# Hospital Management System (HMS) - Hybrid Sitemap & Backend Structure

## 1. Hybrid Sitemap (Frontend Routes)

/  
├── Landing Page (/)  
├── About / Contact (/about)  
├── Login (/login)  
├── Register (/register)  
├── Error / Access Denied (/error)  
  
# Common (role-based data views)  
├── /dashboard (role-specific: Admin, Doctor, Patient)  
├── /profile (update/view profile)  
│  
├── /appointments (list appointments)  
│ └── /appointments/:id (appointment details)  
│ └── /appointments/book (only Patient role)  
│  
├── /billing (billing overview)  
│ └── /billing/:id (bill details)  
│ └── /billing/:id/pay (only Patient role)  
  
# Admin-exclusive routes  
├── /admin  
│ ├── /admin/patients  
│ │ ├── /admin/patients/add  
│ │ └── /admin/patients/:id  
│ │  
│ ├── /admin/doctors  
│ │ ├── /admin/doctors/add  
│ │ └── /admin/doctors/:id  
│ │  
│ └── /admin/appointments (all hospital appointments)

## 2. Backend Structure (Spring Boot)

src/main/java/com/hms/  
│  
├── config/ # Security, CORS, global configs  
│ ├── SecurityConfig.java  
│ └── WebConfig.java  
│  
├── controller/ # REST Controllers (endpoints)  
│ ├── AuthController.java  
│ ├── DashboardController.java  
│ ├── AppointmentController.java  
│ ├── BillingController.java  
│ ├── PatientController.java (Admin only)  
│ ├── DoctorController.java (Admin only)  
│ └── UserController.java  
│  
├── service/ # Business logic  
│ ├── AuthService.java  
│ ├── AppointmentService.java  
│ ├── BillingService.java  
│ ├── PatientService.java  
│ ├── DoctorService.java  
│ └── UserService.java  
│  
├── repository/ # JPA Repositories  
│ ├── AppointmentRepository.java  
│ ├── BillingRepository.java  
│ ├── PatientRepository.java  
│ ├── DoctorRepository.java  
│ └── UserRepository.java  
│  
├── model/ # Entities (mapped to DB tables)  
│ ├── Appointment.java  
│ ├── Bill.java  
│ ├── Patient.java  
│ ├── Doctor.java  
│ └── User.java  
│  
├── dto/ # Data Transfer Objects  
│ ├── AppointmentDTO.java  
│ ├── BillingDTO.java  
│ ├── PatientDTO.java  
│ ├── DoctorDTO.java  
│ └── UserDTO.java  
│  
├── exception/ # Custom exception handling  
│ ├── GlobalExceptionHandler.java  
│ └── ResourceNotFoundException.java  
│  
└── HospitalManagementApplication.java

## 3. REST Endpoints

### Authentication & User Management  
- POST /auth/login  
- POST /auth/register  
- GET /users/me  
- PUT /users/me  
  
### Dashboard  
- GET /dashboard (role-based response)  
  
### Appointments  
- GET /appointments  
- GET /appointments/{id}  
- POST /appointments/book (Patient only)  
- DELETE /appointments/{id}  
  
### Billing  
- GET /billing  
- GET /billing/{id}  
- POST /billing/{id}/pay (Patient only)  
- POST /billing/generate (Admin only)  
  
### Admin Exclusive  
- Patients: GET/POST/PUT/DELETE /admin/patients...  
- Doctors: GET/POST/PUT/DELETE /admin/doctors...  
- Appointments: GET /admin/appointments

## 4. Spring Security Config

http.authorizeHttpRequests(auth -> auth  
 .requestMatchers("/auth/\*\*").permitAll()  
 .requestMatchers("/admin/\*\*").hasRole("ADMIN")  
 .requestMatchers(HttpMethod.POST, "/appointments/book").hasRole("PATIENT")  
 .requestMatchers("/billing/\*\*").hasAnyRole("ADMIN", "PATIENT")  
 .requestMatchers("/appointments/\*\*").hasAnyRole("ADMIN", "DOCTOR", "PATIENT")  
 .anyRequest().authenticated()  
);

### 🎨 How to Use Bootstrap Default Colors in HMS

#### 1. Primary (Blue: text-primary, btn-primary, bg-primary)

* **Where:** Main CTAs, important links, navigation highlights.
* **Examples:**
  + “Book Appointment” button → btn btn-primary
  + Navbar brand → navbar-dark bg-primary
  + Section headings → text-primary

#### 2. Secondary (Gray: text-secondary, btn-secondary, bg-secondary)

* **Where:** Neutral actions, less important buttons, placeholders.
* **Examples:**
  + “Cancel” button → btn btn-secondary
  + Sidebar background → bg-secondary text-white
  + Labels/Muted text → text-secondary

#### 3. Success (Green: text-success, btn-success, alert-success)

* **Where:** Positive outcomes, confirmations, paid bills.
* **Examples:**
  + Payment successful → alert alert-success
  + Status badge: “Completed” → badge bg-success
  + “Save changes” button → btn btn-success

#### 4. Danger (Red: text-danger, btn-danger, alert-danger)

* **Where:** Errors, cancellations, warnings for critical actions.
* **Examples:**
  + “Delete patient” → btn btn-danger
  + Error messages (wrong password, failed booking) → alert alert-danger
  + Mark “Overdue Bill” → text-danger fw-bold

#### 5. Warning (Yellow: text-warning, btn-warning, alert-warning)

* **Where:** Pending actions, warnings, notices.
* **Examples:**
  + Unpaid bill → badge bg-warning text-dark
  + Alert: “Appointment awaiting confirmation” → alert alert-warning
  + “Pay Now” button → btn btn-warning

#### 6. Info (Teal: text-info, btn-info, alert-info)

* **Where:** Neutral info, schedules, notifications.
* **Examples:**
  + Appointment status: “Upcoming” → badge bg-info text-dark
  + Alert: “New hospital policy update” → alert alert-info
  + Doctor availability note → text-info

#### 7. Light (White/Light Gray: bg-light, text-light)

* **Where:** Backgrounds, cards, sections.
* **Examples:**
  + Patient dashboard cards → card bg-light
  + Navbar with bg-light text-dark
  + Tables with alternating table-light rows

#### 8. Dark (Black/Deep Gray: bg-dark, text-dark, btn-dark)

* **Where:** Headers, footers, contrast areas.
* **Examples:**
  + Footer → bg-dark text-light
  + Dashboard sidebar → bg-dark text-white
  + “Download Report” button → btn btn-dark

### ✅ Rules of Thumb

* Use **Primary** for actions you want patients/doctors/admins to take.
* Use **Success/Danger/Warning/Info** only where they convey **status** (not decoration).
* Use **Light** backgrounds with **Dark** text for maximum readability.
* Keep **Secondary** for “neutral” UI (like Cancel, Reset, or secondary nav items).