SVKM's NMIMS
School of Technology Management & Engineering, Chandigarh
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Course: Database Management Systems

Project Report

Program	BTech CE	
Semester	IV	
Name of the Project	VoyageEase - Simplifying Travel Management with DBMS	
Details of Project Members		
Batch	**Roll No.**	**Name**
B1	A075	Deepak R Jain
Date of Submission : 02 / 04 / 2024		

Contribution of each project Members:

Roll No.	Name:	Contribution
A075	Deepak R Jain	Entire project

Github link of your project : https://github.com/deepakrjain/VoyageEase

Note:

1. Create a readme file if you have multiple files
2. All files must be properly named (Example:R004_DBMSProject)
3. Submit all relevant files of your work (Report, all SQL files, Any other files)
4. **Plagiarism is highly discouraged (Your report will be checked for plagiarism)**

Rubrics for the Project evaluation:

First phase of evaluation: Innovative Ideas (5 Marks) Design and Partial implementation (5 Marks)	10 marks
Final phase of evaluation Implementation, presentation and viva, Self-Learning and Learning Beyond classroom	10 marks

Project Report

VoyageEase - Simplifying Travel Management with DBMS

By

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Course: DBMS

AY: 2023-24

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I. Storyline

VoyageEase is a comprehensive travel management system leveraging the capabilities of a robust Database Management System (DBMS). It offers users a user-friendly platform for planning, booking, and managing travel itineraries efficiently.

Embark on your next adventure with VoyageEase, a comprehensive travel management system powered by a robust Database Management System (DBMS). Outlined to offer users a seamless platform for planning, booking, and managing travel itineraries, VoyageEase is the ultimate solution for travelers seeking convenience and efficiency.

Meet Sarah, an enthusiastic traveler eager to plan her next journey using VoyageEase. Logging in, Sarah can easiky make a personalized itinerary by entering her basic information and travel preferences. With VoyageEase, Sarah browses through a bunch of travel options, from flights and hotels to activities, all with transparent pricing. Once satisfied, Sarah confirms her bookings directly through the platform, confident in the reliability and convenience offered by VoyageEase.

Behind the scenes, VoyageEase's efficient database management system seamlessly coordinates the various components of Sarah's itinerary, guaranteeing smooth coordination and reliability throughout her journey. As Sarah sets out on her adventure, VoyageEase stands by her side, providing assistance to make her travel experience unforgettable. With VoyageEase, travel management has never been simpler, allowing travelers like Sarah to focus on the joy of exploration while leaving the logistics to the experts.

II. Components of Database Design

Entities and their attributes:-

1. **Passenger**
   Attributes: PassengerID (Primary Key), Name, Email, PhoneNumber, Address, DocumentsID (Foreign Key).

2. **Documents**
   Attributes: DocumentsID (Primary Key), PassportNumber, AadharNumber, DrivingLicense.

3. **Location**
   Attributes: LocationID (Primary Key), Name, Address, Country, Description.

4. **Staff**
   Attributes: StaffID (Primary Key), Name, Role, ContactInformation, LocationID (Foreign Key).

5. **Flight**
   Attributes: FlightID (Primary Key), AirlineID (Foreign Key), DepartureLocation, ArrivalLocation, DepartureDateTime, ArrivalDateTime, Price, Seat.

6. **Airlines**
   Attributes: AirlineID (Primary Key), Name, Contact, LuggageFare, HeadquartersLocation, FleetSize.

7. **Hotel**
   Attributes: HotelID (Primary Key), Name, LocationID (Foreign Key), Address, Tariff, RoomNumber, Description, Ratings.

8. **CarRental**
   Attributes: CarRentalID (Primary Key), CompanyName, LocationID (Foreign Key), CarType, Rates, CarNumber, Contact, Ratings.

9. **Activity**
   Attributes: ActivityID (Primary Key), Name, LocationID (Foreign Key), Description, Price.

10. **Booking**
   Attributes: BookingID (Primary Key), PassengerID (Foreign Key), FlightID (Foreign Key), HotelID (Foreign Key), CarRentalID (Foreign Key), ActivityID (Foreign Key), PackageID (Foreign Key), BookingDate, TotalPrice.

11. **TravelPackage**
   Attributes: PackageID (Primary Key), Name, Description, Price, Includes.

12. **Payment**
   Attributes: PaymentID (Primary Key), BookingID (Foreign Key), PaymentDate, Amount, PaymentMethod.

13. **Review**
   Attributes: ReviewID (Primary Key), BookingID (Foreign Key), Rating, Comment, Date.

Relationships:-

- **Passenger - Booking (Makes)**
  Cardinality: One-to-Many (1:N)
  Participation: Mandatory on Passenger side, Optional on Booking side.

- **Passenger - Documents (Owns)**
  Cardinality: One-to-One (1:1)
  Participation: Mandatory on Passenger side, Mandatory on Documents side.

- **Location - Hotel (Located)**
  Cardinality: One-to-Many (1:N)
  Participation: Mandatory on Location side, Optional on Hotel side.

- **Location - CarRental (Located)**
  Cardinality: One-to-Many (1:N)
  Participation: Mandatory on Location side, Optional on CarRental side.

- **TravelPackage - Booking (Includes)**
  Cardinality: One-to-One (1:1)
  Participation: Mandatory on TravelPackage side, Mandatory on Booking side.

- **Booking - Flight (Includes)**
  Cardinality: One-to-Many (1:N)
  Participation: Mandatory on Booking side, Optional on Flight side.

- **Booking - Activity (Includes)**
  Cardinality: Many-to-Many (M:N)
  Participation: Optional on Booking side, Optional on Activity side.

- **Booking - Hotel (Includes)**
  Cardinality: Many-to-Many (M:N)
  Participation: Optional on Booking side, Optional on Hotel side.

- **Booking - CarRental (Includes)**
  Cardinality: One-to-Many (1:N)
  Participation: Mandatory on Booking side, Optional on CarRental side.

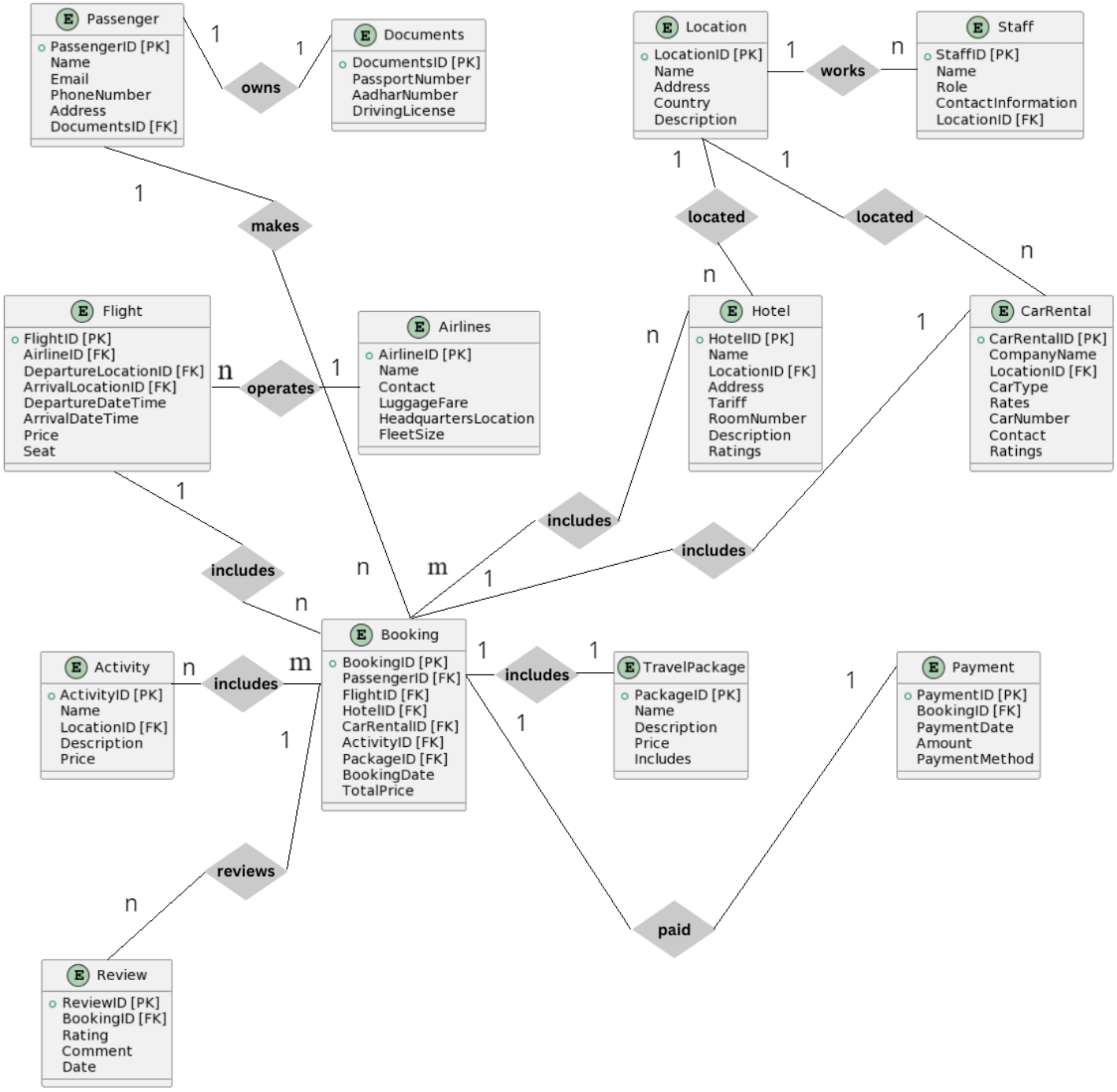
- **Payment - Booking (Paid)**
  Cardinality: One-to-One (1:1)
  Participation: Mandatory on Payment side, Mandatory on Booking side.

- **Review - Booking (Reviews)**
  Cardinality: One-to-Many (1:N)
  Participation: Mandatory on Review side, Optional on Booking side.

- **Flight - Airlines (Operates)**
  Cardinality: Many-to-One (N:1)
  Participation: Optional on Flight side, Mandatory on Airlines side.

- **Staff - Location (Works)**
  Cardinality: Many-to-One (N:1)
  Participation: Optional on Staff side, Mandatory on Location side.

III. Entity Relationship Diagram



IV. Relational Model

Tables obtained after converting to Relational Model:-

Passenger owns (PassengerID, Name, Email, PhoneNumber, Address, DocumentsID [FK])

Documents (DocumentsID, PassportNumber, AadharNumber, DrivingLicense)

Location (LocationID, Name, Address, Country, Description)

Staff works (StaffID, Name, Role, ContactInformation, LocationID [FK])

Flight operates (FlightID, AirlineID [FK], DepartureLocation, ArrivalLocation, DepartureDateTime, ArrivalDateTime, Price, Seat)

Airlines (AirlineID, Name, Contact, LuggageFare, HeadquartersLocation, FleetSize)

Booking (BookingID, PassengerID [FK], FlightID [FK], HotelID [FK], CarRentalID [FK], ActivityID [FK], PackageID [FK], BookingDate, TotalPrice)

Hotel includes (HotelID, Name, LocationID [FK], Address, Tariff, RoomNumber, Description, Ratings, BookingID)

CarRental includes (CarRentalID, CompanyName, LocationID [FK], CarType, Rates, CarNumber, Contact, Ratings, Booking ID)

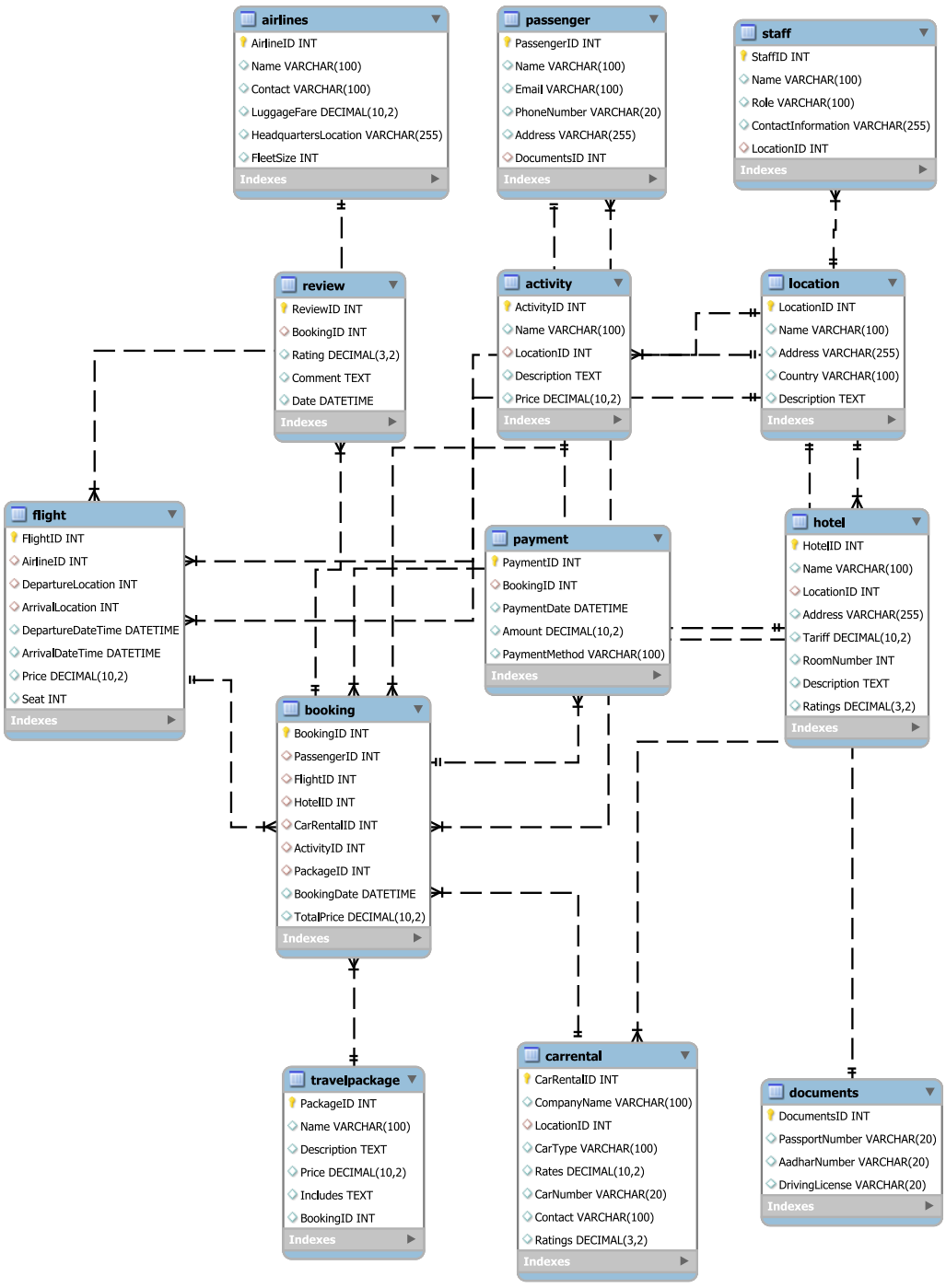
Activity (ActivityID, Name, LocationID [FK], Description, Price)

includes (Booking ID, Activity ID)

TravelPackage includes (PackageID, Name, Description, Price, Includes, BookingID)

Payment paid (PaymentID, BookingID [FK], PaymentDate, Amount, PaymentMethod)

Review reviews (ReviewID, BookingID [FK], Rating, Comment, Date)



Relational Model

V. Normalization

Based on the analysis performed by me, all tables are in 1NF, 2NF and 3NF. However, some tables (Flight, Hotel, CarRental, Booking, and Payment) may require further normalization to ensure Boyce-Codd Normal Form (BCNF). We need to identify and remove any functional dependencies that violate BCNF in these tables.

Flight Table:

The Flight table has the following attributes:
FlightID (Primary Key)
AirlineID (Foreign Key)
DepartureLocation
ArrivalLocation
DepartureDateTime
ArrivalDateTime
Price
Seat

To ensure BCNF, we need to check for functional dependencies and ensure that there are no non-trivial functional dependencies where a determinant is not a superkey. In the Flight table, there are no apparent partial dependencies or transitive dependencies. The primary key (FlightID) uniquely identifies each tuple, and all other attributes are fully functionally dependent on the primary key. Therefore, the Flight table is already in BCNF.

Hotel Table:

The Hotel table has the following attributes:
HotelID (Primary Key)
Name
LocationID (Foreign Key)
Address
Tariff
RoomNumber
Description
Ratings

Similar to the Flight table, the Hotel table does not exhibit any partial dependencies or transitive dependencies. Each attribute is fully functionally dependent on the primary key (HotelID). Hence, the Hotel table is already in BCNF.

CarRental Table:

The CarRental table has the following attributes:
CarRentalID (Primary Key)
CompanyName
LocationID (Foreign Key)
CarType
Rates
CarNumber
Contact
Ratings

As with the previous tables, there are no partial dependencies or transitive dependencies in the CarRental table. Each attribute is fully functionally dependent on the primary key (CarRentalID). Therefore, the CarRental table is already in BCNF.

Booking Table:
The Booking table has the following attributes:

BookingID (Primary Key)
PassengerID (Foreign Key)
FlightID (Foreign Key)
HotelID (Foreign Key)
CarRentalID (Foreign Key)
ActivityID (Foreign Key)
PackageID (Foreign Key)
BookingDate
TotalPrice

The Booking table is a junction table that may require normalization to ensure BCNF. We need to analyze the functional dependencies to ensure that no non-trivial functional dependencies exist where a determinant is not a superkey. From the table structure of Booking, we can infer the following functional dependencies:

BookingID -> BookingDate, TotalPrice
PassengerID -> BookingID
FlightID -> BookingID
HotelID -> BookingID
CarRentalID -> BookingID
ActivityID -> BookingID
PackageID -> BookingID

Based on the identified functional dependencies, we can decompose the Booking table into the following tables:

Booking_Details Table:
BookingID (Primary Key)
BookingDate
TotalPrice

Passenger_Booking Table:
PassengerID (Primary Key)
BookingID (Foreign Key)

Flight_Booking Table:
FlightID (Primary Key)
BookingID (Foreign Key)

Hotel_Booking Table:
HotelID (Primary Key)
BookingID (Foreign Key)

CarRental_Booking Table:
CarRentalID (Primary Key)
BookingID (Foreign Key)

Activity_Booking Table:
ActivityID (Primary Key)
BookingID (Foreign Key)

Package_Booking Table:
PackageID (Primary Key)
BookingID (Foreign Key)

By decomposing the Booking table into these smaller tables, we ensure that the database schema is normalized up to BCNF, eliminating any redundancy and ensuring data integrity.

VI. SQL Queries

Using a DBMS software (SQLite3 or MySQL or any other of your choice):

- Create the tables
- Populate the tables (insert some meaningful data, at least 10 tuples for each relation)
- Run SQL queries (minimum 20) covering **all concepts** learned in the class

This section should contain the question, SQL code, and the output snapshot for each query.

Creating the database

```
CREATE DATABASE voyageease;
USE voyageease;
```

Creating the tables

```
CREATE TABLE Documents (
   DocumentsID INT PRIMARY KEY,
   PassportNumber VARCHAR(20),
   AadharNumber VARCHAR(20),
   DrivingLicense VARCHAR(20)
);

CREATE TABLE Passenger (
   PassengerID INT PRIMARY KEY,
   Name VARCHAR(100),
   Email VARCHAR(100),
   PhoneNumber VARCHAR(20),
   Address VARCHAR(255),
   DocumentsID INT,
   FOREIGN KEY (DocumentsID) REFERENCES Documents(DocumentsID)
);

CREATE TABLE Location (
   LocationID INT PRIMARY KEY,
   Name VARCHAR(100),
   Address VARCHAR(255),
   Country VARCHAR(100),
   Description TEXT
);

CREATE TABLE Staff (
```

```
    StaffID INT PRIMARY KEY,
    Name VARCHAR(100),
    Role VARCHAR(100),
    ContactInformation VARCHAR(255),
    LocationID INT,
    FOREIGN KEY (LocationID) REFERENCES Location(LocationID)
);

CREATE TABLE Airlines (
    AirlineID INT PRIMARY KEY,
    Name VARCHAR(100),
    Contact VARCHAR(100),
    LuggageFare DECIMAL(10, 2),
    HeadquartersLocation VARCHAR(255),
    FleetSize INT
);

CREATE TABLE Flight (
    FlightID INT PRIMARY KEY,
    AirlineID INT,
    DepartureLocation INT,
    ArrivalLocation INT,
    DepartureDateTime DATETIME,
    ArrivalDateTime DATETIME,
    Price DECIMAL(10, 2),
    Seat INT,
    FOREIGN KEY (AirlineID) REFERENCES Airlines(AirlineID),
    FOREIGN KEY (DepartureLocation) REFERENCES Location(LocationID),
    FOREIGN KEY (ArrivalLocation) REFERENCES Location(LocationID)
);

CREATE TABLE Hotel (
    HotelID INT PRIMARY KEY,
    Name VARCHAR(100),
    LocationID INT,
    Address VARCHAR(255),
    Tariff DECIMAL(10, 2),
    RoomNumber INT,
    Description TEXT,
    Ratings DECIMAL(3, 2),
    FOREIGN KEY (LocationID) REFERENCES Location(LocationID)
);

CREATE TABLE CarRental (
    CarRentalID INT PRIMARY KEY,
    CompanyName VARCHAR(100),
```

```
    LocationID INT,
    CarType VARCHAR(100),
    Rates DECIMAL(10, 2),
    CarNumber VARCHAR(20),
    Contact VARCHAR(100),
    Ratings DECIMAL(3, 2),
    FOREIGN KEY (LocationID) REFERENCES Location(LocationID)
);

CREATE TABLE Activity (
    ActivityID INT PRIMARY KEY,
    Name VARCHAR(100),
    LocationID INT,
    Description TEXT,
    Price DECIMAL(10, 2),
    FOREIGN KEY (LocationID) REFERENCES Location(LocationID)
);

CREATE TABLE Booking (
    BookingID INT PRIMARY KEY,
    PassengerID INT,
    FlightID INT,
    HotelID INT,
    CarRentalID INT,
    ActivityID INT,
    PackageID INT,
    BookingDate DATETIME,
    TotalPrice DECIMAL(10, 2),
    FOREIGN KEY (PassengerID) REFERENCES Passenger(PassengerID),
    FOREIGN KEY (FlightID) REFERENCES Flight(FlightID),
    FOREIGN KEY (HotelID) REFERENCES Hotel(HotelID),
    FOREIGN KEY (CarRentalID) REFERENCES CarRental(CarRentalID),
    FOREIGN KEY (ActivityID) REFERENCES Activity(ActivityID),
    FOREIGN KEY (PackageID) REFERENCES TravelPackage(PackageID)
);

CREATE TABLE TravelPackage (
    PackageID INT PRIMARY KEY,
    Name VARCHAR(100),
    Description TEXT,
    Price DECIMAL(10, 2),
    Includes TEXT,
    BookingID INT
);

CREATE TABLE Payment (
```

```
    PaymentID INT PRIMARY KEY,
    BookingID INT,
    PaymentDate DATETIME,
    Amount DECIMAL(10, 2),
    PaymentMethod VARCHAR(100),
    FOREIGN KEY (BookingID) REFERENCES Booking(BookingID)
);

CREATE TABLE Review (
    ReviewID INT PRIMARY KEY,
    BookingID INT,
    Rating DECIMAL(3, 2),
    Comment TEXT,
    Date DATETIME,
    FOREIGN KEY (BookingID) REFERENCES Booking(BookingID)
);
```

Inserting 10 tuples in each table

```
INSERT INTO Location (LocationID, Name, Address, Country, Description) VALUES
(1, 'Teens Park', '66 Street, Moscow, Russia', 'Russia', 'Best for teenagers who love to skate'),
(2, 'Sunset Beach', '123 Ocean Drive, Honolulu, Hawaii', 'USA', 'Beautiful beach with stunning sunsets'),
(3, 'Mountain View Lodge', '42 Alpine Way, Geneva, Switzerland', 'Switzerland', 'Scenic lodge nestled in the Swiss Alps'),
(4, 'City Lights Plaza', '10 Broadway, New York City, USA', 'USA', 'Vibrant plaza surrounded by skyscrapers'),
(5, 'Tranquil Forest Retreat', 'Greenwood Road, Vancouver, Canada', 'Canada', 'Peaceful getaway surrounded by nature'),
(6, 'Serenity Valley', '25 Peaceful Lane, Kyoto, Japan', 'Japan', 'Tranquil valley with cherry blossom trees'),
(7, 'Golden Sands Resort', '7 Beachfront Road, Gold Coast, Australia', 'Australia', 'Luxurious beachfront resort with golden sands'),
(8, 'Alpine Chalet', '15 Snowy Peaks Way, Innsbruck, Austria', 'Austria', 'Cozy chalet with stunning mountain views'),
(9, 'Riverside Retreat', '88 Riverbank Avenue, Paris, France', 'France', 'Charming retreat along the Seine River'),
(10, 'Desert Oasis', 'Wadi Rum, Petra, Jordan', 'Jordan', 'Magical oasis amidst the desert sands');


INSERT INTO Airlines (AirlineID, Name, Contact, LuggageFare, HeadquartersLocation, FleetSize)
VALUES
(1, 'ABC Airlines', 'contact@abc.com', 25.00, 'Headquarters Address', 20),
```

(2, 'SkyHigh Airways', 'info@skyhigh.com', 30.00, 'SkyHigh Tower, Aviation Avenue, London, UK', 30),
(3, 'StarJet Airlines', 'info@starjet.com', 28.50, 'StarJet Plaza, Skyline Road, Los Angeles, USA', 25),
(4, 'Pacific Wings', 'contact@pacificwings.com', 35.00, 'Pacific Towers, Beachfront Avenue, Sydney, Australia', 40),
(5, 'Alpine Air', 'info@alpineair.com', 32.00, 'Alpine Chalet, Mountain View Drive, Zurich, Switzerland', 35),
(6, 'Tropical Airways', 'info@tropicalairways.com', 27.50, 'Tropical Terminal, Island Resort Road, Bali, Indonesia', 20),
(7, 'Northern Lights Airlines', 'info@northernlights.com', 33.00, 'Aurora Avenue, Iceberg Plaza, Reykjavik, Iceland', 30),
(8, 'Safari Skies', 'info@safariskies.com', 40.00, 'Safari Headquarters, Savannah Street, Nairobi, Kenya', 25),
(9, 'Mystic Airways', 'info@mysticairways.com', 29.50, 'Mystic Tower, Enchanted Avenue, New Orleans, USA', 20),
(10, 'Royal Wings', 'info@royalwings.com', 36.00, 'Royal Palace, Regal Road, London, UK', 25);

INSERT INTO Staff (StaffID, Name, Role, ContactInformation, LocationID) VALUES
(1, 'Alice Smith', 'Manager', '9876543210', 1),
(2, 'Michael Johnson', 'Front Desk Clerk', '9876543211', 2),
(3, 'Emily Brown', 'Concierge', '9876543212', 3),
(4, 'David Lee', 'Housekeeping Supervisor', '9876543213', 4),
(5, 'Jennifer Davis', 'Restaurant Manager', '9876543214', 5),
(6, 'Daniel Wilson', 'Maintenance Technician', '9876543215', 6),
(7, 'Jessica Taylor', 'Security Guard', '9876543216', 7),
(8, 'Andrew Martinez', 'Bellboy', '9876543217', 8),
(9, 'Sophia White', 'Event Coordinator', '9876543218', 9),
(10, 'Matthew Anderson', 'Accountant', '9876543219', 10);

INSERT INTO Documents (DocumentsID, PassportNumber, AadharNumber, DrivingLicense) VALUES
(110, 'AB123456', '123456789012', 'DL123456'),
(111, 'CD123457', '234567890123', 'DL123457'),
(112, 'EF123458', '345678901234', 'DL123458'),
(113, 'GH123459', '456789012345', 'DL123459'),
(114, 'IJ123460', '567890123456', 'DL123460'),
(115, 'KL123461', '678901234567', 'DL123461'),
(116, 'MN123462', '789012345678', 'DL123462'),
(117, 'OP123463', '890123456789', 'DL123463'),
(118, 'QR123464', '901234567890', 'DL123464'),
(119, 'ST123465', '012345678901', 'DL123465');

INSERT INTO Passenger (PassengerID, Name, Email, PhoneNumber, Address, DocumentsID) VALUES
(1, 'John Doe', 'john27@gmail.com', '8465189462', '123 Main St, Perth, Australia', 110),
(2, 'Mark Smith', 'msmith@yahoo.com', '5635106841', '59/D Rose St, London, UK', 111),

(3, 'Rahul Patil', 'rp20@yahoo.com', '6625105847', 'ABC Colony, Delhi, India', 112),
(4, 'MS Kohli', 'msk18@gmail.com', '7181874777', '18/7 Block, Bangalore, India', 113),
(5, 'AB Rayudu', 'abrocks@gmail.com', '2220106841', '32/F Bankers St, London, UK', 114),
(6, 'Mark Black', 'imblack@yahoo.com', '9999985541', 'Blacks Hood, Florida, USA', 115),
(7, 'Tool Smith', 'tools@yahoo.com', '2156541856', 'WBC Colony, Ohio, USA', 116),
(8, 'Rose Monk', 'rosemonk@gamil.com', '6524969841', '34/D, Manchester, UK', 117),
(9, 'Jessica Shylock', 'jess@yahoo.com', '5935222841', 'XYZ St, Egypt, Africa', 118),
(10, 'Amir Khan', 'ak47@gmail.com', '6478247860', 'Galaxy Towers, Kabul, Afghanistan', 119);

INSERT INTO Flight (FlightID, AirlineID, DepartureLocation, ArrivalLocation, DepartureDateTime, ArrivalDateTime, Price, Seat) VALUES
(110, 2, 4, 2, '2024-03-20 08:00:00', '2024-03-20 10:00:00', 150.00, 25),
(111, 1, 1, 3, '2024-03-21 10:00:00', '2024-03-21 14:00:00', 200.00, 30),
(112, 3, 2, 1, '2024-03-22 12:00:00', '2024-03-22 15:00:00', 180.00, 20),
(113, 4, 3, 5, '2024-03-23 15:00:00', '2024-03-23 18:00:00', 220.00, 35),
(114, 5, 4, 4, '2024-03-24 08:00:00', '2024-03-24 10:00:00', 170.00, 25),
(115, 2, 5, 3, '2024-03-25 11:00:00', '2024-03-25 13:00:00', 190.00, 30),
(116, 3, 6, 1, '2024-03-26 14:00:00', '2024-03-26 16:00:00', 210.00, 25),
(117, 1, 7, 5, '2024-03-27 16:00:00', '2024-03-27 19:00:00', 230.00, 35),
(118, 5, 8, 2, '2024-03-28 09:00:00', '2024-03-28 11:00:00', 180.00, 20),
(119, 4, 9, 4, '2024-03-29 13:00:00', '2024-03-29 15:00:00', 200.00, 30);

INSERT INTO Hotel (HotelID, Name, LocationID, Address, Tariff, RoomNumber, Description, Ratings) VALUES
(1, 'Deluxe Land', 1, '66 St, Moscow, Russia', 200.00, 101, 'Cozy rooms for your perfect staycation', 3.5),
(2, 'Sunset View', 2, '59/D Rose St, London, UK', 180.00, 202, 'Enjoy the beautiful sunset from your room', 4.2),
(3, 'Cityscape Inn', 3, 'ABC Colony, Delhi, India', 220.00, 303, 'Get mesmerized by the city lights from your window', 4.7),
(4, 'Mountain Retreat', 4, '18/7 Block, Bangalore, India', 170.00, 404, 'Relax in the lap of nature with stunning mountain views', 4.3),
(5, 'Beachfront Resort', 5, '32/F Bankers St, London, UK', 190.00, 505, 'Step out onto the sandy beach right from your room', 3.6),
(6, 'Lakeside Lodge', 6, 'Blacks Hood, Florida, USA', 210.00, 606, 'Experience serenity with a room overlooking the lake', 4.4),
(7, 'Green Valley Hotel', 7, 'WBC Colony, Ohio, USA', 230.00, 707, 'Surrounded by lush greenery for a refreshing stay', 3.2),
(8, 'Cosmopolitan Suites', 8, '34/D, Manchester, UK', 180.00, 808, 'Modern and chic rooms in the heart of the city', 4.5),
(9, 'Desert Oasis Resort', 9, 'XYZ St, Egypt, Africa', 200.00, 909, 'Escape to luxury amidst the desert landscape', 3.9),
(10, 'Royal Palace Hotel', 10, 'Galaxy Towers, Kabul, Afghanistan', 190.00, 1010, 'Experience royal treatment fit for a king', 4.7);

INSERT INTO CarRental (CarRentalID, CompanyName, LocationID, CarType, Rates, CarNumber, Contact, Ratings) VALUES
(101, 'Speedy Wheels', 1, 'SUV', 50.00, 'RU-1234', '1234567890', 4.5),
(102, 'CityDrive Rentals', 2, 'Sedan', 40.00, 'UK-5678', '2345678901', 4.2),
(103, 'Metro Motors', 3, 'Hatchback', 30.00, 'IN-3456', '3456789012', 2.7),
(104, 'Breezy Rentals', 4, 'Convertible', 60.00, 'IN-6789', '4567890123', 3.3),
(105, 'Beach Buggy Rentals', 5, 'Beach Buggy', 70.00, 'UK-9876', '5678901234', 4.6),
(106, 'Sunrise Rentals', 6, 'SUV', 55.00, 'US-2345', '6789012345', 4.4),
(107, 'Highway Wheels', 7, 'Sedan', 45.00, 'US-5678', '7890123456', 3.8),
(108, 'Green Drive', 8, 'Electric', 65.00, 'UK-7654', '8901234567', 4.5),
(109, 'Desert Drive', 9, '4x4', 75.00, 'EG-1234', '9012345678', 2.9),
(110, 'Mountain Motors', 10, 'Jeep', 80.00, 'AF-6789', '0123456789', 4.7);

INSERT INTO Activity (ActivityID, Name, LocationID, Description, Price) VALUES
(110, 'Sightseeing Tour', 5, 'Guided tour of the city', 30.00),
(111, 'Boat Cruise', 2, 'Relaxing boat trip along the Thames', 40.00),
(112, 'City Walking Tour', 3, 'Explore historical landmarks on foot', 20.00),
(113, 'Mountain Hiking', 10, 'Guided hike through scenic mountain trails', 50.00),
(114, 'Beach Volleyball', 9, 'Enjoy a game of volleyball on the sandy beach', 25.00),
(115, 'Wine Tasting Tour', 7, 'Discover local vineyards and sample wines', 35.00),
(116, 'Safari Adventure', 9, 'Exciting safari experience in the African wilderness', 75.00),
(117, 'Scuba Diving', 5, 'Explore underwater marine life with professional divers', 60.00),
(118, 'Cultural Heritage Tour', 3, 'Immerse in the rich cultural heritage of the city', 30.00),
(119, 'Amusement Park Visit', 1, 'Thrilling rides and entertainment for all ages', 45.00);

INSERT INTO TravelPackage (PackageID, Name, Description, Price, Includes) VALUES
(110, 'Economical Fare', 'Enjoy trips on a budget', 575.75, 'Hotel, Activity'),
(111, 'Deluxe Trip', 'King size trip for the ones who live life king size', 6499.00, 'Flight, Hotel, Activity'),
(112, 'Romantic Getaway', 'Escape with your loved one for a romantic retreat', 999.99, 'Hotel, Activity'),
(113, 'Family Vacation', 'Fun-filled vacation package for the whole family', 2499.50, 'Flight, Hotel, Activity'),
(114, 'Cultural Immersion Tour', 'Immerse yourself in the local culture and traditions', 799.00, 'Activity'),
(115, 'Luxury Cruise', 'Indulge in luxury aboard a lavish cruise ship', 4999.99, 'Activity'),
(116, 'Wellness Retreat', 'Relax and rejuvenate with holistic wellness treatments', 1999.75, 'Hotel, Activity'),
(117, 'Backpacking Adventure', 'Experience the thrill of backpacking through exotic destinations', 899.50, 'Hotel, Activity'),
(118, 'Foodie Delight', 'Savor culinary delights with gourmet food tours and tastings', 349.50, 'Activity'),
(119, 'Adventure Expedition', 'Embark on thrilling adventures across diverse landscapes', 1499.00, 'Flight, Hotel, Activity');

```
INSERT INTO Booking (BookingID, PassengerID, FlightID, HotelID, CarRentalID, ActivityID,
PackageID, BookingDate, TotalPrice) VALUES
(1, 1, 110, 1, 101, 110, 112, '2024-03-15', 650.00),
(2, 2, 111, 2, NULL, NULL, 113, '2024-03-16', 2200.00),
(3, 3, 112, NULL, NULL, 113, NULL, '2024-03-17', 200.00),
(4, 4, NULL, 3, NULL, 114, 114, '2024-03-18', 824.00),
(5, 5, 113, NULL, NULL, NULL, 111, '2024-03-19', 2499.50),
(6, 6, 114, 5, 103, 115, 116, '2024-03-20', 305.00),
(7, 7, 115, 6, NULL, 116, 117, '2024-03-21', 2499.75),
(8, 8, 116, 7, NULL, NULL, 118, '2024-03-22', 899.50),
(9, 9, NULL, 8, 106, 117, NULL, '2024-03-23', 230.00),
(10, 10, 117, NULL, 110, NULL, 119, '2024-03-24', 6499.00);

INSERT INTO Payment (PaymentID, BookingID, PaymentDate, Amount, PaymentMethod) VALUES
(101, 1, '2024-03-16', 650.00, 'Credit Card'),
(102, 2, '2024-03-16', 2200.00, 'Debit Card'),
(103, 3, '2024-03-17', 200.00, 'Cash'),
(104, 4, '2024-03-18', 824.00, 'Credit Card'),
(105, 5, '2024-03-19', 2499.50, 'Debit Card'),
(106, 6, '2024-03-20', 305.00, 'Credit Card'),
(107, 7, '2024-03-21', 2499.75, 'Credit Card'),
(108, 8, '2024-03-22', 899.50, 'Debit Card'),
(109, 9, '2024-03-23', 230.00, 'Cash'),
(110, 10, '2024-03-24', 6499.00, 'Credit Card');

INSERT INTO Review (ReviewID, BookingID, Rating, Comment, Date) VALUES
(101, 1, 4, 'Great experience, highly recommended', '2024-03-17'),
(102, 2, 5, 'Amazing service and comfortable stay', '2024-03-18'),
(103, 4, 4, 'Good location and clean rooms', '2024-03-19'),
(104, 5, 5, 'Fantastic vacation package, loved it!', '2024-03-20'),
(105, 7, 3, 'Average experience, room for improvement', '2024-03-21'),
(106, 8, 4, 'Excellent food and friendly staff', '2024-03-22'),
(107, 9, 2, 'Disappointing service, expected better', '2024-03-23'),
(108, 10, 5, 'Unforgettable trip, worth every penny', '2024-03-24'),
(109, 6, 4, 'Relaxing retreat, would visit again', '2024-03-25'),
(110, 3, 5, 'Incredible adventure, exceeded expectations', '2024-03-26');
```

Queries to demonstrate the capabilities of the database

-- Retrieve passenger information along with their associated documents
SELECT Passenger.Name, Passenger.Email, Documents.PassportNumber, Documents.AadharNumber, Documents.DrivingLicense
FROM Passenger
JOIN Documents ON Passenger.DocumentsID = Documents.DocumentsID;

```
7   -- Retrieve passenger information along with their associated documents
8   SELECT Passenger.Name, Passenger.Email, Documents.PassportNumber, Documents.AadharNumber, Documents.DrivingLicense
9   FROM Passenger
10  JOIN Documents ON Passenger.DocumentsID = Documents.DocumentsID;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	Email	PassportNumber	AadharNumber	DrivingLicense
John Doe	john27@gmail.com	AB123456	123456789012	DL123456
Mark Smith	msmith@yahoo.com	CD123457	234567890123	DL123457
Rahul Patil	rp20@yahoo.com	EF123458	345678901234	DL123458
MS Kohli	msk18@gmail.com	GH123459	456789012345	DL123459
AB Rayudu	abrocks@gmail.com	IJ123460	567890123456	DL123460
Mark Black	imblack@yahoo.com	KL123461	678901234567	DL123461
Tool Smith	tools@yahoo.com	MN123462	789012345678	DL123462
Rose Monk	rosemonk@gamil.com	OP123463	890123456789	DL123463
Jessica Shylock	jess@yahoo.com	QR123464	901234567890	DL123464
Amir Khan	ak47@gmail.com	ST123465	012345678901	DL123465

-- Add a new location to the Location table
INSERT INTO Location (LocationID, Name, Address, Country, Description)
VALUES (11, 'Tropical Paradise', '123 Palm Beach Road, Fiji', 'Fiji', 'Exotic island destination with pristine beaches');
SELECT * FROM Location;

```
8   -- Add a new location to the Location table
9   INSERT INTO Location (LocationID, Name, Address, Country, Description)
10  VALUES (11, 'Tropical Paradise', '123 Palm Beach Road, Fiji', 'Fiji', 'Exotic island destination with pristine beaches');
11  SELECT * FROM Location;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

LocationID	Name	Address	Country	Description
1	Teens Park	66 Street, Moscow, Russia	Russia	Best for teenagers who love to skate
2	Sunset Beach	123 Ocean Drive, Honolulu, Hawaii	USA	Beautiful beach with stunning sunsets
3	Mountain View Lodge	42 Alpine Way, Geneva, Switzerland	Switzerland	Scenic lodge nestled in the Swiss Alps
4	City Lights Plaza	10 Broadway, New York City, USA	USA	Vibrant plaza surrounded by skyscrapers
5	Tranquil Forest Retreat	Greenwood Road, Vancouver, Canada	Canada	Peaceful getaway surrounded by nature
6	Serenity Valley	25 Peaceful Lane, Kyoto, Japan	Japan	Tranquil valley with cherry blossom trees
7	Golden Sands Resort	7 Beachfront Road, Gold Coast, Australia	Australia	Luxurious beachfront resort with golden sands
8	Alpine Chalet	15 Snowy Peaks Way, Innsbruck, Austria	Austria	Cozy chalet with stunning mountain views
9	Riverside Retreat	88 Riverbank Avenue, Paris, France	France	Charming retreat along the Seine River
10	Desert Oasis	Wadi Rum, Petra, Jordan	Jordan	Magical oasis amidst the desert sands
11	Tropical Paradise	123 Palm Beach Road, Fiji	Fiji	Exotic island destination with pristine beaches

-- Remove a staff member from the Staff table based on their StaffID
DELETE FROM Staff WHERE StaffID = 10;
SELECT * FROM Staff;

```
13      -- Remove a staff member from the Staff table based on their StaffID
14 •    DELETE FROM Staff WHERE StaffID = 10;
15 •    SELECT * FROM Staff;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

StaffID	Name	Role	ContactInformation	LocationID
1	Alice Smith	Manager	9876543210	1
2	Michael Johnson	Front Desk Clerk	9876543211	2
3	Emily Brown	Concierge	9876543212	3
4	David Lee	Housekeeping Supervisor	9876543213	4
5	Jennifer Davis	Restaurant Manager	9876543214	5
6	Daniel Wilson	Maintenance Technician	9876543215	6
7	Jessica Taylor	Security Guard	9876543216	7
8	Andrew Martinez	Bellboy	9876543217	8
9	Sophia White	Event Coordinator	9876543218	9
NULL	NULL	NULL	NULL	NULL

-- Update the role of a staff member in the Staff table
UPDATE Staff SET Role = 'Senior Concierge' WHERE StaffID = 3;
SELECT * FROM Staff;

```
17      -- Update the role of a staff member in the Staff table
18 •    UPDATE Staff SET Role = 'Senior Concierge' WHERE StaffID = 3;
19 •    SELECT * FROM Staff;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

StaffID	Name	Role	ContactInformation	LocationID
1	Alice Smith	Manager	9876543210	1
2	Michael Johnson	Front Desk Clerk	9876543211	2
3	Emily Brown	Senior Concierge	9876543212	3
4	David Lee	Housekeeping Supervisor	9876543213	4
5	Jennifer Davis	Restaurant Manager	9876543214	5
6	Daniel Wilson	Maintenance Technician	9876543215	6
7	Jessica Taylor	Security Guard	9876543216	7
8	Andrew Martinez	Bellboy	9876543217	8
9	Sophia White	Event Coordinator	9876543218	9
NULL	NULL	NULL	NULL	NULL

-- Fetch all flights either departing from or arriving at a
-- specific location (in this case, LocationID 3)
SELECT * FROM Flight
WHERE DepartureLocation = 3 OR ArrivalLocation = 3;

```
21      -- Fetch all flights either departing from or arriving at a
22      -- specific location (in this case, LocationID 3)
23 •    SELECT * FROM Flight
24      WHERE DepartureLocation = 3 OR ArrivalLocation = 3;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

FlightID	AirlineID	DepartureLocation	ArrivalLocation	DepartureDateTime	ArrivalDateTime	Price	Seat
111	1	1	3	2024-03-21 10:00:00	2024-03-21 14:00:00	200.00	30
113	4	3	5	2024-03-23 15:00:00	2024-03-23 18:00:00	220.00	35
115	2	5	3	2024-03-25 11:00:00	2024-03-25 13:00:00	190.00	30
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

-- Retrieve all hotel services with ratings above 4
SELECT * FROM Hotel WHERE Ratings > 4;

```
26      -- Retrieve all hotel services with ratings above 4
27 •    SELECT * FROM Hotel WHERE Ratings > 4;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

HotelID	Name	LocationID	Address	Tariff	RoomNumber	Description	Ratings
2	Sunset View	2	59/D Rose St, London, UK	180.00	202	Enjoy the beautiful sunset from your room	4.20
3	Cityscape Inn	3	ABC Colony, Delhi, India	220.00	303	Get mesmerized by the city lights from your win...	4.70
4	Mountain Retreat	4	18/7 Block, Bangalore, India	170.00	404	Relax in the lap of nature with stunning mountai...	4.30
6	Lakeside Lodge	6	Blacks Hood, Florida, USA	210.00	606	Experience serenity with a room overlooking th...	4.40
8	Cosmopolitan Suites	8	34/D, Manchester, UK	180.00	808	Modern and chic rooms in the heart of the city	4.50
10	Royal Palace Hotel	10	Galaxy Towers, Kabul, Afghanistan	190.00	1010	Experience royal treatment fit for a king	4.70
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

-- Retrieve all activities with descriptions containing the word 'boat'
SELECT * FROM Activity WHERE Description LIKE '%boat%';

```
29      -- Retrieve all activities with descriptions containing the word 'boat'
30 •    SELECT * FROM Activity WHERE Description LIKE '%boat%';
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Ce

ActivityID	Name	LocationID	Description	Price
111	Boat Cruise	2	Relaxing boat trip along the Thames	40.00
NULL	NULL	NULL	NULL	NULL

```
-- Retrieve all passengers who booked a flight
SELECT Passenger.*
FROM Passenger
JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
WHERE Booking.FlightID IS NOT NULL;
```

```
32      -- Retrieve all passengers who booked a flight
33 •    SELECT Passenger.*
34      FROM Passenger
35      JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
36      WHERE Booking.FlightID IS NOT NULL;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

PassengerID	Name	Email	PhoneNumber	Address	DocumentsID
1	John Doe	john27@gmail.com	8465189462	123 Main St, Perth, Australia	110
2	Mark Smith	msmith@yahoo.com	5635106841	59/D Rose St, London, UK	111
3	Rahul Patil	rp20@yahoo.com	6625105847	ABC Colony, Delhi, India	112
5	AB Rayudu	abrocks@gmail.com	2220106841	32/F Bankers St, London, UK	114
6	Mark Black	imblack@yahoo.com	9999985541	Blacks Hood, Florida, USA	115
7	Tool Smith	tools@yahoo.com	2156541856	WBC Colony, Ohio, USA	116
8	Rose Monk	rosemonk@gamil.com	6524969841	34/D, Manchester, UK	117
10	Amir Khan	ak47@gmail.com	6478247860	Galaxy Towers, Kabul, Afghanistan	119

```
-- Retrieve the total price of all bookings made on a specific date
SELECT SUM(TotalPrice) AS TotalBookingPrice
FROM Booking
WHERE BookingDate = '2024-03-20';
```

```
38      -- Retrieve the total price of all bookings made on a specific date
39 •    SELECT SUM(TotalPrice) AS TotalBookingPrice
40      FROM Booking
41      WHERE BookingDate = '2024-03-20';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

TotalBookingPrice
305.00

-- Retrieve all car rental services with ratings below 4
SELECT * FROM CarRental WHERE Ratings < 4;

```
43      -- Retrieve all car rental services with ratings below 4
44 •    SELECT * FROM CarRental WHERE Ratings < 4;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Co

CarRentalID	CompanyName	LocationID	CarType	Rates	CarNumber	Contact	Ratings
103	Metro Motors	3	Hatchback	30.00	IN-3456	3456789012	2.70
104	Breezy Rentals	4	Convertible	60.00	IN-6789	4567890123	3.30
107	Highway Wheels	7	Sedan	45.00	US-5678	7890123456	3.80
109	Desert Drive	9	4x4	75.00	EG-1234	9012345678	2.90
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

-- Retrieve all bookings with their associated payment information
SELECT Booking.*, Payment.*
FROM Booking
JOIN Payment ON Booking.BookingID = Payment.BookingID;

```
46      -- Retrieve all bookings with their associated payment information
47 •    SELECT Booking.*, Payment.*
48      FROM Booking
49      JOIN Payment ON Booking.BookingID = Payment.BookingID;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

BookingID	PassengerID	FlightID	HotelID	CarRentalID	ActivityID	PackageID	BookingDate	TotalPrice	PaymentID	BookingID	PaymentDate	Amount	PaymentMethod
1	1	110	1	101	110	112	2024-03-15 00:00:00	650.00	101	1	2024-03-16 00:00:00	650.00	Credit Card
2	2	111	2	NULL	NULL	113	2024-03-16 00:00:00	2200.00	102	2	2024-03-16 00:00:00	2200.00	Debit Card
3	3	112	NULL	NULL	113	NULL	2024-03-17 00:00:00	200.00	103	3	2024-03-17 00:00:00	200.00	Cash
4	4	NULL	3	NULL	114	114	2024-03-18 00:00:00	824.00	104	4	2024-03-18 00:00:00	824.00	Credit Card
5	5	113	NULL	NULL	NULL	111	2024-03-19 00:00:00	2499.50	105	5	2024-03-19 00:00:00	2499.50	Debit Card
6	6	114	5	103	115	116	2024-03-20 00:00:00	305.00	106	6	2024-03-20 00:00:00	305.00	Credit Card
7	7	115	6	NULL	116	117	2024-03-21 00:00:00	2499.75	107	7	2024-03-21 00:00:00	2499.75	Credit Card
8	8	116	7	NULL	NULL	118	2024-03-22 00:00:00	899.50	108	8	2024-03-22 00:00:00	899.50	Debit Card
9	9	NULL	8	106	117	NULL	2024-03-23 00:00:00	230.00	109	9	2024-03-23 00:00:00	230.00	Cash
10	10	117	NULL	110	NULL	119	2024-03-24 00:00:00	6499.00	110	10	2024-03-24 00:00:00	6499.00	Credit Card

-- Retrieve all passengers who left a review with a rating of 5
SELECT Passenger.* FROM Passenger
JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
JOIN Review ON Booking.BookingID = Review.BookingID
WHERE Review.Rating = 5;

```
51      -- Retrieve all passengers who left a review with a rating of 5
52 •    SELECT Passenger.* FROM Passenger
53      JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
54      JOIN Review ON Booking.BookingID = Review.BookingID
55      WHERE Review.Rating = 5;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

PassengerID	Name	Email	PhoneNumber	Address	DocumentsID
2	Mark Smith	msmith@yahoo.com	5635106841	59/D Rose St, London, UK	111
5	AB Rayudu	abrocks@gmail.com	2220106841	32/F Bankers St, London, UK	114
10	Amir Khan	ak47@gmail.com	6478247860	Galaxy Towers, Kabul, Afghanistan	119
3	Rahul Patil	rp20@yahoo.com	6625105847	ABC Colony, Delhi, India	112

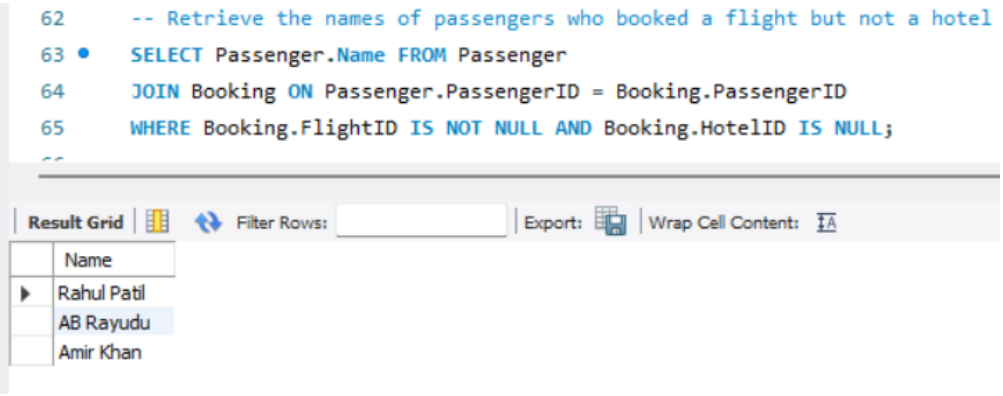
-- Retrieve the names of passengers who booked a flight and a hotel
SELECT Passenger.Name FROM Passenger
JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
WHERE Booking.FlightID IS NOT NULL AND Booking.HotelID IS NOT NULL;

```
57      -- Retrieve the names of passengers who booked a flight and a hotel
58 •    SELECT Passenger.Name FROM Passenger
59      JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
60      WHERE Booking.FlightID IS NOT NULL AND Booking.HotelID IS NOT NULL;
```

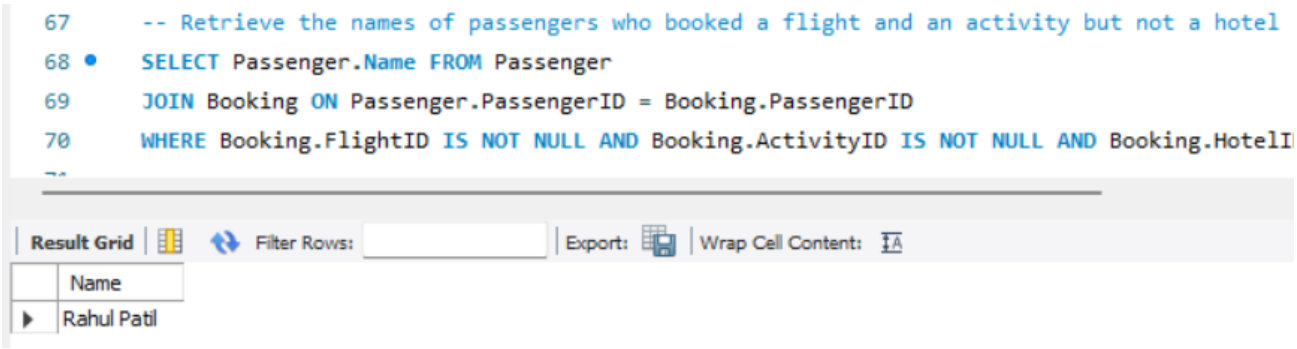
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name
John Doe
Mark Smith
Mark Black
Tool Smith
Rose Monk

-- Retrieve the names of passengers who booked a flight but not a hotel
SELECT Passenger.Name FROM Passenger
JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
WHERE Booking.FlightID IS NOT NULL AND Booking.HotelID IS NULL;



-- Retrieve the names of passengers who booked a flight and an activity but not a hotel
SELECT Passenger.Name FROM Passenger
JOIN Booking ON Passenger.PassengerID = Booking.PassengerID
WHERE Booking.FlightID IS NOT NULL AND Booking.ActivityID IS NOT NULL AND
Booking.HotelID IS NULL;



-- Retrieve all bookings made by passengers from a specific country
SELECT Booking.* FROM Booking
JOIN Passenger ON Booking.PassengerID = Passenger.PassengerID
JOIN Documents ON Passenger.DocumentsID = Documents.DocumentsID
WHERE Passenger.Address like '%UK%';

```
72      -- Retrieve all bookings made by passengers from a specific country
73 •    SELECT Booking.* FROM Booking
74      JOIN Passenger ON Booking.PassengerID = Passenger.PassengerID
75      JOIN Documents ON Passenger.DocumentsID = Documents.DocumentsID
76      WHERE Passenger.Address like '%UK%';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

BookingID	PassengerID	FlightID	HotelID	CarRentalID	ActivityID	PackageID	BookingDate	TotalPrice
2	2	111	2	NULL	NULL	113	2024-03-16 00:00:00	2200.00
5	5	113	NULL	NULL	NULL	111	2024-03-19 00:00:00	2499.50
8	8	116	7	NULL	NULL	118	2024-03-22 00:00:00	899.50

-- Retrieve all unique locations from which flights depart or arrive
SELECT DISTINCT DepartureLocation AS LocationID, Name, Address, Country
FROM Location JOIN Flight ON Location.LocationID = Flight.DepartureLocation
UNION
SELECT DISTINCT ArrivalLocation AS LocationID, Name, Address, Country
FROM Location JOIN Flight ON Location.LocationID = Flight.ArrivalLocation;

```
78      -- Retrieve all unique locations from which flights depart or arrive
79 •    SELECT DISTINCT DepartureLocation AS LocationID, Name, Address, Country
80      FROM Location JOIN Flight ON Location.LocationID = Flight.DepartureLocation
81      UNION
82      SELECT DISTINCT ArrivalLocation AS LocationID, Name, Address, Country
83      FROM Location JOIN Flight ON Location.LocationID = Flight.ArrivalLocation;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

LocationID	Name	Address	Country
1	Teens Park	66 Street, Moscow, Russia	Russia
2	Sunset Beach	123 Ocean Drive, Honolulu, Hawaii	USA
3	Mountain View Lodge	42 Alpine Way, Geneva, Switzerland	Switzerland
4	City Lights Plaza	10 Broadway, New York City, USA	USA
5	Tranquil Forest Retreat	Greenwood Road, Vancouver, Canada	Canada
6	Serenity Valley	25 Peaceful Lane, Kyoto, Japan	Japan
7	Golden Sands Resort	7 Beachfront Road, Gold Coast, Australia	Australia
8	Alpine Chalet	15 Snowy Peaks Way, Innsbruck, Austria	Austria
9	Riverside Retreat	88 Riverbank Avenue, Paris, France	France

-- Retrieve all locations that are both departure and arrival points for flights
SELECT Location.* FROM Location
JOIN Flight AS DepartureFlight ON Location.LocationID = DepartureFlight.DepartureLocation
JOIN Flight AS ArrivalFlight ON Location.LocationID = ArrivalFlight.ArrivalLocation;

```
85      -- Retrieve all locations that are both departure and arrival points for flights
86 •    SELECT Location.* FROM Location
87      JOIN Flight AS DepartureFlight ON Location.LocationID = DepartureFlight.DepartureLocation
88      JOIN Flight AS ArrivalFlight ON Location.LocationID = ArrivalFlight.ArrivalLocation;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

LocationID	Name	Address	Country	Description
1	Teens Park	66 Street, Moscow, Russia	Russia	Best for teenagers who love to skate
1	Teens Park	66 Street, Moscow, Russia	Russia	Best for teenagers who love to skate
2	Sunset Beach	123 Ocean Drive, Honolulu, Hawaii	USA	Beautiful beach with stunning sunsets
2	Sunset Beach	123 Ocean Drive, Honolulu, Hawaii	USA	Beautiful beach with stunning sunsets
3	Mountain View Lodge	42 Alpine Way, Geneva, Switzerland	Switzerland	Scenic lodge nestled in the Swiss Alps
3	Mountain View Lodge	42 Alpine Way, Geneva, Switzerland	Switzerland	Scenic lodge nestled in the Swiss Alps
4	City Lights Plaza	10 Broadway, New York City, USA	USA	Vibrant plaza surrounded by skyscrapers
4	City Lights Plaza	10 Broadway, New York City, USA	USA	Vibrant plaza surrounded by skyscrapers
4	City Lights Plaza	10 Broadway, New York City, USA	USA	Vibrant plaza surrounded by skyscrapers
4	City Lights Plaza	10 Broadway, New York City, USA	USA	Vibrant plaza surrounded by skyscrapers
5	Tranquil Forest Retr...	Greenwood Road, Vancouver, Can...	Canada	Peaceful getaway surrounded by nature

-- Retrieve the name of the airline, departure location, and arrival location for each flight
SELECT Airlines.Name AS Airline, Departure.Name AS DepartureLocation, Arrival.Name AS ArrivalLocation
FROM Flight JOIN Airlines ON Flight.AirlineID = Airlines.AirlineID
JOIN Location AS Departure ON Flight.DepartureLocation = Departure.LocationID
JOIN Location AS Arrival ON Flight.ArrivalLocation = Arrival.LocationID;

```
90      -- Retrieve the name of the airline, departure location, and arrival location for each flight
91 •    SELECT Airlines.Name AS Airline, Departure.Name AS DepartureLocation, Arrival.Name AS ArrivalLocation
92      FROM Flight JOIN Airlines ON Flight.AirlineID = Airlines.AirlineID
93      JOIN Location AS Departure ON Flight.DepartureLocation = Departure.LocationID
94      JOIN Location AS Arrival ON Flight.ArrivalLocation = Arrival.LocationID;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Airline	DepartureLocation	ArrivalLocation
SkyHigh Airways	City Lights Plaza	Sunset Beach
ABC Airlines	Teens Park	Mountain View Lodge
StarJet Airlines	Sunset Beach	Teens Park
Pacific Wings	Mountain View Lodge	Tranquil Forest Retreat
Alpine Air	City Lights Plaza	City Lights Plaza
SkyHigh Airways	Tranquil Forest Retreat	Mountain View Lodge
StarJet Airlines	Serenity Valley	Teens Park
ABC Airlines	Golden Sands Resort	Tranquil Forest Retreat
Alpine Air	Alpine Chalet	Sunset Beach
Pacific Wings	Riverside Retreat	City Lights Plaza

VI. Project demonstration

Tools Used

Website to create E-R diagram through coding : https://plantuml.com/

Software used for running the queries : MySQL

VII. Self -Learning beyond classroom

Creating this project offered several learning opportunities for me:

Effective implementation of relational database concepts: Building this project helped me in implementing the fundamental concepts of relational databases, including tables, relationships, keys, and normalization, which is more than just bookish knowledge. It helped me to better understand those concepts, thus leading to its effective implementation.

Database Design: Designing the database schema also required some time. Identifying the entities, attributes, and relationships, and what to include and what not to meant that my decision making would be crucial with respect to this project. This helped me design and efficient and scalable database.

Data Modeling: Creating ER diagrams and translating them into database schemas helped me understand how to model real-world scenarios into relational databases effectively.

SQL Queries: Writing various SQL queries for data retrieval, insertion, deletion, updates, applying filters, etc improved my proficiency in SQL, which is a crucial skill for database management and data manipulation.

Problem-Solving: Debugging errors, optimizing queries, and addressing performance issues encountered during the project helped me enhance my problem-solving skills.

Project Management: As I had opted to do this entire project by myself, planning, organizing, and executing this project from start to finish helped me improve my project management skills, including time management and task prioritization.

VIII. Learning from the Project

Creating this project has been immensely joyful, offering me a wealth of learning opportunities that extend far beyond the confines of the classroom. Through the effective implementation of relational database concepts, I've gained practical insights into building and managing databases. This project has honed my database design skills, challenging me to make informed decisions about entity relationships and schema organization for optimal efficiency and scalability.

Delving into data modeling through ER diagrams has provided me with a structured approach to represent real-world scenarios in relational databases. Additionally, crafting SQL queries for data manipulation tasks has sharpened my proficiency in SQL, a vital skillset for navigating the intricacies of database management and manipulation.

Moreover, working on this project from start to end has helped me improve my project management skills, highlighting the importance of effective planning and organization, followed by disciplined execution. From balancing timelines to prioritizing tasks, each bit of this project has been useful in self-discipline and accountability.

In essence, this project has been an interesting learning experience. It has equipped me with the practical insights, problem-solving skills, and project management, which are very much useful as I move forward in my career.

IX. Challenges Faced

Creating this project posed few challenges to me. The absence of group members meant that the responsibility for every aspect of the project rested solely on my shoulders, thus requiring a comprehensive understanding of DBMS, proficiency in SQL and effective project management abilities.

Conceptualization and Implementation: Proper planning was necessary to ensure scalability and efficiency, while strategic decision-making was essential to eliminate redundancies and maintain data integrity. Translating conceptual ER diagrams, planned according to real-world scenarios, into a functional database schema and implementing relational database concepts posed significant challenges.

SQL Query Optimization: Crafting various SQL queries to demonstrate the functionalities of my project such as data retrieval, insertion, deletion, updates and applying filters was a formidable task. Optimizing these queries to minimize resource consumption asked for a deep understanding of my model, query execution plans, and optimization techniques.

Time Management: Balancing other academic projects with the demands of this project required effective time management strategies. Allocating time for designing, writing queries and documentation of this report while keeping up with the project deadlines was a constant challenge.

X. Conclusion

Despite the challenges encountered along the way, completing this project has been a rewarding experience, both personally and professionally. It has not only deepened my understanding of relational databases and SQL but also developed my problem-solving, critical thinking, and project management skills. Through dedication and a willingness to complete this project despite the challenges, I've successfully worked with the various complexities of database design and implementation, thus gaining a comprehensive skill set that will serve me well in my future endeavors.

- What are the key takeaways from the project?

Comprehensive Understanding of Relational Databases: This project has equipped me with a thorough understanding of relational database concepts, including schema design and data manipulation.

Proficiency in SQL: Writing complex SQL queries and optimizing database performance helped me enhanced my proficiency in SQL, a valuable skill in the field of database management.

Problem-Solving Skills: Overcoming challenges encountered during the project has strengthened my problem-solving abilities, thus allowing me to take up new challenges, especially real-world scenarios.

Self-Reliance and Independence: Completing the project without the assistance of group members has instilled in me a profound sense of self-reliance and independence. Initially, I was a bit worried about tackling such a comprehensive project solo. However, the freedom afforded by working independently enabled me to maintain my pace and focus, ensuring timely completion within the project's deadline. By single-handedly managing all aspects of the project, I worked on each aspect with greater depth and detail, resulting in a more rewarding learning experience than would have been possible in a group setting.