# HOSPITAL MANAGEMENT SYSTEM

A MINI PROJECT REPORT

Submitted By

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# 1. Introduction

The healthcare sector is undergoing a rapid digital transformation, adopting technology to improve patient care, operational efficiency, and administrative workflows. Traditional hospital management faces challenges such as lengthy appointment scheduling, paper-based patient record handling, and limited analytical capabilities. This report introduces a comprehensive **Hospital Management System (HMS)** designed to address these issues by integrating digital tools and automation into core hospital operations. By reducing manual errors, ensuring compliance with medical regulations, and enhancing patient and staff satisfaction, the HMS aims to revolutionize hospital management.

# 2. Abstract

The Hospital Management System is a technology-driven solution aimed at modernizing hospital operations and enhancing the quality of patient care. It automates core processes such as appointment scheduling, patient record management, billing, inventory management, and real-time performance tracking. The system focuses on improving operational efficiency, data-driven decision-making, and compliance with healthcare standards. Key features include a user-friendly online appointment system, centralized Electronic Health Records (EHR), a billing system with insurance support, and analytics dashboards for hospital administrators. With its modular design, the HMS ensures scalability and adaptability for diverse hospital needs.

# 3. Problem Statement

The traditional hospital management processes present several limitations that hinder effective patient care and hospital administration:

- Manual Appointment Scheduling: Lengthy processes prone to errors, overbooking, or missed appointments, leading to dissatisfaction among patients and staff.
- Paper-Based Records: Patient medical histories and administrative data are often scattered, causing delays in treatment and decision-making.
- Billing Challenges: Manual billing increases the risk of errors, delays in payment processing, and difficulties with insurance claim settlements.
- Limited Feedback Mechanisms: Lack of systematic collection and analysis of patient feedback prevents hospitals from identifying areas for improvement.
- Inefficient Resource Allocation: Poor visibility into resource utilization, such as bed occupancy and staff availability, leads to inefficiencies.

# 4. Objectives

The primary objectives of the HMS are:

- Streamlined Appointment Booking: Simplify the scheduling process by introducing an online system for booking, modifying, or canceling appointments.
- Centralized Patient Data: Maintain a secure and accessible repository of patient medical records to support seamless care delivery.
- Automated Billing and Payments: Introduce error-free invoicing and support for insurance claims, improving financial transparency.

- Real-Time Analytics: Empower hospital administrators with dashboards to monitor hospital performance, patient trends, and resource utilization.
- Improved Patient Feedback Mechanisms: Develop tools for collecting and analyzing feedback to improve service quality and patient satisfaction.

# 5. System Requirements and Scope

Functional Requirements

1. Appointment Scheduling System: Patients can view available time slots, book appointments, and receive notifications for confirmations or cancellations.
2. Electronic Health Records (EHR): Centralized management of patient information, including medical history, prescriptions, and diagnostic reports.
3. Billing and Payment Processing: Automates invoice generation, tracks payments, and integrates with insurance claim systems.
4. Feedback Collection Module: Enables systematic collection of patient feedback via surveys and forms.
5. Analytics and Reporting: Provides insights into hospital performance, resource allocation, and patient satisfaction metrics.

Non-Functional Requirements

- Performance: The system should handle high volumes of data and user requests during peak hours.
- Security: Employ encryption and access control to protect sensitive patient and hospital data.
- Scalability: The system must support future expansions, such as telemedicine or advanced diagnostic tools.
- Usability: Ensure intuitive interfaces for all stakeholders, including patients, staff, and administrators.

Scope

The HMS focuses on core hospital management functionalities like scheduling, record management, billing, and analytics. While it does not include telemedicine or advanced diagnostics in its current version, it is designed for future integration.

# 6. Software Description and Key Features

Key Features

1. Online Appointment System:
    - Patients can check doctor availability and book appointments conveniently online.
    - Notifications via email/SMS ensure reminders and reduce missed appointments.
2. Electronic Health Records (EHR):
    - A centralized database for storing patient medical records securely.
    - Ensures quick access for medical staff, improving treatment efficiency.
3. Billing System:
    - Automated generation of bills with itemized details.
    - Integration with insurance claim systems for seamless reimbursement.
4. Real-Time Analytics Dashboard:
    - Monitors key hospital metrics like occupancy rates, popular treatments, and revenue trends.
    - Provides actionable insights for data-driven decision-making.
5. Patient Feedback System:
    - Structured collection and analysis of patient feedback to improve services.

# 7. Programming Languages and Technologies Used

- Frontend Development:
  - Technologies: HTML, CSS, JavaScript
  - Frameworks: React or Angular for dynamic user interfaces.
- Backend Development:
  - Languages: Python, Java, or PHP for server-side operations.
  - Frameworks: Django, Flask, or Spring Boot to handle business logic.
- Database Management:
  - System: MySQL, PostgreSQL, or MongoDB for patient and hospital data storage.
- Additional Tools:
  - APIs for integration with third-party tools like insurance verification and data visualization libraries.

# 8. Code Implementation

HTML &CSS CODE:

```
<?php

$host = 'localhost:8080';

$user = 'root';

$password = '';

$dbname = 'hospital_management';

$conn = new mysqli($host, $user, $password, $dbname);

if ($conn->connect_error) {
```

```
    die("Connection failed: " . $conn->connect_error);
}
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    $name = $_POST['name'];
    $email = $_POST['email'];
    $phone = $_POST['phone'];
    $appointment_date = $_POST['appointment_date'];
    $department = $_POST['department'];
    $message = $_POST['message'];
    $sql = "INSERT INTO appointments (name, email, phone, appointment_date, department, message)
            VALUES ('$name', '$email', '$phone', '$appointment_date', '$department', '$message')";
 if ($conn->query($sql) === TRUE) {
        echo "Appointment successfully booked!";
    } else {
        echo "Error: " . $sql . "<br>" . $conn->error;
    }
}
$conn->close();
?>
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
```

```
    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Hospital management website</title>

<script src="https://kit.fontawesome.com/c1df782baf.js"></script>

    <link rel='stylesheet' href='https://cdn-uicons.flaticon.com/2.1.0/uicons-thin-rounded/css/uicons-thin-rounded.css'>

    <link rel='stylesheet' href='https://cdn-uicons.flaticon.com/2.1.0/uicons-regular-rounded/css/uicons-regular-rounded.css'>

    <link rel="stylesheet" href="style.css">

</head>

<body>

<header>

        <div class="logo"><img src="images/Hoslogo.png" alt=""></div>

        <div class="right-icons">

    </div>

</header>

        <div class="main-home>

<div class="home">

            <div class="home-left-content">

                <span>welcome to hospital management</span>

                <h2>We take care our<br> Patients Healths</h2>

                <p class="lorem">Giving you the best treatment you deserve.</p>

                    <div class="home-btn">

                        <div class="btn"><a href="#appointment">Make Appointment</a></div>

                    </div>
```

```
                </div>
<div class="home-right-content">
                </div>
            </div>
        </div>
        <div class="technology">
            <div class="main-technology">
                <div class="inner-technology">
                    <span></span>
                    <i class="fi fi-tr-hands-heart"></i>
                    <h2>Quality & Safety</h2>
                    <p>Our Delmont hospital utilizes state of the art technology and employs a team of true experts.</p>
                </div>
                <div class="inner-technology">
                    <span></span>
                    <i class="fi fi-rr-doctor"></i>
                    <h2>Cost efficient Treatment</h2>
                    <p>we focus on delivering cost-efficient hospital websites by streamlining essential features like patient portals and appointment systems. Our approach leverages cloud-based technologies and mobile optimization to reduce operational costs while enhancing the user experience for both staff and patients.</p>
                </div>
            </div>
```

```
</div>
<div class="main-about">
    <div class="about-heading">About Us</div>
    <div class="inner-main-about">
        <div class="about-inner-content-left">
            <img src="images/about1.png" alt="">
        </div>
        <div class="about-inner-content">
            <div class="about-right-content">
                <h2>We're setting Standards in Research <br> what's more, Clinical Care.</h2>
                <p>We provide the most full medical services, so every person could have the opportunity receive qualitative medical help.</p>
        <p class="aboutsec-content">
                    Our Clinic has grown to provide a world class facility for the treatment of tooth loss, dental cosmetics and bore advanced restorative dentistry. We are among
                    the most qualified implant providers in the AUS with over 30 years of uality training and experience.
                    </p>
            </div>
        </div>
    </div>
</div>
<div class="main-doctors">
    <div class="doctors-heading">
        <h2>Our Doctors</h2>
```

```
</div>
<div class="main-inner-doctor">
    <div class="doc-poster">
        <div class="doc-icons">
            <i class="fa-solid fa-share"></i>
            <i class="fa-solid fa-eye"></i>
            <i class="fa-solid fa-heart"></i>
        </div>
        <img src="images/team1.jpg" alt="">
        <div class="doc-details">
            <h2>Ms Mary</h2>
            <i class="fa-brands fa-linkedin"></i>
            <i class="fa-brands fa-instagram"></i>
        </div>
    </div>
    <div class="doc-poster">
        <div class="doc-icons">
            <i class="fa-solid fa-share"></i>
            <i class="fa-solid fa-eye"></i>
            <i class="fa-solid fa-heart"></i>
        </div>
        <img src="images/team2.jpg" alt="">
        <div class="doc-details">
```

```
        <h2>Mr Joe</h2>
        <i class="fa-brands fa-linkedin"></i>
        <i class="fa-brands fa-instagram"></i>
    </div>
</div>
<div class="doc-poster">
    <div class="doc-icons">
        <i class="fa-solid fa-share"></i>
        <i class="fa-solid fa-eye"></i>
        <i class="fa-solid fa-heart"></i>
    </div>
    <img src="images/team3.jpg" alt="">
    <div class="doc-details">
        <h2>Ms Monice</h2>
        <i class="fa-brands fa-linkedin"></i>
        <i class="fa-brands fa-instagram"></i>
    </div>
</div>
<div class="doc-poster">
    <div class="doc-icons">
        <i class="fa-solid fa-share"></i>
     <i class="fa-solid fa-eye"></i>
        <i class="fa-solid fa-heart"></i>
```

```
    </div>
    <img src="images/team4.jpg" alt="">
    <div class="doc-details">
        <h2>Ms Riya</h>
        <i class="fa-brands fa-linkedin"></i>
        <i class="fa-brands fa-instagram"></i>
    </div>
</div>
<div class="doc-poster">
    <div class="doc-icons">
        <i class="fa-solid fa-share"></i>
        <i class="fa-solid fa-eye"></i>
        <i class="fa-solid fa-heart"></i>
    </div>
    <img src="images/team5.jpg" alt="">
    <div class="doc-details">
        <h2>Mr KimJoUn</h2>
                        <i class="fa-brands fa-linkedin"></i>
        <i class="fa-brands fa-instagram"></i>
    </div>
</div>
<div class="doc-poster">
    <div class="doc-icons">
```

```
                <i class="fa-solid fa-share"></i>
                <i class="fa-solid fa-eye"></i>
                <i class="fa-solid fa-heart"></i>
            </div>
            <img src="images/team6.jpg" alt="">
            <div class="doc-details">
                <h2>Ms Andria</h2>
                                <i class="fa-brands fa-linkedin"></i>
                <i class="fa-brands fa-instagram"></i>
            </div>
        </div>
    </div>
  <script src="https://kit.fontawesome.com/c1df782baf.js"></script>
    <link rel='stylesheet' href='https://cdn-uicons.flaticon.com/2.1.0/uicons-thin-rounded/css/uicons-thin-rounded.css'>
    <link rel='stylesheet' href='https://cdn-uicons.flaticon.com/2.1.0/uicons-regular-rounded/css/uicons-regular-rounded.css'>
    <link rel="stylesheet" href="styles1.css">
   <div class="main-appointment" id="appointment">
    <div class="appointment-heading">
        <h2>Make an Appointment</h2>
    </div>
            <div class="appointment-container">
```

```
        <form action="submit_appointment.php" method="POST" class="appointment-
form">
            <div class="form-group">
                <label for="name">Full Name:</label>
                <input type="text" id="name" name="name" required>
            </div>
                <div class="form-group">
                <label for="email">Email:</label>
                <input type="email" id="email" name="email" required>
            </div>
                <div class="form-group">
                <label for="phone">Phone Number:</label>
                <input type="tel" id="phone" name="phone" required>
            </div>
                <div class="form-group">
                <label for="appointment-date">Preferred Date:</label>
                <input type="date" id="appointment-date" name="appointment_date" required>
            </div>
                <div class="form-group">
                <label for="department">Select Department:</label>
                <select id="department" name="department" required>
                    <option value="Cardiology">Cardiology</option>
                    <option value="Neurology">Neurology</option>
                    <option value="Orthopedics">Orthopedics</option>
```

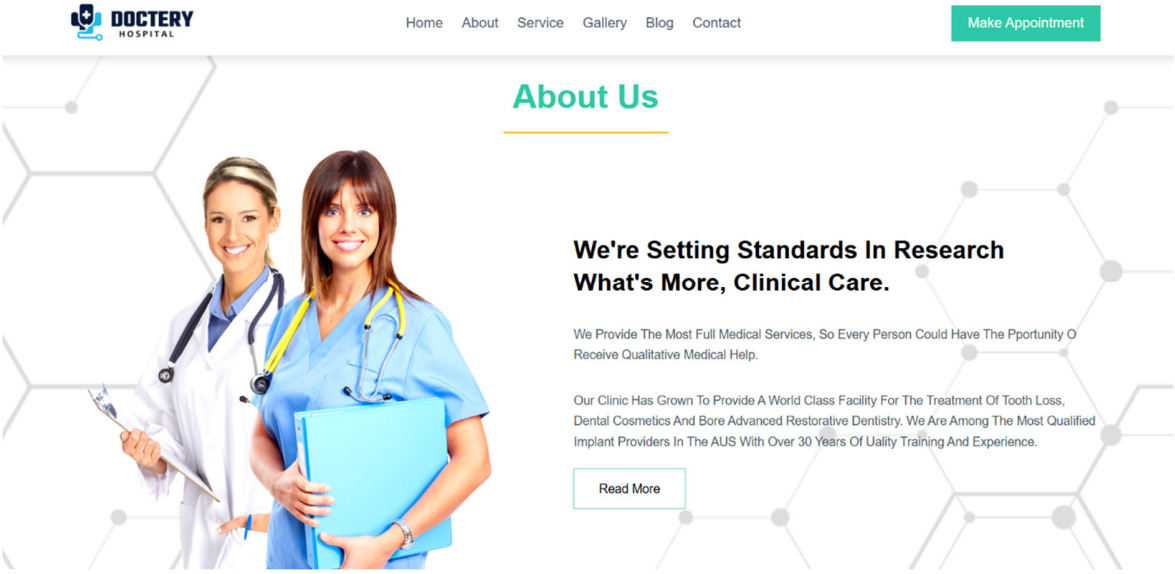
```
                    <option value="Pediatrics">Pediatrics</option>

                    <option value="General Medicine">General Medicine</option>

                </select>

            </div>

                <div class="form-group">

                <label for="message">Additional Information:</label>

                <textarea id="message" name="message" rows="4" placeholder="Any specific information you'd like us to know..."></textarea>

            </div>

                <button type="submit" class="appointment-btn">Book Appointment</button>

            <button type="button" class="appointment-btn" onclick="location.href='index.html';">Home</button>

        </form>

    </div>

</div>

<div class="our-service">

    <div class="service-heading">

        <h2>Our Services</h2>

    </div>

    <div class="main-services">

        <div class="inner-services">

            <div class="service-icon">

                <i class="fa-solid fa-truck-medical"></i>

            </div>
```

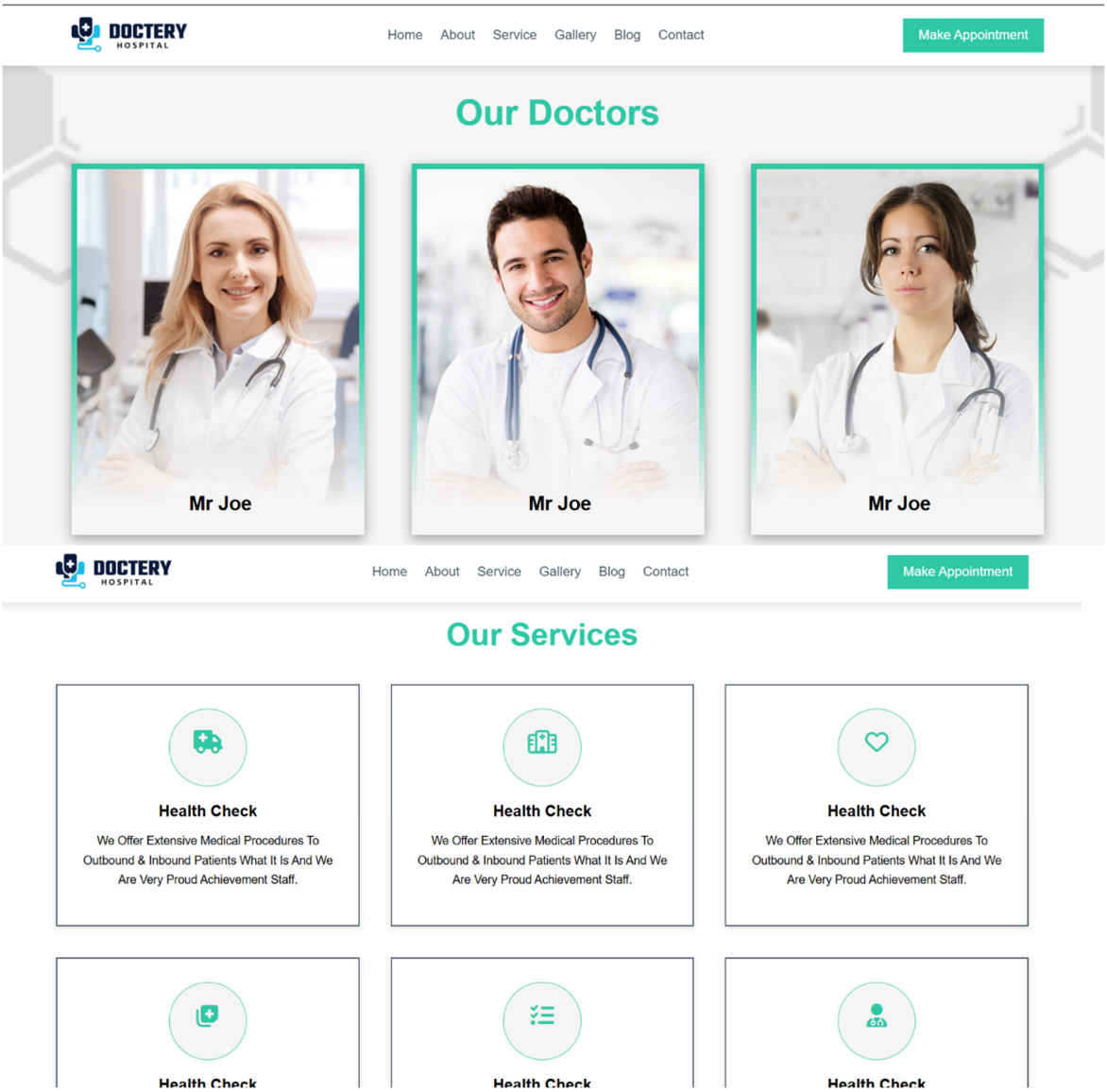
```
            <h3>Ambulance 24*7</h3>

            <p>We offer extensive medical procedures to outbound & inbound patients what it is and we are very proud achievement staff.</p>

        </div>

        <div class="inner-services">

            <div class="service-icon">

                <i class="fa-regular fa-hospital"></i>

            </div>

            <h3>Monthly Health Checkup Plan</h3>

            <p>We offer extensive medical procedures to outbound & inbound patients what it is and we are very proud achievement staff.</p>

        </div>

        <div class="inner-services">

            <div class="service-icon">

                <i class="fa-regular fa-heart"></i>

            </div>

            <h3>Insurance coverage</h3>

            <p>We offer extensive medical procedures to outbound & inbound patients what it is and we are very proud achievement staff.</p>

        </div>

        <div class="inner-services">

            <div class="service-icon">

                <i class="fa-solid fa-notes-medical"></i>

            </div>

            <h3>Clean and neat ambience</h3>
```

```
            <p>We offer extensive medical procedures to outbound & inbound patients what it is and we are very proud achievement staff.</p>

        </div>

        <div class="inner-services">

            <div class="service-icon">

                <i class="fa-solid fa-list-check"></i>

            </div>

            <h3>Medical shop</h3>

            <p>We offer extensive medical procedures to outbound & inbound patients what it is and we are very proud achievement staff.</p>

        </div>

        <div class="inner-services">

            <div class="service-icon">

                <i class="fa-solid fa-user-doctor"></i>

            </div>

            <h3>Online consultation</h3>

            <p>We offer extensive medical procedures to outbound & inbound patients what it is and we are very proud achievement staff.</p>

        </div>

      </div>

   </div>

   <script src="script.js"></script>

</body>

</html>
```

# 9. Output (UI)


DOCTERY
HOSPITAL
Home
About
Service
Gallery
Blog
Contact
Make Appointment
Welcome To Hospital Management
We Take Care Our Patients Healths
Lorem Ipsum Dolor Sit Amet Consectetur Adipisicing Elit. Possimus Numquam Veniam Porro Eius, Fugiat Vero Ut Ipsum Libero
Read More
Appointment
Quality & Safety
Quality & Safety
Quality & Safety


DOCTERY
HOSPITAL
Home
About
Service
Gallery
Blog
Contact
Make Appointment
About Us
We're Setting Standards In Research What's More, Clinical Care.
We Provide The Most Full Medical Services, So Every Person Could Have The Pportunity O Receive Qualitative Medical Help.
Our Clinic Has Grown To Provide A World Class Facility For The Treatment Of Tooth Loss, Dental Cosmetics And Bore Advanced Restorative Dentistry. We Are Among The Most Qualified Implant Providers In The AUS With Over 30 Years Of Uality Training And Experience.
Read More




# 10. Results and Analysis

- Operational Efficiency: The automated appointment system **significantly reduces errors and wait times.**
- Enhanced Patient Satisfaction: Feedback collection highlights improved experiences due to streamlined processes.
- Data-Driven Decisions: Administrators gain valuable insights into resource allocation and patient preferences.

# 11. Conclusion

The Hospital Management System successfully addresses inefficiencies in traditional hospital operations by leveraging automation and data-driven insights. The system enhances patient care, administrative workflows, and operational efficiency. Future enhancements could include:

- AI-powered diagnostics and patient recommendations.
- Integration with wearable devices for real-time health monitoring.
- Expansion into telemedicine and mobile app platforms.

This project highlights the transformative potential of technology in healthcare management, creating a more efficient, accessible, and patient-centric system.