

**ANNEXURE 4(SRS- SOFTWARE REQURIMENT SPECIFICATION)**

Software Requirements Specification

**“Online Hospital Management System”**

# <1.0>

**< 17th May, 2022 >**

**Lead Software Engineer**

#### Submitted in Partial fulfillment of

Project .

##### Revision History

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| **Date** | **Description** | **Author** | **Comments** |
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##### Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

|  |  |  |  |
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##### INTRODUCTION

Online hospital management system: A unique cloud based hospital management system for both patients and hospital stuffs (Doctors, Management). The primary target of this design is to make hospital experience better than we currently have. Hospital is a place where no one willingly wants to visit but there are times when we need to. The old system of hospitals are not very user friendly. The first big stem is waiting in the queue for long hours. There are lots of other problems that makes your hospital experience bad. Our main focus is to make peoples life easier in the hour of need. We are working to design such a system that will reduce a lot of paperwork and save peoples time.

##### Purpose

The system displays the list of all issues that are open, closed and in progress. The user can get registered by clicking on the logon button and provide the required information as specified. Each time the registered customer come on to the site he can makes use of the user name and the password that is allocated to him.

##### Scope

Existing System with Limitations:

* + - It is time consuming process as the user has to type the dbase commands. He has to remember all the commands which are difficult.
    - It is limited to a single system.
    - A user who wants only to have some information has to contact the administrator every time.

Proposed System Features:

* + - User friendliness is provided in the application with various controls.
    - The system makes the overall project management much easier and flexible.
    - It can be accessed over the internet.
    - Vast amount of data can be stored.
    - There is no risk of data mismanagement at any level while the project development is under process.
    - Relationship between the administrator, owner/developer and subcontractor can be maintained very easily.
    - It provides high level of security using different protocols like https etc.
    - The Online Hospital Management System consists of 3 users or modules, they are:
    - Administrator
    - Doctor
    - User or Patient
  1. Definitions, Acronyms, and Abbreviation

|  |  |
| --- | --- |
| User | Someone who interacts with the mobile phone application and computer system |
| Admin/Administrator | System administrator who is given specific permission for managing and controlling the system |
| Company Employee | Someone who has a company and wants his branch to be a part the application |
| REQUIREMENT | Global Positioning System |
| Application Store | An installed application on mobile phone or computer which helps user to find new compatible applications with mobile phone platform and download them from Internet |

|  |  |
| --- | --- |
| DESC | Description |
| RAT | Rational |
| DATABASE | Collection of all the information monitored by this system. |
| STAKEHOLDER | Any person with an interest in the project who is not a developer. |
| USER | Reviewer or Author. |

##### References

The document in this file is an annotated outline for specifying software Requirements adapted from the IEEE Guide to Software Requirements Specifications (Std 830-1993).

##### Overview of Document

The remainder of this document identifies the actors, use-cases, use-case scenarios, activity diagrams, assumptions and dependencies needed for the analysis and design of the Online result analysis . The rest of the document contains the overall description of the system, requirements, data model and behavioral description of the system and project planning.

##### GENERAL DESCRIPTION

Online Hospital Management System is a form of website. which allows Doctor to view ther patient online. Also patient has facility to take online appointment and view doctor over the Internet using a web browser.

* 1. Product Perspective

This Hospital Management System is a self-contained system that manages 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 and telephone number is also entered into computer system. 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. Generation: The system generates reportson the following information: List of detailed information regarding the patient who ha admitted in the hospital.

##### User Characteristics

The system Will be used in the hospital. The Administrators ,front –desk staff 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 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 practices, Every Administrator has basic computer training .They are responsible for all of the scheduling and updating day/night employee shifts

* 1. General Constraints

The constraints of this project are - system must support the runtime files of Java , JSP and must be able to run all the web pages.

Constraints are the limitations that teams must work within, typically scope, budget, and time. However, they may also include aspects like risk tolerance, resources/staff, and quality requirements.

* 1. Assumptions and Dependencies

The project depends on the user‟s ability to understand the features of the online Hospital Management and able to use the best of it. If the internet connection is not proper then this application will not work.

### SYSTEM ENVIRONMENT



The Online Hospital Management System has More than One user Visit on one Website.

**OHMS**

Doctor

Registration

Patient

Login

Admin

The Doctor,User, admin accesses the website.

##### 2. SPECIFIC REQUIREMENTS

Requirements Analysis in systems engineering and software engineering, encompasses those tasks that go into determining the needs or conditions to meet for a new or altered product, taking account of the possibly conflicting requirements of the various stakeholders, such as beneficiaries or users.

Requirements analysis is critical to the success of a development project. Requirements must be documented, actionable, measurable, testable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design. Requirements can be functional and non-functional.Conceptually, requirements analysis includes three types of activity:

###### **Eliciting requirement** : the task of communicating with customer and users to determine what their requirement are .this is sometimes also called requirements gathering.

##### System Interface

* + 1. Java Server Pages

JSP not only enjoys cross-platform and cross-Web-server support, but effectively melds the power of server-side Java technology with features of static HTML pages.

JSP pages typically comprise of: Static HTML / XML components. Special JSP tags. Optionally, snippets of code written in the java programming language called “script lets.”

* + 1. JSP Architecture

The purpose of JSP is to provide a declarative, presentation-centric method of developing servlets. JSP pages are subject to a translation phase and a request-

processing phase. The translation phase is carried phase is carried out only once, unless the JSP page changes, in which case it is repeated. The JSP engine itself typically carries out the translation phase, when it receives a request for the JSP page for the first time.

**Life Cycle of A JSP:** Life cycle of a JSP consists of the following three methods:

\_jspInit

\_jspService

\_jspDestroy

* + 1. ***Servlets***

A servlet is a java programming language class that is used to extend the capabilities of servers that host applications access via a request-response programming mode. Servlets are Java technology’s answer to Common Gateway Interface (CGI) Programming. They are programs that run on a Web server, acting as middle layer between request coming from a Web browser or other HTTP client and databases of applications on the HTTP server.

**Servlet Life Cycle: The** life cycle of a servlet is controlled by the container in which the servlet has been deployed. When a request is mapped to a servlet, the container performs the following steps.

1. If an instance of the servlet does not exist, the Web container: Loads the servlet class.

Creates an instance of the Servlet class.

Initializes the servlet instance by calling the init method.

1. Invokes the service method, passing request and response objects.

If the container needs to remove the servlet, it finalizes the servlet by calling the servlet’s destroy method

##### Session Management

Many applications require that a series of requests from a client be associated with one another. Sessions are represented by an Http Session object. A session cab be accessed by calling the get Session () method of a request object. This method returns the current session associated with this request, or, if the request does not have a session, it creates one. The timeout period can be accessed by using a session’s [get\set] Max Inactive Interval methods.

##### Session Tracking

A Web container can use several methods to associate a session with a user, all of which involve passing an identifier between the client and the server. The identifier can be maintained on the client as a cookie, or the Web component can include the identifier in every URL that is returned to the client.

In fact, on many servers, they use cookies if the browser supports them, but automatically revert to URL-rewriting when cookies are unsupported or explicitly disabled.

##### External interfaces Requirements

* + 1. **User Interfaces**

The system must provide a user interface for all types of users (Online Hospital Management System) that is available through all Web browsers.

* + 1. **Hardware Interfaces**

The System must run Over the internet,all the hardware shall require to connect internet will be hardware interface for the system . as for the system. As for e.g.Modem,WAN-LAN;Ethernet cross-cable.

**3.1.3 Software Interfaces**

The system is on server so it requires the any scripting language like java script etc.The system require Data Base also for the any transaction of the system like MYSQL etc .System also require DNS(domain name space) for the naming on the internet. At the last user web browser for interact with the system . In order to run the setup software, the environment needs to have a Java Virtual Machine running on it.

**3.2.4 Communication Interfaces**

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems for the web portal. .

##### 1.3 Functional Requirements

A user interacts with the system. It involves registration for Admin,Patient and Doctor as well as sending them questions. It also includes functions for the Online Hospital System to register and approve registered appointment.

* + 1. Description Registration

**Add patients:-** The HMS shall allow front-desk staff to add new patients to the system.

Assign ID:- The HMS 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.

**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 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 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 in SRS007.

Section 3.3.1: Website

|  |  |
| --- | --- |
|  |  |
| **Use Case Name** | Doctor Registration |
| **Primary actor:** | Doctor |

**Stakeholders and** Doctor– wants to register to system.

interests:

**Section 3.3.2: Website**

|  |  |
| --- | --- |
|  |  |
| **Use Case Name** | Patient Or User Registration |
| **Primary actor:** | User |

**Stakeholders and** User– wants to register to system.

interests:

**Section 3.3.3:Login**

|  |  |
| --- | --- |
| **Use Case Name** | Login |
| **Primary actor:** | Login |
| **Stakeholders and** | Admin– Wants to log into the system |
| **interests:** | Doctor – Wants to log into the system User- Wants to logon to the system. |

**Section 3.3.4: ApproveApplicant**

|  |  |
| --- | --- |
| **Use Case Name** | ApproveApplicant |
| **Primary actor:** | Admin |
| **Stakeholders and** | The Admin clicks on add icon on any activity which is on top |
| **interests:** | left side on activity. |

**Section 3.3.5: Appointment**

|  |  |
| --- | --- |
| **Use Case Name** | Appointment of Doctor |
| **Primary actor:** | User |
| **Stakeholders and** | User can fill the appointment details according to their disease . |
| **interests:** |

**Section 3.3.6: Notification**

|  |  |
| --- | --- |
| **Use Case Name** | Notification |
| **Primary actor:** | Doctor |
| **Stakeholders and** | Doctor check the appointment details of patient give him notification or send message of proper date and time. |
| **interests:** |

**Section 3.3.7:View Report**

|  |  |
| --- | --- |
| **Use Case Name** | View All Report by their Authority |
| **Primary actor:** | Sec 3.3.2, Sec 3.3.1 |
| **Stakeholders and interests:** | Patient Can view their appointment and report.  Doctor can view their patient , Report,and Appointment. Admin Can view all the details and also bill. |

The entire project mainly consists of 7 modules, which are

* + - * Admin module
      * User module (patient)
      * Doctor module
      * Nurse module
      * Pharmacist module
      * Laboratorist module
      * Accountant module

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 xray 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

1.3 Non-Functional Requirements

The system is expected to have reasonable short time response. The user should be able to login and should be able to get response for his requests in 2-3 seconds.

Robustness:

Product is robust. Because, security has become more robust in java. In addition to the role based security in java comes with a new security model, codes access security. This security controls on what the code can access.

Portability:

The Online result analysis shall run in any platform environments because it is platform independent and the MYSQL.

Reusability:

Our system is reusability system since a segment of source code that can be used again to add new functionalities with slight modification.

Testability:

Our system is testability system since it supports different types of testing methods

##### Logical Structure of System

The logical structure of the data to be stored in the Online hospital management system database is given below.

**ER-Diagram:**

1

1

does

1

1

1

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read

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1

1

read

Feedback

1

1

1

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read

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1

1

fill

ma

1

manage

Admin

add

1

manage

Appointmen

Doctor

Facility

Login

ct Us

Conta

Registration

User

Us

About

##### Database of Website

###### AdminForm

|  |  |  |  |
| --- | --- | --- | --- |
| Sr.No | Name | Data type | Key |
| 1 | Email | Text | - |
| 2 | Mobile | Password | - |

1. Department List Form

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Data type | Key |
| 1 | Department ID | Int | - |
| 2 | Department name | Varchar | - |
| 3 | Department description | Varchar |  |

1. Doctor List Form

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Data type | Key |
| 1 | Doctor ID | Int | - |
| 2 | Doctor name | Varchar | - |
| 3 | Department | Varchar |  |
| 4 | Phone no | int |  |

1. Edit Doctor Form

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Data type | Key |
| 1 | Doctor ID | Int |  |
| 2 | Name | Varchar | - |
| 3 | Email | Varchar |  |
| 4 | Password | int |  |
| 5 | Address | Text |  |
| 6 | Phone | Varchar |  |
| 7 | Department | Text |  |

1. Patient List Form

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Datatype | Key |
| 1 | ID | Int |  |
| 2 | Patient Name | Varchar | - |
| 3 | Age | int | - |
| 4 | Sex | Varchar | - |
| 5 | Blood Group | Varchar | - |

1. Nurse List Form

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Datatype | Key |
| 1 | Nurse ID | Int |  |
| 2 | Nurse Name | Varchar | - |
| 3 | Email | Varchar | - |
| 4 | Address | Varchar | - |
| 5 | Phone No | int | - |

1. Doctor Dashboard Form

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Datatype | Key |
| 1 | Appointment ID | Int |  |
| 2 | Name | Varchar | - |
| 3 | Email | Varchar |  |
| 4 | Contact | int |  |
| 5 | Age | int |  |
| 6 | Day | Varchar | - |
| 7 | Speciality | Varchar | - |
| 8 | Description | Varchar | - |
| 9 | Id | int |  |
| 10 | Action | Varchar |  |

1. Registration Form

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Key | Key |
| 1 | RID | Auto Number | Primary Key |
| 2 | Name | Short Text |  |
| 3 | Phone | Short Text |  |
| 4 | Address | Short Text |  |
| 5 | Gender | Short Text |  |
| 6 | Age | Short Text |  |
| 7 | Password | Short Text |  |

Identify and describe the process that will be used to update the SRS, as needed, when project scope or Requirements change. Who can submit changes and by what means, and how will these changes be approved.

## 5.Security

The data transaction between client and server must be encrypted using all the password that are generated or accepted must be stored in database in an encrypted form.

To prevent attacks the system should random word and ask the user to enter it correctly for multiple trying.

#### \*End of the SRS\*



**ANNEXURE 6(DESIGN AND SPECIFICATION)**

##### Object Diagram

:Registration()

+RID:1

+name:Ayusha

+insertRgister();

:Login()

+Uname:Ayusha

+Pass:Ayusha@123

+loginuser();

:Appointment()

+AID:3

+pname:Ayusha

+dname :Rohit

+Appointment();

:User()

+name :Ayusha

+phone :1234567890

+Viewwebsite();

+Register();

+Appointment();

:Facility()

+ID:123

+name:AC NON AC room

+manageFacility()

:Feedback()

+FID:2

+name:ayusha

+Message:Good Services

+insertfeedback()

;

:Admin()

+uname:admin

+pass:admin

+login:admin();

:Doctor()

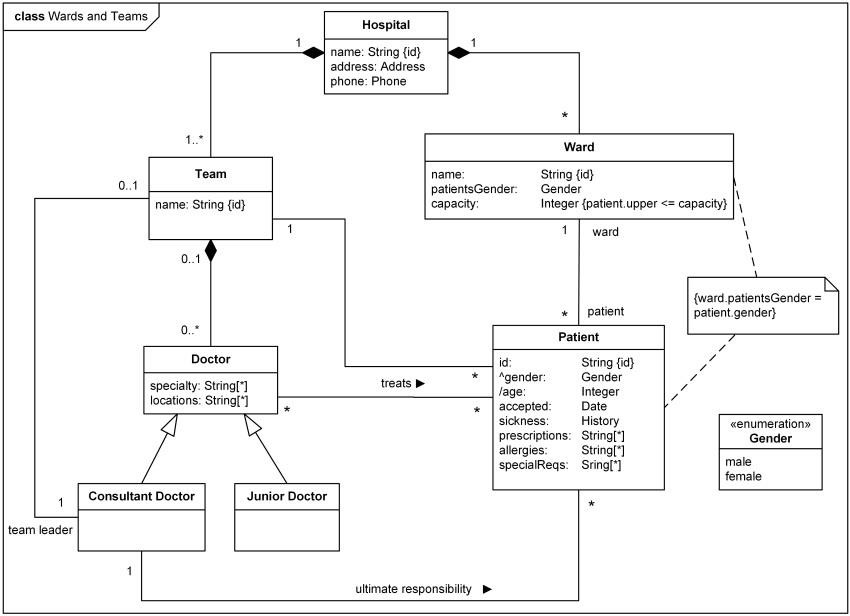
+ID:Number

+name:Short Text

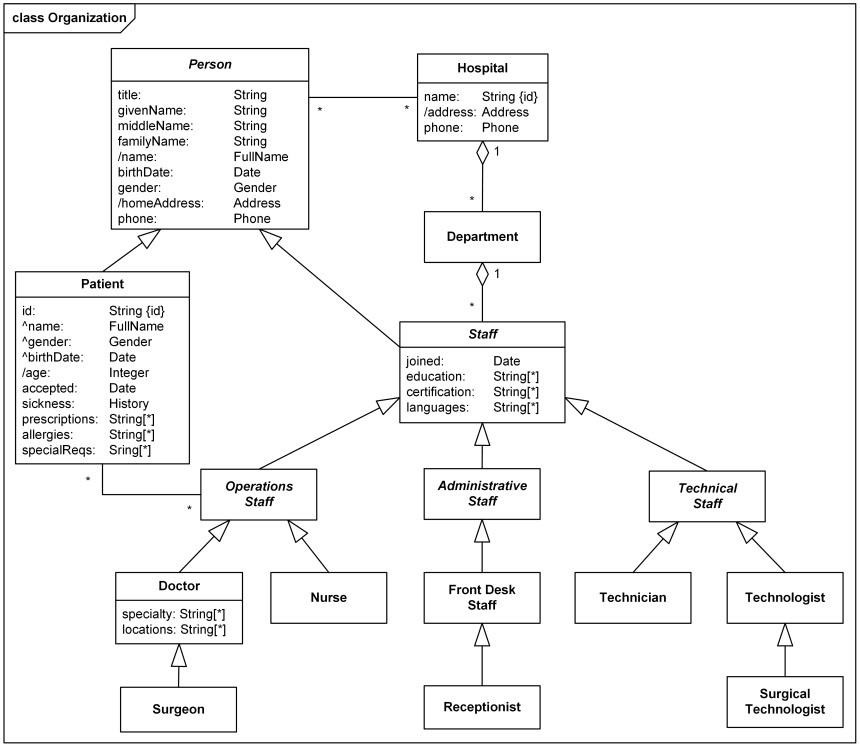
+Speciality:Short text

+Insertdoctor();

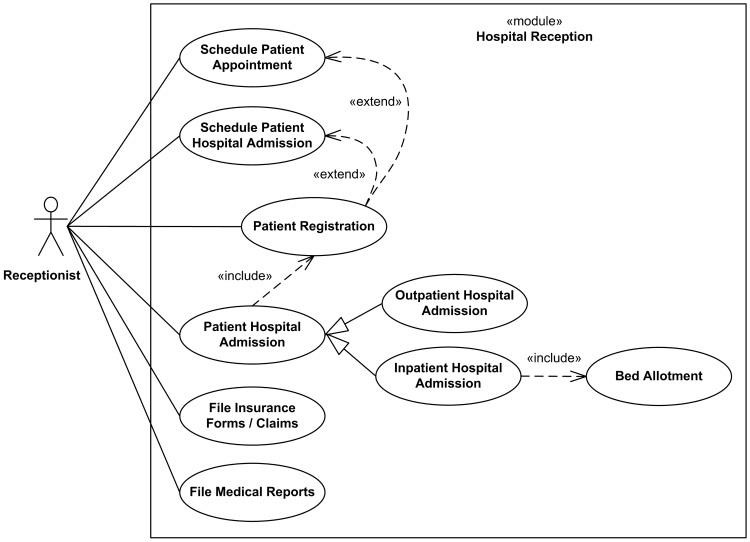
##### Class Diagram



Class –Example-Hospital-Orgnization



##### Use Case Diagrams



Login

Password

Gmail

Doctor

Admin

* 1. **Module Hierarchy Diagram**

Feedback

Bill

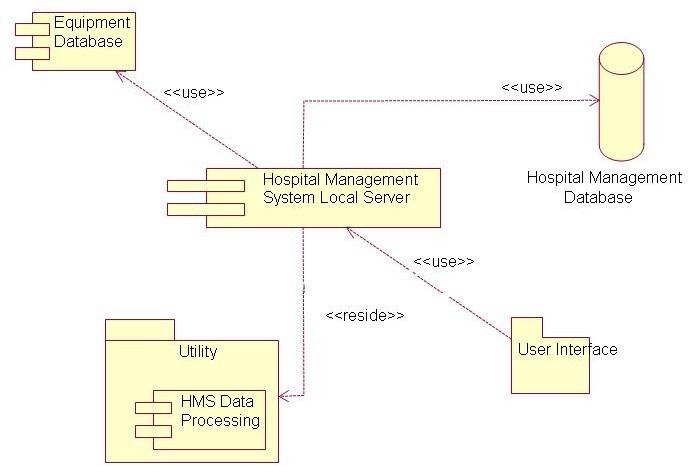
Department

Nurse

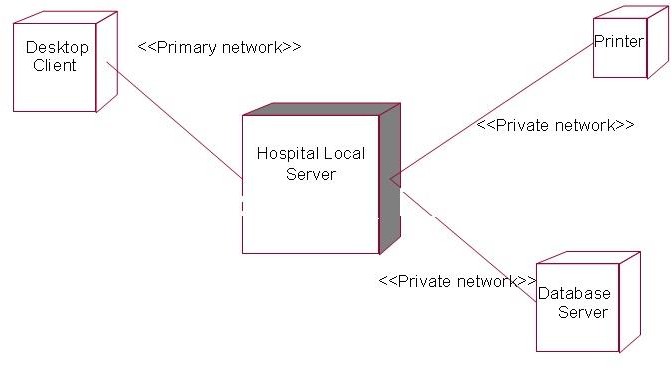
Patient

Online Hospital Management System

* 1. **Component Diagram**



* 1. **Deployment Diagram**



* 1. **User Interface Design:**

###### Context level DFD:

Personal Details

OPD

0 Level

Online Hospital

Management

System

Bill Report

Bill Genrate Patient

Admin

Admin

Patient

* + 1. First Level DFD:

Persnal Detail of Patient Update

1.0

Admin

Patient Detail

Patient db

Update

Persnal Detail of Doctor

Admin

2.0

Doctor Details

Update

Doctor db

Patient details

3.0 Lab Report Generation

Update

Reports db

4.0 Bill Generation

Discharge

Doctor name & fees Patient Detail

##### ER Diagram

1

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Doctor

Login

1

1

does

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1

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Feedback

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Admin

1

manage

Appointmen

Facility

ct Us

Conta

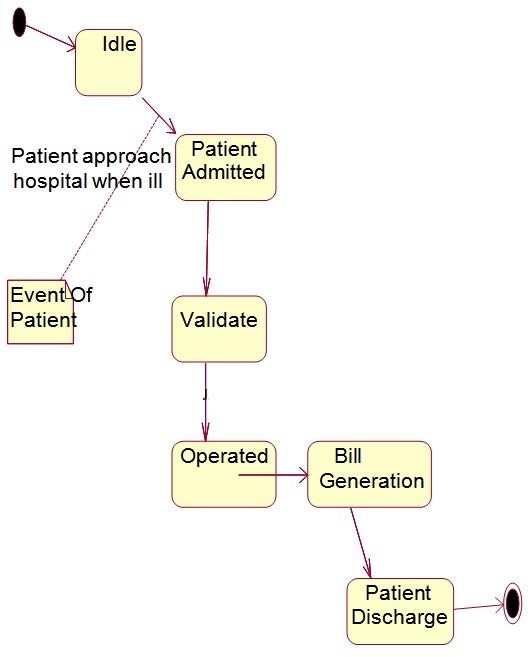
Registration

User

Us

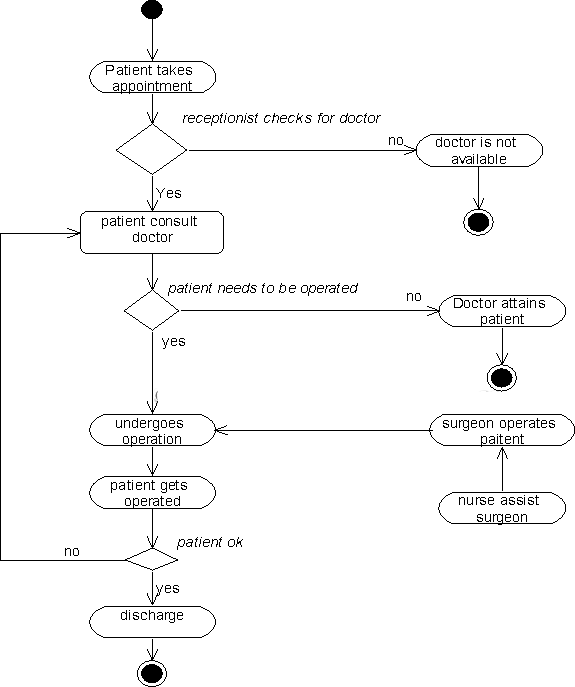
About

##### State Diagram

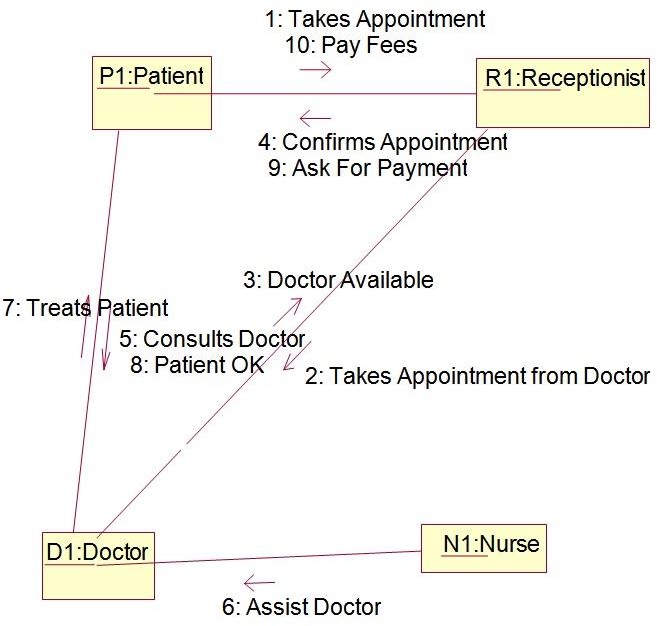


* 1. **ActivityDiagram**

**Patient Doctor**



* 1. **Collaboration Diagram**



###### 12.Sequence Diagram

