A PROJECT REPORT

On

HOSPITAL MANAGEMENT SYSTEM

Submitted By

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ABSTRACT

The Hospital Management System (HMS) is a comprehensive software application designed to streamline and enhance the administrative and operational functions of hospitals. It aims to improve the efficiency and effectiveness of healthcare delivery by integrating various essential processes within a hospital environment. This system encompasses the management of patient information, doctor schedules, appointments, billing, inventory, and reporting.The HMS provides a centralized platform where patient data is securely stored and easily accessible, enabling healthcare providers to deliver timely and personalized care. By automating appointment scheduling, the system reduces the administrative burden on staff and minimizes the risk of errors. Doctors can manage their schedules more efficiently, ensuring optimal utilization of their time and resources.Billing processes are simplified through the system's automated billing features, which generate accurate and timely invoices, track payments, and manage outstanding balances. The inventory management module ensures that medical supplies are adequately stocked, preventing shortages and overstock situations. This module also tracks the suppliers, quantities, and usage of inventory items, thereby enhancing procurement processes.Additionally, the HMS includes a robust reporting feature that generates various reports, such as daily summaries, financial statements, and inventory reports.

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INTRODUCTION

The Hospital Management System (HMS) is a critical technological advancement designed to streamline the administrative and operational functions within a hospital. As healthcare environments become increasingly complex, the need for an integrated system to manage patient data, doctor schedules, appointments, billing, inventory, and reporting has never been more apparent. The HMS addresses these challenges by providing a centralized platform that enhances efficiency, reduces errors, and improves the overall quality of healthcare delivery.Hospitals are intricate ecosystems that require precise coordination among various departments to ensure optimal patient care. Traditionally, these tasks have been managed through manual processes, which are prone to errors, inefficiencies, and delays. The advent of digital technologies has paved the way for automated systems that can handle these tasks more effectively. The HMS is one such solution, designed to automate and integrate the myriad processes involved in hospital management. These reports provide valuable insights for hospital management, aiding in strategic decision-making and operational planning.Overall, the Hospital Management System enhances the quality of healthcare services by improving data accuracy, reducing administrative workload, and ensuring efficient resource management. Its user-friendly interface and comprehensive functionalities make it an indispensable tool for modern healthcare institutions, contributing to improved patient outcomes and hospital performance.

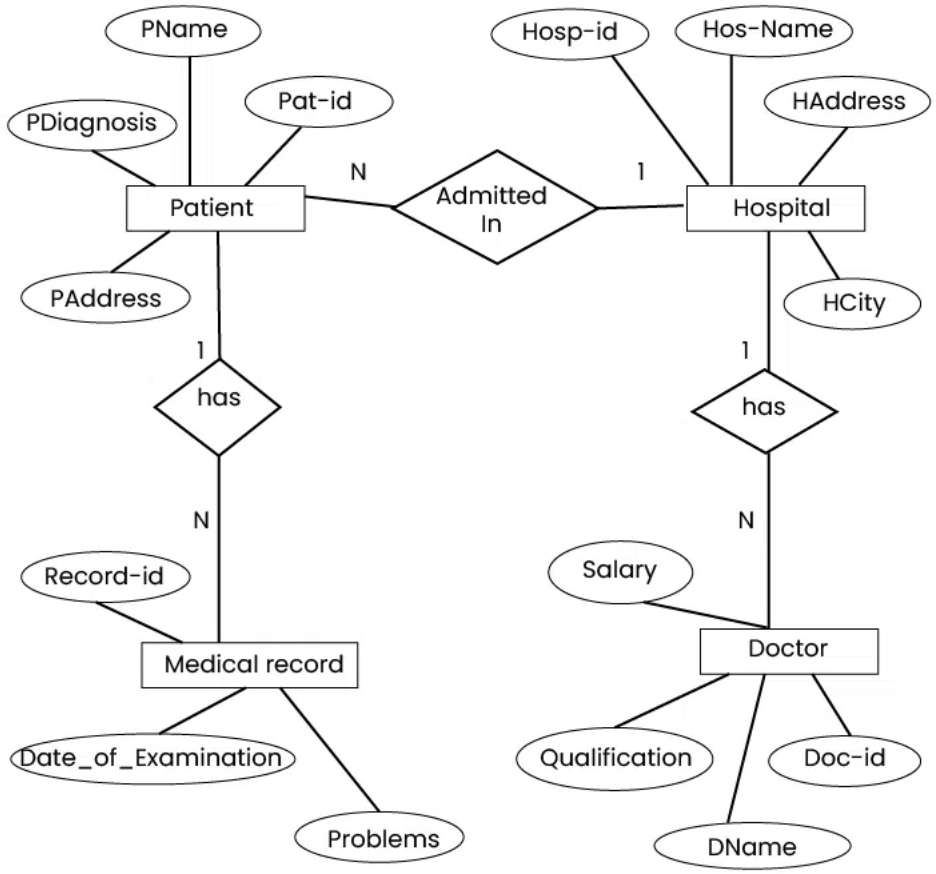
SOFTWARE REQUIREMENS

This software package is developed using html , bootstrap for front end . Php and MY SQL Server as the back end to store the database for backend we are using Xampp server.

Operating System	: Windows 7, 8, 9, 10 .
Language	: Html , Css , Javascript , Php , sql
Database	: MS SQL Server (back end)

ER DIAGRAM

ER Diagram is known as Entity-Relationship Diagram, it is used to analyze the structure of the Database. It shows relationships between entities and their attributes. An ER Model provides a means of communication**.**



1.Entities:

- Patient:

  Attributes: patientID (Primary Key), name, gender, dateOfBirth, contactDetails
- Doctor:

  Attributes: doctorID (Primary Key), name, specialization, contactDetails
- Nurse:

  Attributes: nurseID (Primary Key), name, department, contactDetails
- Administrator:

  Attributes: adminID (Primary Key), name, department, contactDetails

- Department:
  Attributes: deptID (Primary Key), name, headDoctor, numOfBeds
- Appointment:
  Attributes: appointmentID (Primary Key), patientID (Foreign Key), doctorID (Foreign Key), appointmentDate, appointmentTime, status
- MedicalRecord:
  Attributes: recordID (Primary Key), patientID (Foreign Key), doctorID (Foreign Key), diagnosis, medications, treatment

2.Relationships:

- Patient – Appointment (One-to-Many):
  One patient can have multiple appointments.
- Doctor – Appointment (One-to-Many):
  One doctor can have multiple appointments.
- Patient – MedicalRecord (One-to-Many):
  One patient can have multiple medical records.
- Doctor – MedicalRecord (One-to-Many):
  One doctor can have multiple medical records.
- Doctor – Department (One-to-Many):
  One doctor can be associated with only one department, but one department can have multiple doctors.
- Nurse – Department (One-to-Many):
  One nurse can be associated with only one department, but one department can have multiple nurses.
- Administrator – Department (One-to-Many):
  One administrator can be associated with only one department, but one department can have multiple administrators.

TABLES

```
CREATE DATABASE hospital_management;
USE hospital_management;
CREATE TABLE patients (
    id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(255) NOT NULL,
    age INT NOT NULL,
    gender VARCHAR(10) NOT NULL,
    address TEXT,
    admission_date DATE NOT NULL
);

INSERT INTO patient (name, age, gender, address, admission_date) VALUES
('John Doe', 35, 'Male', '123 Main St, Cityville', '2022-01-15'),
('Jane Smith', 28, 'Female', '456 Oak St, Townsville', '2022-01-16'),
('Bob Johnson', 45, 'Male', '789 Pine St, Villagetown', '2022-01-17'),
('Alice Brown', 32, 'Female', '987 Cedar St, Hamletville', '2022-01-18'),
('Charlie Wilson', 50, 'Male', '654 Birch St, Countryside', '2022-01-19');
```

```
mysql> SELECT * FROM PATIENT;
+----+---------------+-----+--------+--------------------------+----------------+
| id | name          | age | gender | address                  | admission_date |
+----+---------------+-----+--------+--------------------------+----------------+
|  1 | John Doe      |  35 | Male   | 123 Main St, Cityville   | 2022-01-15     |
|  2 | Jane Smith    |  28 | Female | 456 Oak St, Townsville   | 2022-01-16     |
|  3 | Bob Johnson   |  45 | Male   | 789 Pine St, Villagetown | 2022-01-17     |
|  4 | Alice Brown   |  32 | Female | 987 Cedar St, Hamletville| 2022-01-18     |
|  5 | Charlie Wilson|  50 | Male   | 654 Birch St, Countryside| 2022-01-19     |
+----+---------------+-----+--------+--------------------------+----------------+
5 rows in set (0.00 sec)
```

SOURCE CODE

add_patient.php :

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content=
"width=device-width, initial-scale=1.0">
<title>Hospital Management System</title>
<style>
body {
background-color: #606060FF;
color: #D6ED17FF;
font-family: Arial, sans-serif;
margin: 0;
padding: 0;
text-align: center;
}
h1 {
background-color: #D6ED17FF;
color: black !important;
padding: 20px;
margin-bottom: 0;
}
ul {
list-style-type: none;
padding: 0;
}
li {
display: inline-block;
margin: 10px;
}
a {
text-decoration: none;
color: #606060FF;
background-color: #D6ED17FF;
padding: 10px 20px;
```

```
border-radius: 5px;
}
a:hover {
background-color: #606060FF;
color: #D6ED17FF;
}
</style>
</head>
<body>
<h1>Hospital Management System</h1>
<a href="add_patient.php">Add Patient</a>
<a href="view_patients.php">View Patients</a>
</li>
</ul>
</body>
</html>
```

index.php:

```
<?php
if ($_SERVER['REQUEST_METHOD'] === 'POST') {
$name = $_POST['name'];
$age = $_POST['age'];
$gender = $_POST['gender'];
$address = $_POST['address'];
$admission_date = $_POST['admission_date'];
$conn = new mysqli('localhost', 'root', '', 'hospital_management');
if ($conn->connect_error) {
die("Connection failed: " . $conn->connect_error);
}
$sql = "INSERT INTO patients (name, age, gender, address, admission_date)
VALUES ('$name', $age, '$gender', '$address', '$admission_date')";
if ($conn->query($sql) === TRUE) {
echo "Patient added successfully!";
} 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>Add Patient</title>
<style>
body {
background-color: #606060FF;
color: black;
font-weight: bolder;
font-family: Arial, sans-serif;
text-align: center;
margin: 0;
padding: 20px;
}
```

```
form {
max-width: 600px;
margin: 0 auto;
background-color: #D6ED17FF;
padding: 20px;
border-radius: 10px;
box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
}
h2{
background-color:#D6ED17FF;
padding: 1%;
border-radius: 35px;
}
label {
display: block;
margin: 10px 0;
text-align: left;
}
input[type="text"],
input[type="number"],

select,
textarea,
input[type="date"],
input[type="submit"] {
width: 100%;
margin: 5px 0;
padding: 10px;
border-radius: 5px;
border: 1px solid #606060FF;
box-sizing: border-box;
}
input[type="submit"] {
background-color: #606060FF;
color: #D6ED17FF;
cursor: pointer;
}
input[type="submit"]:hover {
background-color: #D6ED17FF;
color: #606060FF;
}
```

```
</style>
</head>
<body>
<h2>Add Patient</h2>
<form method="post" action="">
<label for="name">Name:</label>
<input type="text" name="name" required>

<label for="age">Age:</label>
<input type="number" name="age" required>

<label for="gender">Gender:</label>
<select name="gender">
<option value="Male">Male</option>
<option value="Female">Female</option>
</select>

<label for="address">Address:</label>
<textarea name="address"></textarea>

<label for="admission_date">Admission Date:</label>
<input type="date" name="admission_date" required>

<input type="submit" value="Add Patient">
</form>
</body>
</html>
```

view_patients.php :

```
<?php
$conn = new mysqli('localhost', 'root', '', 'hospital_management');
if ($conn->connect_error) {
die("Connection failed: " . $conn->connect_error);
}
$sql = "SELECT * FROM patients";
$result = $conn->query($sql);
?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content=
"width=device-width, initial-scale=1.0">
<title>View Patients</title>
<style>
body {
background-color: #606060FF;
color: black;
font-family: Arial, sans-serif;
text-align: center;
margin: 0;
padding: 20px;
}
h2{
background-color:#D6ED17FF;
padding: 1%;
border-radius: 35px;
}
table {
background-color: #D6ED17FF;
width: 100%;
border-collapse: collapse;
margin-top: 20px;
}
th, td {
border: 5px solid #606060FF;
padding: 10px;
```

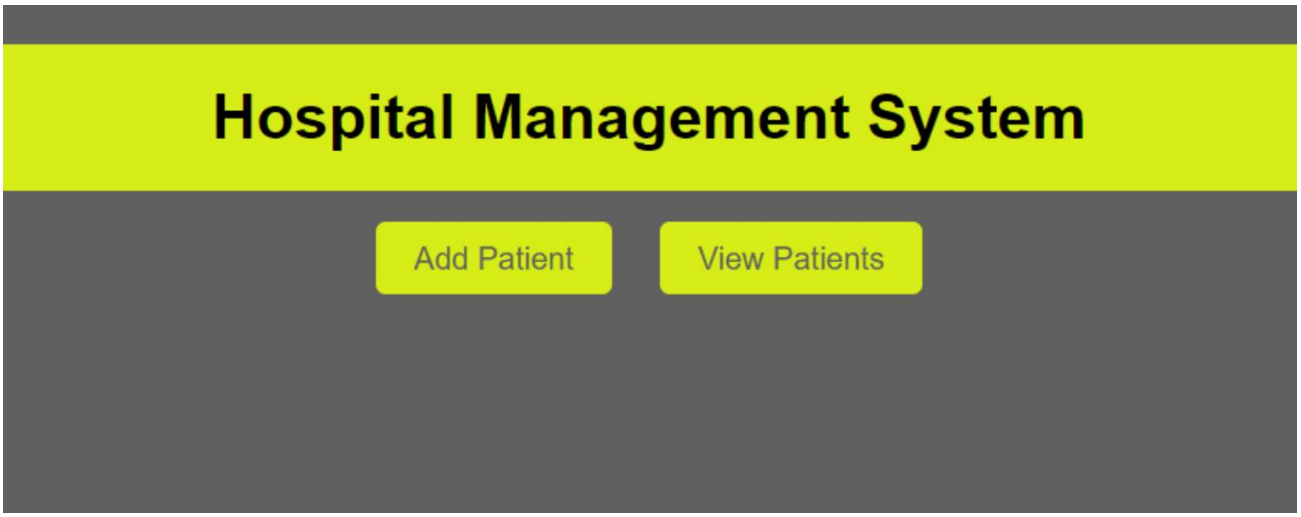
```
color:black;
}
th {
background-color: #D6ED17FF;
}
</style>
</head>
<body>
<h2>View Patients</h2>
<table border="1">
<tr>
<th>ID</th>
<th>Name</th>
<th>Age</th>
<th>Gender</th>
<th>Address</th>
<th>Admission Date</th>
</tr>
<?php



while ($row = $result->fetch_assoc()) {

echo "<tr>
<td>{$row['id']}</td>
<td>{$row['name']}</td>
<td>{$row['age']}</td>
<td>{$row['gender']}</td>
<td>{$row['address']}</td>
<td>{$row['admission_date']}</td>
</tr>";
}
?>
</table>
</body>
</html>
```

OUTPUT



Fig(a): this the main interface of our system

Fig(b): here we will add patients

View Patients

ID	Name	Age	Gender	Address	Admission Date
1	John Doe	35	Male	123 Main St, Cityville	2022-01-15
2	Jane Smith	28	Female	456 Oak St, Townsville	2022-01-16
3	Bob Johnson	45	Male	789 Pine St, Villagetown	2022-01-17
4	Alice Brown	32	Female	987 Cedar St, Hamletville	2022-01-18
5	Charlie Wilson	50	Male	654 Birch St, Countryside	2022-01-19
6	Dhruvi Trivedi	20	Female	Dwarka sec-6, New Delhi	2024-01-09

Fig(c): this is the final output of our project

CONCLUSION

The implementation of a Hospital Management System (HMS) marks a transformative advancement in the healthcare sector, addressing the multifaceted challenges of hospital administration and operations. By leveraging technology to integrate and streamline various processes, the HMS significantly enhances the efficiency, accuracy, and quality of healthcare delivery.The system's ability to maintain comprehensive and up-to-date patient records ensures that healthcare providers can offer personalized and timely care, thereby improving patient outcomes. Efficient appointment scheduling minimizes patient wait times and optimizes the utilization of medical staff, while automated billing processes ensure accuracy and timeliness in financial transactions, reducing administrative workload and potential errors.Inventory management is another critical aspect where the HMS proves invaluable, as it ensures the optimal availability of medical supplies, preventing both shortages and excesses. The system's robust reporting capabilities provide hospital management with detailed insights and analytics, facilitating informed decision-making and strategic planning.Moreover, the HMS fosters a cohesive working environment by enhancing communication and coordination among different departments within the hospital. This integration not only streamlines operations but also contributes to a more collaborative and efficient healthcare delivery system.In conclusion, the Hospital Management System is a vital tool in modern healthcare management, offering numerous benefits that contribute to the overall improvement of hospital operations and patient care. Its implementation supports the hospital's mission to provide high-quality healthcare services efficiently and effectively. As the healthcare industry continues to evolve, the adoption of advanced management systems like the HMS will be essential in meeting the growing demands and challenges, ensuring that hospitals can deliver the best possible care to their patients.

REFERENCES

R. Batra and A. S. Pall, “Barriers to adoption of hospital management systems: A study of Punjab healthcare industry,” Prabandhan: Indian Journal of Management, vol. 9, no. 11, 2016, doi: 10.17010/pijom/2016/v9i11/105320. [2] R. G. Misal, “Advanced Hospital Management System,” Int J Res Appl Sci Eng Technol, vol. 10, no. 6, 2022, doi: 10.22214/ijraset.2022.43686. [3] P. K. Yadav and R. Kumar, “Online Hospital Management System,” SSRN Electronic Journal, 2022, doi: 10.2139/ssrn.4104606.