

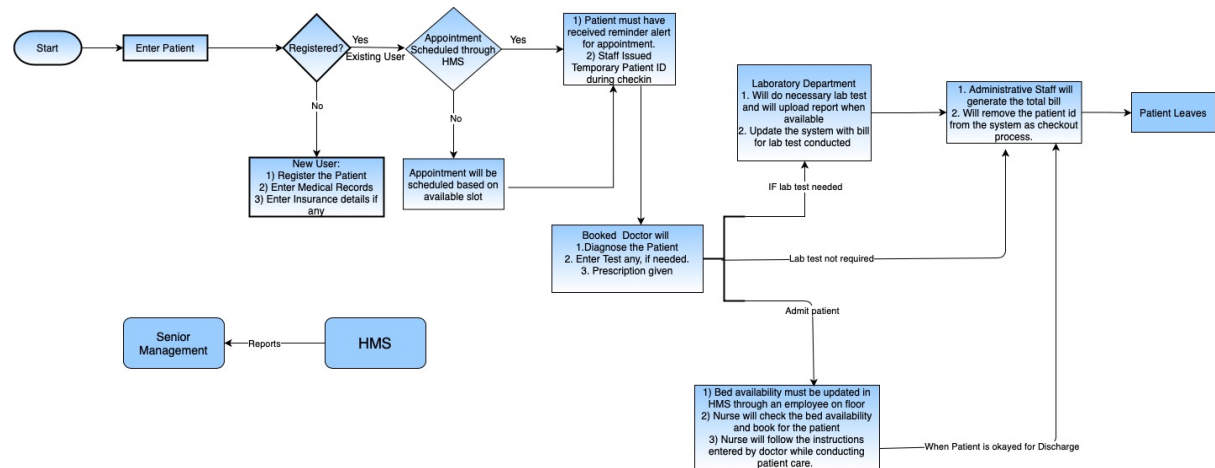
# **Hospital Management System**

## **1. STAKEHOLDERS**

<b>ACTOR</b>	<b>What he can do on the Software Created</b>
Administrative staff (End User)	<ul style="list-style-type: none"><li>• Administrative staff shall use the HMS to manage the patient appointments.</li><li>• Administrative staff shall be able to register new patient into the HMS.</li><li>• Administrative staff shall give each patient a patient ID to manage checkin &amp; checkout process of the patients.</li><li>• Administrative Staff for the hospital floor shall update the bed occupancy</li></ul>
Patients (End User)	<ul style="list-style-type: none"><li>• Patients can select the doctor.</li></ul>
Doctors(End Users)	<ul style="list-style-type: none"><li>• Doctors shall prescribe any tests to patient by entry through HMS.</li><li>• Doctors can view their appointments through the HMS portal.</li></ul>
Laboratory Department	<ul style="list-style-type: none"><li>• Any test prescribed to patients entered in HMS through Doctors will be accessed by Laboratory Department.</li><li>• Test Reports will be uploaded by the department in HMS</li></ul>
Nurses	<ul style="list-style-type: none"><li>• Nurse to access instructions entered in the system by the doctors for each patient.</li></ul>
Senior Management (Sponsor)	<ul style="list-style-type: none"><li>• Reports to be made accessible to Senior Management to understand hospital's revenue, expenses, bed occupancy, and other details.</li></ul>
Project Manager	<ul style="list-style-type: none"><li>• Ensure timely delivery of the solution.</li></ul>
Staff Management (End User)	<ul style="list-style-type: none"><li>• Staff Management stores the names and timings of the nurses and ward boys on duty with their respective ward numbers.</li></ul>
Tester	<ul style="list-style-type: none"><li>• To test the HMS application.</li></ul>

## 2. PROPOSED SYSTEM WORKFLOW :

Create a pictorial workflow for the proposed system.



## 3. IN SCOPE

- All Patient must be registered in the HMS.
- Registered Patients medical records and medical history shall be updated against their profile.
- If patient have Insurance , the details should be furnished against the profile.
- Registered Patient shall be able to book appointment with their doctor based on slot availability .
- System. shall send email and SMS reminders to the patient one day prior to the appointment date to remind the patient of the appointment.

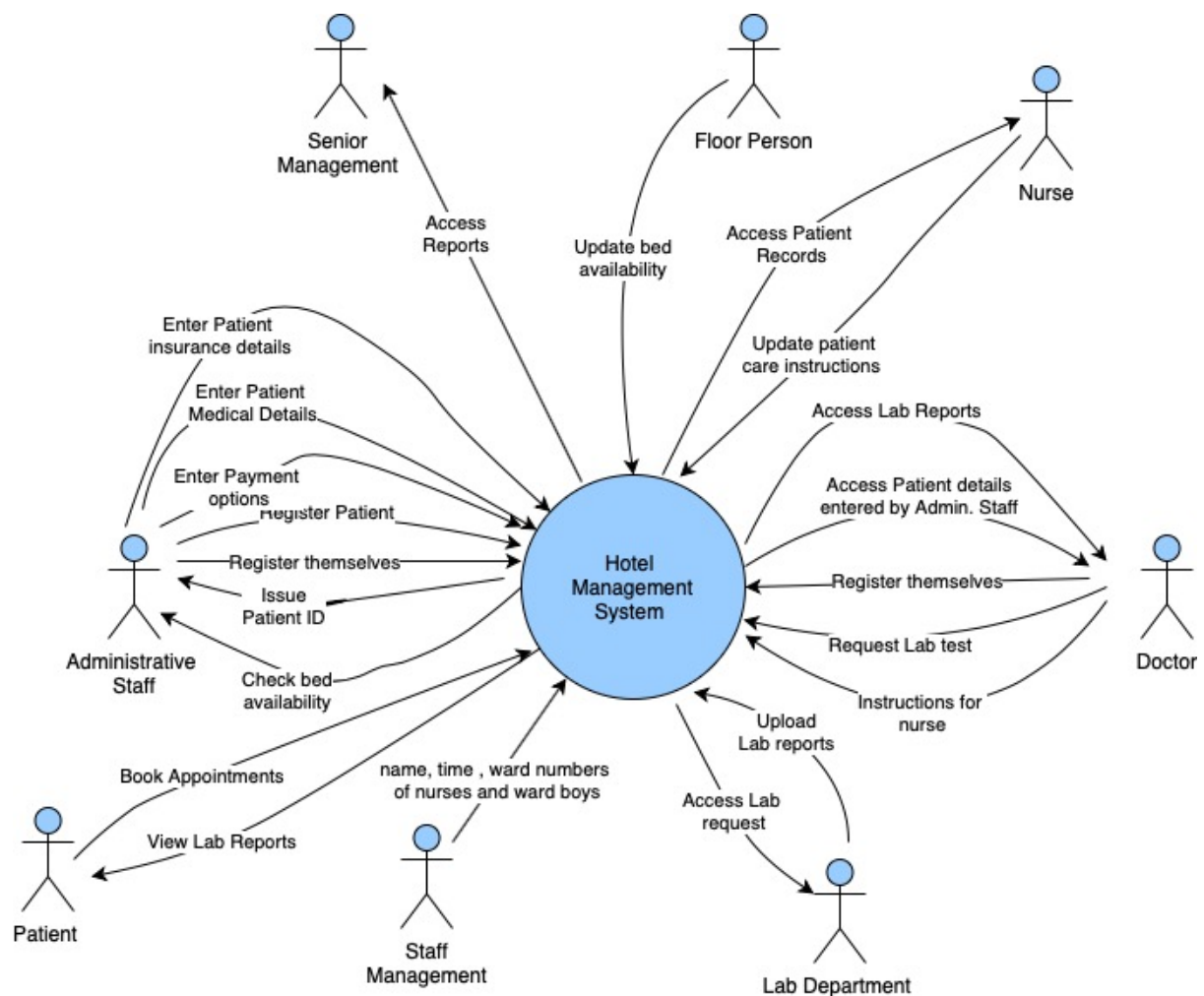
- When patient checkin , Administrative staff will issue temporary patient ID for the patient stay will be updated in system.
- Patient can visit this Doctor in premises at their booked slot.
- Doctor shall be able to view the records available in the system of the patient .
- Doctor will diagnose the patient and generate Prescription. If needed, shall suggest perform lab test. Lab test to be performed will be entered in the system.
- Lab test can be accessed by Laboratory department . When test performed on patients - status and reports will be uploaded against the patient profile.
- Lab test can be viewed by Doctor based on patient id.
- If patient need to be hospitalized , bed availability can be checked through the system.
- Bed availability and booked to be updated every. 6 hours by floor employees.
- Once patient is admitted, nurse would be follow instructions entered in system by doctor tube performed while conducting the patient care.
- Whenever patient will leave or discharge from the hospital , they will have to clear off all dues or total bill against all or any services provided in hospital. System should be able to generate total bill in the system.
- System shall send the patient bill to insurance company directly if insurance information is available.
- Patient ID will be removed through the system on final checkout.

#### **OUT OF SCOPE**

- HMS will not be available on app
- Maintaining Credit Card details is out of scope.
- Pharmacy platform in HMS is out of Scope

#### 4. SCOPE using Use Case Diagram (UML)

Use case diagram including all the actors and processes for an end to end process of the system.



## **5. Main features need to be developed.**

### Employees management Portal-

- Employees must register themselves in the HMS.
- Forgot username/password and Reset feature will be available on login page.
- Depending Roles, employees will have view access the system.

### Administrative Staff Portal -

- Administrative Staff/Registration Staff have access to Registration Portal of Patient.
- Registration Portal of Patient will include -
  - Patient Name
  - Patient DOB
  - Patient Email ID
  - Patient Phone Number
  - Preferred mode of contact. - Email, Phone or Both
  - Medical History - Diabetes , Blood Pressure, Allergies etc.
  - Medical Records upload feature.
  - Insurance details
- When patient check-in , Administrative Staff must be able to generate Patient ID for it to be used throughout the stay. Once patient check-out - patient id will be removed from Administrative Portal.
- Administrative Staff will have view access to bed availability functionally for admitted/to be admitted patient.

### Doctors Portal -

- Doctors will be able to see medical records and medical history against each patient.
- Doctor will have functionality to add lab test if required against the issued patient id.
- Doctor can view the lab test against the patient id.
- If hospitalization is suggested by doctor. Doctor will have a Prescription page against admitted patient - where he can enter instructions to be followed by Nurse while conducting Patient Care.

#### Nurses Portal -

- Nurse Portal will have view access for all the instructions against each Patient given by Doctor along with the tick box .
- Nurse Portal will have functionality of clicking tick in the box once instructions is performed while conducting Patient Care.

#### Floor Employees Portal-

- Floor employee page will include -
  - Room Number
  - Bed Number
  - Floor Number
  - Patient Name
  - Total Bed Available Count
- Floor employees Portal will have toggle tab against each Bed to be marked “Available” if bed available else “Booked”.

#### Patient Portal -

- Registered Patient will be provided with login id and default password from Administrative staff.
- Forgot username/password and Reset feature will be available on login page.
- Patient Portal Home Page will have view access for the following -
  - Registration Number
  - Patient Name
  - DOB
  - Medical History
  - Medical Records
  - Lab records
- Patient Portal will have tab “Book Appointment ” on top at Home page.
- “Book Appointment “ Page will have -
  - Doctors name listed along with their specialization and slot availability as per date.

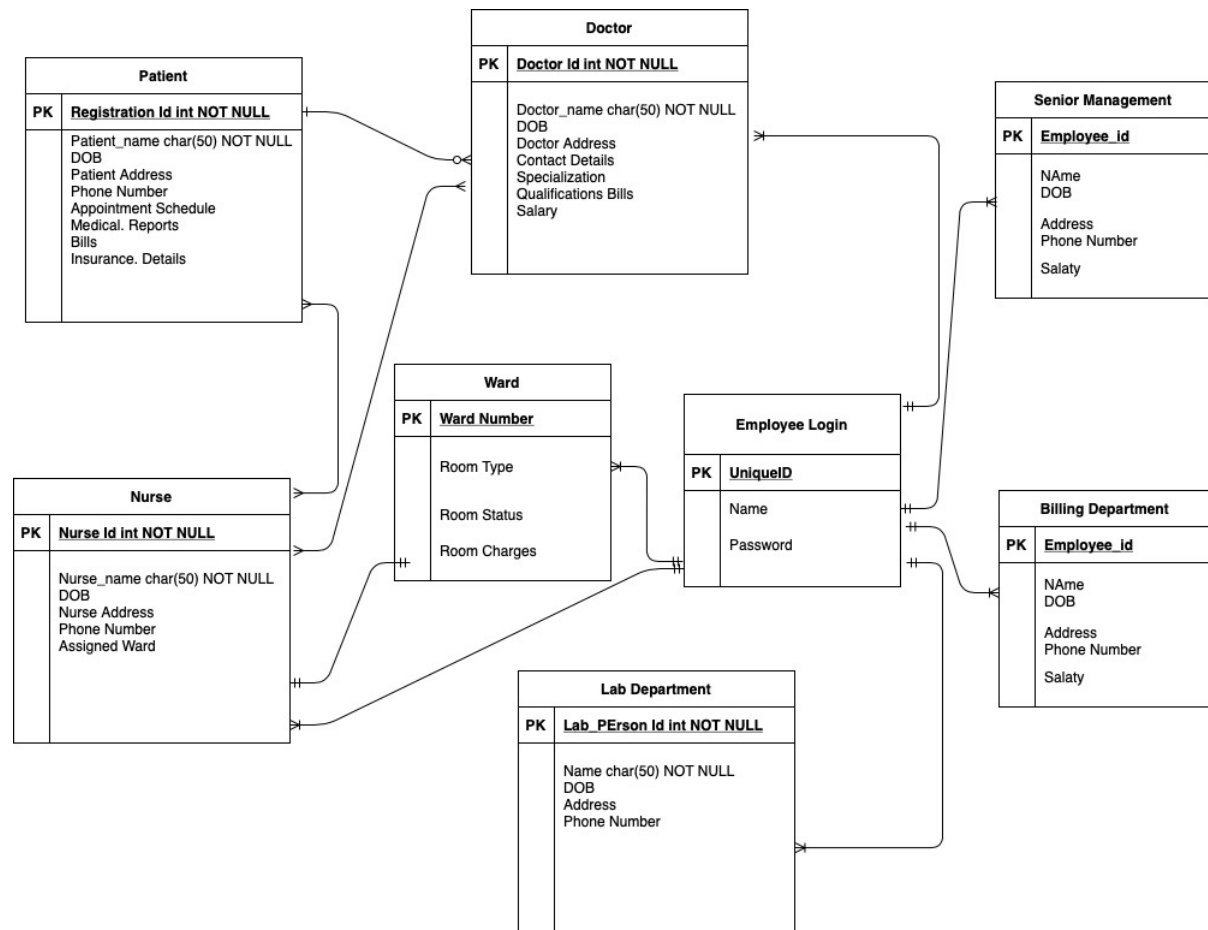
- “Confirm Appointment “ tab at the end of the Book Appointment Page.
- Once booking confirmed - Patient will be notified by preferred mode of contact - Email, Phone or Both

#### Senior Management Portal:

- Senior management Portal will have access to all requested report for view and download only -
  - Bed occupancy for each day
  - Doctors’ appointments and revenue generated through OPDs.
  - Total number of OPD patients and admitted patients.
  - Doctors who generate the maximum revenue.
  - Total amount of earnings through OPD and admitted patients
  - Total amount of earnings generated through laboratory and radiology

## 6. ER Diagram for HMS

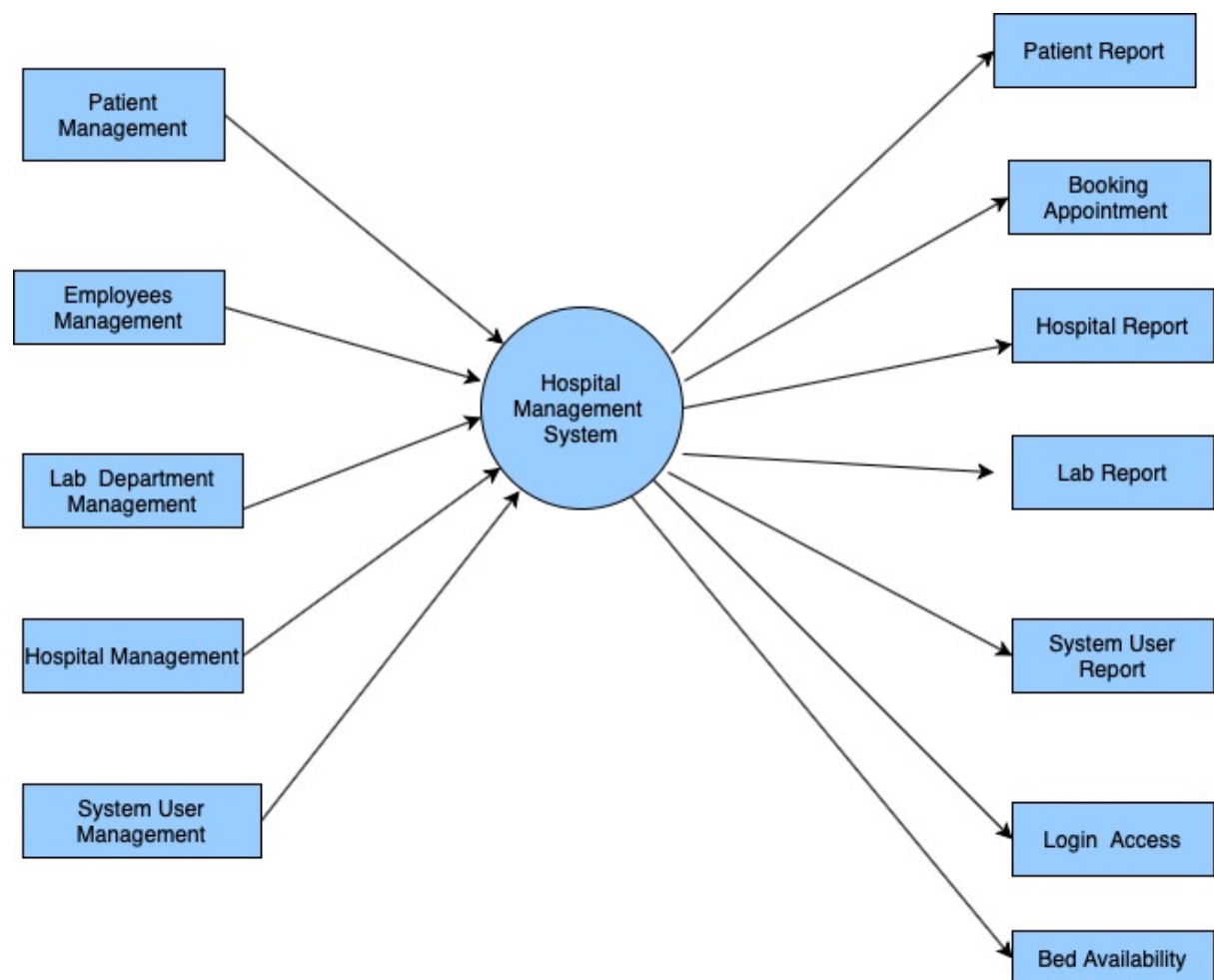
ER Diagram for the system you have designed.





## 7. Data Flow Diagram for HMS

Data Flow diagram for the hospital management system-



## **8. FUNCTIONAL REQUIREMENTS**

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## **NON-FUNCTIONAL REQUIREMENTS**

### **System Requirement:**

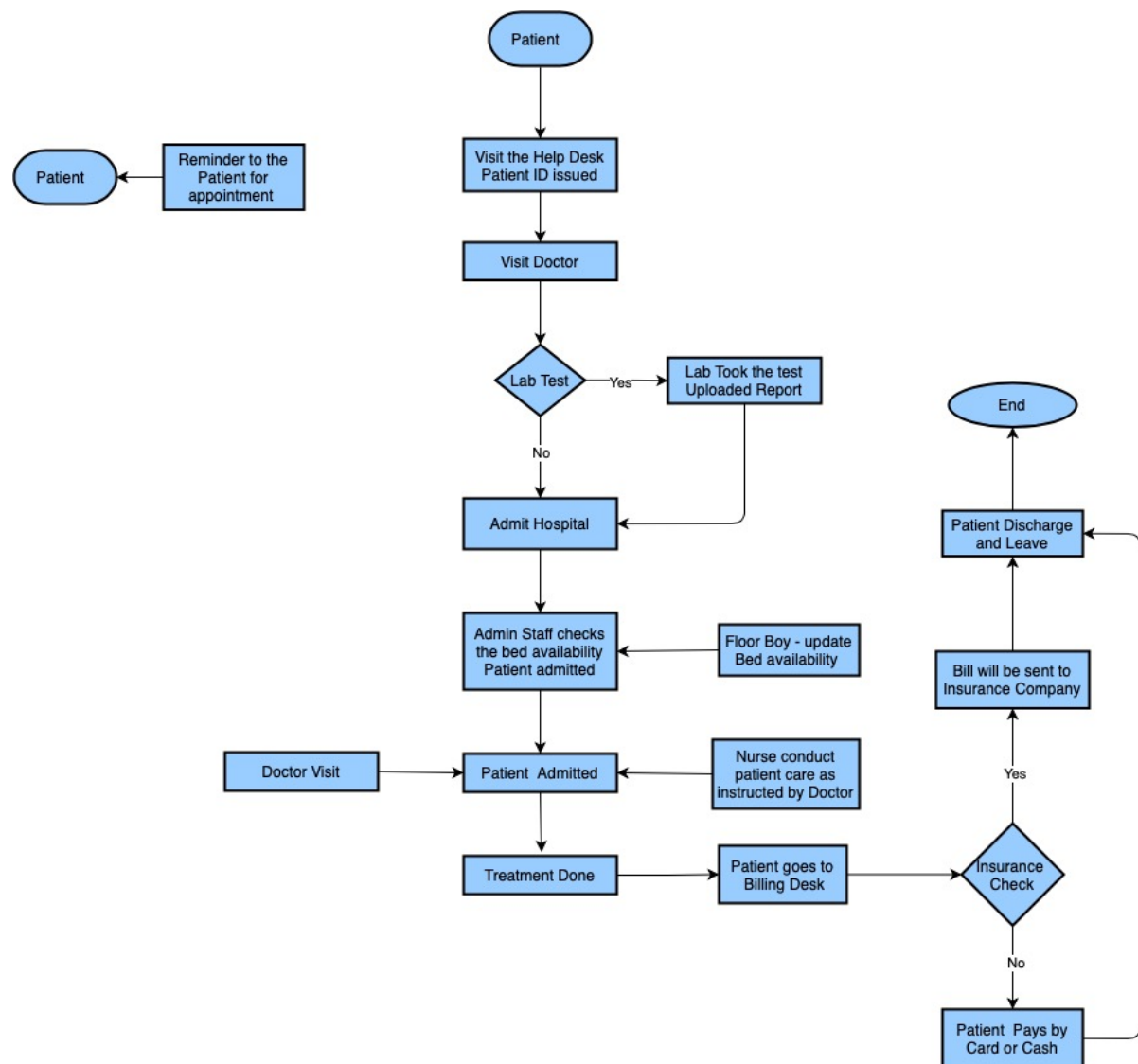
- Database: MySQL Database to be used since it is open source and free.
- Operating System: Shall be Windows 2016
- Web-Based: The system shall be a web-based application
- Response Time: The system shall give responses in 1 second
- Capacity: The System must support 500 people using it at a time
- Errors: The system shall keep a log of all the errors.
- Availability: The system shall be available 24X7

### **Usability:**

- The screens should be self-explanatory and very user friendly. Management would not want employees not ordering from the system as they cannot understand the screens and data fields on screen. The users should not find the system cumbersome.

## 9. Flow chart for patient admission

Flow Chart to depict how patient admission will be done.



## 10. Screen Wireframes

Create wireframes for every screen that will appear to the users of the system.

The wireframe shows a patient profile page. At the top, there is a blue header with the Mayo Clinic logo. Below the header is a navigation bar with buttons for Home, Records, Book Appointments, Doctors, Services, Contact Us, and Search. The main content area displays a welcome message and a section for the patient's profile with input fields for Name, DOB, Address, and Phone.

MAYO  
CLINIC

Home Records Book Appointments Doctors Services Contact Us Search

Welcome Patient Name!

My Profile:

Name:

DOB:

Address:

Phone:

Book Appointment Page -

[Home](#)[Records](#)[Book Appointments](#)[Doctors](#)[Services](#)[Contact Us](#)[Search](#)

### Book Appointment

Department

V

Doctor

V

Location

Availability

Date:

Time: