Name of Course Instructor**: Mr. Nischal Shakya**

Course Code: **CC305** Course Name: **Java Programming**

Program Name: **B.Sc. (Hons) Computing** Semester: **5th** Batch: **8th batch, sept 2019**

Assignment Type (Individual/Group): **Group**

Assignment Title: **Group Assignment Proposal**

Max. Marks: _____ Date of Allotment**:** _____ Date of Submission: **4 Feb. 2022**

(Write the individual/group members details below):

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Evaluation: _____ obtained out of_____

Evaluator's Comment:

_____

_____

Hospital Management System

Introduction

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.

A significant part of the operation of any hospital involves the acquisition, management, and timely retrieval of great volumes of information. This information typically involves; patient personal information and medical history, staff information, room and ward scheduling, staff scheduling, operating theater scheduling and various facilities waiting lists. All this information must be managed in an efficient and cost wise fashion so that an institution's resources may be effectively utilized HMS will automate the management of the hospital making it more efficient and error free. It aims at standardizing data, consolidating data ensuring data integrity and reducing inconsistencies.

Objective

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information (on forms) is incomplete or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various data stores.

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System User

Reception:

The reception module handles various enquiries about the patient's admission and discharge details, bed census, and the patient's movements within the hospital. The system can also handle fixed-cost package deals for patients as well as Doctor Consultation and Scheduling, Doctor Consultancy Fees and Time Allocation.

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

Administration:

This module handles all the master entry details for the hospital requirement such as consultation detail, doctor specialization, consultancy fee, and service charges.

Employee

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

Registration:

This module helps in registering information about patients and handling both IPD and OPD patient’s query. A unique ID is generated for each patient after registration. This helps in implementing customer relationship management and maintains medical history of the patient.

Software Requirements

Web Technologies: JSP, Servlet, HTML, CSS

Language: Java

Database: SQL SERVER 2005

Web Server: Apache tomcat

Operating System: WINDOWS

Analysis

1. Existing System

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information (on forms) is incomplete or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various data stores.

2. Proposed System

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.

3. Objective of the System

Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information (on forms) is incomplete or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistencies in data in various data stores.

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resources may be effectively utilized HMS will automate the management of the hospital making it more efficient and error free. It aims at standardizing data, consolidating data ensuring data integrity and reducing inconsistencies.

System Specifications

Hardware Requirements: -

- Pentium-IV(Processor).
- 256 MB Ram
- 512 KB Cache Memory
- Hard disk 10 GB
- Microsoft Compatible 101 or more Keyboard

Software Requirements: -

- Operating System: Windows
- Programming language**:** Java
- Web-Technology**:** JSP, Servlet, HTML, CSS
- Front-End**:** HTML, JSP
- Back-End**:** Java, Servlet, JDBC
- Web Server**:** Apache tomcat

Modules

Project Modules

- Reception
- Administration
- Doctor
- Registration
- Patient

Module Description

Name of the module 1: Reception

Description: The reception module handles various enquiries about the patient's admission and discharge details, bed census, and the patient's movements within the hospital. The system can also handle fixed-cost package deals for patients as well as Doctor Consultation and Scheduling, Doctor Consultancy Fees and Time Allocation

Sub modules:

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

Name of the module 2: Administration

Description: This module handles all the master entry details for the hospital requirement such as consultation detail, doctor specialization, consultancy fee, and service charges.

Employee

Sub modules:

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

Name of the module 3: Pharmacy

Description: This module deals with all medical items. This module helps in maintaining Item Master, Receipt of Drugs/consumables, issue, handling of material return, generating retail bills, stock maintenance. It also helps in fulfilling the requirements of both IPD and OPD Pharmacy.

Name of the module 4: Doctor

Description**:** This module enables the maintenance of investigation requests by the patient and generation of test results for the various available services, such as clinical pathology, X-ray, and ultrasound tests. Requests can be made from various points, including wards, billing, sample collection and the laboratory receiving point. The laboratory module is integrated with the in-patient/ outpatient registration, wards, and billing modules.

Name of the module 5: Registration.

Description**:** This module helps in registering information about patients and handling both IPD and OPD patient's query. A unique ID is generated for each patient after registration. This helps in implementing customer relationship management and maintains medical history of the patient.

Name of the module 6: Patient

Description**:** 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.

System Design

Use Case Diagram

Use case is a description of set of sequence of actions Graphically it is rendered as an ellipse with solid line including only its name. Use case diagram is a behavioral diagram that shows a set of use cases and actors and their relationship. It is an association between the use cases and actors. An actor represents a real-world object.

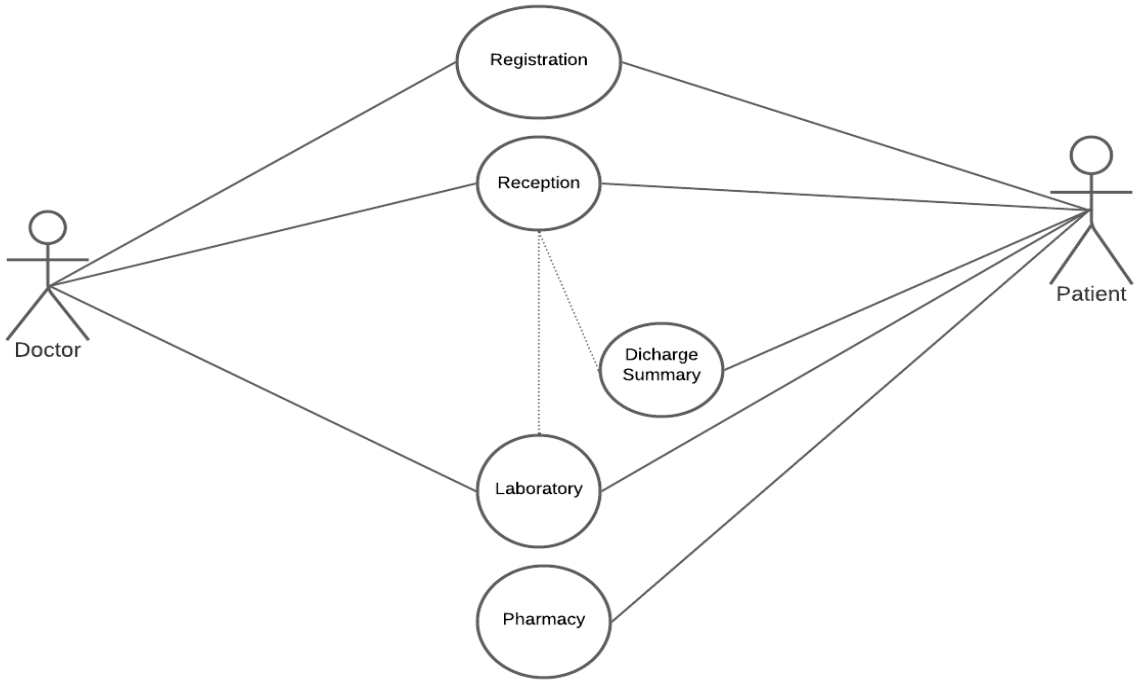


Fig: Use Case diagram for Hospital Management System

Class Diagram

Class Diagram shows a set of classes, interfaces, and collaborations and their relating ships. There is most common diagram in modeling the object-oriented systems and are used to give the static view of a system. It shows the dependency between the classes that can be used in our system. The interactions between the modules or classes of our projects are shown below. Each block contains Class Name, Variables and Methods.

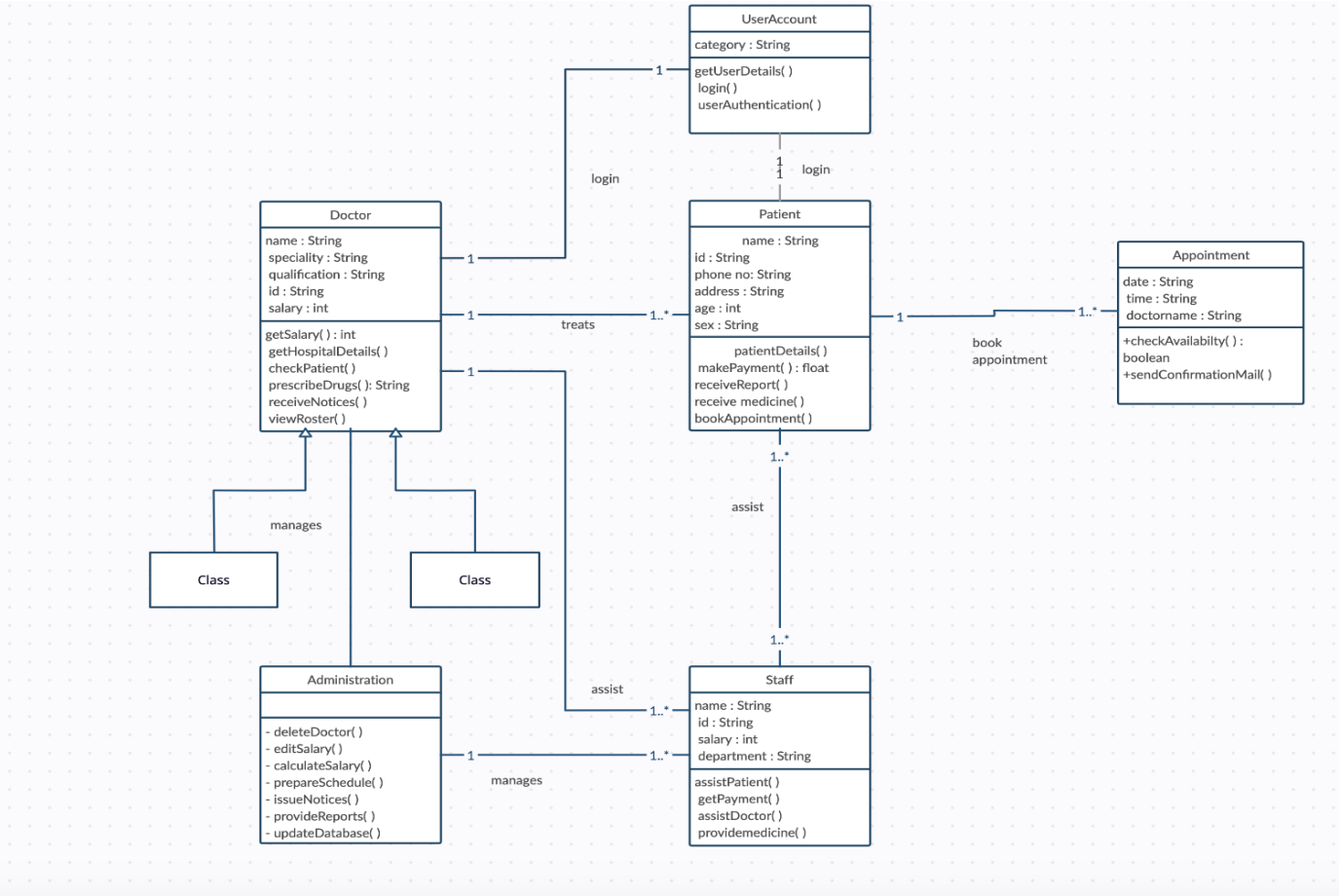


Fig: Class Diagram for Hospital Management System

ER diagram

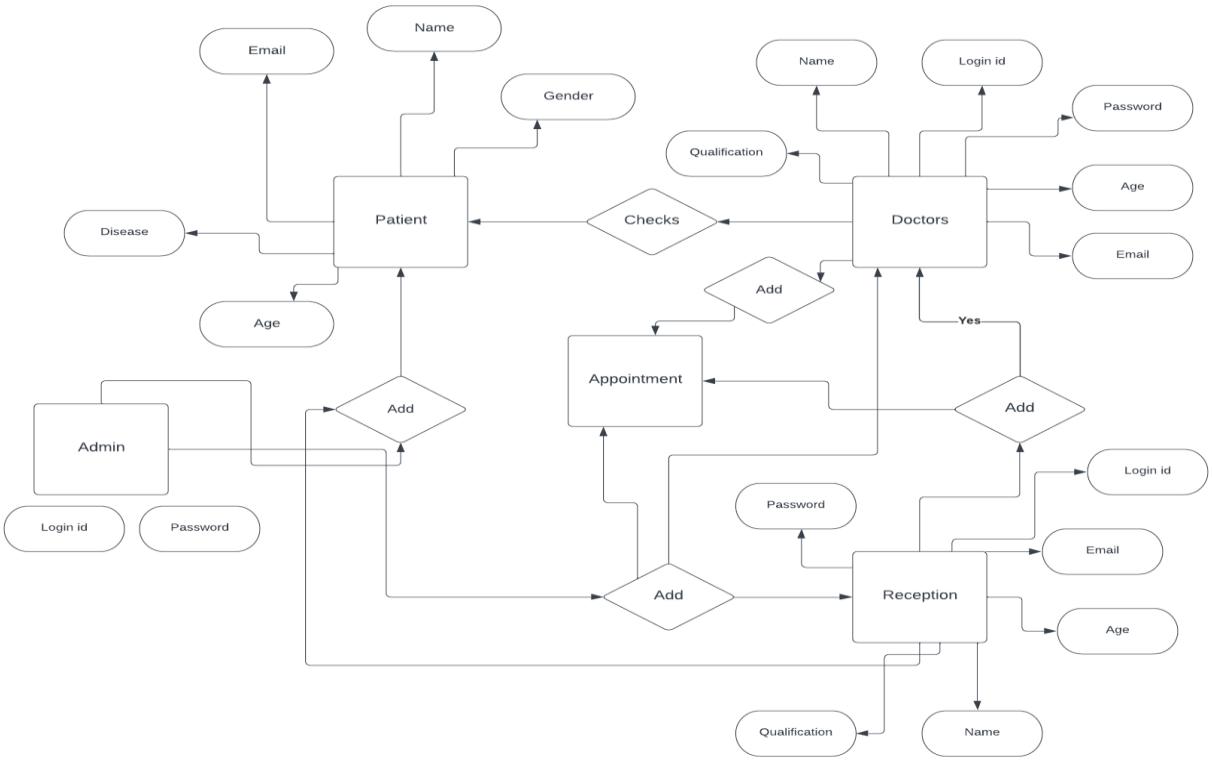


Fig: ER diagram of Hospital Management System

System architecture

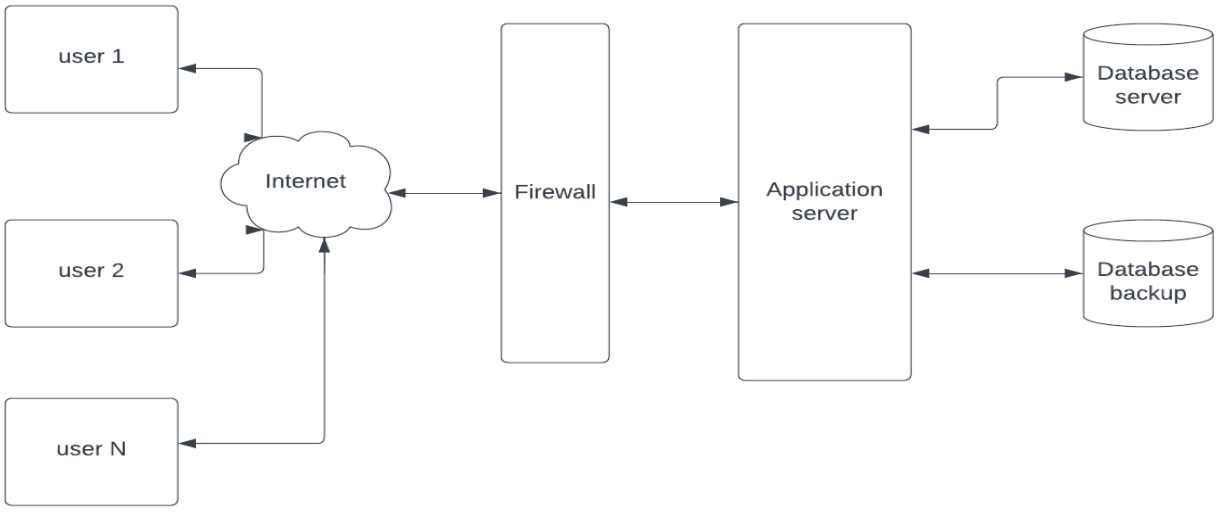
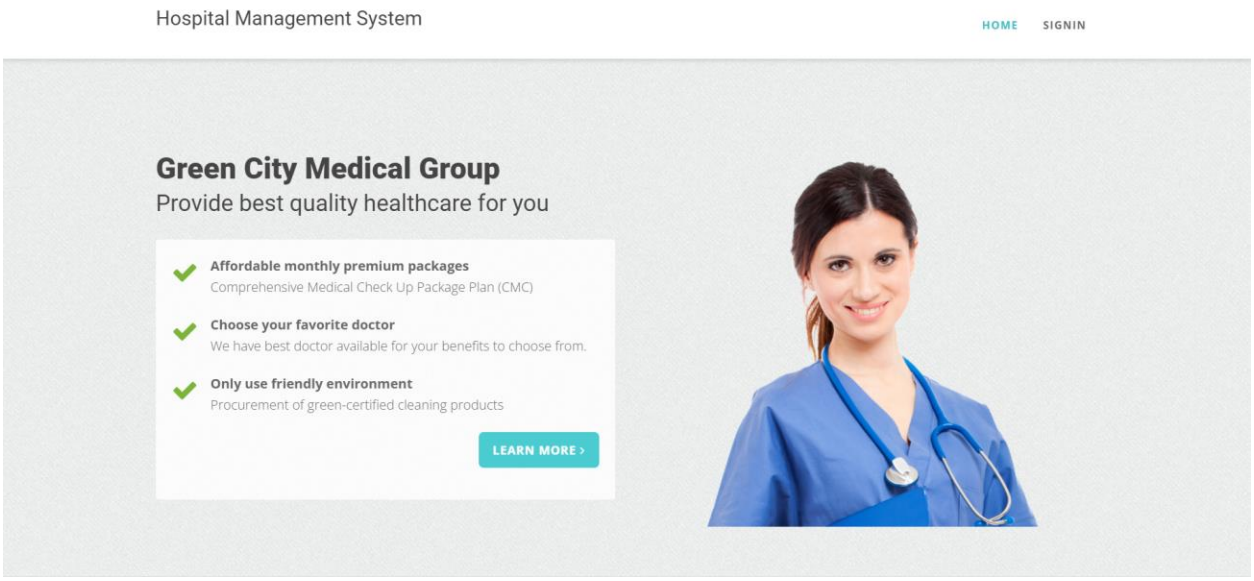


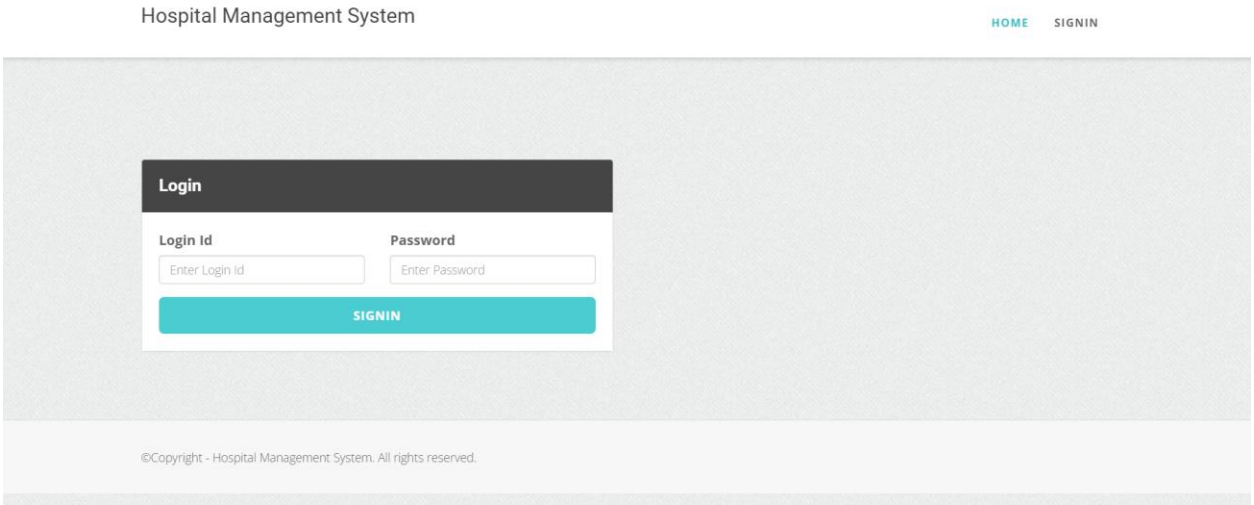
Fig: System Architecture

User Manual

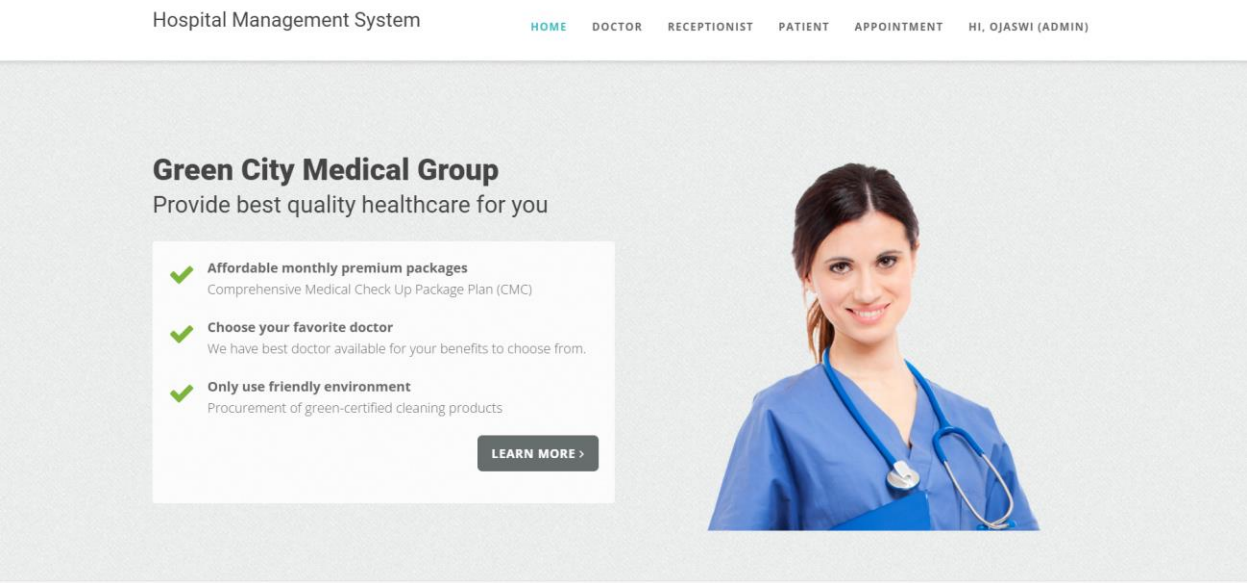
Home page



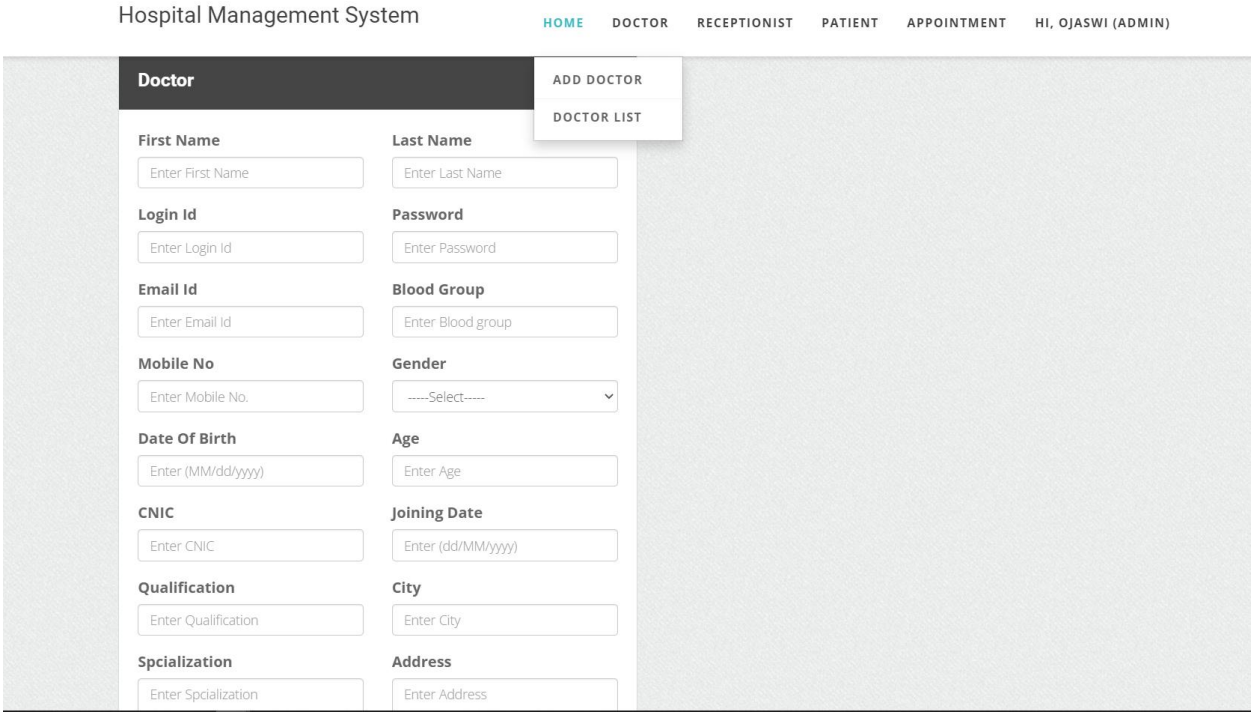
Login page



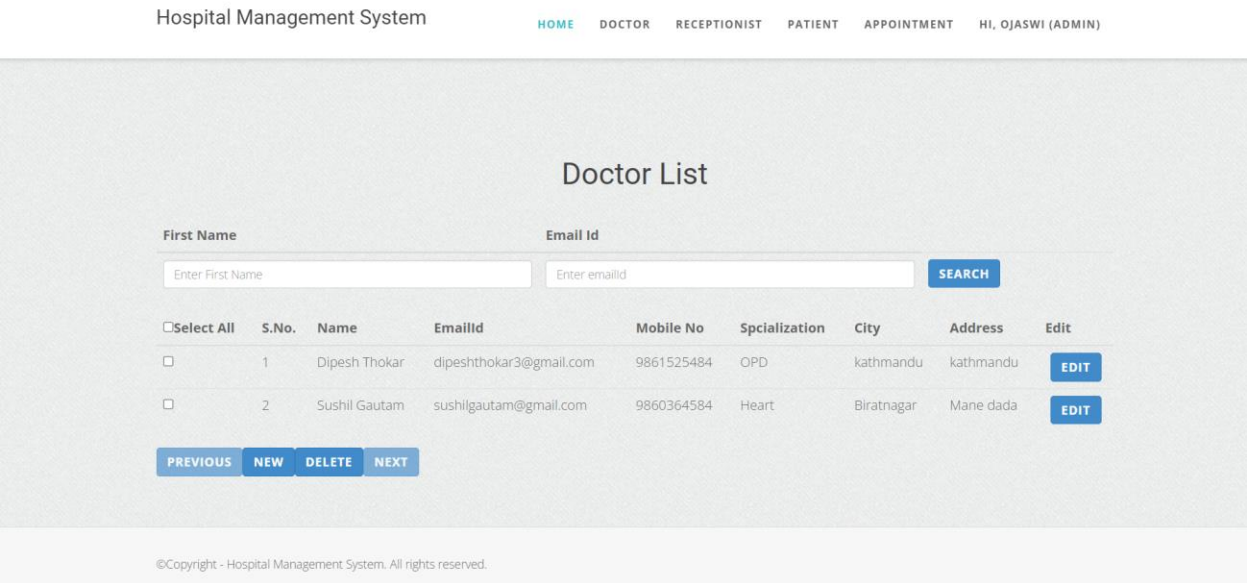
After signing in Admin



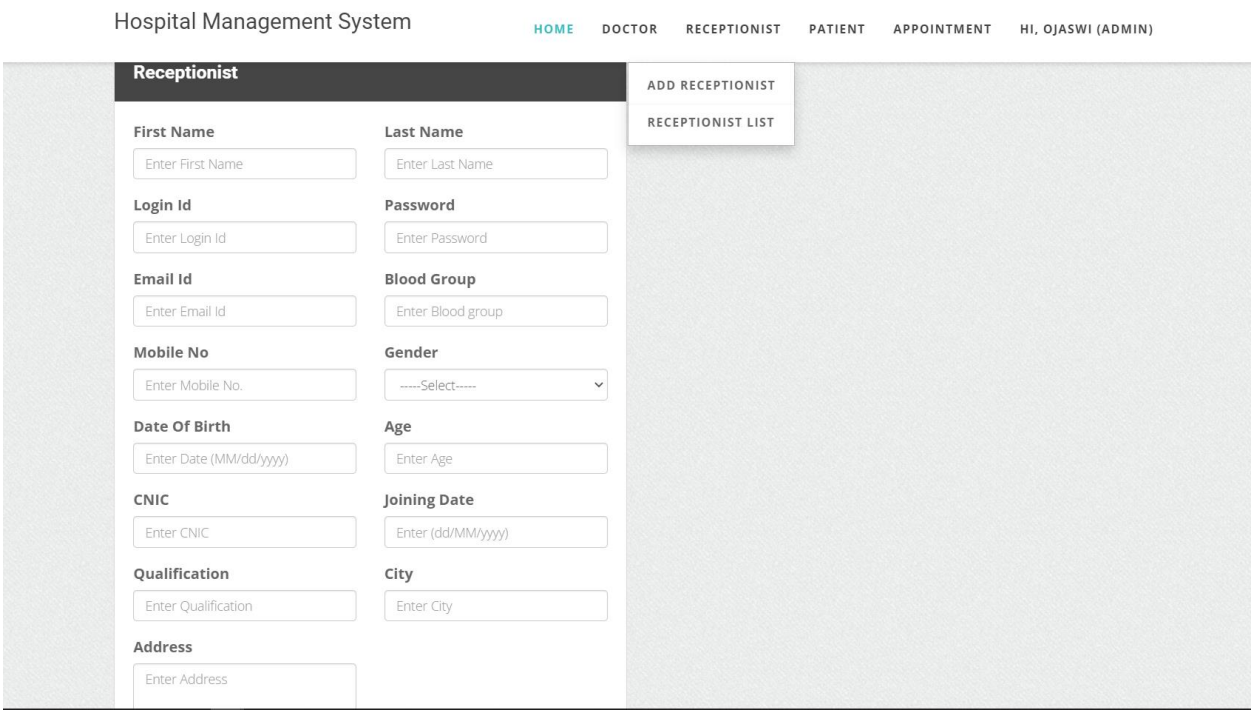
Adding Doctor



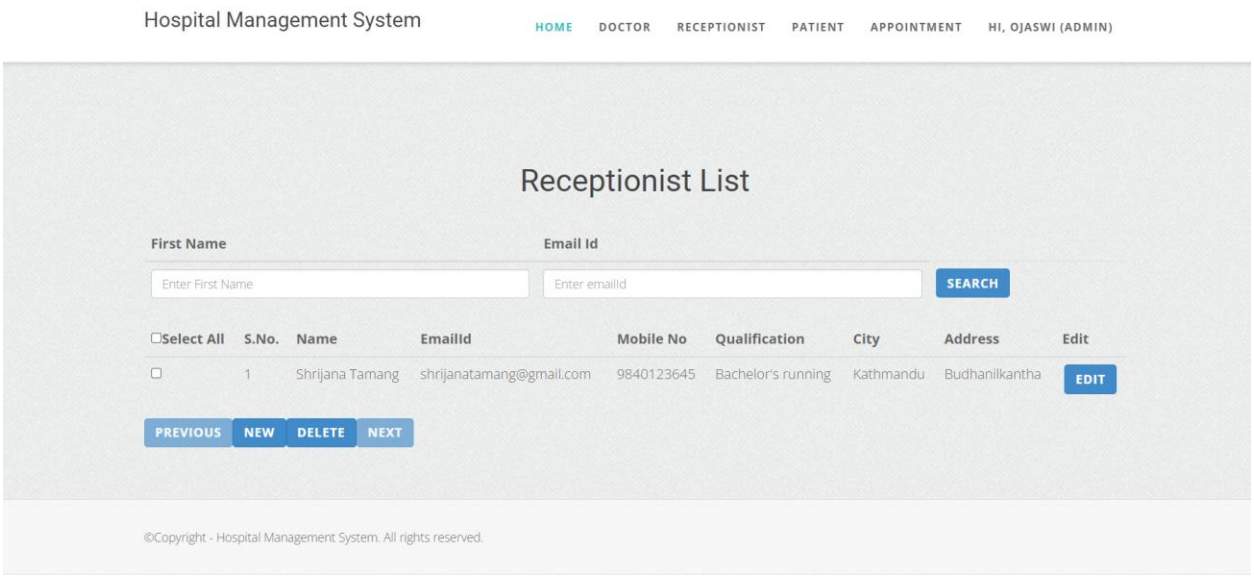
Doctor List



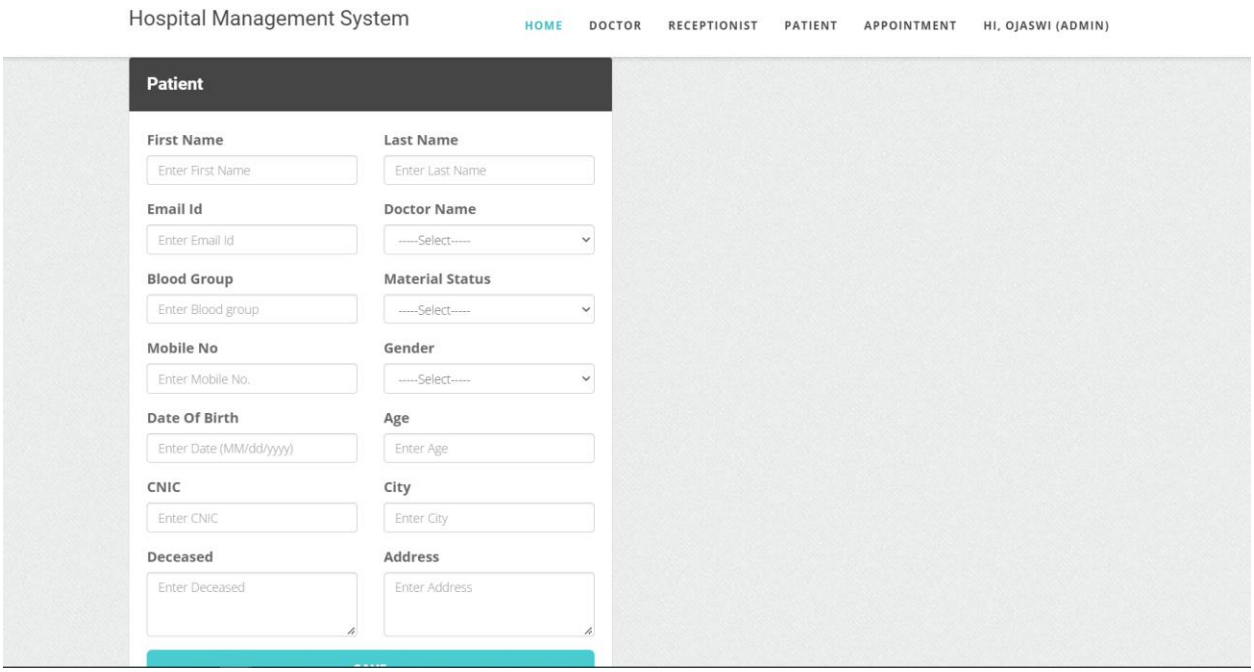
Adding Receptionist



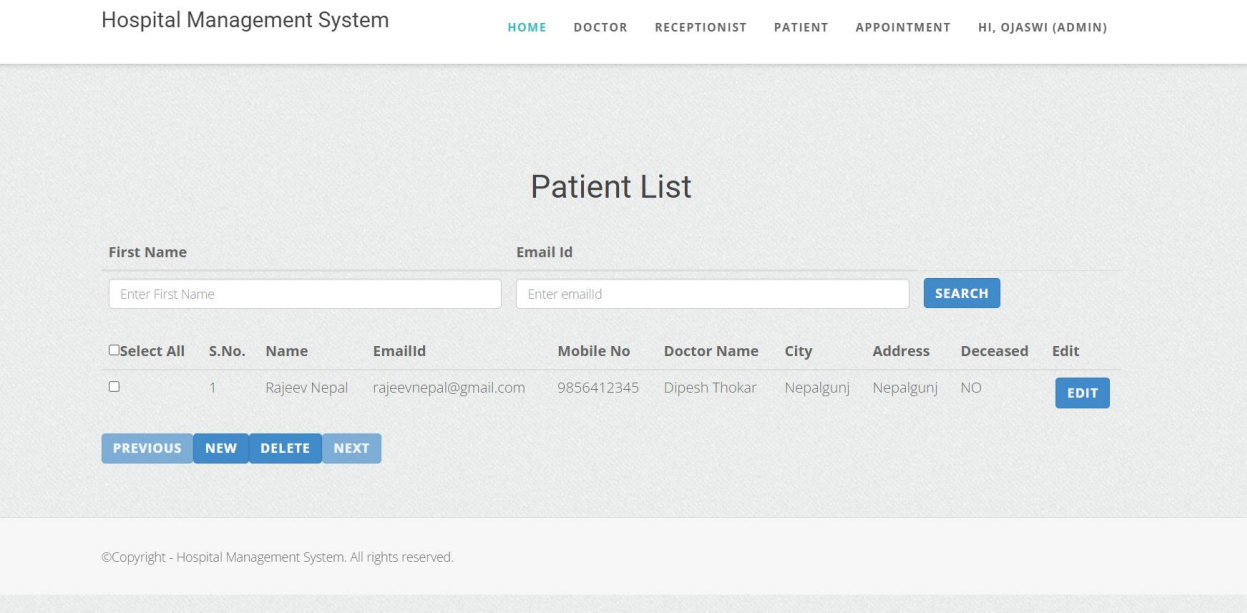
Receptionist List



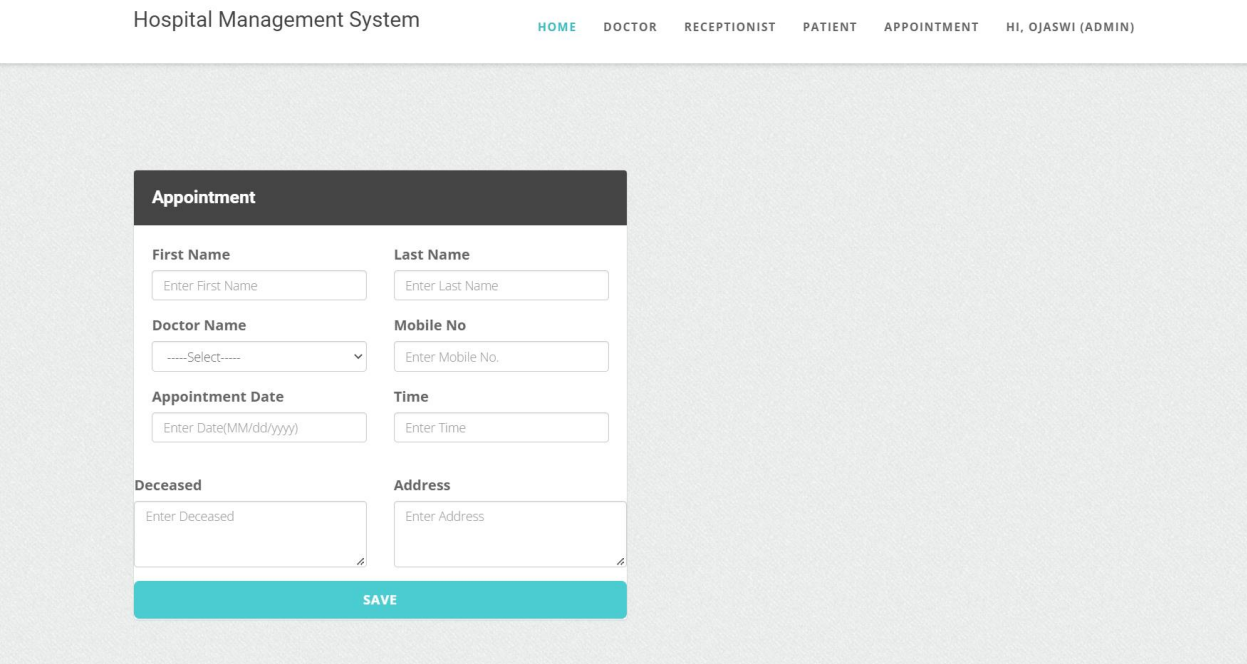
Adding Patient



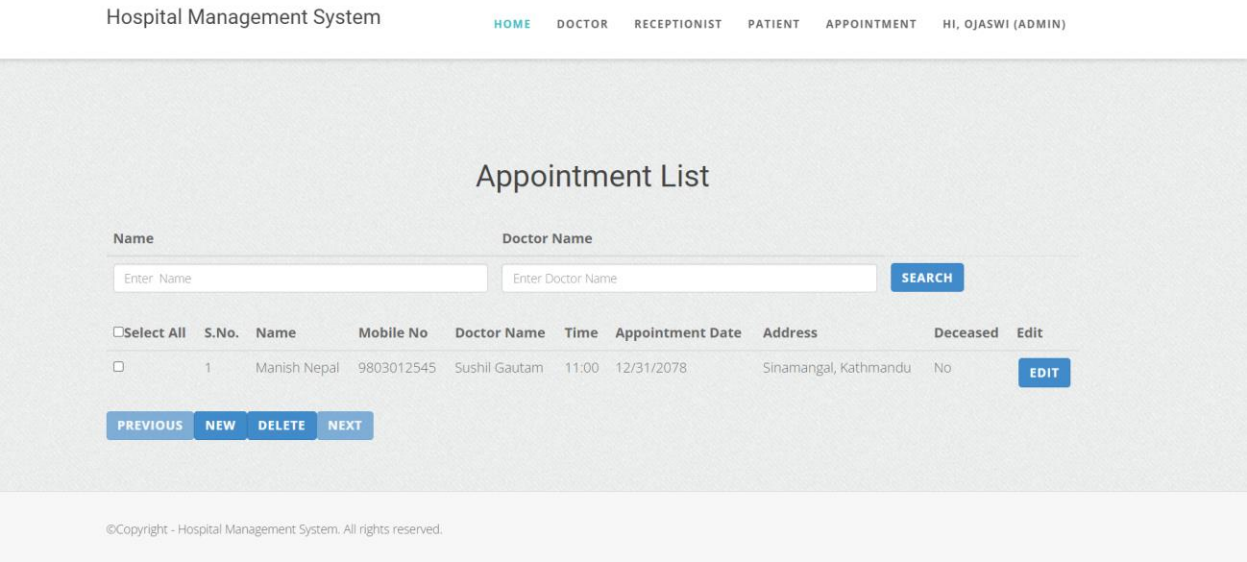
Patient List



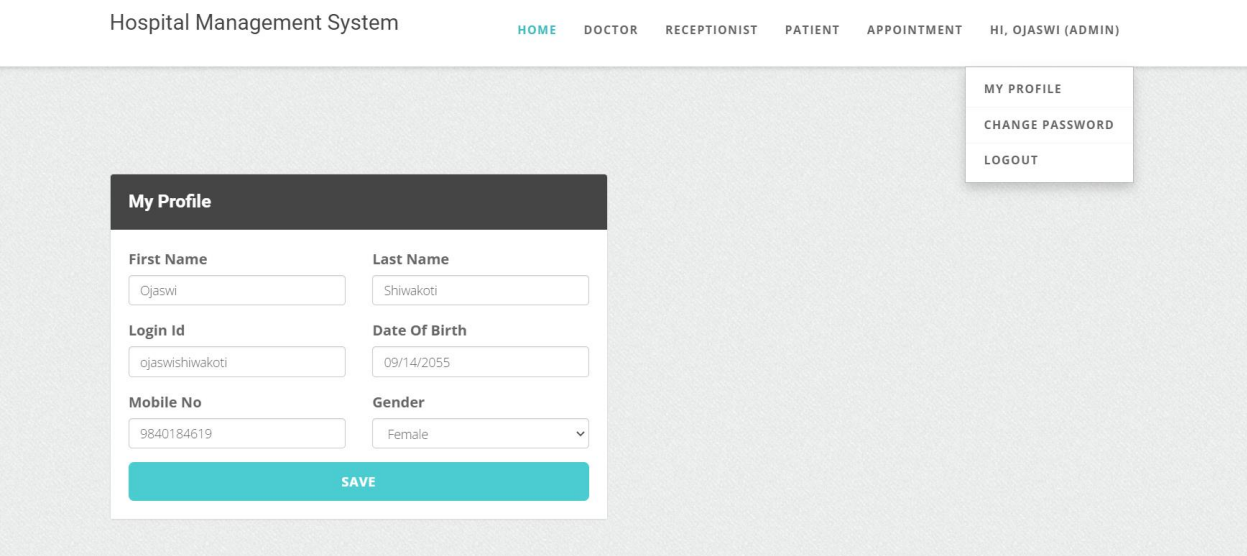
Adding Appointment



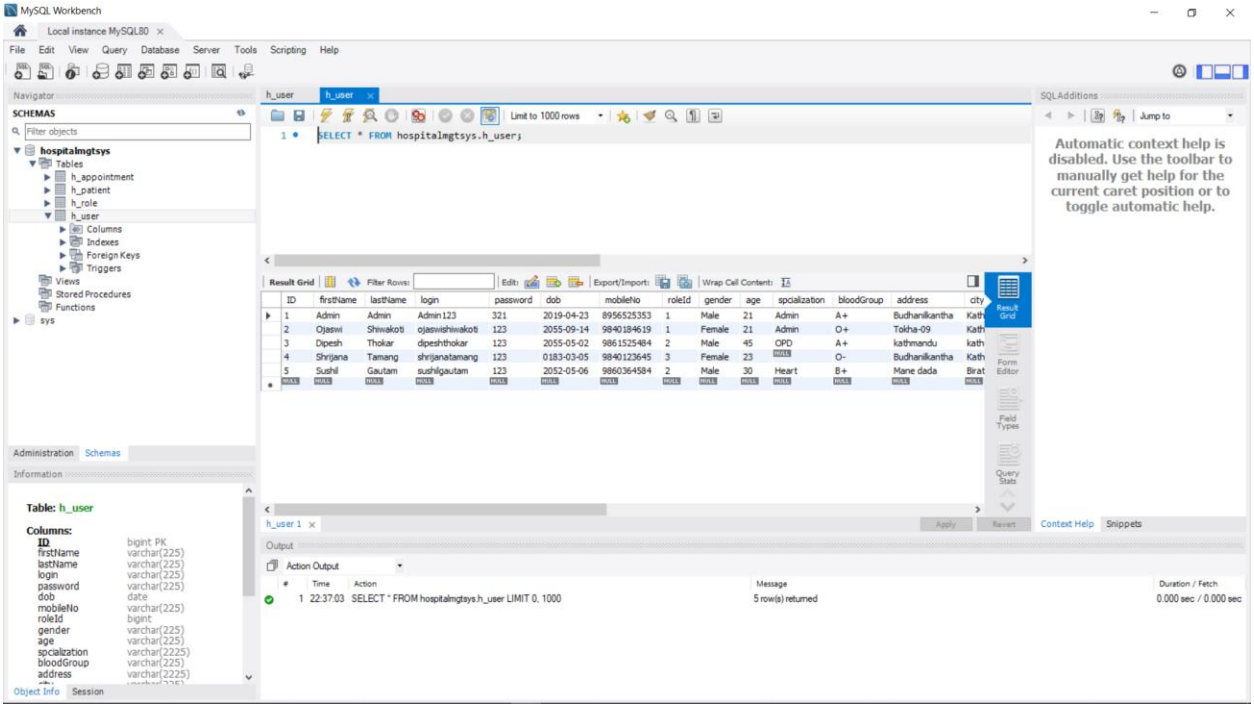
Appointment List



My Profile



Database screenshot



Implementation

Implementation is the stage where the theoretical design is turned into a working system. The most crucial stage in achieving a new successful system and in giving confidence on the new system for the users that it will work efficiently and effectively.

The system can be implemented only after thorough testing is done and if it is found to work according to the specification.

It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the changeover and an evaluation of change over methods apart from planning. Two major tasks of preparing the implementation are education and training of the users and testing of the system.

The more complex the system being implemented, the more involved will be the systems analysis and design effort required just for implementation.

The implementation phase comprises of several activities. The required hardware and software acquisition is carried out. The system may require some software to be developed. For this, programs are written and tested. The user then changes over to his new fully tested system and the old system is discontinued.

Testing

The testing phase is an important part of software development. It is the pauperized system will help in automate process of finding errors and missing operations and a complete verification to determine whether the objectives are met, and the user requirements are satisfied.

Software testing is carried out in three steps:

1. The first includes unit testing, where in each module is tested to provide its correctness, validity and determine any missing operations and to verify whether the objectives have been met. Errors are noted down and corrected immediately. Unit testing is the important and major part of the project. So, errors are rectified easily in particular module and program clarity is increased. In this project entire system is divided into several modules and is developed individually. So, unit testing is conducted to individual modules.

2. The second step includes Integration testing. It need not be the case, the software whose modules when run individually and showing perfect results, will also show perfect results when run as a whole. The individual modules are clipped under this major module and tested again and verified the results. This is due to poor interfacing, which may result in data being lost across an interface. A module can have inadvertent, adverse effect on any other or on the global data structures, causing serious problems.

3. The final step involves validation and testing which determines which the software functions as the user expected. Here also some modifications were. In the completion of the project, it is satisfied fully by the end user.

Conclusion

The package was designed in such a way that future modifications can be done easily. The following conclusion can be deduced from the development of the project.

- Automation of the entire system improves the efficiency
- It provides a friendly graphical user interface which proves to be better when compared to the existing system.
- It gives appropriate access to the authorized users depending on their permissions.
- It effectively overcomes the delay in communications.
- Updating of information becomes so easier.
- System security, data security and reliability are the striking features.
- The System has adequate scope for modification in future if it is necessary.

Future Enhancements

This application avoids the manual work and the problems concern with it. It is an easy way to obtain the information regarding the various travel services that are present in our System.

Well, I and my team member have worked hard to present an improved website better than the existing one's regarding the information about the various activities. Still, we found out that the project can be done in a better way. Primarily, in this system patient login and then go to reception. By using this patient will send request for consulting the doctor. Reception will set the date for doctor appointments. After that doctor see his appointments and see the patients, surgeries also done.

The next enhancement is, we will develop online services. That mean, if patient have any problems he can send his problem to the doctor through internet from his home, then doctor will send reply to him. In this patient have some login name and password.