**Hospital Management System**

**1. User Management**

* **Admin Features**:
  + Create, update, and delete users (doctors, nurses, patients, staff).
  + Role-based access control and permissions.
* **Doctor Features**:
  + Manage schedules and appointments.
  + Access patient medical records.
* **Patient Features**:
  + View personal medical records and appointment history.
  + Book, reschedule, or cancel appointments.

**2. Patient Management**

* **Patient Registration**:
  + Add patient details including demographics, insurance, and emergency contact information.
* **Medical Records**:
  + Maintain patient history, diagnoses, and treatment plans.
  + Upload and manage test reports and prescriptions.

**3. Appointment Scheduling**

* **Booking System**:
  + Integrated calendar view with slot availability for doctors.
  + Appointment status (Scheduled, Completed, Cancelled).
* **Doctor Availability**:
  + Manage doctor working hours and time slots.

**4. Billing and Invoicing**

* **Invoice Generation**:
  + Generate bills for treatments, consultations, and tests.
  + Integrate with third-party payment gateways.
* **Payment Tracking**:
  + Manage patient payment history and dues.

**5. Reporting and Analytics**

* **Dashboard Overview**:
  + Visualize hospital operations like revenue, appointments, and patient count.
  + Filter data by time range, department, or doctor.
* **Custom Reports**:
  + Generate reports for staff performance, resource utilization, and patient outcomes.

**6. Pharmacy Management**

* **Inventory Tracking**:
  + Manage stock levels for medicines and equipment.
  + Notify for low-stock and expiry.
* **Prescription Integration**:
  + Link prescriptions to patient records and orders.

**7. Laboratory Management**

* **Test Management**:
  + Track test requests, results, and payments.
* **Integration with Records**:
  + Upload test results directly to patient records.

**8. Notifications and Communication**

* **Email and SMS Notifications**:
  + Alerts for appointments, billing, and health updates.
* **Real-Time Chat**:
  + Facilitate communication between patients and hospital staff.

**Optional Features:**

* + Notification System and reminder using KAFKA**.**
  + Chat and messages System using WebSocket

**Non-Functional Requirements**

* **Performance**:
  + Use server-side rendering for faster page loads.
  + Optimize database queries for scalability.
* **Security**:
  + Implement JWT authentication and data encryption.
* **Responsive Design**:
  + Ensure compatibility across devices (mobile, tablet, desktop).

**Tools and Libraries**

**Frontend (React + Tailwind)**

* **Component Library**: Mantine and PrimeReact for UI components.
* **Icons**: Tabler Icons and Heroicons for a modern aesthetic.
* **Styling**: Tailwind CSS for rapid styling and responsive design.

**Backend (Spring Boot)**

* **Framework**: Spring Boot for REST APIs and business logic.
* **Database**: MySQL for patient records and system data.
* **Authentication**: Spring Security with JWT.

**State Management**

* **Redux Toolkit**: To manage global states like user sessions and UI states.

**Additional Libraries**

**Data Visualization**: Nivo and Apex Charts for analytics.  
  
  
**FONTS**

**Poppins :** Body and text  
**Merriweather**: Headings  
  
**Mantine**  
  
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