

CSCE – 5350 – Fundamentals of Database System
(Project Description and E-R model)
Group - 18

Project Description:

QUEHOTEL is a well-known international hotel organization which requires a well-defined and precise database to manage its resorts and lodging facilities throughout the world. **ROOMWISE** (Resort Operations and Management Workflow Integration System), is a system which helps the management to store the details of all the resorts, employees, guests, amenities etc., all over the world.

To make a cohesive and efficient database management system, we create entities and entity-relationships in the first step. We may add more relationships in future depending on the requirements we assume.

Entities:

- **hotel chain** – QUEHOTEL is assumed to have multiple hotel chains and each hotel chains are defined the following attributes -
 - **id, name, number, website, address**
- **hotel** - Each hotel in the hotel chain is defined by the following attributes -
 - **id, type, name, number, email, website, address_line_1, address_line_2, city, state, country, zipcode, description, capacity, rating, hotelchain_id**
- **employee** – Each employee working in the hotel is defined by the following attributes -
 - **id, name, designation, supervisor, address, number, email, department, education, certification, criminal_record, hotel_id**
- **guest** - Each guest in the hotel is defined by the following attributes -
 - **id, name, number, email, idproof, address, credit/debitcard, roomnumber**
- **room** – The rooms in the hotel are defined by:
 - **number, floornumber, hotel_id**
- **Room type** – each room will have a specific room type -
 - **roomtype, cost, description, no_of_beds, room_number**
- **bookings** – Bookings in the hotel are defined by the following attributes -
 - **id, bookingdate, duration_of_stay, check_in, check_out, rooms_booked, amount, payment_id, room_number, hotel_id, guest_id, employee_id.**
- **discount** – Guests might sometimes be up for discount offers and they are defined by the following attributes -
 - **id, discountrate, rewardpoints, guest_id, hotel_id**
- **Star ratings** – The guests will have to give ratings for the services they received.
 - **id, rating, feedback, guest_id, hotel_id**
- **amenities** – All the amenities and facilities provided at the hotels are defined by -
 - **id, pool, gym, steam_room, parking, child_day_care, medical_facilities, restaurants, auditorium, game_room, meeting_rooms, playarea, hotel_id**

- **maintenance** – The maintenance provided by hotel is defined by -
 - **type, room_number, hotel_id, employee_id, room_number**
- **hotel_service** – The additional services provided by the hotel to the guest is defined as-
 - **id, cost, name, hotel_id,**
- **Employee rating** – Each guest will give a rating to the employee who served them. This is defined by -
 - **id, guest_id, emp_id, rating**
- **package** – The packages chosen with the room are defined by -
 - **id, name, description, duration, cost, validity, hotel_id**
- **promotions** – promotions will have the following attributes.
 - **id, name, details, duration, start_date, end_date, hotel_id**
- **payments** – The payment methods of guests are defined by -
 - **id, conformation_id, card_number, booking_id, guest_id**

Relationships:

Unary Relationships:

- Each supervisor **supervises** many employees. And supervisor is an employee.

Binary Relationships:

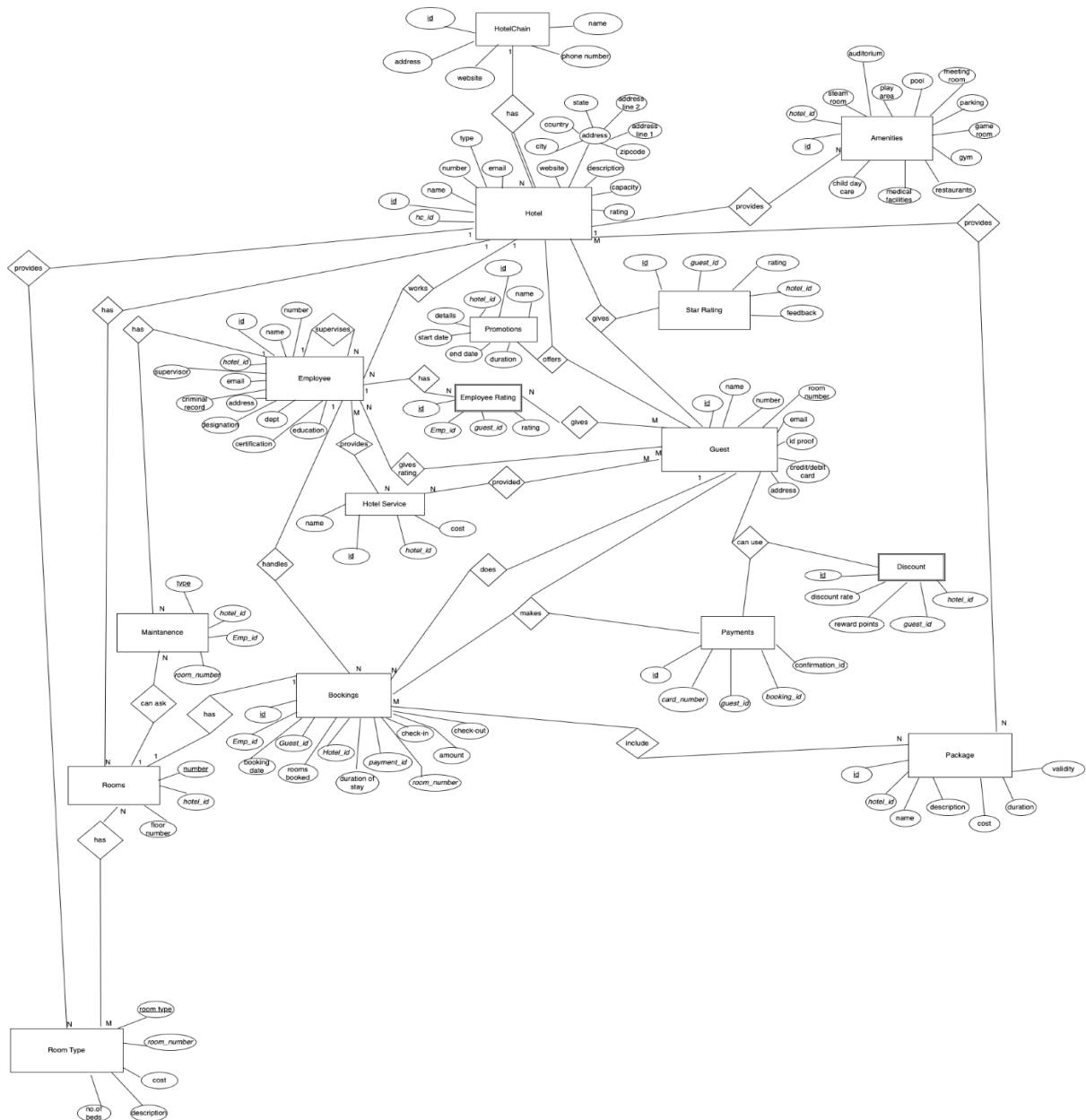
- **One-to-One:**
 - one booking has at least one room.
- **One-to-Many:**
 - One hotel chain has multiple hotels.
 - One hotel provides multiple amenities.
 - One hotel has many employees.
 - One hotel has rooms.
 - One hotel provides many room types.
 - One employee has many ratings.
 - One employee handles many bookings.
 - One employee has many maintenance duties.
 - One guest does multiple bookings.
 - One room can ask for multiple maintenance duties performed on it.
- **Many-to-Many**
 - Many guests give rating to many employees.
 - Many employees provide many hotel services.
 - Many guests give rating to many employees
 - Multiple services are provided to many guests
 - Hotel provides multiple packages
 - Many bookings have multiple packages
 - Multiple rooms have multiple roomtype.

Ternary Relationships:

- One guest gives rating to hotel.

- Guest books by making a payment.
- Guest can use discount while payments.
- One hotel offers promotion to guests.

ER – Diagram:



Link Access to ER – Diagram:

<https://drive.google.com/file/d/1OHCEk3P5LJpniXUTi6EJMSQW0CKi-qn/view?usp=sharing>

Individual Contribution:

I helped with reassessing and rewriting the entity sets and entity relationships that pertains to Guest, Booking, Package and Maintenance and their attributes. I made sure all the entities that we are going to include in the project make sense and are helpful. I came up with multiple additional entity sets, that are now included in the project.

I helped with structuring and drawing the ER-diagram using the draw.io tool and making it legible.

I also assisted with editing the documentation and making appropriate changes. I also organized timely and productive meetings to discuss the project and update the project description appropriately.