Project Title

Hostel Room Allocation System

Guided By:

Trainer Name:- Anuj Kumar

Created By:-

Student Name	AFid
Anupam Chaturvedi	AF04991837

Batch Code:- ANP-D2405

Course Code:- ITPR

Table Of Contents

2. Introduction

The Hostel Room Allocation System is a Java-based administrative application developed using JDBC, MySQL, and Maven. It simplifies the traditional manual process of maintaining hostel records by digitalizing student registration, room management, and room allocation activities.

The system ensures accuracy, avoids duplicate room allotments, and provides real-time visibility of room status, making hostel management more efficient and organized.

3. Objectives

- To automate hostel record management.
- To register students and maintain their details securely.
- To allocate and free rooms without duplication or conflicts.
- To provide instant room availability status.
- To maintain a consistent and error-free database using foreign keys and constraints.

4. Project Category

Database Management System / Java Desktop Application

5. Analysis

5.1 Modules

Module 1: Student Management

- Register new students.
- Store essential information such as name, course, contact number, and address.
- Ensure each student has a unique ID.
- Retrieve or update student details when needed.

Module 2: Room Management

- Maintain details of all hostel rooms (room number, type, capacity, occupied status).
- Track available beds and total occupancy.
- Update room availability automatically when allocation or deallocation happens.

Module 3: Room Allocation & De-allocation

- Allocate rooms to registered students based on availability.
- Enforce foreign keys to prevent invalid or duplicate allocations.
- Free rooms when students vacate.
- Store allocation date, duration, and history.
- Keep real-time track of all currently allocated and available rooms.

5.2 Database Design

1. Students

Field	Type	Description
student_id	INT (PK)	Unique identifier for each student
name	VARCHAR(100)	Student's full name
course	VARCHAR(100)	Course enrolled
phone	VARCHAR(20)	Contact number
address	VARCHAR(255)	Residential address

---

2. Rooms

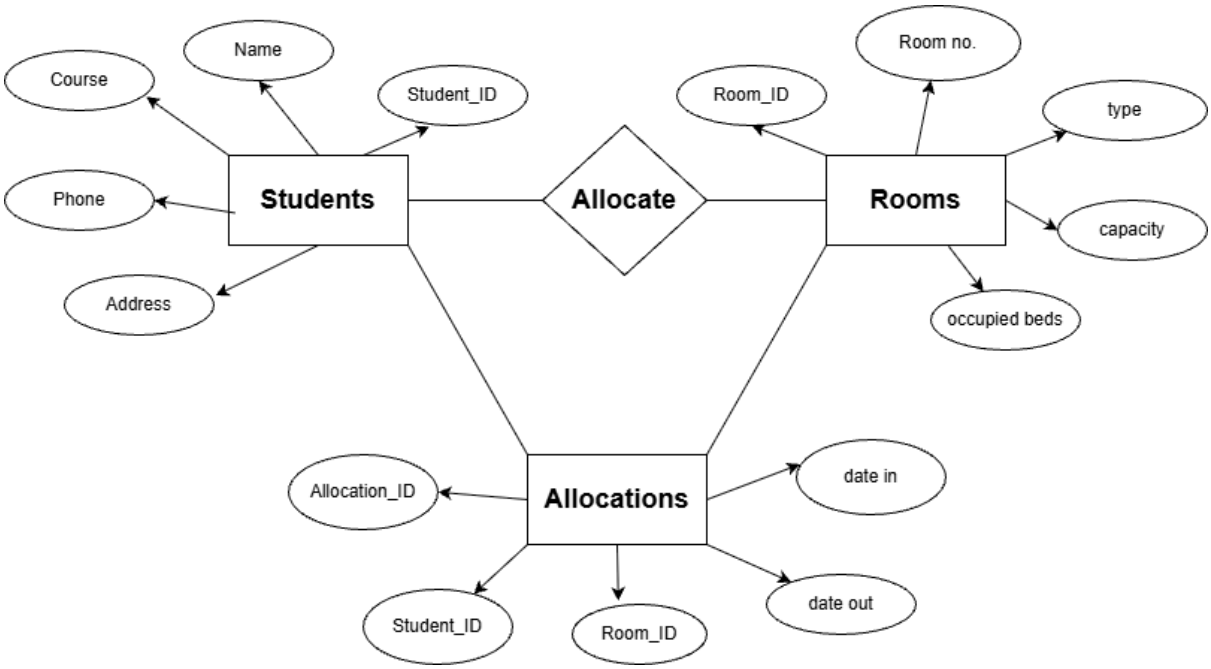
Field	Type	Description
room_id	INT (PK)	Unique identifier for each room
room_number	VARCHAR(20)	Room label/number
type	VARCHAR(50)	Room type (Single, Double, Dorm)
capacity	INT	Maximum occupants
occupied_beds	INT	Number of currently used beds

---

3. Allocations

Field	Type	Description
allocation_id	INT (PK)	Unique allocation record ID
student_id	INT (FK)	Student being allocated
room_id	INT (FK)	Room assigned
date_in	DATE	Date student moved in
date_out	DATE	Date student moved out

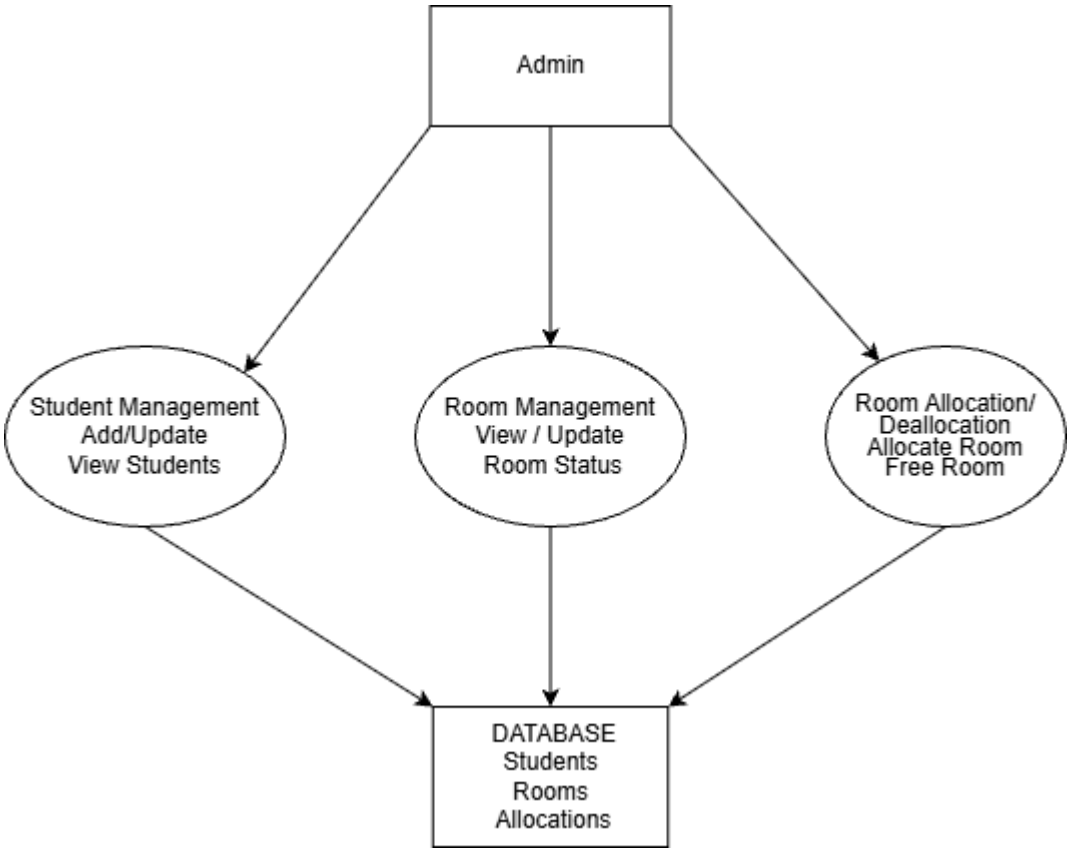
5.3 ER Diagram



5.4 Data Flow Diagrams

DFD Level 0

DFD Level 1



6. Platform Used

Software Requirements

- Java JDK 8+
- MySQL Database
- JDBC Driver
- Maven Build Tool
- Eclipse / IntelliJ IDEA / NetBeans
- Windows / Linux OS

Hardware Requirements

- Intel i3 or above
- 4 GB RAM
- 1 GB free disk space
- Standard input devices

7. Future Scope

- Hostel fee management
- Complaint/maintenance tracking
- Student login portal
- Online room booking
- Integration with QR/ID cards
- Automatic notifications via SMS or email

8. Bibliography

- Java Official Documentation
- MySQL Documentation
- JDBC API Documentation