# Project Planning & Management

## 1. Project Proposal

### 1.1.1 Overview:

The Hospital Management System is a web application designed to manage hospital appointments, patient records, and staff scheduling. The system provides role-based access control for administrators, doctors, nurses, and patients.

### 1.1.2 Objectives:

• Streamline hospital operations by digitalizing patient management.  
• Enable doctors to access and update patient records efficiently.  
• Facilitate easy appointment scheduling and staff management.  
• Improve communication through automated notifications.  
• Ensure secure and role-based access control.

### 1.1.3 Scope:

• Patient Management: Add, edit, delete patient details.  
• Appointment Scheduling: Manage appointments between patients and doctors.  
• Medical Records: Store and update patient medical histories.  
• Staff Management: Schedule shifts and manage roles.  
• Notifications: Send email/SMS alerts for appointments.  
• Security: Implement authentication and role-based access.

## 2. Project Plan

### 1.2.1 Timeline (Gantt Chart):

|  |  |
| --- | --- |
| Week | Task |
| 1 | Set up environment, database schema, authentication, patient management |
| 2 | Appointment scheduling, staff management, role-based access control |
| 3 | Medical records, notifications, system testing |
| 4 | UI enhancements, final testing, deployment, documentation |

### 1.2.2 Milestones & Deliverables:

• Week 1: Database schema, patient management, authentication.  
• Week 2: Appointment scheduling, staff management.  
• Week 3: Medical records, notifications.  
• Week 4: UI improvements, final testing, deployment.

### 1.2.3 Resource Allocation:

## 3. Risk Assessment & Mitigation Plan

|  |  |  |
| --- | --- | --- |
| Risk | Impact | Mitigation Strategy |
| Delayed development | High | Weekly progress reviews, task prioritization |
| Security vulnerabilities | High | Regular security testing, authentication protocols |
| Data loss | Medium | Database backups, cloud storage solutions |
| System bugs | Medium | Continuous testing, bug tracking system |

## 4. Key Performance Indicators (KPIs)

• System Uptime: 99% availability.  
• Response Time: Less than 2 seconds per request.  
• User Adoption Rate: 80% of hospital staff using the system within 3 months.  
• Appointment Booking Success Rate: 95% successful bookings.  
• Security: No major security breaches during testing and deployment.

**2. Literature Review**

**2.1.1 Feedback & Evaluation**

The lecturer's assessment of the project will be based on its functionality, usability, and completeness. The evaluation will consider the following aspects:

- Project Objectives Achievement: Whether the system meets the intended goals of managing hospital appointments, patient records, and staff schedules.

- System Functionality: The effectiveness of the implemented features, including patient management, staff management, appointment scheduling, and medical records handling.

- Usability & User Experience: The ease of use and intuitiveness of the system’s interface.

- Performance & Reliability: The responsiveness and stability of the system under different conditions.

- Security Measures: The effectiveness of authentication, role-based access, and data protection mechanisms.

**2.1.2 Suggested Improvements**

To enhance the project further, the following improvements are suggested:

- Integration with Third-Party APIs: Implementing external APIs for SMS/email notifications to improve patient engagement.

- AI-Powered Scheduling: Using AI algorithms to optimize doctor schedules and minimize waiting times.

- Telemedicine Feature: Adding video consultation functionality for remote patient-doctor interaction.

- Mobile Application: Developing a mobile version of the system for easier access.

- Advanced Reporting & Analytics: Providing data visualization for hospital administrators to track trends and improve decision-making.

**2.1.3 Final Grading Criteria**

The project grading will be based on the following criteria:

- Documentation (20%): Completeness of project documentation, including user guides and setup instructions.

- Implementation (40%): Correctness and effectiveness of system functionality.

- Testing (20%): Proper testing of all features and bug-free performance.

- Presentation (20%): Quality of the final presentation, including project demonstration and explanation.

**3. Requirements Gathering**

**3.1 Stakeholder Analysis**

The key stakeholders and their needs are identified as follows:

- Patients: Require an easy way to book and manage appointments, access medical records, and receive notifications.

- Doctors: Need access to patient records, appointment schedules, and medical history.

- Hospital Administrators: Manage staff, schedules, patient records, and overall system control.

- Nurses & Medical Staff: Need access to patient details and appointment schedules to assist doctors.

- IT Support Team: Maintain the system, ensure security, and fix technical issues.

**3.2 User Stories & Use Cases**

\*\*User Stories:\*\*

1. As a patient, I want to book an appointment with my doctor online, so I don’t have to visit the hospital physically.

2. As a doctor, I want to view my daily appointments, so I can manage my schedule efficiently.

3. As an administrator, I want to manage doctor schedules, so that the hospital runs smoothly.

\*\*Use Case Example:\*\*

- Title: Booking an Appointment

- Actors: Patient, System

- Steps:

1. Patient logs in.

2. Patient selects a doctor and preferred time slot.

3. System checks availability.

4. If available, appointment is confirmed and notification is sent.

5. If not available, patient selects another time slot.

**3.3 Functional Requirements**

The system must provide the following functionalities:

- User authentication and role-based access.

- Patient management (registration, update, delete, view details).

- Appointment scheduling and management.

- Staff scheduling and role assignment.

- Medical record management for doctors.

- Notification system for patients.

**3.4 Non-Functional Requirements**

- Performance: The system should respond to user actions within 2 seconds.

- Security: All patient data must be encrypted and accessible only by authorized users.

- Usability: The interface should be intuitive and user-friendly for all stakeholders.

- Reliability: The system should be available with 99.9% uptime to ensure continuous hospital operations.