Project Report

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Project Name : Patients Record Management

Introduction

Patients record management is a database management system that stores a patient's medical information for rapid retrieval. The system will allow registered doctors and staff to record medical information in the database. A doctor can view any patient's medical history using the system. Patients and doctors can be registered in the system using a National ID, passport, or birth certificate.

Context

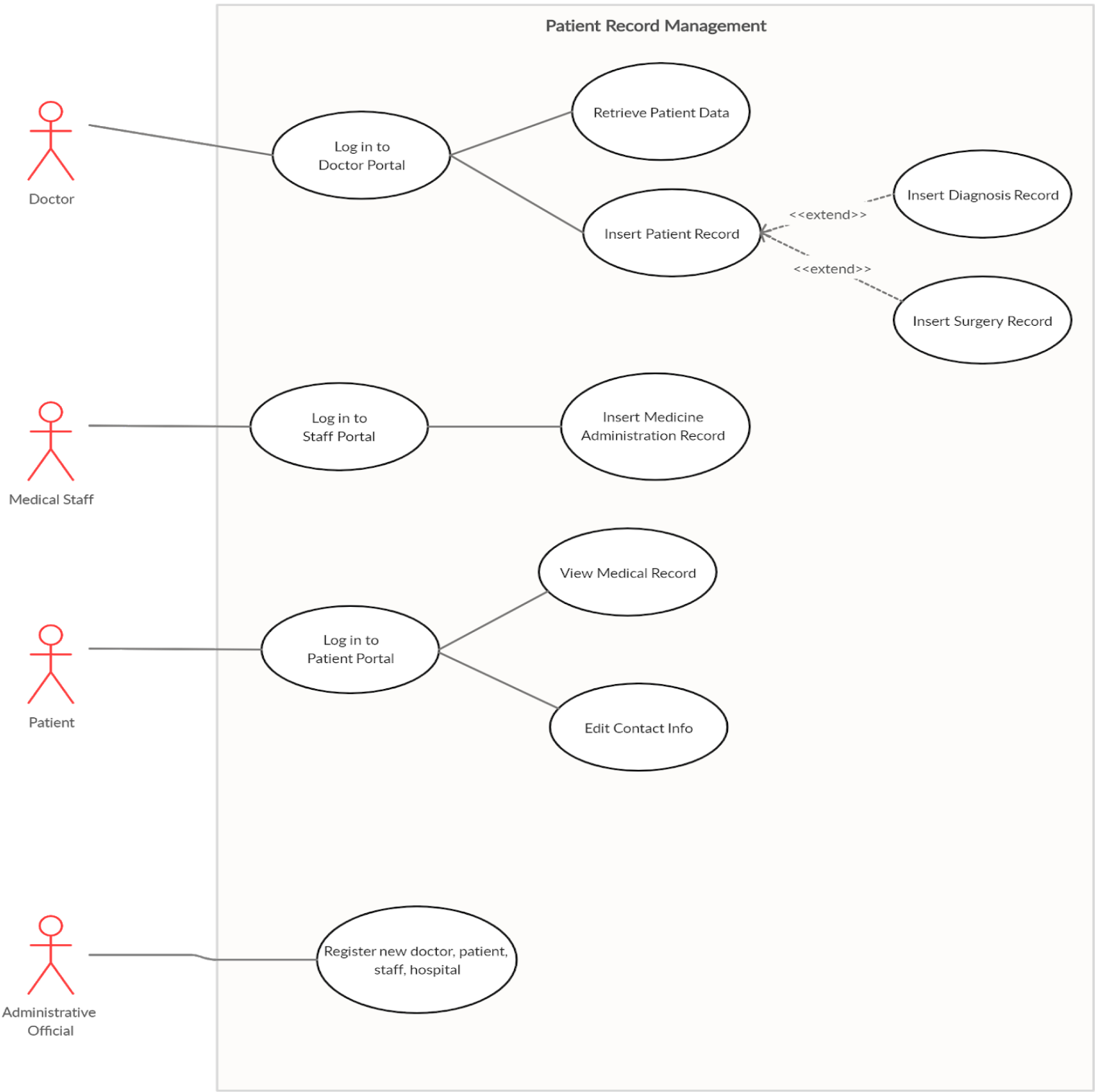
When a person visits a doctor for consultation, he gets a prescription containing medical condition and possible treatments and medicines. The traditional paper-based system has some flaws. A patient might lose or damage the prescription or cannot procure the prescription to a doctor when it is needed. In this project, I tried to come up with a system that will register medical information of patients in a database. A patient will be able to view his records. And a doctor will also be able to retrieve any patient's medical information. The system can successfully replace the paper-based system and reduce medical decision-making time.

A doctor can use the system to search for a particular patient's previous medical history. A surgeon can review any pre-existing condition of a patient before any crucial surgery. Thus the system will ensure that our doctors have adequate information within a few seconds when needed so that they can make crucial decisions with less effort.

A patient can use the database and view previous medical history in an organized way. He can search for particular information.

The system will contain separate portals for patients, doctors, and staff. The system will also contain a special portal for medical administrative officials for registering doctors, patients, staff, and hospitals.

Use Case


Patient Record Management
Doctor
Log in to
Doctor Portal
Retrieve Patient Data
Insert Patient Record
<<extend>>
Insert Diagnosis Record
<<extend>>
Insert Surgery Record
Medical Staff
Log in to
Staff Portal
Insert Medicine
Administration Record
Patient
Log in to
Patient Portal
View Medical Record
Edit Contact Info
Administrative
Official
Register new doctor, patient,
staff, hospital

Use Case 1: Doctors

Doctors can log in to the doctor's portal and edit their personal contact information.
Doctors can insert a patient's medical information in three ways.

1. Doctor can insert consultation information.
2. Doctor can insert surgery information.
3. Doctor can insert diagnosis information.

A doctor can retrieve any particular patient's medical history using Patient ID or date and time or a unique reference number.

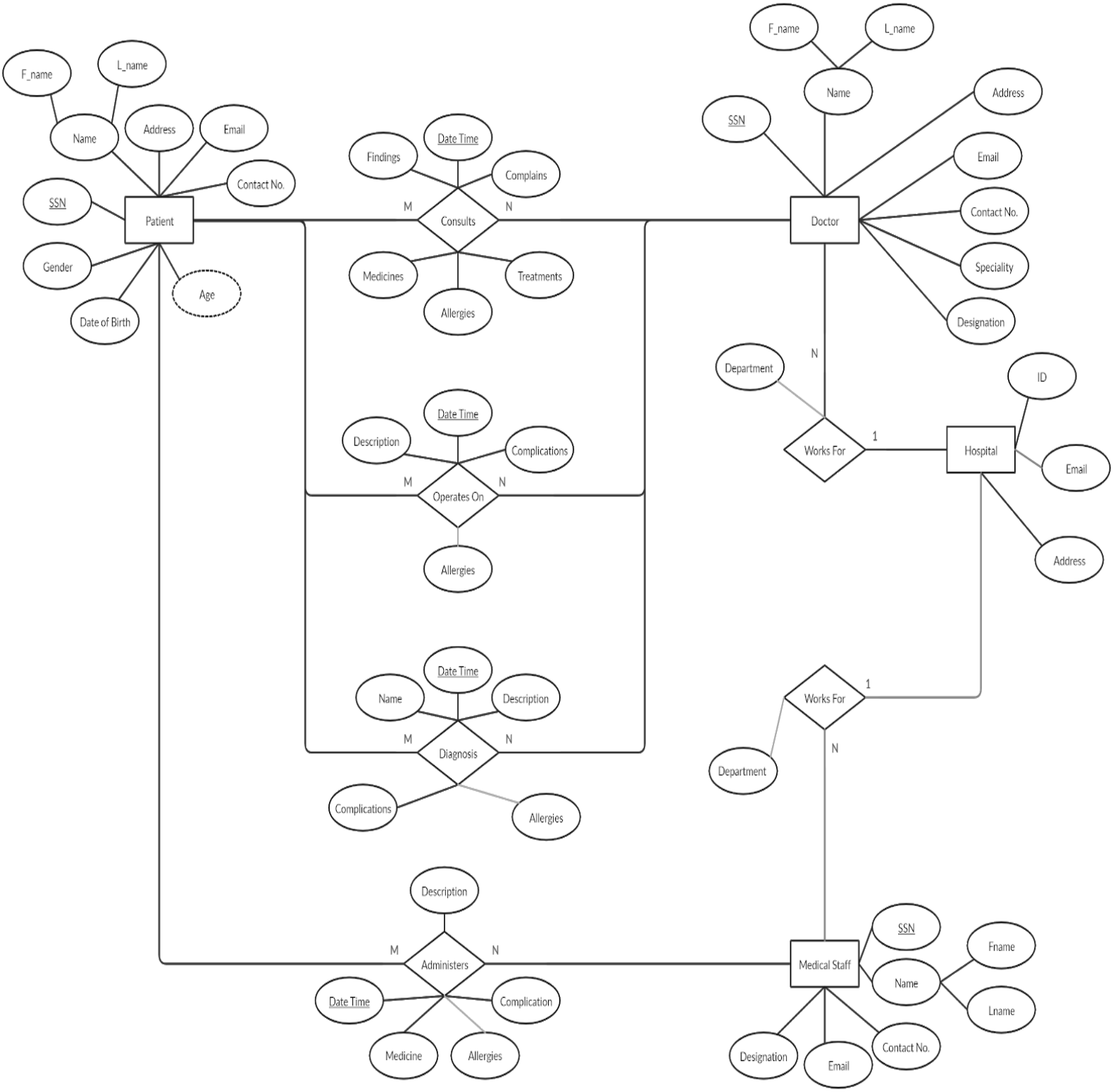
Use Case 2: Medical Staff

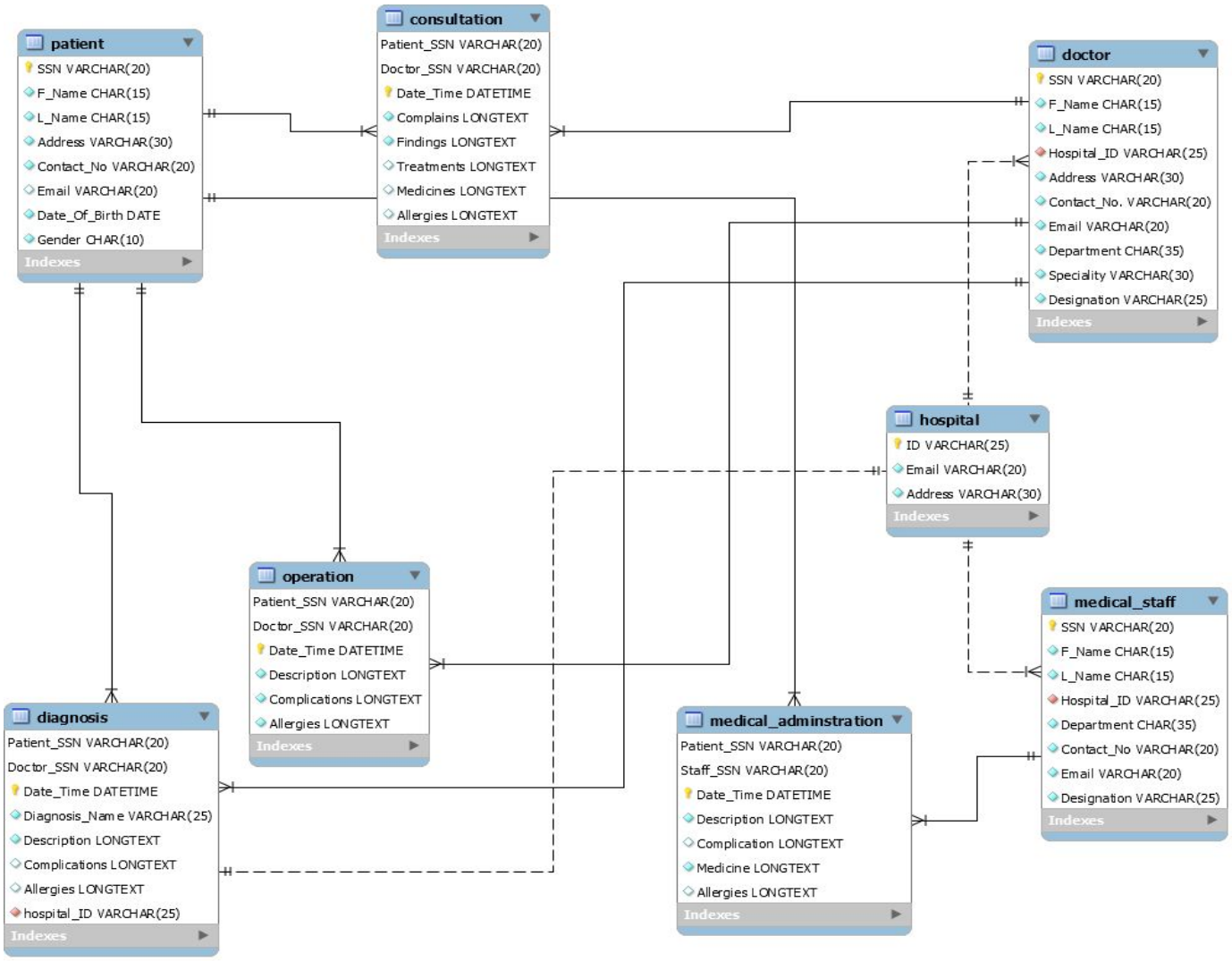
Medical staffs can log in to the staff portal and edit their personal contact information. Staff can also insert any medicine dosage information.

Use Case 3: Patients

Patients can log in to the patient's portal and edit personal contact information. A patient can view all his medical history and also search for particular information.

ER Diagram and DB schema





From the ER diagram and Database schema we can see we have different tables to store different informations. The descriptions are given below:

a. Patient**:** The patient table consists of patient information. A patient table has a primary key named SSN(Social Security Number). The ssn can be NID number or passport number or birth certificate number. This id is unique. This table contains information related to the patient like date of birth, email, and address.

b. Doctor**:** The doctor table contains information regarded to doctors. It has a primary key called SSN like patient table. It has a foreign key called Hospital Id that references the key ID in hospital table.

c. Medical_staff: The staff table has a primary key called SSN. And the table stores contact information of a medical staff. Foreign key Hospital ID references to the key ID in hospital table.

d. Hospital: Hospital table has primary key called ID. It has other attributes like name, email, address.

e. Consultation: The consultation table stores information of the consultations. The primary key is the composite key of doctor ssn, patient ssn and date time. It has other attributes like complains, findings, medicines, treatments

f. Operation: The operation table stores information of the surgery that may take place. The primary key is the composite key of doctor ssn, patient ssn and date time. Other attributes are description, complications, allergies.

g. Diagnosis: The diagnosis able stores information of the surgery that may take place. The primary key is the composite key of doctor ssn, patient ssn and date time. It has other attributes like diagnosis name, description etc.

h. Medical administration: The medical administration is for medical staff like a nurse, to record medicine dosage applied by them. he primary key is the composite key of doctor ssn, patient ssn and date time. Other attributes are medicines, allergies etc.

I also introduced 4 additional tables named patient_login, doctor_login, staff_login, and admin_login to store user ID and password.

Front End Plan

The front end consists of a homepage that contains information about the management system. It leads to three different portals. The front end design plan is stated below:

1. Homepage
2. About
3. Join
4. Patient Login
    a. Patient Profile
    b. Patient Records
    c. Patient Search
5. Doctor Login
    a. Doctor Profile
    b. Doctor Records
    c. Doctor Search
    d. Doctor Insert

6. Staff Login
    a. Staff Profile
    b. Staff Records
    c. Staff Insert

7. Admin Login
    a. Register
    b. Delete

Backend Plan

1. Patient login processing
2. Patient personal information display on profile
3. Patient medical records

4. Patient searching facility
5. Doctor login processing
6. Doctor personal information display on profile
7. Doctor records
8. Doctor searching facility
9. Doctor insert facility
10. Medical staff login processing
11. Medical staff personal information display on profile
12. Medical staff Insert facility
13. Admin register facility
14. Admin delete facility

Tools

The front end is developed using HTML and designed using CSS. The datepicker in the html forms are implemented using JQuery. The backend is developed using PHP. The database is created and queries are performed using mySQL.

Development

The complete development time can be divided in four phases. In each phase, I focused on a particular target and completed it step by step.

Phase 1 : In this phase, I designed the ER diagram and Database Schema. The first prototype was later scrapped and a new optimized schema was developed in the projected time.

Phase 2 : In this phase, the front end structure was designed. The pages I would be using in order to implement the idea of this project was developed using HTML and styled using CSS. In some of the pages, I started using php like login pages.

Phase 3: This phase is focused on backend development. I used php to completely develop the backend side and mySQL to connect database and perform query.

Phase 4: This was the testing phase. The system was running fluently and performing desired functions. Some minor error was found and solved

Benefits

The management system has many benefits that can serve for both patients and doctors. Some of the benefits are stated below:

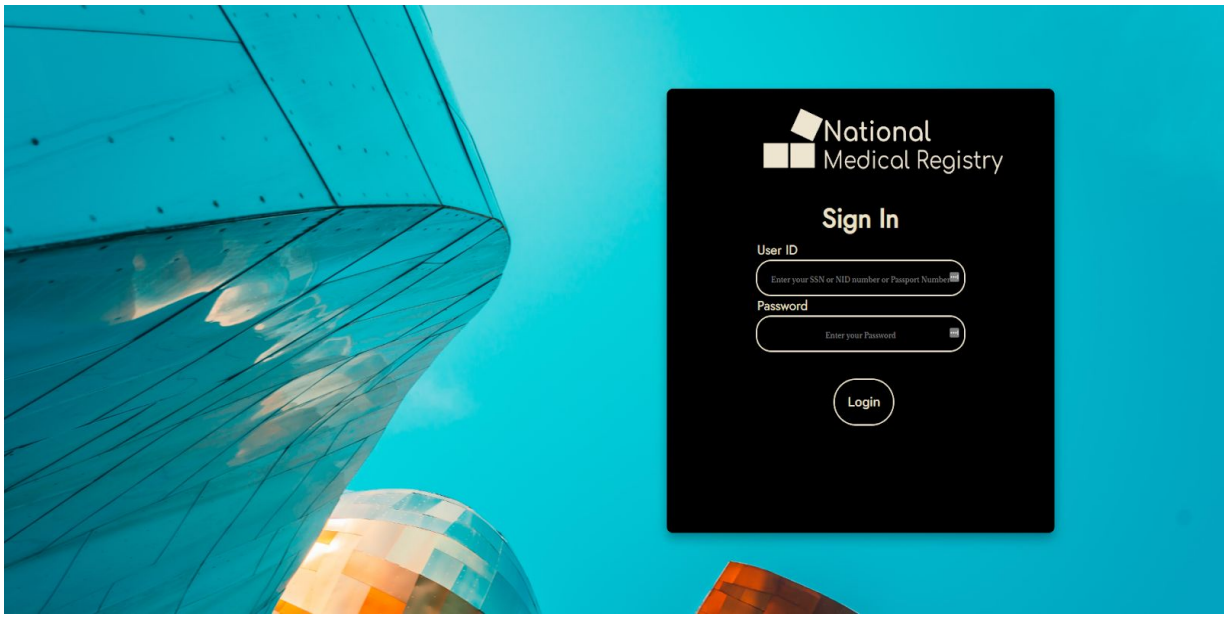
a. Patients can view medical records in an organized way.
b. A Patient can search for a particular record using the searching facility.
c. A patient can view consultation, surgery, and diagnosis ina separate table.
d. Doctors can view all their consultation, surgery and diagnosis records in their portal.
e. Doctors can view any particular patient's medical information using the searching facility.
f. Doctors can insert patient medical information in a separate category-wise form.
g. Doctors can easily retrieve information using unique reference id.
h. Staff can insert patient medical information.
i. Doctor and patients can view information inserted by a staff.

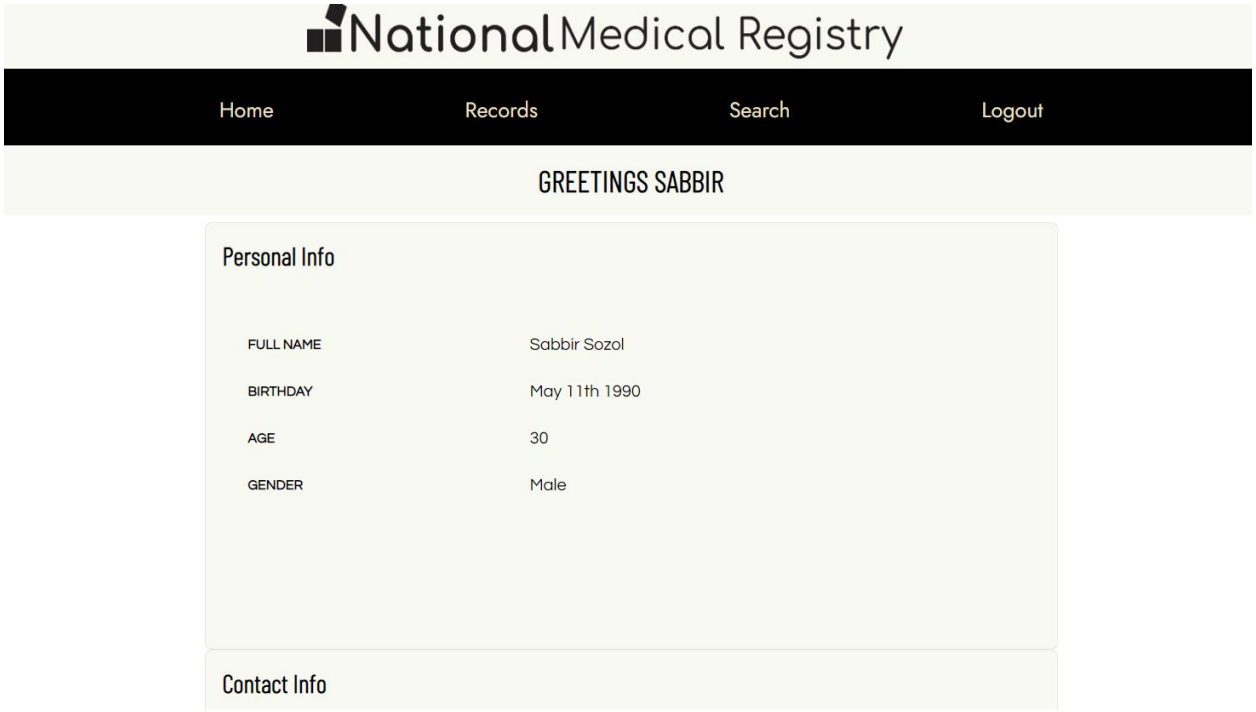
Future Plan

While working on the project, I found that the project can be extended with more functionality. It can be connected with different hospitals and create a booking system for patients. There can be more administrative controls.

For example, Disease Control Agencies can use the system and keep track of any particular disease. The search function can be made more interactive using AJAX and JavaScript.

Screen Shots





National Medical Registry

Home | Records | Search | Logout

Counsultation Records

Date & Time	Doctor Name	Doctor ID	Complains	Findings	Treatments	Allergies	Reference No
January 17th 2020 11:00:00 AM	Arfaqur Rahman	159XY	Chest pain, shortness of breath	Cardiac Arrest	Surgery	peanuts	1234AB159XY20200117000011
December 18th 2019 04:00:00 PM	Fariya Jiban	1784KL	Back Pain	Spine nerve damage	Reconstructive surgery	peanuts	1234AB1784KL20191218000016

Surgery Records

Date & Time	Doctor Name	Doctor ID	Description	Complications	Allergies	Reference No
January 30th 2020 10:00:00 AM	Arfaqur Rahman	159XY	Bypass Surgery	-	-	1234AB159XY20200130000010
April 1st 2020 03:00:00 PM	Fariya Jiban	1784KL	Spine reconstructive surgery	-	Anesthesia overdose	1234AB1784KL20200401000015

National Medical Registry

Records | Search | Insert

Choose a Category

Consultation ☐

Surgery ☐

Diagnosis ☐

NEXT

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