

Hostel Management System

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ER Modeling

ER-modeling is a data modeling technique used in software engineering to produce a conceptual data of a information system. Diagram created using this ER- modeling technique are called Entity-Relationship Diagram, or ER diagram or ERDs.

ERD Details

There are 5 entities –

- Hostel
- Room
- Room Type
- Student
- Reservation

Hostel Management System

Hostel Management System is a web based application which a student can request to reserve a room in the hostel. In other words it is a simple web based application in which student has to register after that he can request to the hostel administrator as per the requirement. On the other hand the admin will accept the student's request and allot the room to him.

In This ERD, Hostel is a main entity Hostel which is contains all basic details about hostels such as hostel name, phone, email etc. Hostel has a unique identity number, which is

Hostel_ID. Company table have basic attributes such as Hostel_name, Phone, Email, Address and Postcode.

In this ERD, **Room** is second entity which is contains all details about Room details. Room has a unique identity number, which is Room_ID. Room table have basic Attributes Such as Hostel_ID*, Room_Type_ID*, Room_Image, Room_location and Description.

In this ERD, **Room_Type** is third entity. Which is contains all details about Room types. Room_Type has a unique identity number, which is Room_Type_ID. Room_type have basic Attributes Such as Room_Type, Rent and Description.

In this ERD, **Student** is forth entity which is contains all basic details about Student. Student has a unique identity number, which is Student_ID. Student table has basic Attributes Such as Name, Father_Name, DOB, Gender, Phone, Email, Address, Postcode, Username and Password.

In this ERD, **Reservation** is fifth entity which is contains all details about reservation. Reservation has a unique identity number, which is Reservation_ID. Reservation table has Attributes Such as Student_ID*, Room_ID*, Reservation_Date, CheckIN_Date, CheckOut_Date, Total_Rent and Reservation_Status.

Cardinality:

- Hostel **1:M** Room
- Room_Type **1:M** Room
- Room **1:M** Reservation
- Student **1:M** Reservation

Hostel Management System

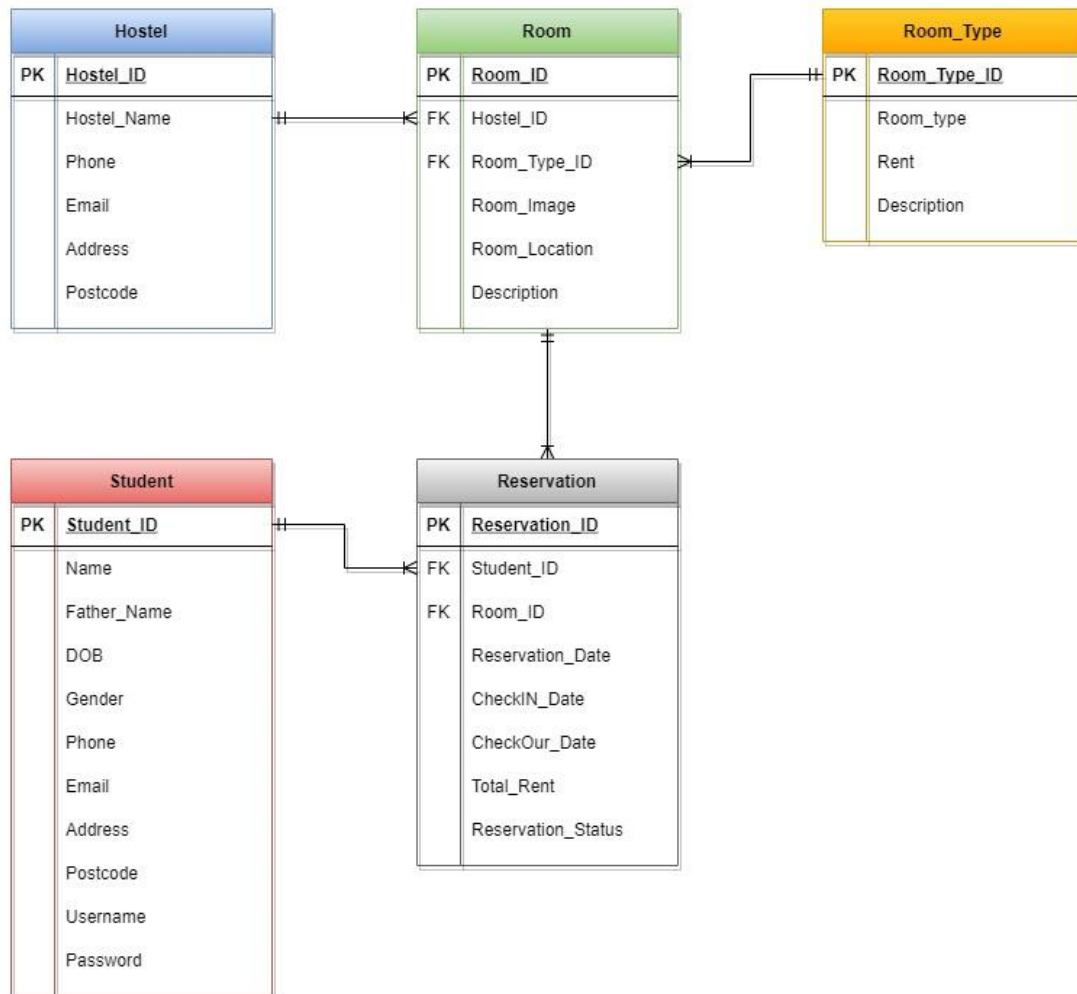


Figure 1: ER Diagram

UML Class Diagram

A Class Diagram is a diagram describing the structure of a system. It consists the:

- Classes
- Attributes

- Operations (or methods)
- Relationships among the classes

Hostel Management System is a web based application which a student can request to reserve a room in the hostel. In other words it is a simple web based application in which student has to register after that he can request to the hostel administrator as per the requirement. On the other hand the admin will accept the student's request and allot the room to him.

Hostel management System, there will be multiple class those perform operations as below-

Student – In This system Student is a class. Student can register and can request for hostel Rooms as per requirements. It Perform many function such as Manage_Student(), Update_Student_Info(), Delete_Student_Info() and Store_Student_Details(). Student manage attribute: Student_ID, Name, Father_name, DOB, Gender, Phone, Email, Address, Postcode, Username and Password. It has connectivity 1:M from Reservation.

Hostel – In this system Hostel is class which store Hostel details. It Perform many function such as Manage_hostel(), Store_Hostel_Info(), Update_Hostel_Info() and Delete_Hostel_Info(). Hostel class manage attribute: Hostel_ID, Hostel_Name, Phone, Email, Address and Postcode. It has connectivity 1:M from Room.

Room – In This System Room store Information about Room details. It Perform many function such as Manage_Room(), Add_new_Room(), Update_Room_Info() and Store_Room_Info(). Room manage attribute: Room_ID, Hostel_ID, Room_type_ID, Room_Image, Room_Location and Description. It has connectivity 1:M from Room_Type and Reservation.

Room_Type – In this System Room_type is a class which is store and manage Room_Type details. It Perform many function such as Manage_Room_Type(), Add_newRoomType_info() and Update_RoomType_Info(). Room_type manage attribute: Room_type_ID, Room_type, Rent and Description. It has connectivity 1:M from Room.

Reservation – In this System Reservation is a class which is store all details about reservation. It Perform many function such as Manage_Reservation(), Store_Reservation_Info(),

Make_new_Reservation(), Update_Reservation_Info(), Store_CheckIn_Info(), Store_CheckOut_Info() and Manage_Reservation_Status(). Reservation manage attribute: Reservation_ID, Student_ID, Room_ID, Reservation_Date, CheckIN_Date, CheckOut_Date, Total_Rent and Reservation_Status. It has connectivity 1:M from Student and Room.

Hostel Management System

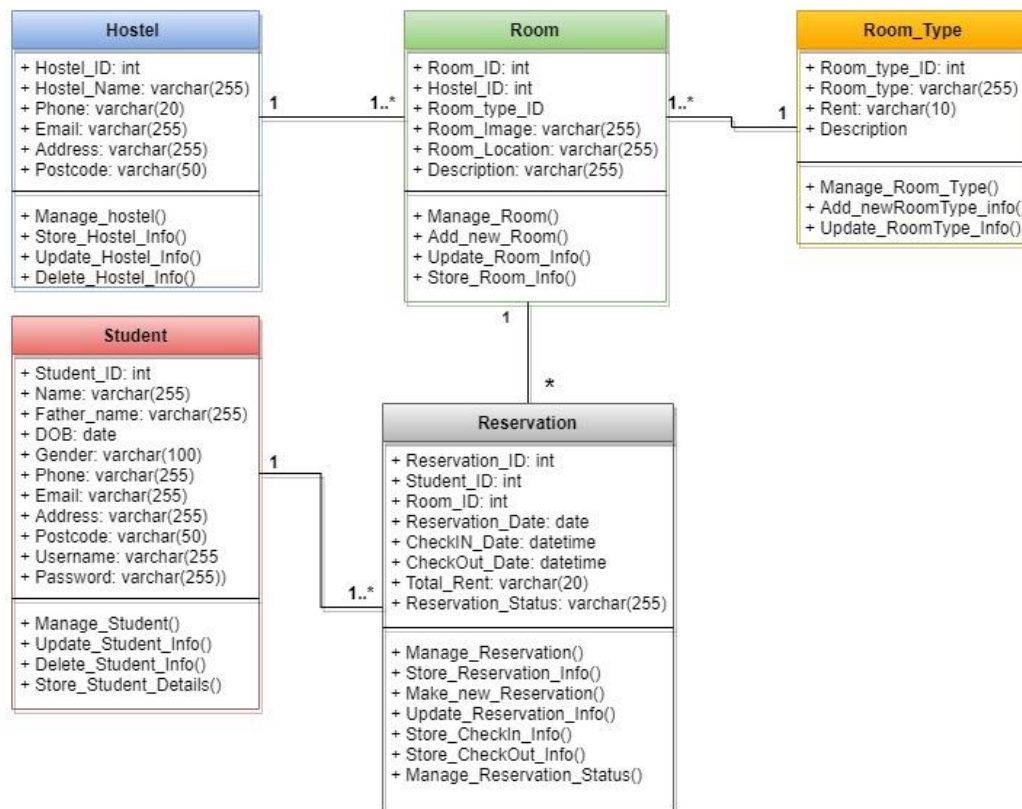


Figure 2: UML Class diagram

Use case Diagram

Use case diagram is a graphic depiction of the interactions among the elements of a system. Use case is a methodology used in system analysis to identify, clarify, and organize system requirements. It specifies roles played by the actors within and around the system.

Use case diagrams are used to specify:

- Required usages of a system under design or analysis (subject) - to capture what the system is supposed to do.
- The functionality offered by a subject – what the system can do.

- Requirements the specified subject poses on its environment - by defining how environment should interact with the subject so that it will be able to perform its services.

Hostel Management System is a web based application, there a login panel. After successful authentication Student can enter the system and a student can request to reserve a room in the hostel. In other words it is a simple web based application in which student has to register after that he can request to the hostel administrator as per the requirement.

On the other hand the admin will accept the student's request and allot the room to him.

Use Case Name	Login
Use case Description	Admin and Student login to system to access the functionality of the system.
Actors	Admin and Student
Pre-Condition	System Must be Connected to the Network.
Post- Condition	After a successful Login Admin can manage the System.

Main Scenarios	Serial No	Steps
Actors	1	Enter Username Enter Password
	2	Validate Username and Password
	3	Allow access to System
Extensions	1a	Invalid Username System shows an error message
	2b	Invalid Password System shows an error message

Admin Follow these main functions:

- Login
- Manage_System
- Manage_Profile
- Manage_Room

- Manage_Reservation
- Accept_Request
- Update_Cancel_Reserrvation
- LogOut

Student Follow these main functions:

- Login
- Registration
- Manage_Profile
- Select_Room_type
- Make_Reservation
- Update_Cancel_reservation
- Hostel_Room_CheckIN
- Hostel_Room_CheckOut
- LogOut

Hostel Management System

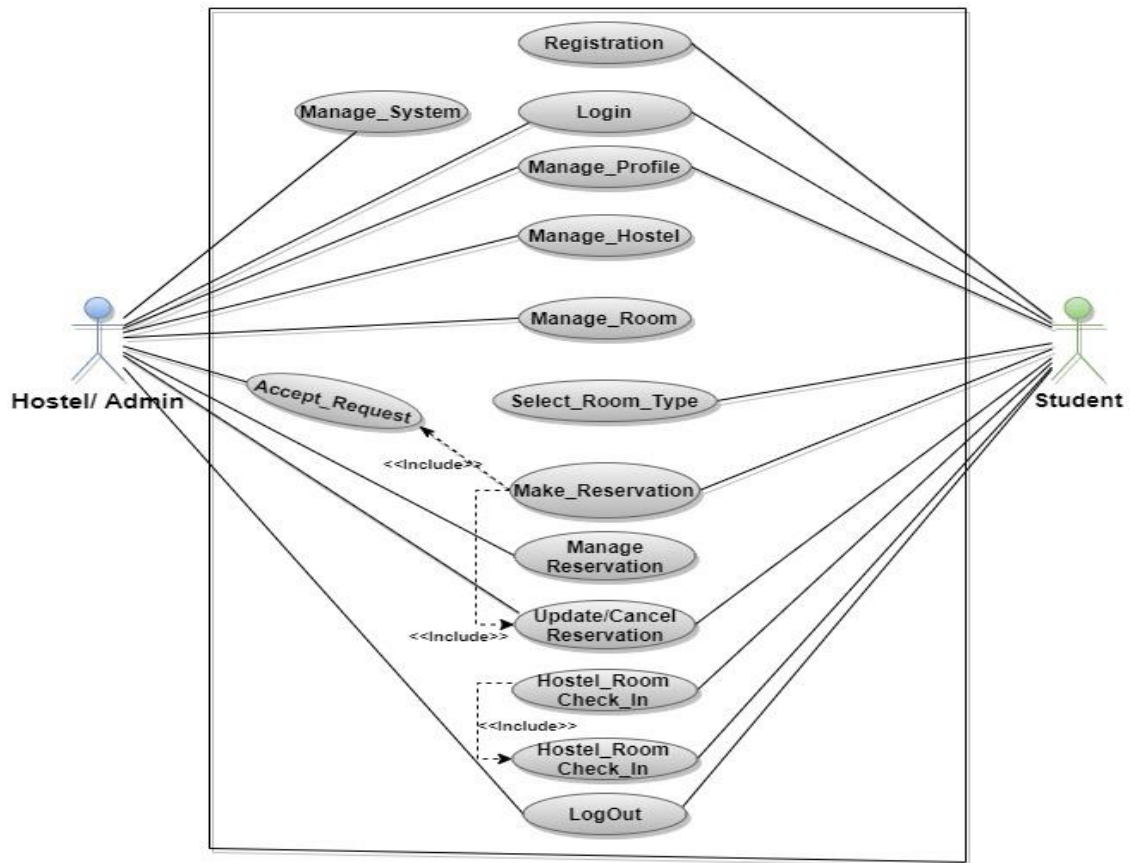


Figure 3: Use Case Diagram