CSCI 5408
DATA MANAGEMENT
AND
WAREHOUSING

GROUP PROJECT

Submitted By: **Group 30**
Submitted On: November 02, 2023

Gitlab Repository Link

https://git.cs.dal.ca/kenil/csci5408_f23_b00954251_kenil_patel/-/tree/main/GroupProject30

MEMBER DETAILS	
NAME	**BANNER ID**
Gunjan Rajesh Vazirani	B00928899
Kenil Shaileshkumar Patel	B00954251
Praveen Kumar Reddy Burla	B00975106

TABLE OF CONTENTS

LITERATURE SURVEY

Table 1: Literature Survey for Entities.

Source	Entities Collected	Reference
Airbnb Website	Hotel, Room, Rating, Offers/Promotion, Customer, Reservation, Payment, Restaurant and Invoice.	[1]
Halifax Convention Centre Website	Event, Customer, Employee shift, Employee payroll, Facility, Security Camera. Menu Item, Rating, Employee, Employee Type, Inventory	[2]
Sea Smoke Restaurant Website	Restaurant, Reservation, Payment, Rating, Menu Item, Offers/Promotion.	[3]
Study on the Brand Value Promotion of Hotel Service Industry Research Paper	Hotel, Customer, Promotion, Facility, Room, Rating, Inventory	[4]
Trust on E-Commerce Website in Thailand: A Case of Online Hotel Reservation Research Paper	Hotel Reservation, Customer, Hotel, Facility, Supplier, Invoice	[5]
Hotel Business Surveys	Hotel, Rating, Reservation, Customer, Employee, Facility, Supplier, Payment, Event	[6]
Hospitality Net Hotel Industry Blog	Hotel, Room, Restaurant, Reservation, Payment, Invoice, Rating and Facility	[7]
Hotel News Resource Industry News	Hotel, Customer, Supplier, Transportation Type, Menu Item	[8]
Booking Website	Room, Reservation, Rating, Customer, Facility, Menu Item	[9]

	Invoice, Billing, Offers/Promotion	
Euro Hotel Industry News	Hotel, Customer, Facility, Reservation, Invoice	[10]

We have done our background research by visiting various Hotel websites, Hotel Industry Research papers, Hotel Blogs, and Hotel Industry News Articles and gathered the entities that we observed in those sources. Firstly, we started our research by visiting the Airbnb website, then we analysed and collected the Hotel, Room, Rating, Offers/Promotion, Customer, Reservation, Payment, Restaurant, and Invoice Entities and the relationship between these Entities. Next, we explored the Halifax Convention Centre Website where we collected Event, Customer, Employee shift, Employee payroll, Facility, and Security Camera. Menu Item, Rating, Employee, Employee Type, Inventory Entities, and how these entities are connected. Furthermore, we explore the Sea Smoke Restaurant Website for a better understanding of how restaurants work, and we identify Restaurant, Reservation, Payment, Rating, Menu Item, Offers/Promotion Entities, and these are interlinked with each other Entities.

After Exploring the various websites, we realized that we needed to go for research papers to better understand how hotel reservation works. Due to that, we explored the Trust on E-Commerce Website in Thailand: A Case of Online Hotel Reservation Research Paper and understand the full case study and collected the Hotel Reservation, Customer, Hotel, Facility, Supplier, and Invoice Entities. Next, to understand how promotion works for the Hotel Industry we visited the Study on the Brand Value Promotion of the Hotel Service Industry Research Paper, we discussed various use cases in this research paper, and we finalized Hotel, Customer, Promotion, Facility, Room, Rating, Inventory Entities and its relationship with others.

Moreover, we visited Hotel Business Surveys, to understand Hotel Business in terms of Customer satisfaction where they provide feedback for the Hotel. By analyzing with our team, we noted Hotel, Rating, Reservation, Customer, Employee, Facility, Supplier, Payment, and Event Entities. Further, we have explored one more website called Booking, here we understand how the booking works at a high level with respect to Hotel and Restaurants and wrote the Room, Reservation, Rating, Customer, Facility, Menu Item Invoice, Billing, Offers/Promotion Entities.

Finally, we ended our background Research by visiting different blogs and Hotel News. We have visited the Hospitality Net Hotel Industry Blog for a deeper understanding of how Hospitality works in the Hostel. By that, we understand complete Hospitality works in the Hotel Industry and noted Hotel, Room, Restaurant, Reservation, Payment, Invoice, Rating, and Facility Entities and the relation between these Entities. Furthermore, we explore the Hotel News Resource Industry News

For the latest Hotel News on the global level for understanding the current trends regarding the Hotel Industry. Then, collect hotel, Customer, Supplier, Transportation Type, and Menu Item Entities in this News and how these entities are connected to each other at the global level as per this Newspaper. We explored one newspaper called Euro Hotel Industry News, in which we figured out some insights and discussed with our team a better conceptual model. After the

discussion, we have finalized the following entities Hotel, Customer, Facility, Reservation, and Invoice.

INITIAL CONCEPTUAL MODEL

The initial conceptual model plays a crucial role as the foundational design that outlines the structure and interconnections within a system, process, or project. This model serves as a pivotal step in the development and visualization of intricate concepts, facilitating effective communication and comprehension of the core components and their relationships.

As outlined in the document, this model serves as a fundamental representation of the subject matter, characterized by its clarity and precision. It provides stakeholders, decision-makers, and team members with the ability to grasp the essence of the project or system, even before delving into the finer details of technical specifications. By presenting a quick, high-level overview of the overall framework, the initial conceptual model contributes to aligning all parties involved and ensures a shared comprehension of the project's objectives.

Entities finalized after the literature survey:

- Hotel
- Room
- Reservation
- Customer
- Employee
- Employee Type
- Payment
- Invoice
- Billing
- Facility
- Rating
- Event
- Restaurant
- Menu Item
- Employee shift
- Employee payroll
- Transportation type
- Inventory
- Supplier
- Offers/Promotions
- Lost and Found
- Security Camera

Concise representation of the relationships within the entities:

1. Hotel
   - Has multiple rooms.
   - Offers various facilities.
   - Employs many employees.
   - Conducts events.
   - Operates a restaurant.

- Utilizes security cameras for surveillance.
- Maintains an inventory of items.
- Collaborates with suppliers for inventory.
- Offers various transportation types.
- Manages multiple lost and found items.
- Runs multiple promotions.
- Receives multiple ratings.

2. Room
- Belongs to a specific hotel.
- Can have multiple reservations.

3. Reservation
- Made by a customer.
- Involves a specific room.
- Includes billing information.
- Can have offers/promotions applied.

4. Customer
- Makes reservations.
- May have multiple invoices for different stays.
- May provide ratings for the hotel.
- May dine at the restaurant.

5. Employee
- Works at a specific hotel.
- Has an employee type designation.
- Has employee shifts.
- Receives payroll.

6. Employee Type
- Defines the role and responsibilities of an employee.

7. Billing
- Relates to a reservation.
- Includes payment.
- Generates the invoice.

8. Payment Method
- Used for payments within a billing context.

9. Invoice
- Contains billing information for the stay.
- May have offer/promotion.

10. Facility
- Offered by the hotel.

- May be used in events.

11. Rating
    - Given by a customer to rate their experience with the hotel or a room.

12. Event
    - Hosted by the hotel.
    - May involve the use of facilities.

13. Restaurant
    - Operated by the hotel.
    - Has menu items.
    - Serves customers.

14. Menu Item
    - Belongs to a specific restaurant.

15. Employee Shift
    - Pertains to an employee.

16. Employee Payroll
    - Relates to an employee and their earnings.

17. Transportation Type
    - May be offered by the hotel.

18. Inventory
    - Maintained by the hotel.
    - Items can be supplied by a supplier.

19. Supplier
    - Provides many items for the inventory.

20. Offers/Promotions
    - Every promotion is associated with a hotel.
    - Can be applied in an invoice.

21. Lost and Found
    - May contain items associated with the hotel.

22. Security Camera
    - Installed at the hotel to enhance security.

Initial Conceptual Model:

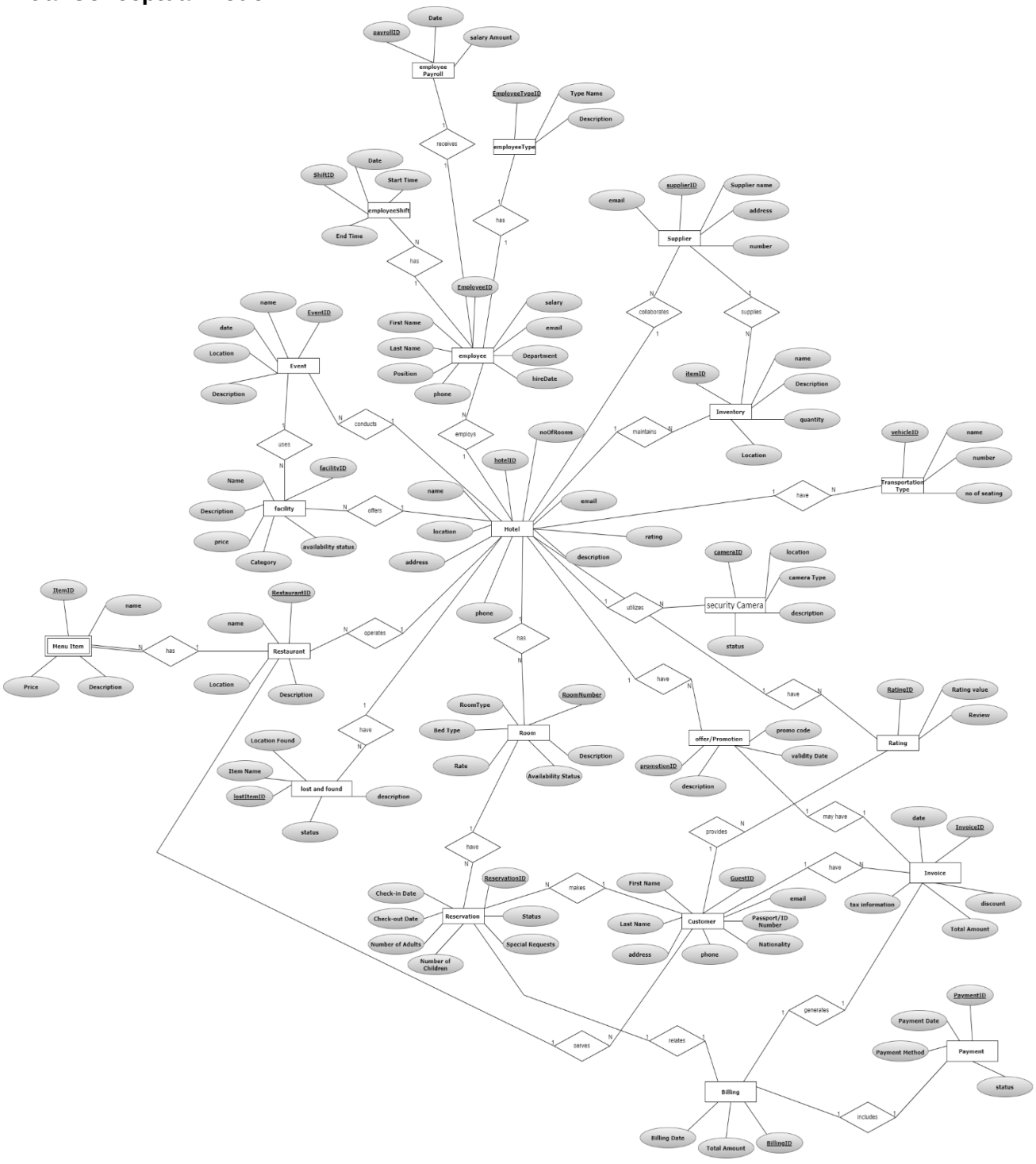

Figure 1: Initial Conceptual Model for Hotel Database System.

DESIGN ISSUES

Fan traps and chasm traps are design issues that can occur in entity-relationship diagrams when the relationships between entities are not properly described, resulting in ambiguity or difficulty in extracting valuable details from the data.

However, there is some analysis to ensure that there are no such issues in your design:

- Fan Trap: A fan trap happens when there are many relationships between three entities, resulting in confusion. I do not see any instances of multiple relationships between three entities in a design that would result in a fan trap.
- Chasm Trap: A chasm trap occurs when two entities are connected indirectly via two one-to-many relationships, which might result in not certain queries. I do not notice any chasm trap issues with your design.

Our relationships are well-defined and do not exhibit these common modeling issues. However, it is important to test our database design thoroughly with sample queries to ensure that it meets our specific business requirements and does not result in unexpected data retrieval problems.

FINAL ERD

We don't have any design issues like Fan trap, Chasm trap after Initial ERD, hence there are no changes in Initial ERD. So, we are going with the same ERD as our Final ERD shown below.

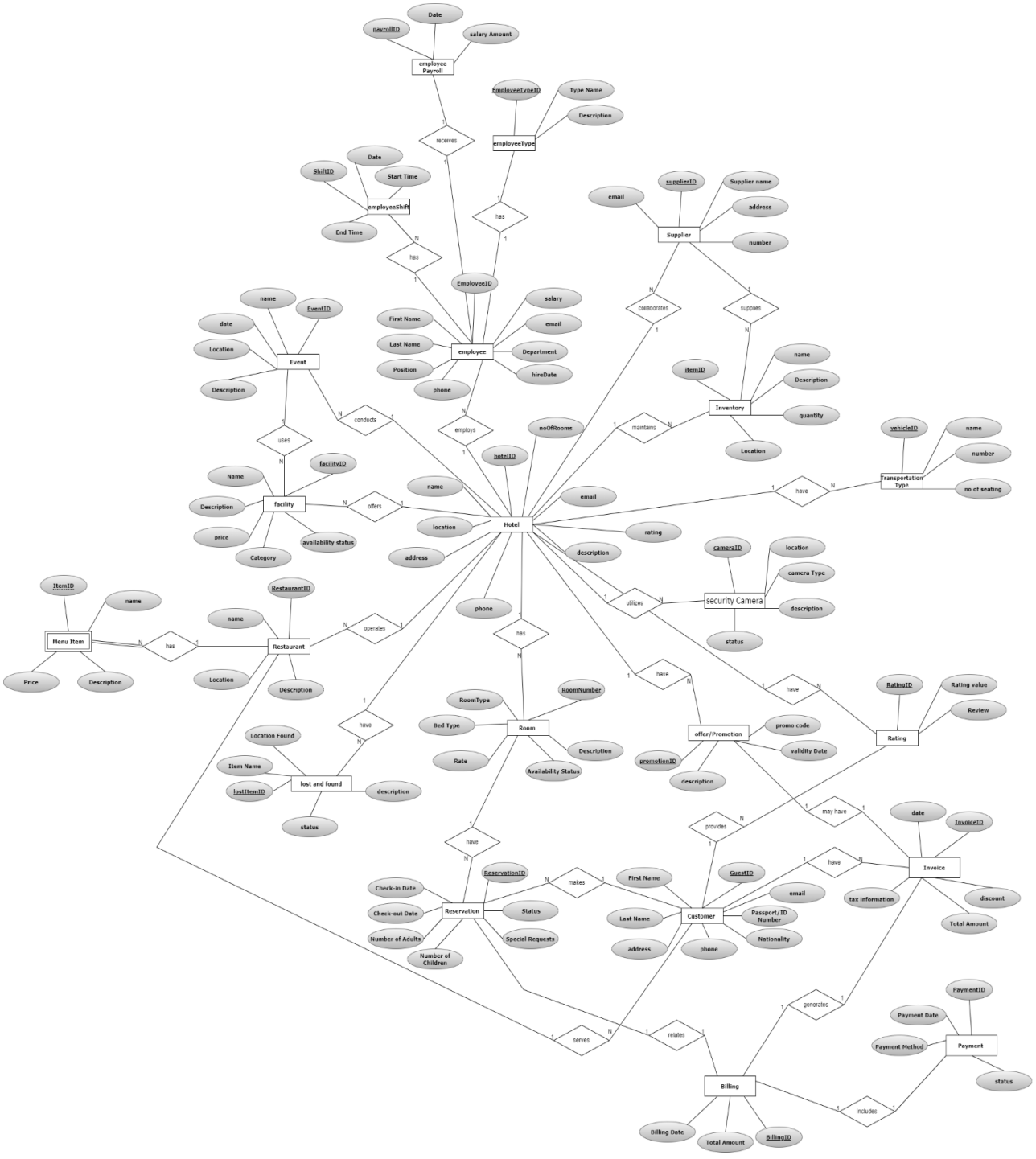

Figure 2: Final ERD for Hotel Database System.

LOGICAL PHASE

In 'Facility' Table there exists a transitive dependency between the Category and Description. The category depends on the Name of the facility which in turns affects the Description. This means that Category indirectly determines the Description. This creates a transitive dependency as Category is not directly determining Description but does so through Name.

To solve the dependency, we create a new entity Facility Category which has a following attributes:

1. CategoryID (Primary Key)
2. Category Name
3. Description

The relationship between the Facility and the Facility Category is Many to One i.e. category can belong to many facilities.

By separating the category information into a new entity, we eliminated the transitive dependency in the Facility table, and now each entity maintains clear and non-dependent attributes.

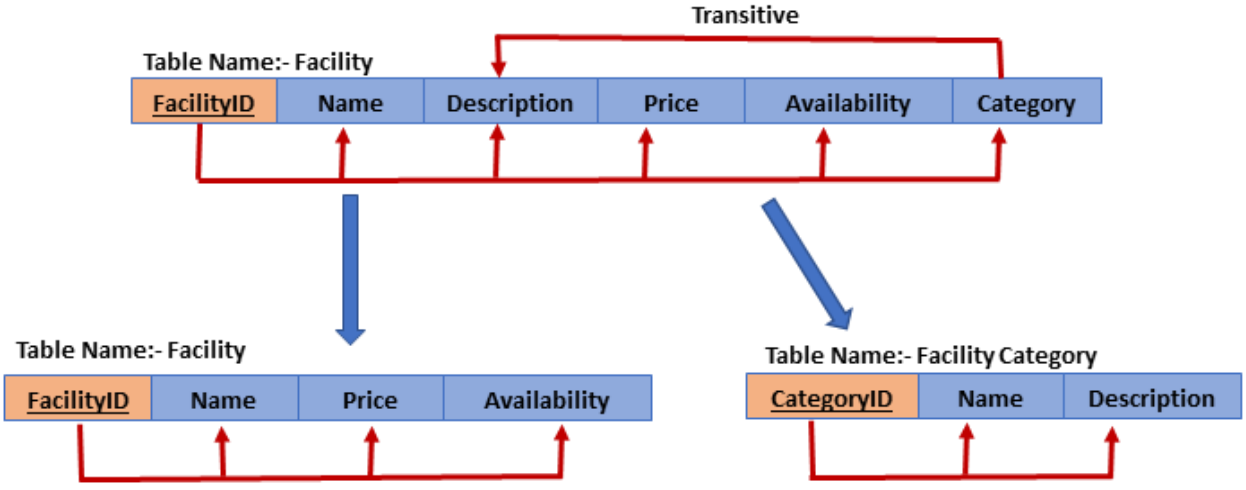

Figure 3: Removal of Transitive Dependency from the Facility Table.

After solving the transitive dependency, the final entities and attributes, and relationship between entities are:

- **Hotel:**
  - HotelID (Primary Key)
  - Hotel Name
  - Location
  - Address
  - Phone Number
  - Email
  - Rating
  - Description

- Number of Rooms

Relationship:

- Has multiple **Rooms**. [1: N]
- Offers various **Facilities**. [1: N]
- employ many **Employees** [1: N]
- conducted **events.** [1: N]
- Operates a **Restaurant**. [1:1]
- Utilizes **Security cameras** for surveillance. [1: N]
- Maintains an **Inventory** of items. [1:N]
- Collaborates with **Suppliers** for inventory. [1: N]
- have many **Transportations Type. [**1 : N]
- have multiple **Lost and Found** items [1:N]
- have multiple **Promotions** [1:N]
- have multiple **Ratings** [1: N]

- **Room:**
  - RoomNumber (Primary Key)
  - Room Type
  - Bed Type
  - Rate per Night
  - Availability Status
  - Description
  - HotelID (Foreign Key)

Relationship:

- Belongs to a specific **Hotel.** [N :1]
- Can have multiple **Reservations**. [1: N]

- **Reservation:**
  - ReservationID (Primary Key)
  - Check-in Date
  - Check-out Date
  - Number of Adults
  - Number of Children
  - Special Requests
  - Status (e.g., Confirmed, Pending, Cancelled)
  - RoomNumber (Foreign Key)
  - GuestID (Foreign Key)
  - BillingID (Foreign Key)
  - PromotionID (Foreign Key)

Relationship:

- Made by a **Customer**. [N :1]
- Involves a specific **Room**. [N:1]
- Includes **Billing** information. [1: 1]

- Can have **Offers/Promotions** applied. [1: N]

- **Customer:**
  - GuestID (Primary Key)
  - First Name
  - Last Name
  - Address
  - Phone Number
  - Email
  - Nationality
  - Passport/ID Number

Relationship:
- Makes **Reservation. [1: N]**
- May have multiple **Invoices** for different stays. [1: N]
- May provide **Rating** for the hotel. [1: N]
- May dine at the **Restaurant**. [N: 1]

- **Employee:**
  - EmployeeID (Primary Key)
  - First Name
  - Last Name
  - Position
  - Department
  - Phone Number
  - Email
  - Hire Date
  - Salary
  - HotelID (Foreign Key)
  - EmployeeTypeID (Foreign Key)

Relationship:
- Works at a specific **Hotel.** [N: 1]
- Has an **Employee Type** designation. [1: 1]
- Has **Employee Shifts**. [1: N]
- Receives **Payroll**. [1: 1]

- **Employee Type:**
  - EmployeeTypeID (Primary Key)
  - Type Name
  - Description

Relationship:
- Defines the role and responsibilities of an **Employee**. [1:1]

- **Billing:**

- BillingID (Primary Key)
- Billing Date
- Total Amount

Relationship:

- Relates to a **Reservation**. [1:1]
- Includes **Payment** [1:1]
- Generates the **Invoice.** [1:1]

- **Payment Method:**
  - PaymentID (Primary Key)
  - Payment Date
  - Payment Method (e.g., Credit Card, Cash)
  - Status (e.g., Paid, Unpaid)
  - BillingID (Foreign Key)

Relationship:

- Used for payments within a **Billing** context. [1 :1]

- **Invoice:**
  - InvoiceID (Primary Key)
  - Invoice Date
  - Tax Information
  - Discounts
  - Total Amount
  - ReservationID (Foreign Key)

Relationship:

- Contains **billing** information for the stay. [1:1]
- may have **offer/promotion** [1:1]

- **Facility:**
  - FacilityID (Primary Key)
  - Facility Name
  - Description
  - Availability Status (e.g., Available, Unavailable)
  - HotelID (Foreign Key)
  - CategoryID (Foreign Key)

Relationship:

- Offered by the **Hotel**. [N :1]
- May be used in the **Event**. [N: 1]
- Each facility belongs to a specific **category.** [N: 1]

- **Rating:**
  - RatingID (Primary Key)

- Rating Value
- Review
- HotelID (Foreign Key)
- GuestID (Foreign Key)

Relationship:

- Given by a **Customer** to rate their experience with the Hotel or a Room [N: 1]

- **Event:**
  - EventID (Primary Key)
  - Event Name
  - Date
  - Location
  - Description
  - HotelID (Foreign Key)
  - FacilityID (Foreign Key)

Relationship:

- Hosted by the **Hotel**. [N: 1]
- May involve the use of **Facilities**. [1: N]

- **Restaurant:**
  - RestaurantID (Primary Key)
  - Restaurant Name
  - Location
  - Description
  - HotelID (Foreign Key)

Relationship:

- Operated by the **Hotel**. [1: 1]
- Has a **Menu** Item. [1: 1]
- Serves **Customers**. [1: N]

- **Menu Item:**
  - ItemID (Partial Key)
  - Item Name
  - Description
  - Price
  - RestaurantID (Partial Key)
  - HotelID (Foreign Key)

Relationship:

- Belongs to a specific **Restaurant**. [1 :1]

- **Employee Shift:**
  - ShiftID (Primary Key)

- Date
- Shift Start Time
- Shift End Time
- EmployeeID (Foreign Key)

Relationship:

- Pertains to an **Employee**. [N :1]

- **Employee Payroll:**
  - PayrollID (Primary Key)
  - Payroll Date
  - Salary Amount
  - EmployeeID (Foreign Key)

Relationship:

- Relates to an **Employee** and their earnings. [1 :1]

- **Transportation Type:**
  - VehicleID (Primary Key)
  - Type Name
  - Number
  - No of Seating
  - HotelID (Foreign Key)

Relationship:

- May be offered by the **Hotel**. [N:1]

- **Inventory:**
  - ItemID (Primary Key)
  - Item Name
  - Description
  - Quantity
  - Location
  - HotelID (Foreign Key)
  - SupplierID (Foreign Key)

Relationship:

- Maintained by the **Hotel**. [N:1]
- items can be supplied by **Supplier**. [N: 1]

- **Supplier:**
  - SupplierID (Primary Key)
  - Supplier Name
  - Address
  - Phone Number
  - Email

Relationship:

- Provides many items for the **Inventory**. [1: N]

- **Offers/Promotions::**
  - PromotionID (Primary Key)
  - Promo Code
  - Validity Date
  - Description
  - HotelID (Foreign Key)

Relationship:

- every promotion is associated with **Hotel** [N: 1]
- can be applied in **invoice** [1:1]

- **Lost and Found:**
  - LostAndFoundID (Primary Key)
  - Item Name
  - Description
  - Location Found
  - Status
  - HotelID (Foreign Key)

Relationship:

- May contain items associated with **Hotel**. [1: N]

- **Security Camera:**
  - CameraID (Primary Key)
  - Location
  - Camera Type
  - Description
  - HotelID (Foreign Key)

Relationship:

- Installed at the **Hotel** to enhance security. [N :1]

- **Facility Category:**
  - CategoryID (Primary Key)
  - Name
  - Description

Relationship:

- Multiple **Facility** can be of the same category. [1: N]

DDL QUERIES FOR PHYSICAL MODEL

Below are the DDL queries to make a table and create a physical model:

```
CREATE TABLE Hotel (
   HotelID INT PRIMARY KEY,
   HotelName VARCHAR(255),
   Location VARCHAR(255),
   Address VARCHAR(255),
   PhoneNumber VARCHAR(20),
   Email VARCHAR(255),
   Rating FLOAT,
   Description TEXT,
   NumberOfRooms INT
);

CREATE TABLE Room (
   RoomNumber INT PRIMARY KEY,
   RoomType VARCHAR(50),
   BedType VARCHAR(50),
   RatePerNight DECIMAL(10, 2),
   AvailabilityStatus VARCHAR(20),
   Description TEXT,
   HotelID INT,
   FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID)
);

CREATE TABLE Customer (
   GuestID INT PRIMARY KEY,
   FirstName VARCHAR(50),
   LastName VARCHAR(50),
   Address VARCHAR(255),
   PhoneNumber VARCHAR(20),
   Email VARCHAR(255),
   Nationality VARCHAR(50),
   PassportIDNumber VARCHAR(20)
);

CREATE TABLE Billing (
   BillingID INT PRIMARY KEY,
   BillingDate DATE,
   TotalAmount DECIMAL(10, 2)
);


CREATE TABLE Promotion (
   PromotionID INT PRIMARY KEY,
   PromoCode VARCHAR(50),
```

```
    ValidityDate DATE,
    Description TEXT,
    HotelID INT
);

CREATE TABLE Reservation (
    ReservationID INT PRIMARY KEY,
    CheckInDate DATE,
    CheckOutDate DATE,
    NumberOfAdults INT,
    NumberOfChildren INT,
    SpecialRequests TEXT,
    Status VARCHAR(20),
    RoomNumber INT,
    GuestID INT,
    BillingID INT,
    PromotionID INT,
    FOREIGN KEY (RoomNumber) REFERENCES Room(RoomNumber),
    FOREIGN KEY (GuestID) REFERENCES Customer(GuestID),
    FOREIGN KEY (BillingID) REFERENCES Billing(BillingID),
    FOREIGN KEY (PromotionID) REFERENCES Promotion(PromotionID)
);

CREATE TABLE EmployeeType (
    EmployeeTypeID INT PRIMARY KEY,
    TypeName VARCHAR(50),
    Description TEXT
);

CREATE TABLE Employee (
    EmployeeID INT PRIMARY KEY,
    FirstName VARCHAR(50),
    LastName VARCHAR(50),
    Position VARCHAR(50),
    Department VARCHAR(50),
    PhoneNumber VARCHAR(20),
    Email VARCHAR(255),
    HireDate DATE,
    Salary DECIMAL(10, 2),
    HotelID INT,
    EmployeeTypeID INT,
    FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID),
    FOREIGN KEY (EmployeeTypeID) REFERENCES EmployeeType(EmployeeTypeID)
);

CREATE TABLE PaymentMethod (
    PaymentID INT PRIMARY KEY,
```

```
    PaymentDate DATE,
    PaymentMethod VARCHAR(50),
    Status VARCHAR(20),
    BillingID INT,
    FOREIGN KEY (BillingID) REFERENCES Billing(BillingID)
);

CREATE TABLE Invoice (
    InvoiceID INT PRIMARY KEY,
    InvoiceDate DATE,
    TaxInformation TEXT,
    Discounts DECIMAL(10, 2),
    TotalAmount DECIMAL(10, 2),
    ReservationID INT,
    FOREIGN KEY (ReservationID) REFERENCES Reservation(ReservationID)
);

CREATE TABLE FacilityCategory (
    CategoryID INT PRIMARY KEY,
    Name VARCHAR(50),
    Description TEXT
);

CREATE TABLE Facility (
    FacilityID INT PRIMARY KEY,
    FacilityName VARCHAR(50),
    Description TEXT,
    AvailabilityStatus VARCHAR(20),
    HotelID INT,
    CategoryID INT,
    FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID),
    FOREIGN KEY (CategoryID) REFERENCES FacilityCategory(CategoryID)
);

CREATE TABLE Rating (
    RatingID INT PRIMARY KEY,
    RatingValue INT,
    Review TEXT,
    HotelID INT,
    GuestID INT,
    FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID),
    FOREIGN KEY (GuestID) REFERENCES Customer(GuestID)
);

CREATE TABLE Event (
    EventID INT PRIMARY KEY,
    EventName VARCHAR(255),
```

```
    EventDate DATE,
    Location VARCHAR(255),
    Description TEXT,
    HotelID INT,
    FacilityID INT,
    FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID),
    FOREIGN KEY (FacilityID) REFERENCES Facility(FacilityID)
);

CREATE TABLE Restaurant (
    RestaurantID INT PRIMARY KEY,
    RestaurantName VARCHAR(255),
    Location VARCHAR(255),
    Description TEXT,
    HotelID INT
);

CREATE TABLE MenuItem (
    ItemID INT PRIMARY KEY,
    ItemName VARCHAR(255),
    Description TEXT,
    Price DECIMAL(10, 2),
    RestaurantID INT,
    HotelID INT,
    FOREIGN KEY (RestaurantID) REFERENCES Restaurant(RestaurantID)
);

CREATE TABLE EmployeeShift (
    ShiftID INT PRIMARY KEY,
    ShiftDate DATE,
    ShiftStartTime TIME,
    ShiftEndTime TIME,
    EmployeeID INT,
    FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)
);



CREATE TABLE EmployeePayroll (
    PayrollID INT PRIMARY KEY,
    PayrollDate DATE,
    SalaryAmount DECIMAL(10, 2),
    EmployeeID INT,
    FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)
);

CREATE TABLE TransportationType (
```

```
    VehicleID INT PRIMARY KEY,
    TypeName VARCHAR(50),
    Number INT,
    NumberOfSeating INT,
    HotelID INT,
    FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID)
);

CREATE TABLE Supplier (
    SupplierID INT PRIMARY KEY,
    SupplierName VARCHAR(255),
    Address VARCHAR(255),
    PhoneNumber VARCHAR(20),
    Email VARCHAR(255)
);

CREATE TABLE Inventory (
    ItemID INT PRIMARY KEY,
    ItemName VARCHAR(255),
    Description TEXT,
    Quantity INT,
    Location VARCHAR(255),
    HotelID INT,
    SupplierID INT,
    FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID),
    FOREIGN KEY (SupplierID) REFERENCES Supplier(SupplierID)
);

CREATE TABLE LostAndFound (
    LostAndFoundID INT PRIMARY KEY,
    ItemName VARCHAR(255),
    Description TEXT,
    LocationFound VARCHAR(255),
    Status VARCHAR(20),
    HotelID INT
);

CREATE TABLE SecurityCamera (
    CameraID INT PRIMARY KEY,
    Location VARCHAR(255),
    CameraType VARCHAR(50),
    Description TEXT,
    HotelID INT
);
```

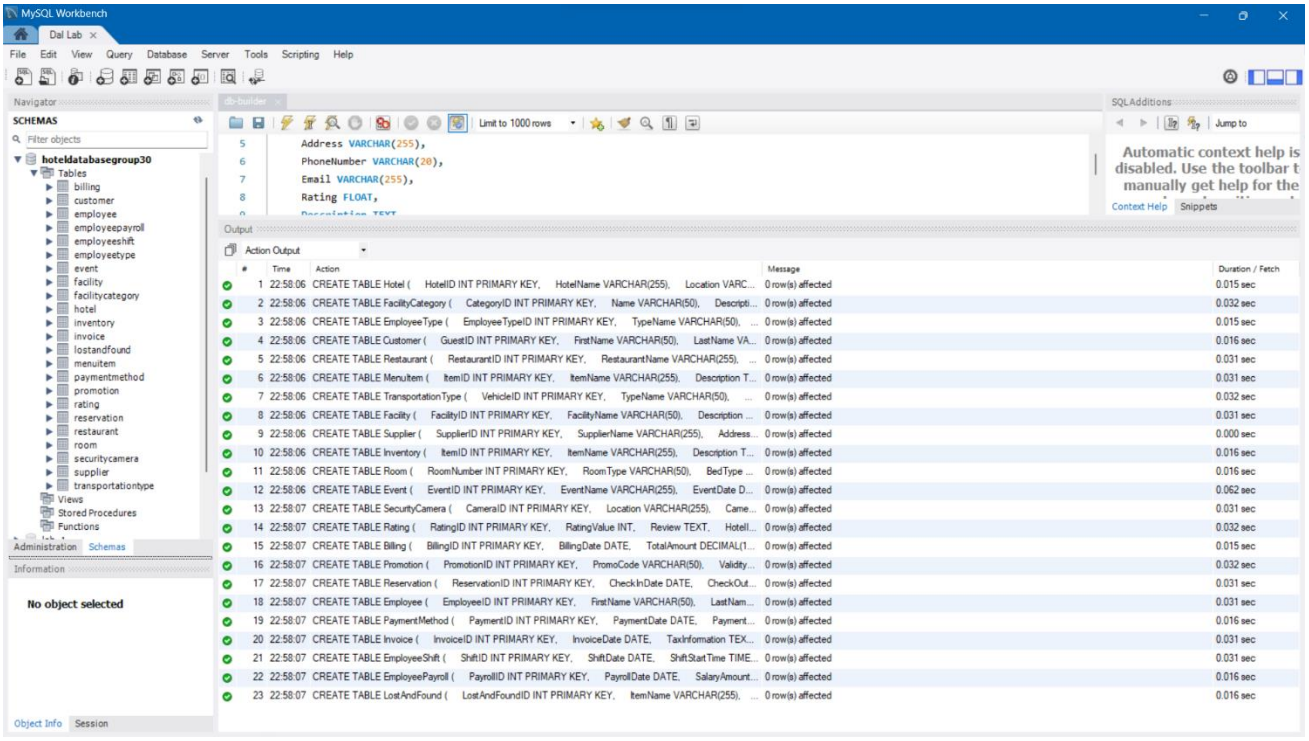

Figure 4: Created Tables in the MySQL workbench.

REFERENCES

[1] Airbnb.ca. [Online]. Available: https://www.airbnb.ca/. [Accessed: 03-Oct-2023].

[2] “Start planning your event now!,” Halifaxconventioncentre.com. [Online]. Available: https://www.halifaxconventioncentre.com/. [Accessed: 03-Oct-2023].

[3] Opentable.ca. [Online]. Available: https://www.opentable.ca/r/sea-smoke-restaurant-halifax. [Accessed: 02-Nov-2023].

[4] F. Linsheng and X. Pan, "Study on the Brand Value Promotion of Hotel Service Industry," 2009 International Conference on Wireless Networks and Information Systems, Shanghai, China, 2009, pp. 354-357, doi: 10.1109/WNIS.2009.71.

[5] K. Atchariyachanvanich and O. Hitoshi, "Trust on E-Commerce Website in Thailand: A Case of Online Hotel Reservation," 2011 IEEE/IPSJ International Symposium on Applications and the Internet, Munich, Germany, 2011, pp. 574-577, doi: 10.1109/SAINT.2011.106.

[6] Hotelbusiness.com. [Online]. Available: https://hotelbusiness.com/surveys/. [Accessed: 03-Oct-2023].

[7] J. Felix, H. M. Choufany, and M. Pittman, “Hospitality Net,” Hospitality Net. [Online]. Available: https://www.hospitalitynet.org/. [Accessed: 06-Oct-2023].

[8] Hotel News Resource, “Hotel industry news by hotel News Resource,” Hotelnewsresource.com. [Online]. Available: https://www.hotelnewsresource.com/. [Accessed: 06-Oct-2023].

[9] “Booking.com: The largest selection of hotels, homes, and holiday rentals,” Booking.com. [Online]. Available: https://www.booking.com/. [Accessed: 03-Oct-2023].

[10] “Hotel Industry,” euronews. [Online]. Available: https://www.euronews.com/tag/hotel-industry. [Accessed: 03-Oct-2023].

[11] “Flowchart maker & online diagram software,” Diagrams.net. [Online]. Available: https://app.diagrams.net/. [Accessed: 02-Nov-2023].

[12] Mysql.com. [Online]. Available: https://dev.mysql.com/. [Accessed: 02-Nov-2023].