Apollo Hospital SRS

Software Engineering (Lovely Professional University)

CSE-320

Software Engineering

Software Requirements Specification (SRS)

For

Apollo Hospitals.

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Purpose:

The purpose of this Software is for the automation of Apollo Hospital Management. it maintains two levels of users one is Administrator Level and User Level. The Software includes Maintaining Patient details, Providing Prescription, Precautions and Diet advice. Providing and maintaining all kinds of tests for a patient. Billing and Report generation.

Scope:

The purpose software product is the Apollo Hospital Management System. The system will be used to get the information from the patients and then storing that data for future usage. The current system in use is a paper-based system. It is too slow and cannot provide updated listed of patients within a reasonable timeframe. The intentions of the system are to reduce over-time pay and increase the number of patients that can be treated Acurantly, requirement statement in this document are both functional and non-functional.

Definitions, Acronyms and Abbreviations:

CFD :- Content Flow Diagram
DFD :- Data flow Diagram
IDE :- Integrated Development Environment.
SQL :- Structured Query Language.
SRS :- Software Requirement Specification
GUI :- Graphical User Interface
EDM :- Entity data Model
Ms SQL :- Microsoft structured Query Language.

Terminology:

Health systems management or health care systems management describes the leadership and general management of hospitals, hospital networks, and/or health care systems. In international use, the term refers to manage ment at all levels. In the United states, manage-ment of a single institution (e.g. a hospital) is also referred to as medical and health services management, healthcare management, or health administration.

Health systems managements ensures that specific outcomes are attained, that departments within a health facility are running smoothly, that the right people are in the right jobs, that people know what is expected of them, that resources are used efficiently and that all departments are working towards a common goal.

References:

1. https://en.wikipedia.org/wiki/Health_administration
2. www.apollohospitals.com
3. https://www.scribd.com/doc/60567651/apollo Hospital-Management-System-SRS-and-UML-Diagrams.
4. http://www.slideshare.net/HimaniChopra/apollo hospital-management-system-project.
5. http://dotnetfunda.com//articles/show/1052/sample-software-requirements-specification-for-hospital-info-managemen.

Overview:

This Software Requirements Specifications (SRS) is the requirements work product that formally specifies Hospital Patient Info Management System. It includes the results of both business analysis and systems analysis efforts. Various techniques were used to elicit the requirements and we have identifies your needs, analyzed and refined them. The objective of this document therefore is to formally describe the systems high level requirements including functional requirements, non-functional requirements and bussiness rules and constraints. The detail structure of this document is organized as follows.

Section 2 of this document provides an overview of the bussiness domain that the proposed apollo Hospital Patient Info Management System will support. These include a general description of the product, user characteristics, general constraints, and any assumptions for this system. This model demonstrates the development team's understanding of the business domain and serves to maximize the team's ability to build a system that truly does support the bussiness. Section 3 presents the details requirements, which comprise the domain model.

General Description:

Product Perspative:

This Hospital Patient Info Management System is a self-contained system that managed activities of the hospital as Patient Info. Various stakeholders are involved in the hospital patient info system.

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 & telephone number is also entered into computer system.

Patient checkout: 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 ~~will be used in hospital. The administators, front-desk staff~~ will generates reports on the following information: List of detailed information regarding the patient who ha admitted in the hospital.

User Characteristics:

The system will be used in hospital. The administators, 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.

Administrators:

They all have post-secondary education relating to general business administration pratices. Every administrator has basic computer training. They are responsible for all of the scheduling and updating day/night employee shifts.

General Constraints:

The system must be delievered by January 1st 2011.

The existing Telelcommunication infrastructure is based on IEEE 100802.3 standards and the system must conform to this standard using category 5 cables for networking. The system must be user-friendly.

Assumptions and Dependencies:

It is assumed that one hundred IBM 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.

Specific Requirements

Registration:

Add patients

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

Assign ID

The HPIMs 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.

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

The HPIMs shall generate reports on patients about the following information: patient's PHN, patient's name, ward name, bed name, bed number and the doctor's name which was assigned.

Bed Availability

The HPIMs shall generate reports on bed availability about the following information: ward name, bed ~~nan~~number, occupied / unoccupied.

Database:

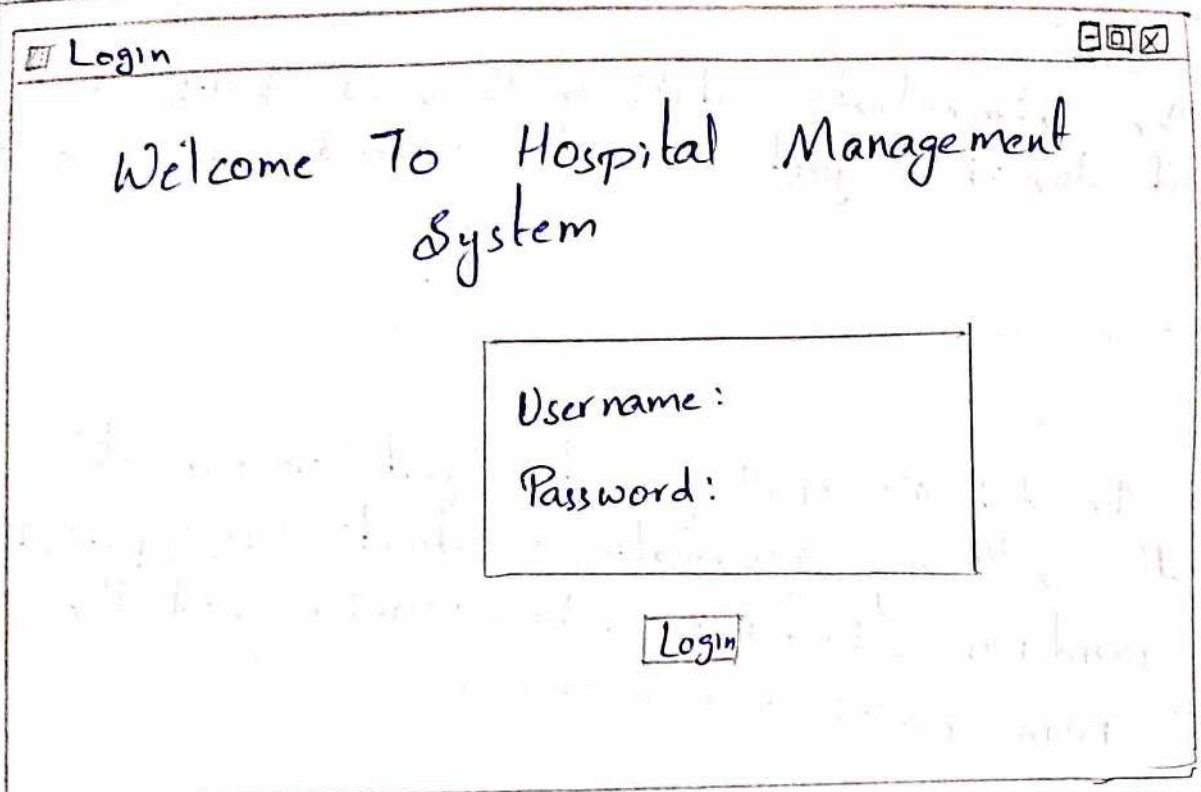
Patient Mandatory Information

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.

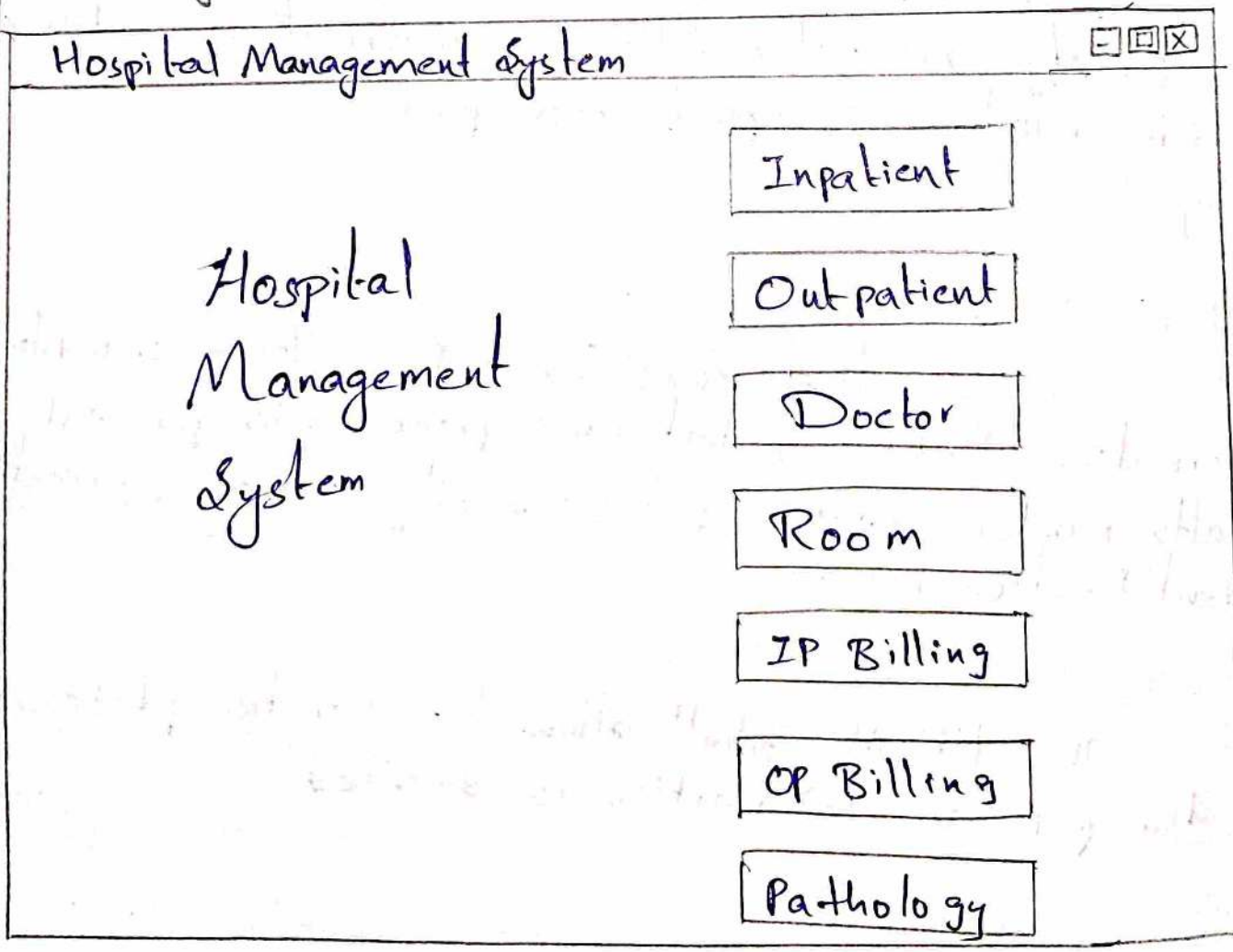
Update Patient Information

The HPIMs shall allow the user to update any of the patient's information as described

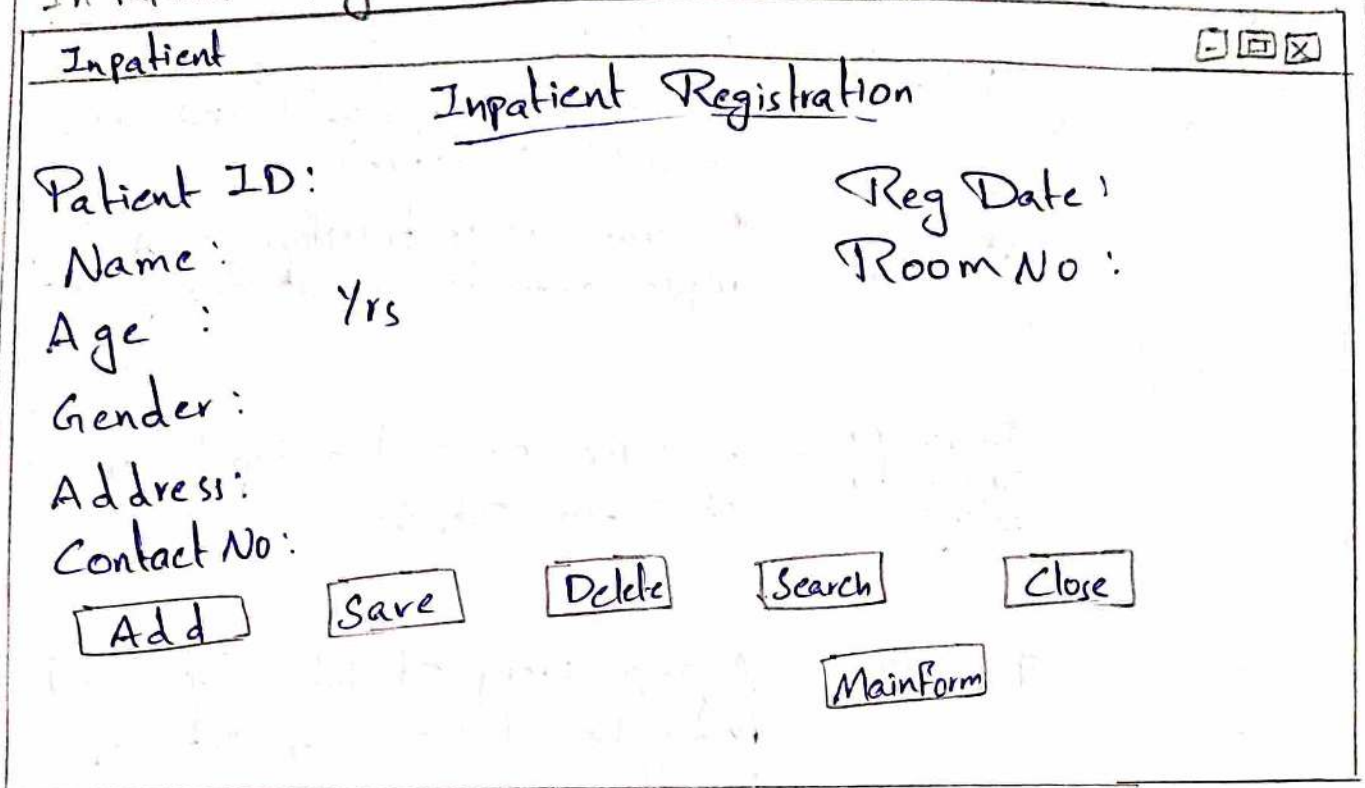
Log in form:



Home page of Apollo hospitals system:



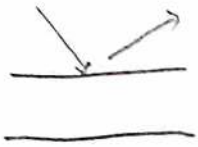
In Patient Registration form:



Data Flow Diagrams:

The data flow diagram (DFD) is a graphical representation of the flow of data through an information system. Data flow diagrams are used by systems analysts to design information-processing systems but also as a way to model whole organizations. The main merit of DFD is that it can provide an overview of what data a system would processes, what transformations of data are done, what data are stored and which stored data is used, and where the result is flow.

Standard Symbols used in DFD:

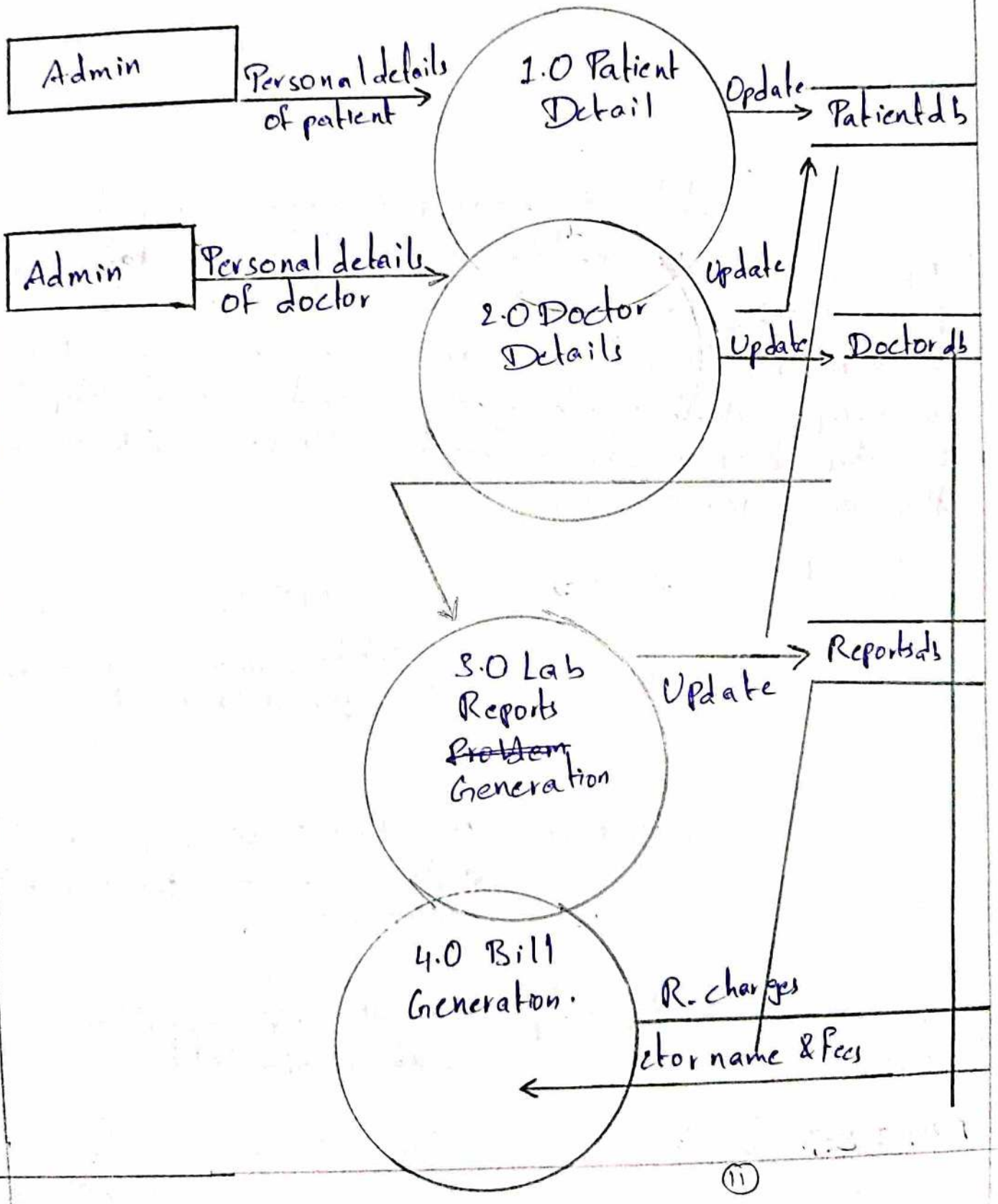
Symbol	Name	Function
	Dataflow	Used to connect processes to each other. The arrowhead indicates direction of dataflow.
	Process	Performs some transformation to input data to output data.
	Source or sink (external entity)	A source of system inputs or sink of system outputs.
	Datastore	A repository of data. Arrowheads indicate net inputs or net outputs to the store.

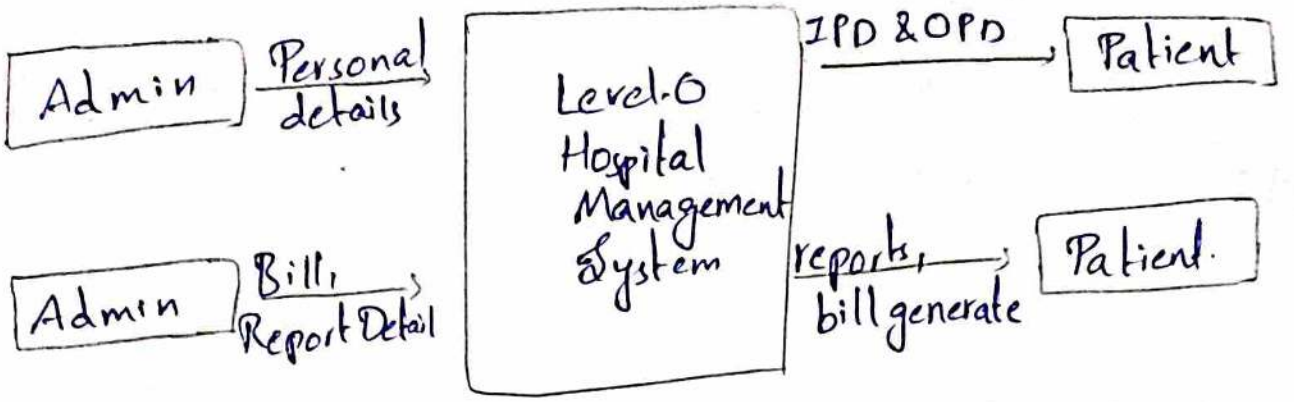
Level 0 DFD:

A context diagram is a top level (also known as level 0) data flow diagram. It only contains one process node (process 0) that generalizes the function of the entire system in relationship to external entities. In level 0 dfd, system is shown as one process.

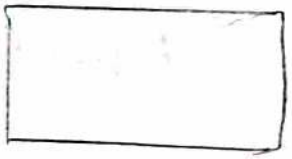
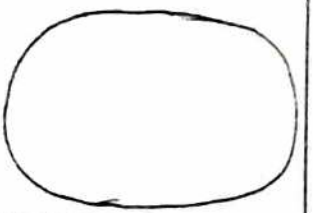
The Level 0 DFD shows how the system is divided into 'sub-systems' (processes), each of which deals with one or more of the data flows an external agent, and which together provide all of the functionality of the system as a whole. It also identifies internal data stores that must be present in order for the system to do its job, and shows the flow of data between the various parts of the system.

Level 1 DFd:

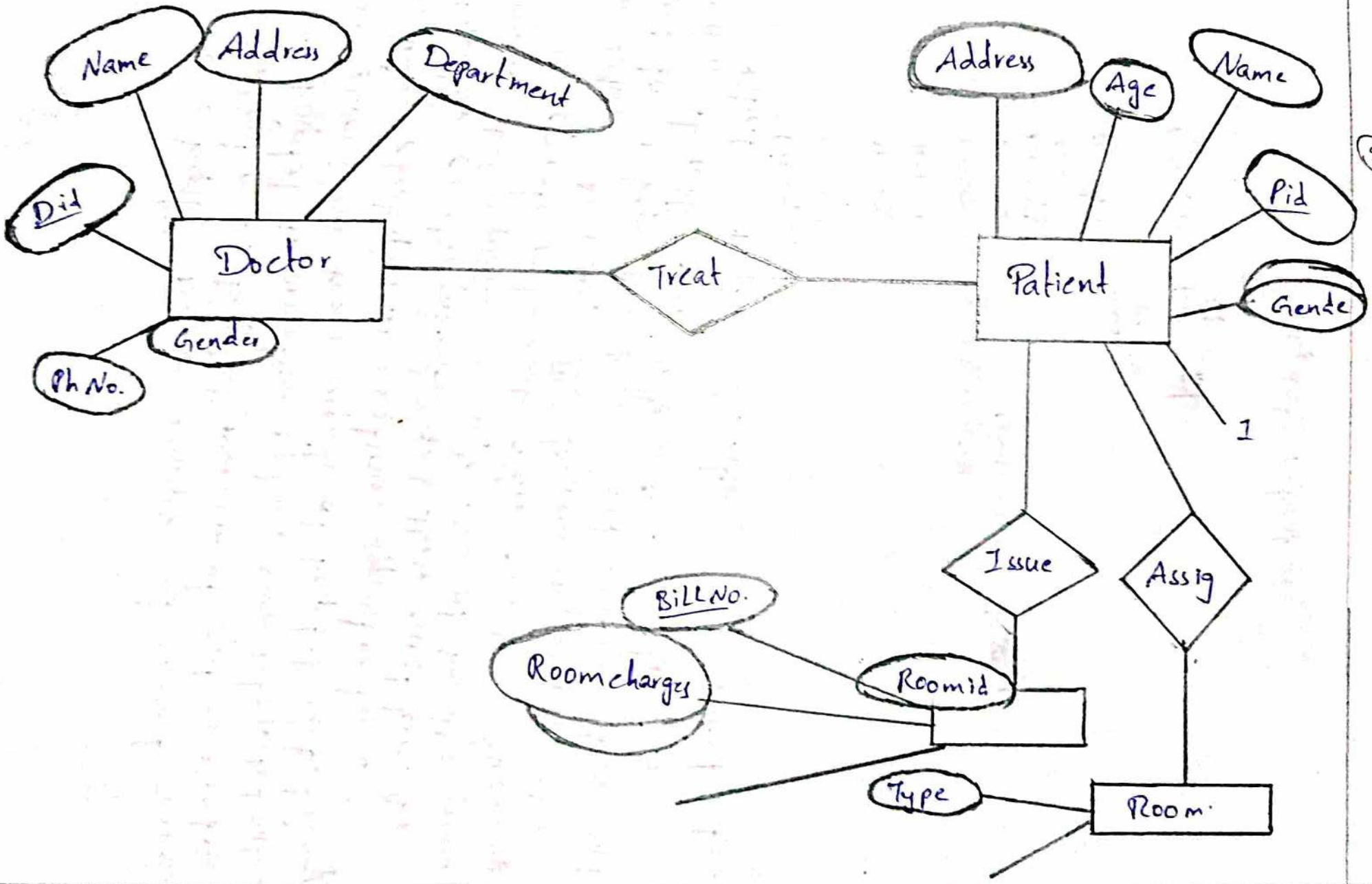




E-R Diagram: Entity-Relationship Diagram is a graphical representation of entities and ~~other~~ their relationship to each other It describes how data is related to each other. An entity is a piece of data- an object or a concept about which data is stored. A relationship is how the data is shared between entities. In E-R Diagram, there are 3 main Components:

Symbol	Name	Description
	Entity	An entity can be any object, place, person or anything.
	Attribute	An Attribute Describes a property a or characteristics of an entity.
	Relationship	A Relationship Describes relation blw entities

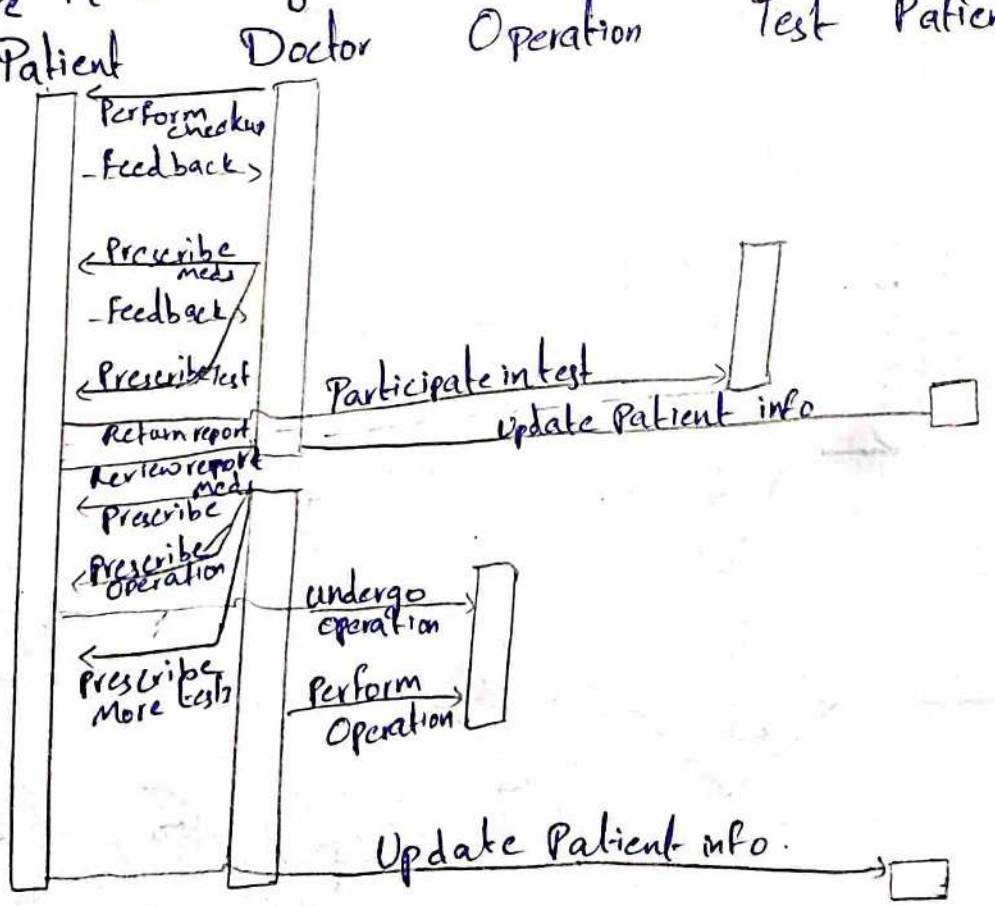
E-R Diagram of Apollo Hospital Management System:



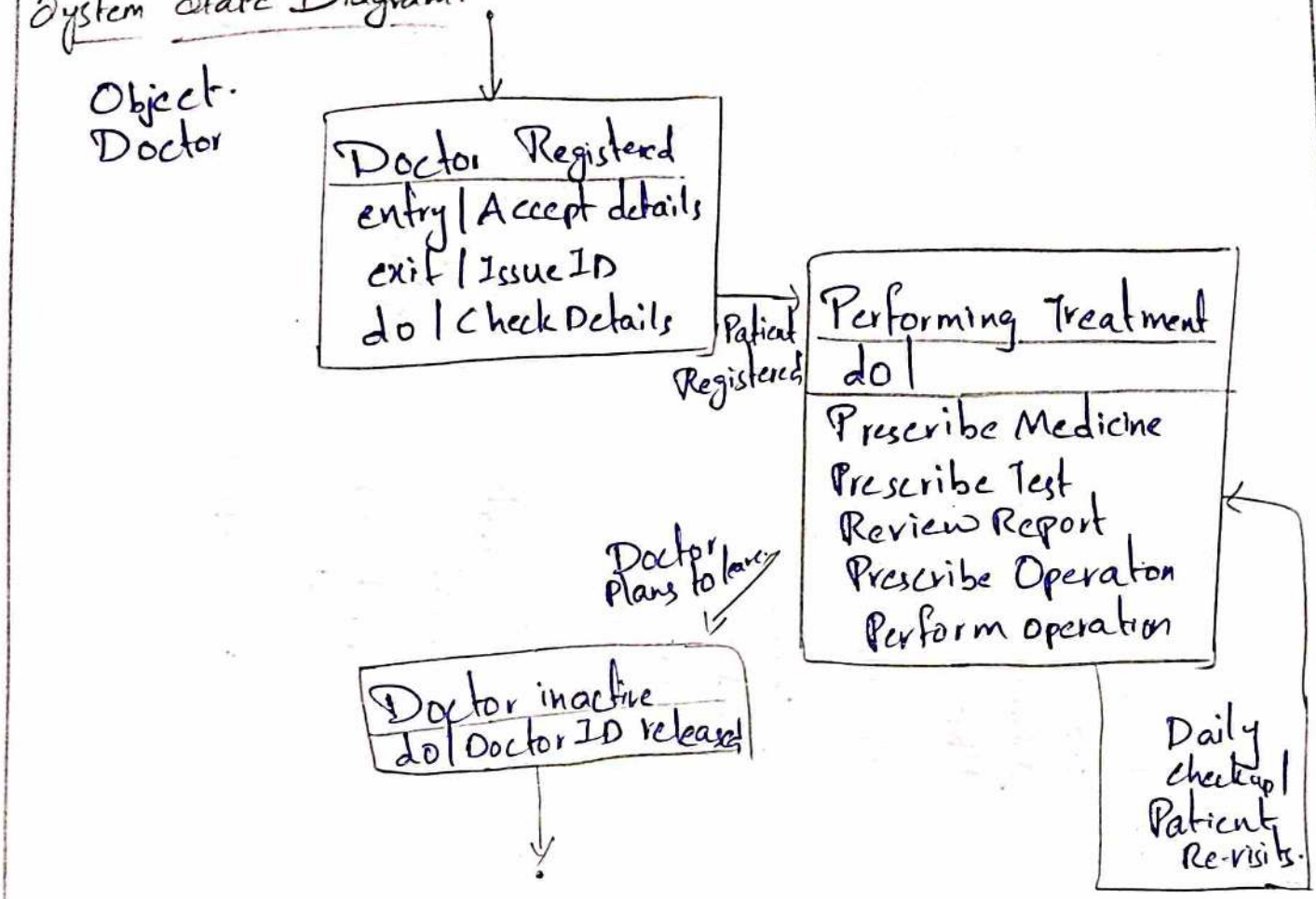
Overall System:

System Sequence Diagram:

Running a hospital requires a simple and succinct overview of the system. A hospital management system, also known as a hospital information system, is an integrated system that encompasses many aspects of hospital undertakings, including checkups, prescriptions, appointments, and information on the patients and their caretakers. The diagram below provides a simple view of how the primary process operate with each other over time. You can use Lucidchart to reshape the diagram any way you choose, and to reshape the diagram and way you choose, and to share it with your colleagues or collaborator.



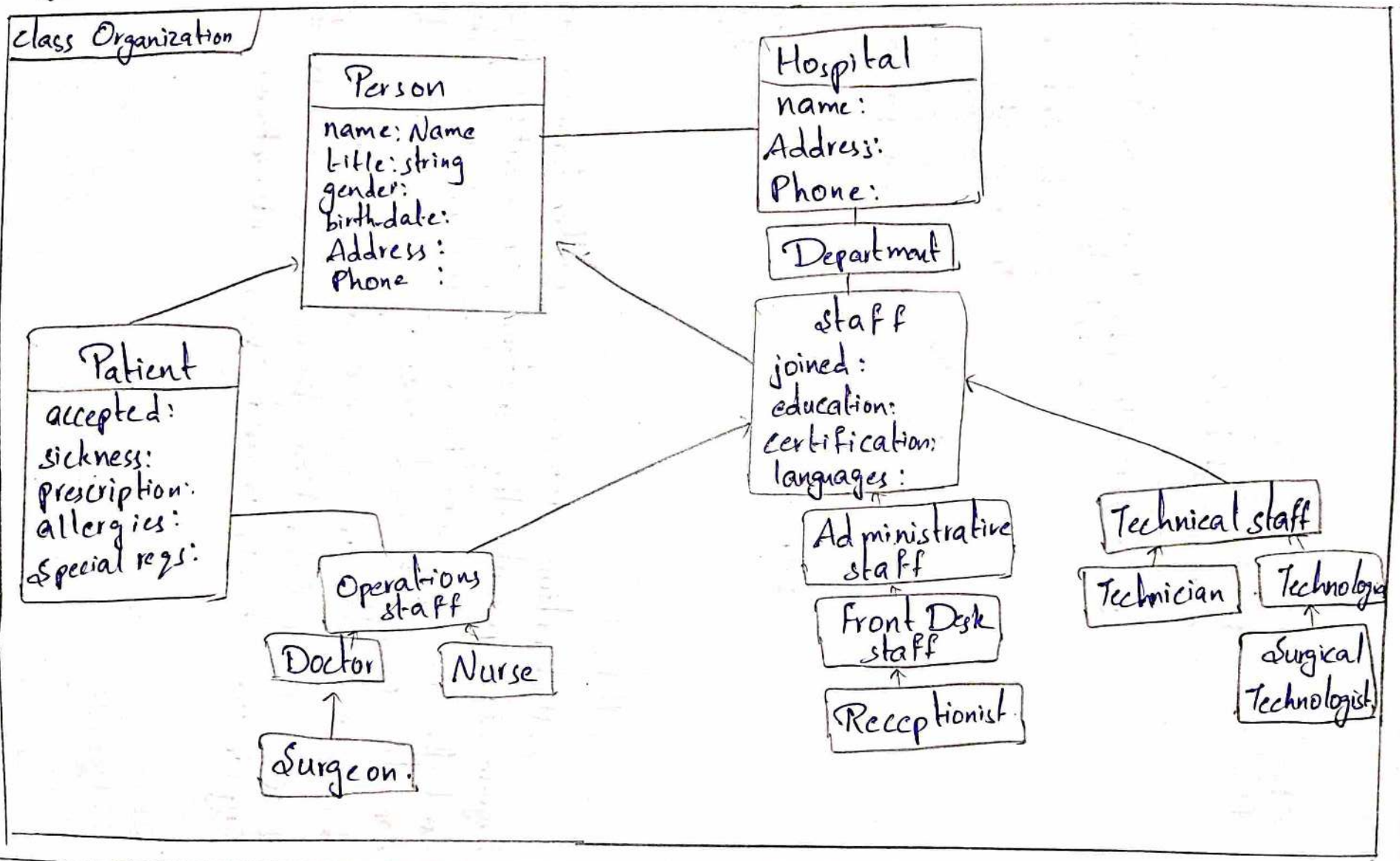
System state Diagram:



System collaboration diagram:

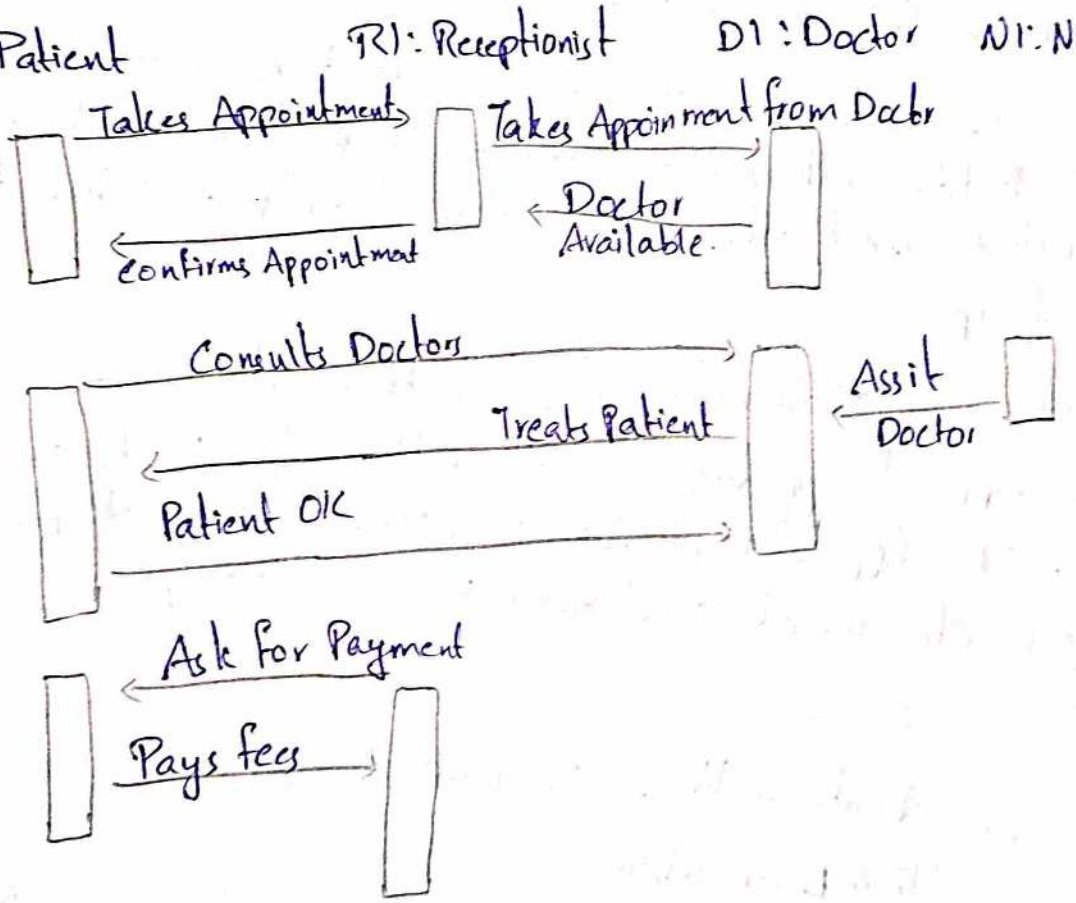
Collaboration diagram is another form of interaction diagram. It represents the structural organization of a system and the messages sent/received. Structural organization consists of objects and links. The purpose of collaboration diagram is similar to sequence diagram. But the specific purpose of collaboration diagram is to visualize the organization of objects and their Interaction.

System Conceptual diagram:



Collaboration sequence diagrams:

A sequence diagram is an interaction diagram. From the name it is clear that the diagram deals with some sequences, which are the sequence of messages flowing from one subject to another. Interaction among the components of a system is very used to visualize the sequence of calls in a system to Perform a specific functionality.



External Interface Requirements

User interface:

The application will have a user friendly and menu based interface. Following screens will be provided.

A Login Screen for entering username, password and role (Administrator, operator) will be provided. Access to different screens will be based upon the role of the user.

A form for search the details of the patient.

The Form for creating a new patient record will contain text fields where the Patient ID will be machine generated and the rest of the details will have to be filled up.

A form for generating the tests reports.

The Form to produce a bill will create fields such as Patient ID, Appointment No., Doctor's charges, Hospital charges etc. which will need to be filled up.

Hardware Interface

Processor: Pentium IV AND motherboard

RAM: 512 MB or above

Hard Disk: 40GB or above

Input Devices: Keyboard, Mouse

Output Devices: Monitor; 14 VGA.

Non. functional Requirements:

Performance

Response Time:-
The system shall give responses in 1 second after checking the patients 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.

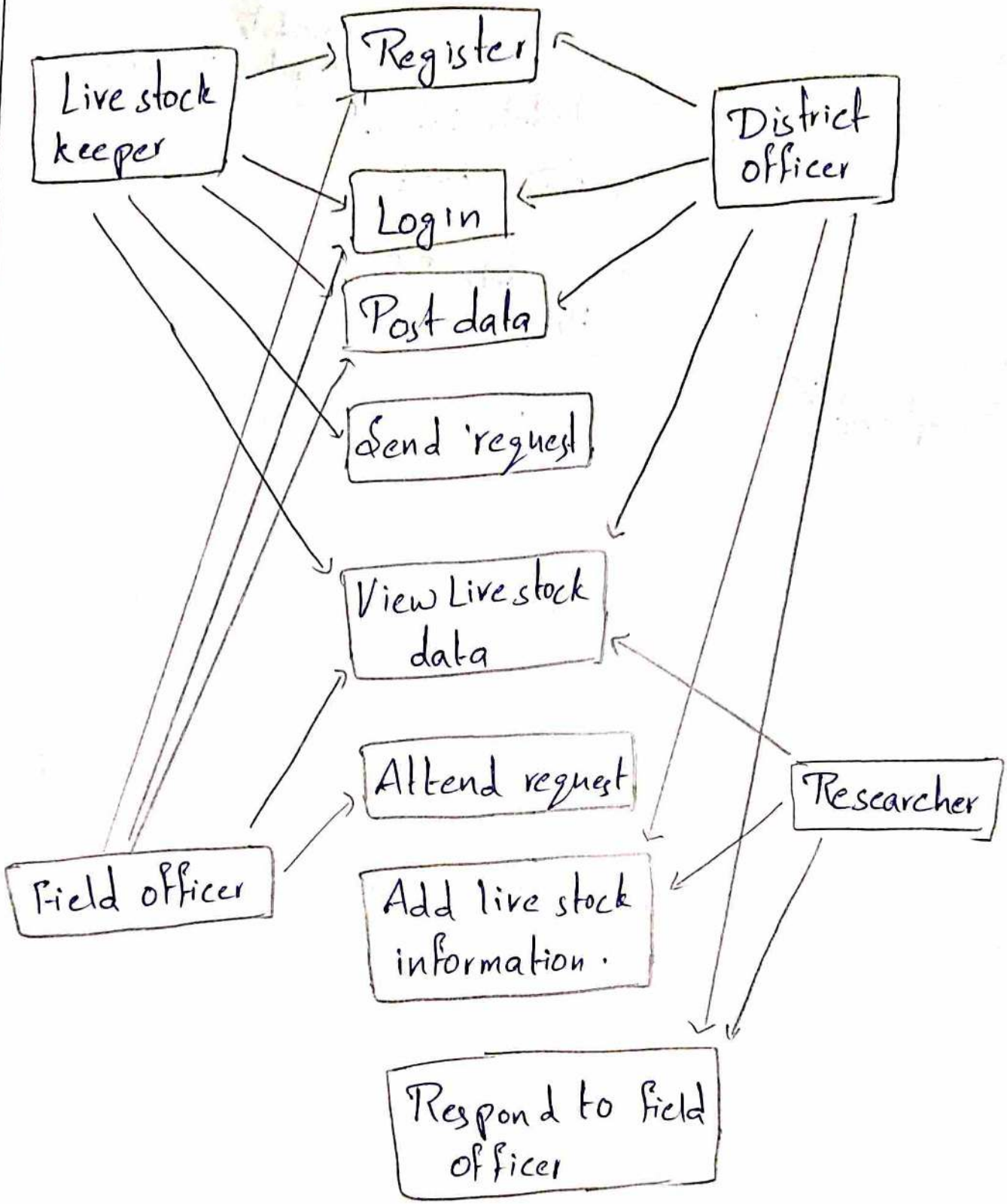
Use Case Diagram for Apollo hospitals:

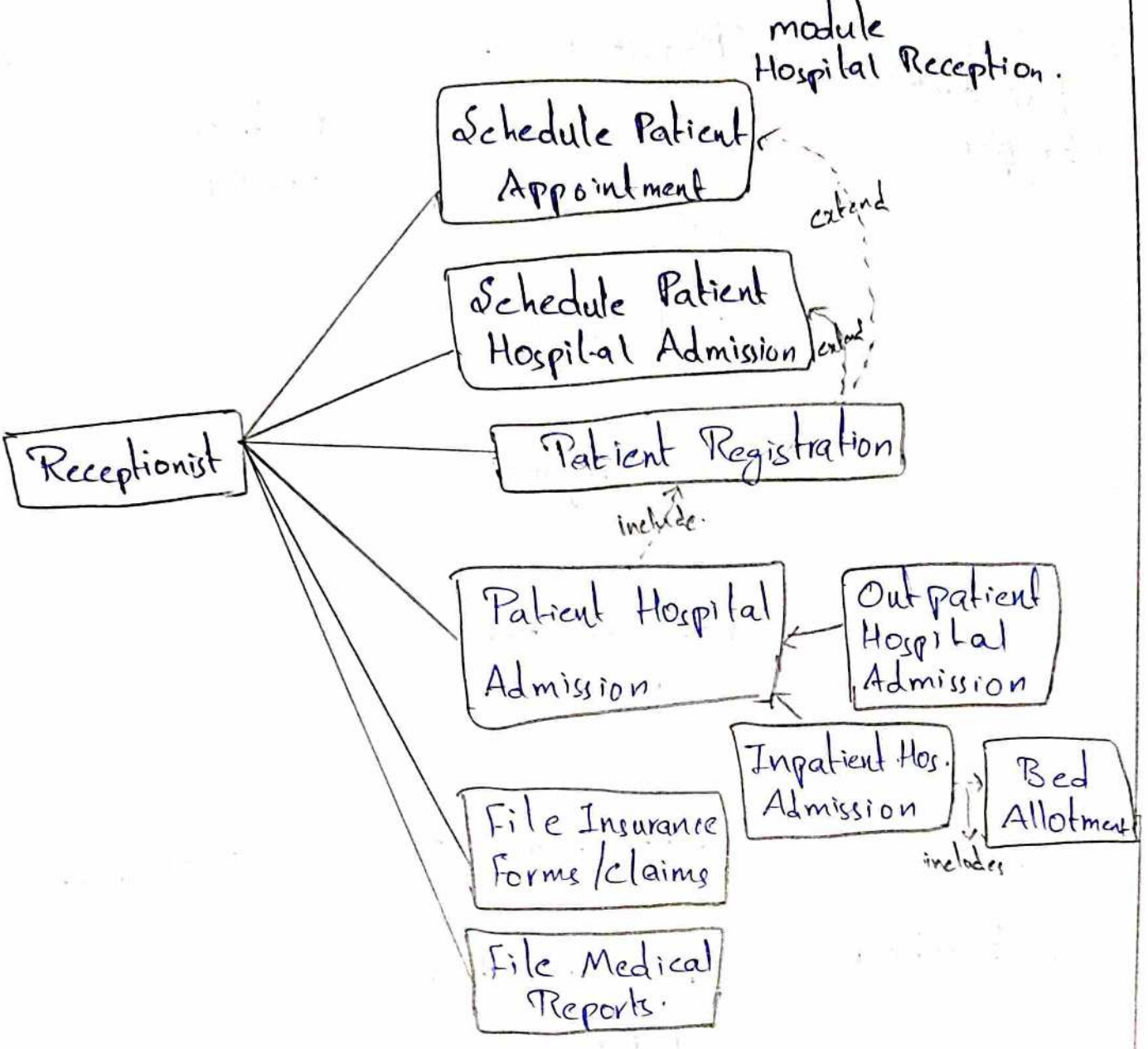
Hospital management system helps in registering information about patients and handles patient's query. A unique ID is generated for each patient after registration. This helps in implementing customer relationship management and also maintains medical history of patient. This system also mointors the doctor appointments, when the ID is generated the patient receives the appointment time and number from the receptionist and accordingly visit the doctor. This system also deals with testing appointments as and when ID is generated the patient receives the appointment time and number and accrondingly undergoes the test.

It is also deals with bed allotments to various patients by checking their ID. It also undergoes various operations by diagnosing the patients. The system identifies whether the person is a doctor or staff and handles various activities such as draw salary and give salary, also it adds doctors/staff information into database. This system is responsible for handling various other activities like deleting, editing doctor/staff information into the database. As per doctor diagnoses the patient, gives treatment and gives suggestions to patients and prescribe laboratory tests and medicines. This system also takes care of medical equipment, doctor visit, vitals recording, patient case sheet, diet ordering, blood requisition, transfer information and discharge information, maintenance of wards, inter and intrawards transfers also it generates patient's discharge, medical history, various diagnosis and drug prescriptions, history of patients illness and course in hospital. Patient can pay bill through credit card, cash or cheque whose information is maintained by this system.

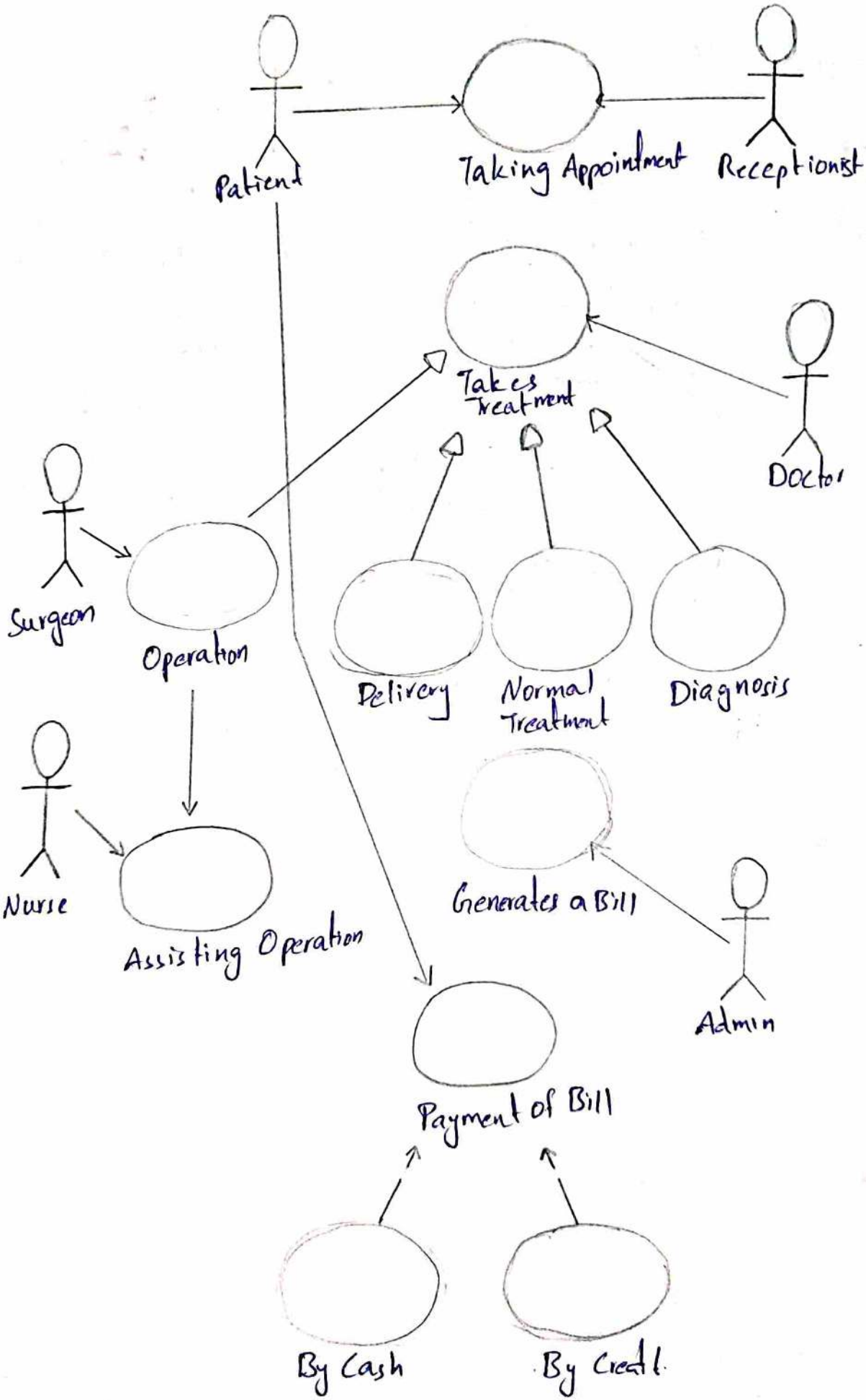
Hospital Reception:

Subsystem or module supports some of the many job duties of hospital receptionist. Receptionist schedules patient's appointments and admission to the hospital, collects information from patient's arrival and/or by phone. For the patient that will stay in the hospital she or he should have a bed alloted in a ward. Receptionists might also receive patients payments, record them in a database and provide receipts, file insurance claims and medical reports.



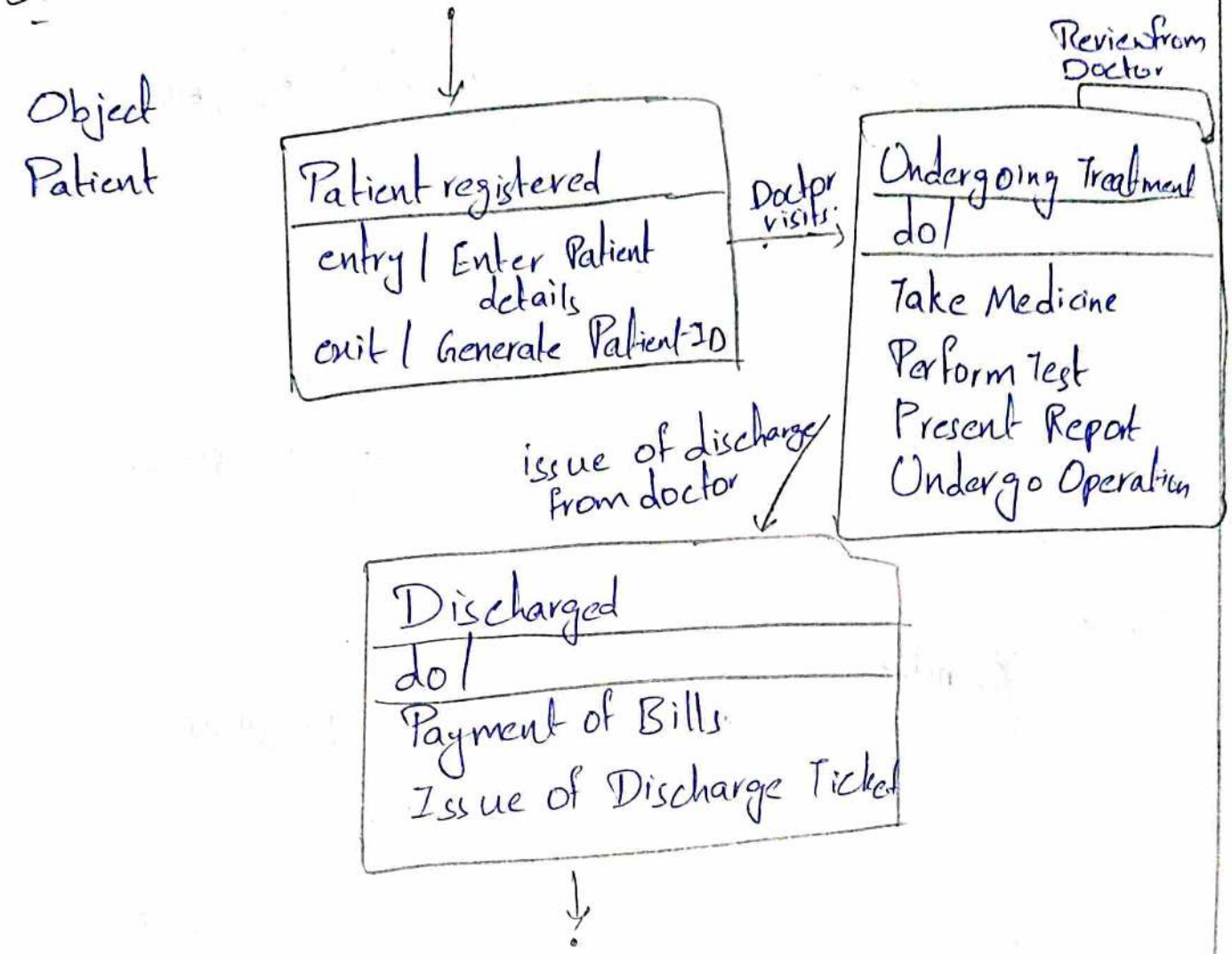


Use Case Diagram



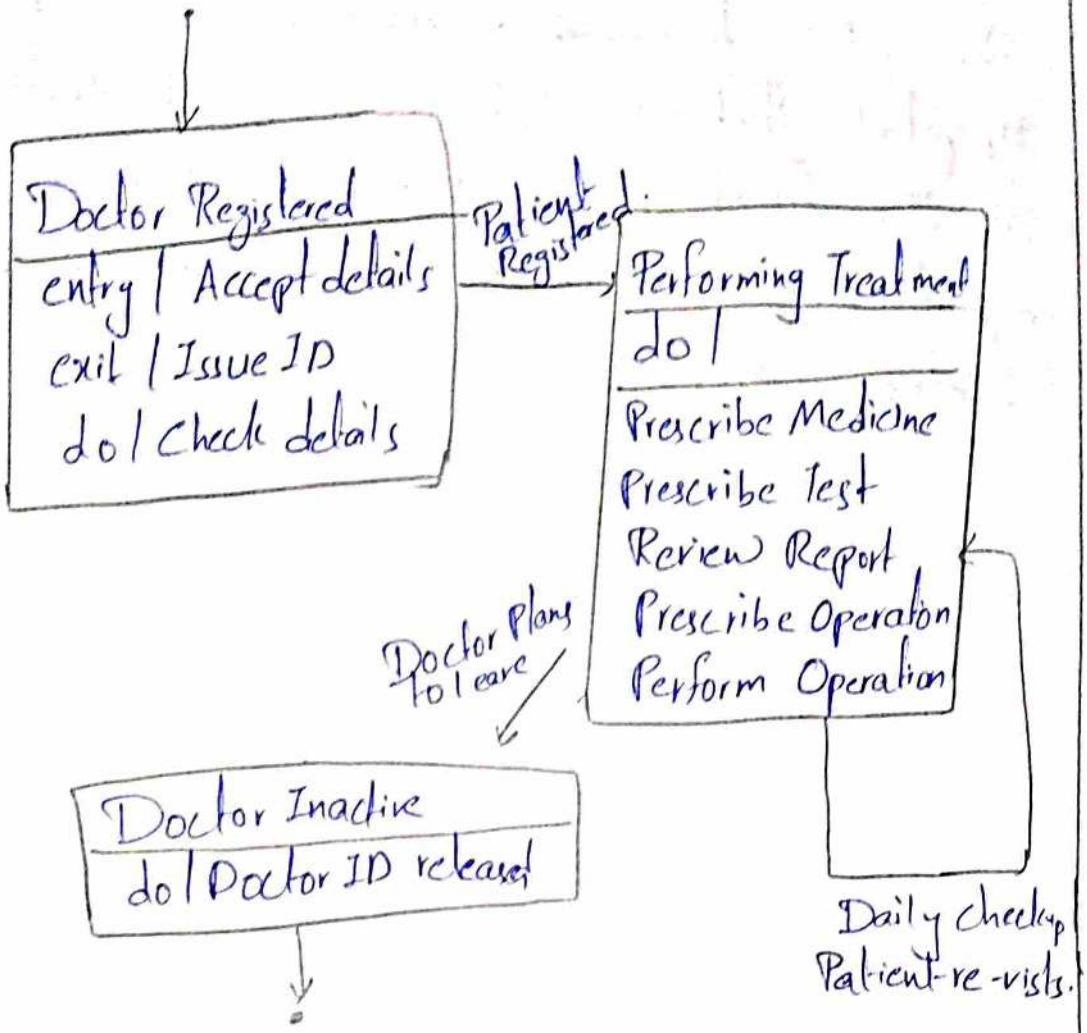
State diagrams:

State chart diagram for patient:



State chart diagram for doctor.

Object Doctor:



Conclusion:

This SRS document is used to give details regarding Hospital Patient Info Management System. In this all the functional and non-functional requirements are specified in order to get a clear-cut idea to develop a project.