## HODSTEL MANAGEMENT SYSTEM

**1, PROJECT DESCRIPTION**

The Hostel Management System is designed to efficiently manage hostel operations, including room allocation, student records, payments, and complaints. The system ensures a smooth and organized management process for hostel administrators, students, and staff.

**Objectives:**

Automate the hostel admission process.

Maintain student, room, and fee records.

Improve complaint handling and communication.

Ensure security through authentication and role-based access.

# 2. Entity-Relationship Diagram (ERD)

The ERD represents the relationships between different entities in the system.

Entities & Relationships:

Student (1:N) Room → A student is assigned one room, but a room can accommodate multiple students.

Student (1:N) Payment → A student can make multiple payments.

Student (1:N) Complaint → A student can submit multiple complaints.

Admin (1:N) Room → An admin manages multiple rooms.

# 3. Logical Data Model

The Logical Data Model represents the data structure without focusing on physical implementation.

Tables and Attributes:

1. Students (student\_id, name, email, phone, room\_id, status)

2. Rooms (room\_id, room\_no, type, capacity, occupied)

3. Payments (payment\_id, student\_id, amount, date, status)

4. Complaints (complaint\_id, student\_id, message, status)

5. Admins (admin\_id, name, email, role)

# Keys & Relationships:

student\_id in Students → Foreign key in Payments & Complaints.

room\_id in Rooms → Foreign key in Students.

admin\_id in Admins → Manages Rooms.

# 4. Physical Data Model

The Physical Data Model defines how the database will be implemented in a specific DBMS (e.g., MySQL).

# MySQL Table Schema:

CREATE TABLE Students (

student\_id INT PRIMARY KEY AUTO\_INCREMENT,

name VARCHAR(100),

email VARCHAR(100) UNIQUE,

phone VARCHAR(15),

room\_id INT,

status ENUM('Active', 'Inactive'),

FOREIGN KEY (room\_id) REFERENCES Rooms(room\_id)

);

CREATE TABLE Rooms (

room\_id INT PRIMARY KEY AUTO\_INCREMENT,

room\_no VARCHAR(10) UNIQUE,

type ENUM('Single', 'Shared'),

capacity INT,

occupied INT DEFAULT 0

);

CREATE TABLE Payments (

payment\_id INT PRIMARY KEY AUTO\_INCREMENT,

student\_id INT,

amount DECIMAL(10,2),

date DATE,

status ENUM('Paid', 'Pending'),

FOREIGN KEY (student\_id) REFERENCES Students(student\_id)

);

CREATE TABLE Complaints (

complaint\_id INT PRIMARY KEY AUTO\_INCREMENT,

student\_id INT,

message TEXT,

status ENUM('Pending', 'Resolved'),

FOREIGN KEY (student\_id) REFERENCES Students(student\_id)

);

# 5. Project Report Outline

A detailed report for this project would include:

1. Introduction

**Overview of hostel management.**

Objectives and scope.

**2. System Analysis**

Existing problems and proposed solutions.

Feasibility study (Technical, Economic, Operational).

3. System Design

ERD diagram.

Logical & Physical Data Model.

User Interface (if applicable).

4. Implementation & Testing

Technology stack used.

Database structure.

Testing strategies (Unit, Integration, System).

5. Conclusion

Achievements & future improvements.