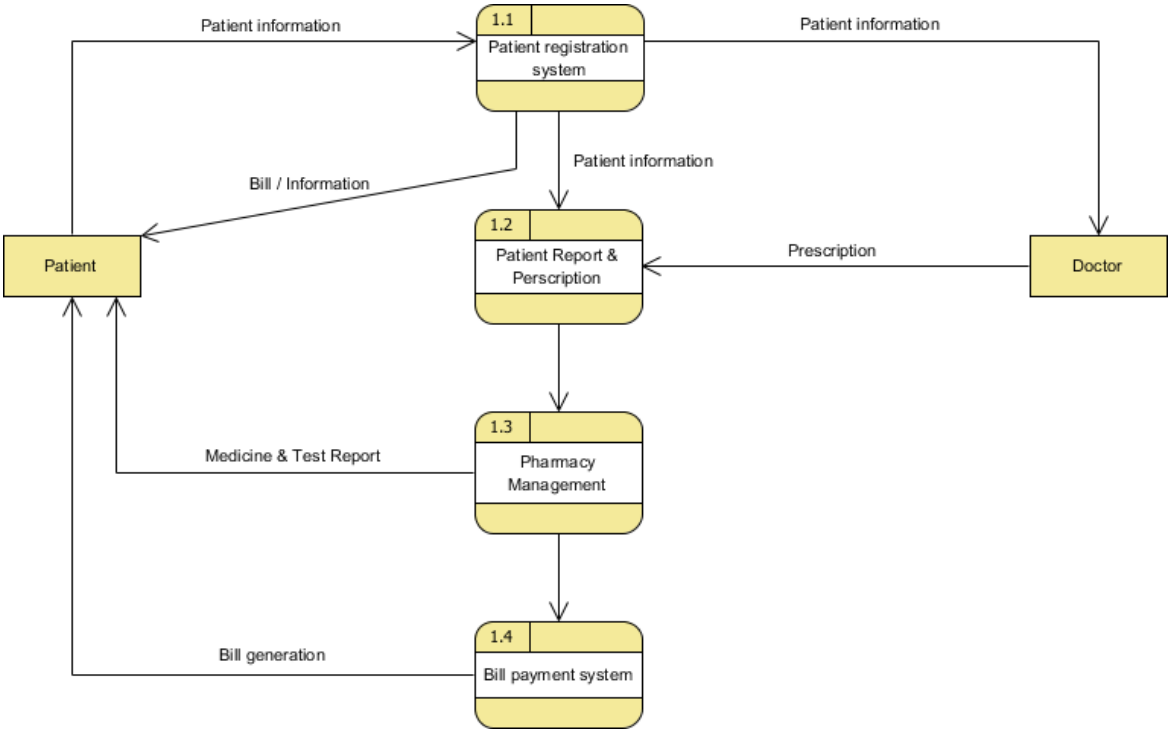

# Class diagram:-

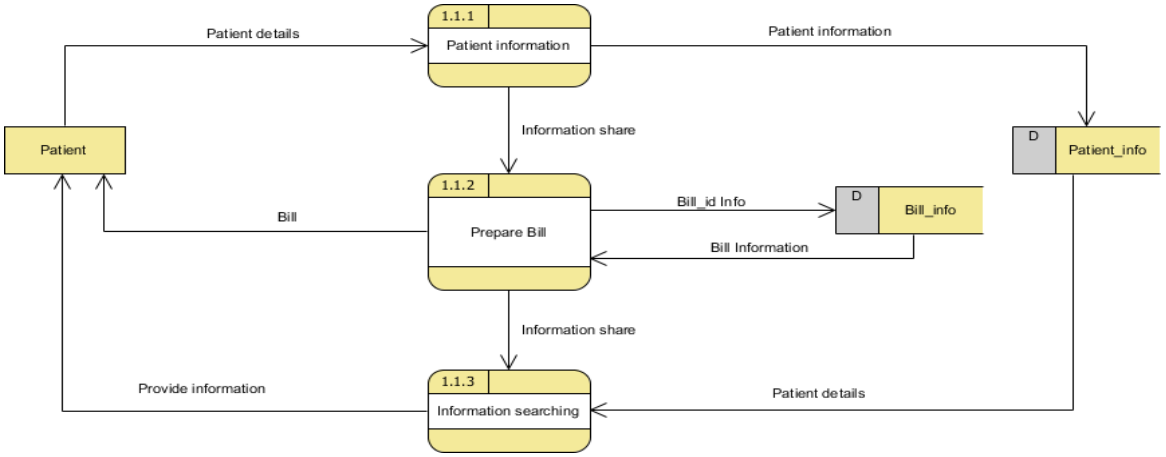

Operationtheater
-facility
-theater_type
Nurse
-name
-qualification
-experience
Work for
1..*
Assigned to
Hospital
-Hospital_name
-address
-city
-No_of_staff
+Adminls()
+Maintain_info()
1
Ward
-ward_no
-type
-facility
Assigned to
GeneralPatient
-Name
-Patient_ID
-Disease_of_patient
-Ward_of_patient
+operation()
+discharge()
PrivateRoom
-Private_room_no
-facility
-type
Assigned to
Work for
JuniorDoctor
-experience
Assigned to
1..*
Doctor
-name
-ID
-Address
-Qualification
-Speciality
PrivatePatient
-Patient_ID
-Name
-Disease_of_patient
-Ward_of_patient
+discharge()
+operation()
SeniorDoctor
-experience
1..*
1..*
Patient
-name
-Address
-Disease_of_patient
-Ward_of_patient
Operation
-Type
-Patient
-Doctor
+Date()
+Time()
+Location()

# DFD Level 0

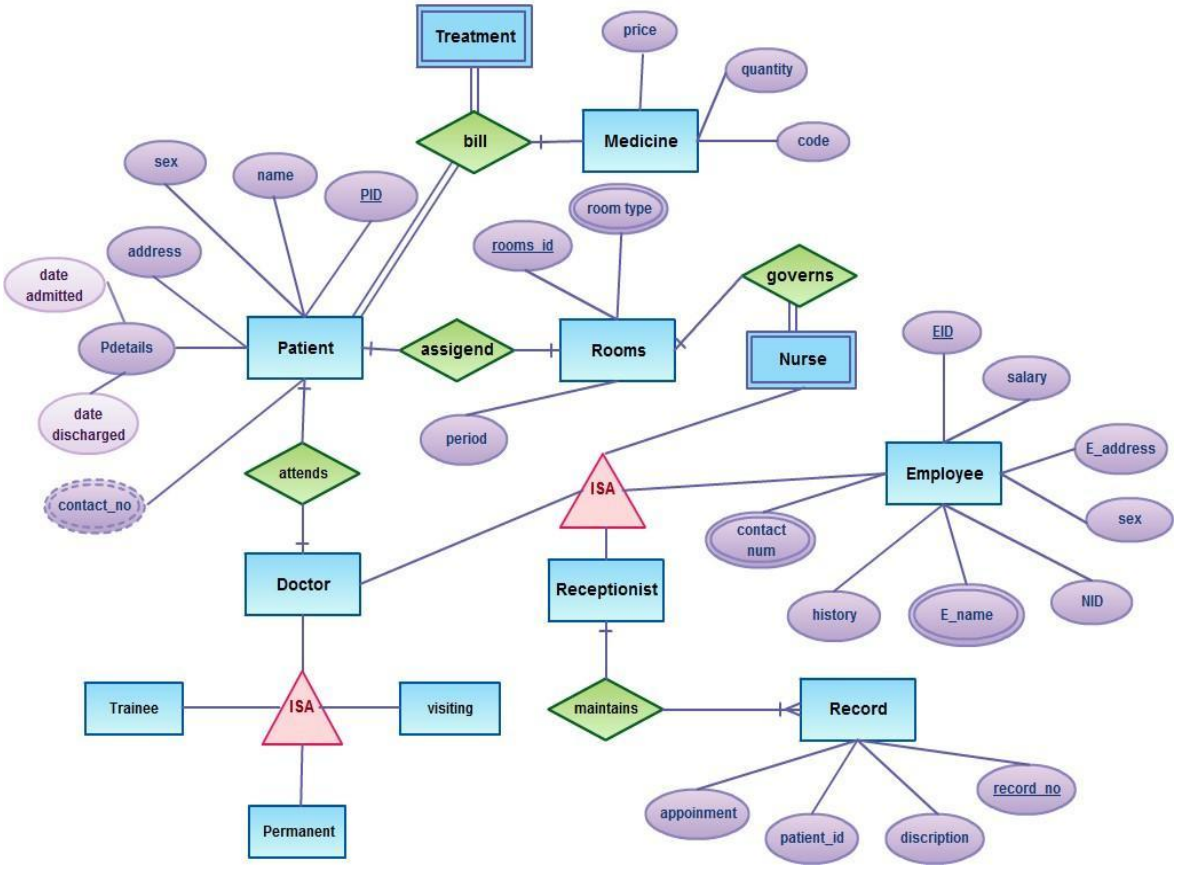

0.0
Hospital Management System
Doctor
Patient
Doctor & Patient details
Admin

# DFD Level 1


Patient information
1.1
Patient registration system
Patient information
Patient information
Bill / Information
1.2
Patient Report & Perscription
Prescription
Patient
Doctor
1.3
Pharmacy Management
Medicine & Test Report
1.4
Bill payment system
Bill generation


Patient details
1.1.1
Patient information
Patient information
Information share
Patient
D
Patient_info
1.1.2
Prepare Bill
Bill_id Info
D
Bill_info
Bill
Bill Information
Information share
Provide information
1.1.3
Information searching
Patient details

**E-R Diagram for Hospital Management System**




- Assumptions and dependencies
- It is assumed that one hundred compatible computers will be available before the system is installed and tested.

- It is assumed that Hospital will have enough trained staff to take care of the system.

- External Interface Requirements
- User interfaces (GUI design)

Input from the user will be via keyboard input and mouse point and click. The user will navigate through the software by clicking on icons and links. The icons will give appropriate responses to the given input.

- Hardware interfaces

All components able to be executed on personal computers with Windows OS platforms and other platforms like Linux, Unix.

- Operating system: window
- Hard disk :40 GB
- RAM: 256 MB
- Processor: Pentium(R)Dual-core CPU
- Software interfaces

All the interfaces will be ASPX pages running within the internet browser. The SMS must integrate with the DB though SQL Interface. The system will be hosted in a web server running on Windows Server 2005.

- Java language
- Net beans IDE 7.0.1
- MS SQL server 2005
- Communication protocols and interfaces

This project can compatible with all platforms. Connections to the system will be over TCP/IP connection, project supports all types of web browsers. I have used database so my system can work offline.

- Window

The entire project mainly consists of 7 modules, which are:

- Admin module
- User module (patient)
- Doctor module

- Nurse module
- Surgeon module
- Laboratories module
- Staff module

- Description and priority
- Patient: In patient module here, we can register the new patient, during registration we enter the basic information regarding patient. There are two types of patient one is inpatient and another is Outpatient. If patient is inpatient then we can check the availability of room in particular ward.

- Appointment Scheduling: In appointment scheduling we schedule the appointment for new patient in which we assign the date, time, department and doctor is available that time. If patient want particular doctor then we can search the doctors scheduling and available time for that doctor. Here we add the urgency and reminder to patient. We can also cancel the appointment of particular patient.
- Admission: In this module we can search the only admitted patient. Here we can update his details like prescription, notes and reports, measurement, birth details, pregnancies and we can cancel the particular admission.
- Ambulatory: In this module we can see the information related to patients which are outpatient. Here we can see the department wise appointment and particular day's outpatient. We can also see the today's waiting list and also transfer or take over the patient from one department to another department. From here we can also admit the patient.

- Employee: In this module we can register the

new employee, for which we can enter the basic information about employee and his professional details.

- Doctors: In this module we can view the today's doctor on call schedule department-wise. Here we can create the duty plan of doctor and edit or update the duty plan of particular doctor. Here we can add/delete the doctor to particular department.
- Operation Room: Here we can search the patient who is gone through any operation and his detail information like operation date, surgeon, therapy, special notice, operation type, operation room number. Here we can also give the quick view of today's nurses on standby duty and we can create the duty plan for particular nurse.
- Laboratories: In this module we have to fill up the form and send the request to laboratory test. Here we can also see the pending request. We can also search the particular patient and view the laboratory information of particular patient.

- Action
- Admin module:
- manage department of hospitals, user, doctor, nurse, pharmacist, laboratorist accounts.
- watch appointment of doctors
- watch transaction reports of patient payment, Bed, ward, cabin status
- watch blood bank report
- watch medicine status of hospital stock
- watch operation report
- watch birth report
- watch diagnosis report
- watch death report

- user module(patient):

- View appointment list and status with doctors
- View prescription details
- View medication from doctor
- View doctor list
- View blood bank status
- View operation history
- View admit history. like bed, ward, ICU etc.
- Manage own profile
- Doctor module:
- Manage patient account opening and updating
- Create, manage appointment with patient
- Create prescription for patient
- Provide medication for patients
- Issue for operation of patients and creates operation report
- Manage own profile
- Nurse module:
- Manage patient account opening and updating
- Allot bed, ward, cabin for patients
- Provide medication according to patient prescription
- Manage blood bank and update status
- Keep record of patient operation, baby born and death of patient
- Manage own profile
- Pharmacist module:
- Maintain medicine
- Keep records of hospitals stock medicines and status

- Manage medicine categories
- Watch prescription of patient

- Provide medication to prescriptions
- Laboratorist module:
- Watch prescription list
- Upload diagnostic report
- Preview of report files. like X-Ray images, CT scan, MRI reports
- Manage own profile
- Accountant module:
- Create invoice for payment
- Order invoice to patient
- Take cash payment
- Watch payment history of patients
- Manage own profile

- **Functional requirements**

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.

The performance of our software is at its best when the following are regularly done:

- Password Management
- Regular Database Archiving
- Other Non-functional Requirements
- Performance requirements
- Virus Protection

- **Safety requirements**

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.

- **Security requirements**

Each member is required to enter an individual Username & password when accessing the software. Administrators have the option of increasing the level of password security their members must use. The data in the database is secured through multiple layers of Protection. One of those security layers involves member passwords. For maximum Security of your software, each member must protect their password.

- **Software quality attributes**

The Quality of the system is maintained in such a way so that it can be very user-friendly. The software quality attributes are assumed as under:

- Accurate and hence reliable.
- Secured.
- Fast Speed.
- Compatibility.

## Other Requirements

A degraded mode of operation should be possible in which each system can operate independently of central scheduling. The software shall have failure and major catastrophic functions.

### 5.0 Actual Methodology Followed:

1. Study and understand the main aim of this topic.
2. Study the software properly.
3. Do research and gather the information.

4. Write down all the information and diagrams properly.
5. Prepared a Project plan.
6. Prepared the final project report.

## 6.0 Actual Resources Used:

| S. No. | Resources required | Specifications |
|---|---|---|
| **1** | Computer system | Inteli7-12700h Pentium CPU, RAM 16 GB |
| **2** | Operating System | Windows 11, 64 Bit Operating System |
| **3** | Software's | MS word, Star UML |

## 7.0 Skills Acquired:

During the course of this microproject, we analyzed a SRS (Software Requirement Specification) Document on Hospital Management System

We learnt how to prepare a proper SRS document on Hospital Management System.

## 8.0 Conclusion:

The Software Requirement Specification (SRS) document is essential for the successful development of a Hospital Management System. It provides a blueprint for the development team to follow and ensures that all stakeholders have a clear understanding of the system requirements, functionality, and constraints.

Overall, creating an SRS document is a critical step in the development of a Hospital Management System. It helps to identify potential problems and inconsistencies early in the development process, minimizing the risk of costly rework or project failure. A well-defined SRS document can help to ensure that the system is developed on time, within budget, and to the satisfaction of all stakeholders.