PROJECT: BUILD A DATA MART IN SQL

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A SUMMARY

- In this phase, I used MySQL as a database management system to implement the my SQL queries according to the modeling phase .
- In the following slides you will find the ER model of the project then the implementation of each entity separated each in its own slide .
- The slides include the creation of the tables then the insertion query followed by a test case , each with a screenshot of the corresponding sql statement .

The ER Diagram

- CREATE TABLE Host (HostID INT NOT NULL UNIQUE PRIMARY KEY,FisrtName VARCHAR(50), LastName VARCHAR(50), EmailAddress VARCHAR(100) UNIQUE, PhoneNumber INT, Password CHAR(100) NOT NULL, Nationality CHAR(200), Photo VARBINARY(1500));

- INSERT INTO Host (HostID, FisrtName, LastName, EmailAddress, PhoneNumber, Password, Nationality, Photo)VALUES (1, 'John', 'Doe', 'john.doe@gmail.com', 123456789, 'password1', 'USA', 0x01),(2, 'Jane', 'Doe', 'jane.doe@gmail.com', 987654321, 'password2', 'UK', 0x02),(3, 'Jack', 'Smith', 'jack.smith@gmail.com', 121212121, 'password3', 'Canada', 0x03),(4, 'Jill', 'Smith', 'jill.smith@gmail.com', 343434343, 'password4', 'Australia', 0x04),(5, 'James', 'Johnson', 'james.johnson@gmail.com', 565656565, 'password5', 'France', 0x05),(6, 'Emily', 'Johnson', 'emily.johnson@gmail.com', 787878787, 'password6', 'Germany', 0x06),(7, 'Michael', 'Williams', 'michael.williams@gmail.com', 919191919, 'password7', 'Italy', 0x07),(8, 'Sarah', 'Williams', 'sarah.williams@gmail.com', 101010101, 'password8', 'Spain', 0x08),(9, 'William', 'Brown', 'william.brown@gmail.com', 111111111, 'password9', 'Russia', 0x09),(10, 'Elizabeth', 'Brown', 'elizabeth.brown@gmail.com', 121212121, 'password10', 'Japan', 0x0A),(11, 'David', 'Jones', 'david.jones@gmail.com', 1313131313, 'password11', 'China', 0x0B),(12, 'Karen', 'Jones', 'karen.jones@gmail.com', 1414141414, 'password12', 'India', 0x0C),(13, 'Richard', 'Miller', 'richard.miller@gmail.com', 1515151515, 'password13', 'Brazil', 0x0D),(14, 'Jessica', 'Miller', 'jessica.miller@gmail.com', 1616161616, 'password14', 'Mexico', 0x0E),(15, 'Thomas', 'Davis', 'thomas.davis@gmail.com', 1717171717, 'password15', 'South Africa', 0x0F),(16, 'Catherine', 'Davis', 'catherine.davis@gmail.com', 1818181818, 'password16', 'Canada', 0x10),(17, 'Charles', 'Wilson', 'charles.wilson@gmail.com', 1919191919, 'password17', 'France', 0x11),(18, 'Sophia', 'Wilson', 'sophia.wilson@gmail.com', 2020202020, 'password18', 'Germany', 0x12),(19, 'Matthew', 'Anderson', 'matthew.anderson@gmail.com', 1234567908, 'pass19', 'UK', null),(20, 'Owen', 'King', 'owenking@example.com', 1234567909, 'pass20', 'Australia', null);

- <u>Test Case</u> : SELECT COUNT(FisrtName), Nationality FROM Host GROUP BY Nationality;

- CREATE TABLE Rating (RatingID INT NOT NULL UNIQUE PRIMARY KEY,Rating DECIMAL(2, 1), HostID INT REFERENCES Host(HostID))

- INSERT INTO Rating (RatingID, Rating, HostID) VALUES (1, 4.5, 1), (2, 4.0, 2), (3, 3.5, 3), (4, 3.0, 4), (5, 2.5, 5), (6, 2.0, 6), (7, 1.5, 7), (8, 1.0, 8), (9, 4.5, 9), (10, 4.0, 10), (11, 3.5, 11), (12, 3.0, 12), (13, 2.5, 13), (14, 2.0, 14), (15, 1.5, 15), (16, 1.0, 16), (17, 4.5, 17), (18, 4.0, 18), (19, 3.5, 19), (20, 3.0, 20);

- <u>Test case</u> : select * from Rating WHERE Rating <= 3;

- CREATE TABLE Host_Commission (CommissionID INT NOT NULL UNIQUE PRIMARY KEY,Commission REAL,Date DATE, IncomeID INT REFERENCES Income(IncomeID),CardID INT REFERENCES Card(CardID),HostID INT REFERENCES Host(HostID));

- INSERT INTO Host_Commission (CommissionID, Commission, Date, IncomeID, CardID, HostID)VALUES(1, 10.0, '2022-12-05', 1, 1, 1),(2, 15.0, '2022-12-06', 2, 2, 2),(3, 20.0, '2022-12-07', 3, 3, 3),(4, 25.0, '2022-12-08', 4, 4, 4),(5, 30.0, '2022-12-09', 5, 5, 5),(6, 35.0, '2022-12-10', 6, 6, 6),(7, 40.0, '2022-12-11', 7, 7, 7),(8, 45.0, '2022-12-12', 8, 8, 8),(9, 50.0, '2022-12-13', 9, 9, 9),(10, 55.0, '2022-12-14', 10, 10, 10),(11, 60.0, '2022-12-15', 11, 11, 11),(12, 65.0, '2022-12-16', 12, 12, 12),(13, 70.0, '2022-12-17', 13, 13, 13),(14, 75.0, '2022-12-18', 14, 14, 14),(15, 80.0, '2022-12-19', 15, 15, 15),(16, 85.0, '2022-12-20', 16, 16, 16),(17, 90.0, '2022-12-21', 17, 17, 17),(18, 95.0, '2022-12-22', 18, 18, 18),(19, 100.0, '2022-12-23', 19, 19, 19),(20, 105.0, '2022-12-24', 20, 20, 20);

- <u>Test case</u> : SELECT * FROM Host_Commission WHERE Commission = 105;

- CREATE TABLE Host_BankAccount (BankAccountID INT NOT NULL UNIQUE PRIMARY KEY,AccountNumber INT NOT NULL UNIQUE, BankName CHAR(100), HostID INT REFERENCES Host(HostID), TransactionID INT REFERENCES Transaction(TransactionID));

- INSERT INTO Host_BankAccount (BankAccountID, AccountNumber, BankName, HostID, TransactionID)VALUES (1, 10001, 'Bank A', 1, 1), (2, 10002, 'Bank B', 2, 2), (3, 10003, 'Bank C', 3, 3), (4, 10004, 'Bank D', 4, 4), (5, 10005, 'Bank E', 5, 5), (6, 10006, 'Bank F', 6, 6),(7, 10007, 'Bank G', 7, 7), (8, 10008, 'Bank H', 8, 8), (9, 10009, 'Bank I', 9, 9), (10, 10010, 'Bank J', 10, 10), (11, 10011, 'Bank K', 11, 11), (12, 10012, 'Bank L', 12, 12), (13, 10013, 'Bank M', 13, 13), (14, 10014, 'Bank N', 14, 14), (15, 10015, 'Bank O', 15, 15), (16, 10016, 'Bank P', 16, 16), (17, 10017, 'Bank Q', 17, 17), (18, 10018, 'Bank R', 18, 18), (19, 10019, 'Bank S', 19, 19), (20, 10020, 'Bank T', 20, 20);

- <u>Test case</u> : select * from Host_BankAccount WHERE AccountNumber = 10007;

- CREATE TABLE Accommodation (AccommodationID INT NOT NULL UNIQUE PRIMARY KEY,Description TEXT,Price REAL, HostID int REFERENCES Host(HostID)

- INSERT INTO Accommodation (AccommodationID, Description, Price, HostID) VALUES (1, 'Nice and cozy apartment located in the city center', 1000, 1), (2, 'Beautiful villa with a private pool and large garden', 1500, 2), (3, 'Spacious room in a shared house', 500, 3), (4, 'Comfortable studio with a view of the city', 800, 4), (5, 'Stylish apartment with a rooftop terrace', 1200, 5), (6, 'Charming cottage with a fireplace', 700, 6), (7, 'Modern apartment with a large kitchen', 1100, 7), (8, 'Luxury apartment with a Jacuzzi', 1700, 8), (9, 'Elegant apartment with a balcony', 1300, 9), (10, 'Rustic cabin in the woods', 600, 10), (11, 'Stylish penthouse with a rooftop pool', 2000, 11), (12, 'Cozy room in a bed and breakfast', 400, 12), (13, 'Vintage apartment in a historic building', 900, 13), (14, 'Bright and airy apartment with a balcony', 1000, 14), (15, 'Comfortable room in a shared apartment', 450, 15), (16, 'Spacious apartment with a large living room', 1200, 16), (17, 'Elegant apartment with a fireplace', 1300, 17), (18, 'Luxury villa with a private pool', 2000, 18), (19, 'Stylish apartment with a roof garden', 1500, 19), (20, 'Comfortable apartment with a view of the park', 900, 20);

- <u>Test case</u> : select * from Accommodation WHERE Price > 1000;

- CREATE TABLE Pictures (PictureID INT NOT NULL UNIQUE PRIMARY KEY,Link VARBINARY(1500), AccommodationID INT REFERENCES Accommodation(AccommodationID));

- INSERT INTO Pictures (PictureID, Link, AccommodationID) VALUES (1, 0x0101010101, 1), (2, 0x0202020202, 2), (3, 0x0303030303, 3), (4, 0x0404040404, 4), (5, 0x0505050505, 5), (6, 0x0606060606, 6), (7, 0x0707070707, 7), (8, 0x0808080808, 8), (9, 0x0909090909, 9), (10, 0x1010101010, 10), (11, 0x1111111111, 11), (12, 0x1212121212, 12), (13, 0x1313131313, 13), (14, 0x1414141414, 14), (15, 0x1515151515, 15), (16, 0x1616161616, 16), (17, 0x1717171717, 17), (18, 0x1818181818, 18), (19, 0x1919191919, 19), (20, 0x2020202020, 20);

- Test case : select * from Pictures WHERE PictureID = 8;

- CREATE TABLE Category (CategoryID INT NOT NULL UNIQUE PRIMARY KEY,Category CHAR(100), Space REAL, Vue CHAR(80), AccommodationID INT REFERENCES Accommodation(AccommodationID));

- INSERT INTO Category (CategoryID, Category, Space, Vue, AccommodationID)VALUES(1, 'Studio', 20, 'Sea View', 1),(2, 'Apartment', 30, 'City View', 2),(3, 'Villa', 40, 'Mountain View', 3),(4, 'House', 50, 'Park View', 4),(5, 'Lodge', 60, 'River View', 5),(6, 'Cottage', 70, 'Forest View', 6),(7, 'Chalet', 80, 'Lake View', 7),(8, 'Cabin', 90, 'Ocean View', 8),(9, 'Bungalow', 100, 'River View', 9),(10, 'Hut', 110, 'Mountain View', 10),(11, 'Tent', 120, 'Forest View', 11),(12, 'Treehouse', 130, 'Lake View', 12),(13, 'Caravan', 140, 'Ocean View', 13),(14, 'Yurt', 150, 'River View', 14),(15, 'Boat', 160, 'Mountain View', 15),(16, 'Igloo', 170, 'Forest View', 16),(17, 'RV', 180, 'Lake View', 17),(18, 'Train', 190, 'Ocean View', 18),(19, 'Plane', 200, 'River View', 19),(20, 'Houseboat', 210, 'Mountain View', 20);

- <u>Test case</u> : select * from Category WHERE Space <= 140;

- CREATE TABLE Status (StatusID INT NOT NULL UNIQUE PRIMARY KEY,isAvailable BOOLEAN, AccommodationID INT REFERENCES Accommodation(AccommodationID));

- INSERT INTO Status (StatusID, isAvailable, AccommodationID) VALUES (1, 1, 1), (2, 0, 2), (3, 1, 3), (4, 0, 4), (5, 1, 5), (6, 0, 6), (7, 1, 7), (8, 0, 8), (9, 1, 9), (10, 0, 10), (11, 1, 11), (12, 0, 12), (13, 1, 13), (14, 0, 14), (15, 1, 15), (16, 0, 16), (17, 1, 17), (18, 0, 18), (19, 1, 19), (20, 0, 20);
- <u>Test case</u> : select * from Status WHERE isAvailable = 1;

- CREATE TABLE Country (CountryID INT NOT NULL UNIQUE PRIMARY KEY,Name VARCHAR(500), AccommodationID INT REFERENCES Accommodation(AccommodationID));

- INSERT INTO Country (CountryID, Name, AccommodationID) VALUES (1, 'USA', 1), (2, 'UK', 2), (3, 'France', 3), (4, 'Germany', 4), (5, 'Italy', 5), (6, 'Spain', 6), (7, 'Sweden', 7), (8, 'Norway', 8), (9, 'Denmark', 9), (10, 'Netherlands', 10), (11, 'Canada', 11), (12, 'Australia', 12), (13, 'New Zealand', 13), (14, 'Japan', 14), (15, 'South Korea', 15), (16, 'China', 16), (17, 'India', 17), (18, 'Brazil', 18), (19, 'Mexico', 19), (20, 'Argentina', 20);

- <u>Test case</u> : SELECT * FROM Country WHERE Name LIKE 'U__';

- CREATE TABLE City (CityID INT NOT NULL UNIQUE PRIMARY KEY,City VARCHAR(500), ZipCode INT,CountryID INT REFERENCES Country(CountryID));

- INSERT INTO City (CityID, City, ZipCode, CountryID) VALUES (1, 'New York', 12345, 1), (2, 'London', 23456, 2), (3, 'Marseille', 34567, 3), (4, 'Hambourg', 45678, 4), (5, 'Venise', 56789, 5), (6, 'Barcelona', 67890, 6), (7, 'Umea', 78901, 7), (8, 'Arendal', 89012, 8), (9, 'Ribe', 90123, 9), (10, 'La Haye', 10124, 10), (11, 'Ottawa', 11125, 11), (12, 'Sydney', 12126, 12), (13, 'Napier', 13127, 13), (14, 'Kobe', 14128, 14), (15, 'Pusan', 15129, 15), (16, 'Nankin', 16130, 16), (17, 'Jaipur', 17131, 17), (18, 'Manaus', 18132, 18), (19, 'Mérida', 19133, 19), (20, 'Salta', 20144, 20);
- <u>Test case</u> : SELECT * FROM City WHERE ZipCode BETWEEN 50000 AND 100000;

- CREATE TABLE Admin(AdminID INT NOT NULL UNIQUE PRIMARY KEY, FullName VARCHAR(200), EmailAddress CHAR(200), PhoneNumber INT, Password CHAR(100) NOT NULL);

- INSERT INTO Admin (AdminID, FullName, EmailAddress, PhoneNumber, Password)VALUES(1, 'Ahmed Kamal', 'ahmedkamal@gmail.com', 9543210, 'ahmed123'),(2, 'Sarah Omar', 'sarahomar@gmail.com', 9543211, 'sarah123'),(3, 'Mohammed Ali', 'mohammedali@gmail.com', 9873212, 'mohammed123'),(4, 'Nada Adel', 'nadaadel@gmail.com', 9876213, 'nada123'),(5, 'Aisha Magdy', 'aishamagdy@gmail.com', 9873214, 'aisha123'),(6, 'Osama Ahmed', 'osamaahmed@gmail.com', 9843215, 'osama123'),(7, 'Rania Nabil', 'ranianabil@gmail.com', 9843216, 'rania123'),(8, 'Mahmoud Tarek', 'mahmoudtarek@gmail.com', 6543217, 'mahmoud123'),(9, 'Mariam Samir', 'mariamsamir@gmail.com', 6543218, 'mariam123'),(10, 'Yasser Hossam', 'yasserhossam@gmail.com', 6543219, 'yasser123'),(11, 'Reham Kareem', 'rehamkareem@gmail.com', 9543221, 'reham123'),(12, 'Hassan Tamer', 'hassantamer@gmail.com', 9876522, 'hassan123'),(13, 'Amira Fady', 'amirafady@gmail.com', 6543223, 'amira123'),(14, 'Mona Nour', 'monanour@gmail.com', 6543224, 'mona123'),(15, 'Ahmed Ayman', 'ahmedayman@gmail.com', 9876543, 'ahmed123'),(16, 'Nourhan Adel', 'nourhanadel@gmail.com', 6543226, 'nourhan123'),(17, 'Mohammed Tarek', 'mohammedtarek@gmail.com', 6543227, 'mohammed123'),(18, 'Sarah Mohamed', 'sarahmohamed@gmail.com', 6543228, 'sarah123'), (19, 'Ahmed Samir', 'ahmedsamir@gmail.com', 6543229, 'ahmed123'),(20, 'Hoda Nabil', 'hodanabil@gmail.com', 9873230, 'hoda123’);

- <u>Test case</u> :SELECT * FROM Admin WHERE FullName LIKE'H___ _____';

- CREATE TABLE Admin_BankAccount (BankAccountID INT NOT NULL UNIQUE PRIMARY KEY,Account_Number INT NOT NULL UNIQUE,Bank_Name CHAR(80), AdminID INT REFERENCES Admin(AdminID), TransactionID INT REFERENCES Transaction(TransactionID));

- INSERT INTO Admin_BankAccount (BankAccountID, Account_Number, Bank_Name, AdminID, TransactionID)VALUES(1, 18901231, 'ABC Bank', 1, 1),(2, 18901232, 'oTTAWA Bank', 2, 2),(3, 18901233, 'ATB Bank', 3, 3),(4, 18901234, 'DEF Bank', 4, 4),(5, 18901235, 'FAHED Bank', 5, 5),(6, 18901236, 'GHI Bank', 6, 6),(7, 18901237, 'SAID Bank', 7, 7),(8, 18901238, 'JKL Bank', 8, 8),(9, 18901239, 'Emarr Bank', 9, 9),(10, 1890120, 'MNO Bank', 10, 10),(11, 1890144, 'QATAR Bank', 11, 11),(12, 1890155, 'PQR Bank', 12, 12),(13, 1890166, 'TUNIS Bank', 13, 13),(14, 1890177, 'STU Bank', 14, 14),(15, 1890188, 'MANAR Bank', 15, 15),(16, 1890199, 'VWX Bank', 16, 16),(17, 1890178, 'ZAYTOUNA Bank', 17, 17),(18, 17890174, 'YZ Bank', 18, 18),(19, 1234572, 'UTB Bank', 19, 19),(20, 1234567, 'ABCDEF Bank', 20, 20);

- <u>Test case</u> : SELECT * FROM Admin_BankAccount WHERE Account_Number > 1890000 ;

- CREATE TABLE Income (IncomeID INT NOT NULL UNIQUE PRIMARY KEY,Income REAL,Date DATE, AdminID INT REFERENCES Admin(AdminID));

- INSERT INTO Income (IncomeID, Income, Date, AdminID) VALUES(1, 1000, '2022-05-10', 1),(2, 2000, '2022-05-12', 2),(3, 1500, '2022-06-08', 3),(4, 2500, '2022-06-11', 4),(5, 3500, '2022-07-05', 5),(6, 1000, '2022-07-12', 6),(7, 6000, '2022-08-08', 7),(8, 2500, '2022-08-12', 8),(9, 7500, '2022-09-05', 9),(10, 3000, '2022-09-12', 10),(11, 8000, '2022-10-08', 11),(12, 5000, '2022-10-12', 12),(13, 9000, '2022-11-05', 13),(14, 6000, '2022-11-12', 14),(15, 6000, '2022-12-08', 15),(16, 7000, '2022-12-12', 16),(17, 9000, '2023-01-05', 17),(18, 5000, '2023-01-12', 18),(19, 6000, '2023-02-08', 19),(20, 7000, '2023-02-12', 20);
- <u>Test case</u> : SELECT * FROM Income WHERE Income = 1000;

- CREATE TABLE Admin_Commission (CommissionID INT NOT NULL UNIQUE PRIMARY KEY,Commission REAL,Date DATE, IncomeID INT REFERENCES Income(IncomeID));

- INSERT INTO Admin_Commission (CommissionID, Commission, Date, IncomeID) VALUES (1, 200.0, '2022-01-01', 1),(2, 300.0, '2022-02-01', 2),(3, 400.0, '2022-03-01', 3),(4, 500.0, '2022-04-01', 4),(5, 600.0, '2022-05-01', 5),(6, 700.0, '2022-06-01', 6),(7, 800.0, '2022-07-01', 7),(8, 900.0, '2022-08-01', 8),(9, 1000.0, '2022-09-01', 9),(10, 1100.0, '2022-10-01', 10),(11, 1200.0, '2022-11-01', 11),(12, 1300.0, '2022-12-01', 12),(13, 1400.0, '2023-01-01', 13),(14, 1500.0, '2023-02-01', 14),(15, 1600.0, '2023-03-01', 15),(16, 1700.0, '2023-04-01', 16),(17, 1800.0, '2023-05-01', 17),(18, 1900.0, '2023-06-01', 18),(19, 2000.0, '2023-07-01', 19),(20, 2100.0, '2023-08-01', 20);
- <u>Test case</u> : SELECT * FROM Admin_Commission WHERE Commission >= 1800;

- CREATE TABLE Orders (OrderID INT NOT NULL UNIQUE PRIMARY KEY,isConfirm BOOLEAN,Confirmation_Date DATE, BookingID INT REFERENCES Booking(BookingID));

- INSERT INTO Orders (OrderID, isConfirm, Confirmation_Date, BookingID)VALUES (1, 1, '2023-02-08', 1), (2, 1, '2023-02-11', 2), (3, 0, '2023-02-14', 3), (4, 1, '2023-02-17', 4), (5, 0, '2023-02-20', 5), (6, 1, '2023-02-23', 6), (7, 1, '2023-02-26', 7), (8, 0, '2023-03-01', 8), (9, 1, '2023-03-04', 9), (10, 0, '2023-03-07', 10), (11, 1, '2023-03-10', 11), (12, 0, '2023-03-13', 12), (13, 1, '2023-03-16', 13), (14, 1, '2023-03-19', 14), (15, 0, '2023-03-22', 15), (16, 1, '2023-03-25', 16), (17, 0, '2023-03-28', 17), (18, 1, '2023-03-31', 18), (19, 0, '2023-04-03', 19), (20, 1, '2023-04-06', 20);
- <u>Test case</u> : SELECT * FROM Orders WHERE isConfirm = 1;

- CREATE TABLE Admin_CreditCard (CardID INT NOT NULL UNIQUE PRIMARY KEY,Card_Number INT,AdminID INT REFERENCES Admin(AdminID), InvoiceID INT REFERENCES Invoice(InvoiceID));

- INSERT INTO Admin_CreditCard (CardID, Card_Number, AdminID, InvoiceID) VALUES (1, 11111111, 1, 1), (2, 22222222, 2, 2), (3, 33333333, 3, 3), (4, 44444444, 4, 4), (5, 55555555, 5, 5), (6, 66666666, 6, 6), (7, 77777777, 7, 7), (8, 88888888, 8, 8), (9, 99999999, 9, 9), (10, 10101010, 10, 10), (11, 11111111, 11, 11), (12, 12121212, 12, 12), (13, 13131313, 13, 13), (14, 14141414, 14, 14), (15, 15151515, 15, 15), (16, 16161616, 16, 16), (17, 17171717, 17, 17), (18, 18181818, 18, 18), (19, 19191919, 19, 19), (20, 20202020, 20, 20);
- Test case : SELECT * FROM Admin_CreditCard WHERE CardID != 10 AND Card_Number != 55555555 ;

- CREATE TABLE Guest (GuestID INT NOT NULL UNIQUE PRIMARY KEY,FisrtName VARCHAR(50), LastName VARCHAR(50), EmailAddress VARCHAR(100) UNIQUE, PhoneNumber INT, Password CHAR(100) NOT NULL, Nationality CHAR(200), MaritalStatus VARCHAR(40), Job CHAR(60));

- INSERT INTO Guest (GuestID, FisrtName, LastName, EmailAddress, PhoneNumber, Password, Nationality, MaritalStatus, Job)VALUES (1, 'ahmed', 'abdullah', 'ahmed.abdullah@gmail.com', 123456789, 'password1', 'Egyptian', 'Married', 'Doctor'),(2, 'muhammad', 'ahmed', 'muhammad.ahmed@gmail.com', 987654321, 'password2', 'Moroccan', 'Single', 'Engineer'),(3, 'ali', 'muhammad', 'ali.muhammad@gmail.com', 111111111, 'password3', 'Tunisian', 'Married', 'Teacher'),(4, 'nour', 'abdulrahman', 'nour.abdulrahman@gmail.com', 222222222, 'password4', 'Algerian', 'Single', 'Lawyer'),(5, 'saeed', 'muhammad', 'saeed.muhammad@gmail.com', 333333333, 'password5', 'Sudanese', 'Married', 'Journalist'),(6, 'osama', 'ali', 'osama.ali@gmail.com', 444444444, 'password6', 'Libyan', 'Single', 'Architect'),(7, 'Ava', 'Miller', 'avamiller1@email.com', 1234567896, 'password7', 'British', 'Single', 'Engineer'),(8, 'Isabella', 'Davis', 'isabelladavis1@email.com', 1234567897, 'password8', 'Australian', 'Married', 'Nurse'),(9, 'Mia', 'Wilson', 'miawilson1@email.com', 1234567898, 'password9', 'American', 'Single', 'Teacher'),(10, 'Charlotte', 'Wood', 'charlottewood1@email.com', 1234567899, 'password10', 'Canadian', 'Married', 'Doctor'),(11, 'Amelia', 'Hill', 'ameliahill1@email.com', 1234567800, 'password11', 'British', 'Single', 'Engineer'),(12, 'Harper', 'Lewis', 'harperlewis1@email.com', 1234567801, 'password12', 'Australian', 'Married', 'Nurse'),(13, 'Evelyn', 'Green', 'evelyngreen1@email.com', 1234567802, 'password13', 'American', 'Single', 'Teacher'),(14, 'Abigail', 'Adams', 'abigailadams1@email.com', 1234567803, 'password14', 'Canadian', 'Married', 'Doctor'),(15, 'Emily', 'Baker', 'emilybaker1@email.com', 1234567804, 'password15', 'British', 'Single', 'Engineer'),(16, 'Elizabeth', 'Barnes', 'elizabethbarnes1@email.com', 1234567805, 'password16', 'Australian', 'Married', 'Nurse'),(17, 'muhammad', 'lahmer', 'muhammad.lahmer@gmail.com', 888888888, 'password17', 'Ghanaian', 'Single', 'Painter'),(18, 'ali', 'abdulrahman', 'ali.abdulrahman@gmail.com', 999999999, 'password18', 'Cameroonian', 'Married', 'Scientist'),(19, 'nour', 'muhammad', 'nour.muhammad@gmail.com', 101010101, 'password19', 'Kenyan', 'Single', 'Programmer'),(20, 'saeed', 'ahmed', 'saeed.ahmed@gmail.com', 202020202, 'password20', 'Zimbabwean', 'Married', 'Banker’);

- <u>Test case</u> : SELECT * FROM Guest WHERE Nationality = 'American';

- CREATE TABLE Guest_CreditCard (CardID INT NOT NULL UNIQUE PRIMARY KEY,Card_Number INT,GuestID INT REFERENCES Guest(GuestID), PaymentID INT REFERENCES Payment(PaymentID));

- INSERT INTO Guest_CreditCard (CardID, Card_Number, GuestID, PaymentID) VALUES (1, 1245623456, 1, 1), (2, 220123456, 2, 2), (3, 345678901, 3, 3), (4, 456789012, 4, 4), (5, 567890123, 5, 5), (6, 678901234, 6, 6), (7, 789012345, 7, 7), (8, 890123456, 8, 8), (9, 901234567, 9, 9), (10, 012345678, 10, 10), (11, 123456789, 11, 11), (12, 234567890, 12, 12), (13, 345678901, 13, 13), (14, 456789012, 14, 14), (15, 567890123, 15, 15), (16, 678901234, 16, 16), (17, 789012345, 17, 17), (18, 890123456, 18, 18), (19, 901234567, 19, 19), (20, 012345678, 20, 20);

- <u>Test case</u> : SELECT * FROM Guest_CreditCard WHERE GuestID >= 10 ;

- CREATE TABLE Photo (PhotoID INT NOT NULL UNIQUE PRIMARY KEY,Link VARBINARY(1500), GuestID INT REFERENCES Guest(GuestID));

- INSERT INTO Photo (PhotoID, Link, GuestID) VALUES(1, 0x1234, 1),(2, 0x2345, 2),(3, 0x3456, 3),(4, 0x4567, 4),(5, 0x5678, 5),(6, 0x6789, 6),(7, 0x7890, 7),(8, 0x8901, 8),(9, 0x9012, 9),(10, 0x0123, 10),(11, 0x1234, 11),(12, 0x2345, 12),(13, 0x3456, 13),(14, 0x4567, 14),(15, 0x5678, 15),(16, 0x6789, 16),(17, 0x7890, 17),(18, 0x8901, 18),(19, 0x9012, 19),(20, 0x0123, 20);
- <u>Test case</u> : SELECT * FROM Photo WHERE PhotoID != 1 ;

- CREATE TABLE Booking (BookingID INT NOT NULL UNIQUE PRIMARY KEY,nbrOfNights DECIMAL(2,1),ChekInDate DATE,ChekOutDate DATE,Total REAL,nbrOfPersons INT NOT NULL,GuestID INT REFERENCES Guest(GuestID));

- INSERT INTO Booking (BookingID, nbrOfNights, ChekInDate, ChekOutDate, Total, nbrOfPersons, GuestID)VALUES (1, 5, '2023-02-05', '2023-02-10', 500, 4, 1),(2, 6, '2023-02-08', '2023-02-14', 600, 5, 2),(3, 4, '2023-02-10', '2023-02-14', 400, 3, 3),(4, 3, '2023-02-15', '2023-02-18', 300, 2, 4),(5, 2, '2023-02-15', '2023-02-17', 200, 2, 5),(6, 7, '2023-02-20', '2023-02-27', 700, 5, 6),(7, 5, '2023-02-23', '2023-03-01', 500, 4, 7),(8, 6, '2023-02-25', '2023-03-03', 600, 5, 8),(9, 4, '2023-03-01', '2023-03-05', 400, 3, 9),(10, 3, '2023-03-05', '2023-03-08', 300, 2, 10),(11, 2, '2023-03-07', '2023-03-09', 200, 2, 11),(12, 7, '2023-03-10', '2023-03-17', 700, 5, 12),(13, 5, '2023-03-15', '2023-03-20', 500, 4, 13),(14, 6, '2023-03-17', '2023-03-23', 600, 5, 14),(15, 4, '2023-03-20', '2023-03-24', 400, 3, 15),(16, 3, '2023-03-25', '2023-03-28', 300, 2, 16),(17, 2, '2023-03-27', '2023-03-29', 200, 2, 17),(18, 7, '2023-03-30', '2023-04-06', 700, 5, 18),(19, 5, '2023-04-02', '2023-04-07', 500, 4, 19),(20, 6, '2023-04-05', '2023-04-11', 600, 5, 20);

- <u>Test case</u> : SELECT * FROM Booking WHERE nbrOfPersons < 4 ;

- CREATE TABLE Booking_Status (BStatusID INT NOT NULL UNIQUE PRIMARY KEY,ExpirationDate DATE,isConfirmed BOOLEAN,BookingID INT REFERENCES Booking(BookingID));

- INSERT INTO Booking_Status (BStatusID, ExpirationDate, isConfirmed, BookingID)VALUES(1, '2023-02-08', 1, 1),(2, '2023-02-11', 1, 2),(3, '2023-02-14', 1, 3),(4, '2023-02-17', 1, 4),(5, '2023-02-20', 1, 5),(6, '2023-02-23', 1, 6),(7, '2023-02-26', 1, 7),(8, '2023-03-01', 1, 8),(9, '2023-03-04', 1, 9),(10, '2023-03-07', 1, 10),(11, '2023-03-10', 1, 11),(12, '2023-03-13', 1, 12),(13, '2023-03-16', 1, 13),(14, '2023-03-19', 1, 14),(15, '2023-03-22', 1, 15),(16, '2023-03-25', 1, 16),(17, '2023-03-28', 1, 17),(18, '2023-03-31', 1, 18),(19, '2023-04-03', 1, 19),(20, '2023-04-06', 1, 20);
- <u>Test case</u> : SELECT * FROM Booking_Status WHERE ExpirationDate = '2023-02-14' ;

- CREATE TABLE Payment (PaymentID INT NOT NULL UNIQUE PRIMARY KEY, Amount REAL, Date DATE, GuestID INT REFERENCES Guest(GuestID), OrderID INT REFERENCES Orders(OrderID));

- INSERT INTO Payment(PaymentID, Amount, Date, GuestID, OrderID)VALUES(1, 200.50, '2023-12-08', 1, 1),(2, 150.20, '2023-02-08', 2, 2),(3, 120.90, '2023-10-09', 3, 3),(4, 180.70, '2023-02-09', 4, 4),(5, 140.50, '2023-09-10', 5, 5),(6, 260.80, '2023-02-10', 6, 6),(7, 220.90, '2023-06-11', 7, 7),(8, 120.50, '2023-02-11', 8, 8),(9, 300.40, '2023-07-03', 9, 9),(10, 200.30, '2023-02-12', 10, 10),(11, 250.60, '2023-02-08', 11, 11),(12, 200.70, '2023-02-08', 12, 12),(13, 170.90, '2023-08-09', 13, 13),(14, 120.50, '2023-02-09', 14, 14),(15, 180.30, '2023-05-2', 15, 15),(16, 260.80, '2023-02-10', 16, 16),(17, 300.40, '2023-06-11', 17, 17),(18, 220.90, '2023-02-11', 18, 18), (19, 550.40, '2023-03-11', 19, 19),(20, 220.90, '2023-04-01', 20, 20);

- <u>Test case</u> : SELECT * FROM Payment WHERE Amount > 200;

- CREATE TABLE Transaction (TransactionID INT NOT NULL UNIQUE PRIMARY KEY,Method CHAR (20),Status CHAR (20),Amount REAL,_From VARCHAR(100), _To VARCHAR(100), Date DATE,PaymentID INT REFERENCES Payment(PaymentID),IncomeID INT REFERENCES Income(IncomeID));

- INSERT INTO Transaction (TransactionID, Method, Status, Amount, _From, _To, Date, PaymentID, IncomeID) VALUES (1, 'Credit Card', 'Approved', 1000.0, 'ahmed abdullah', 'John Doe', '2022-10-01', 1, 1),(2, 'Paypal', 'Declined', 200.0, 'muhammad ahmed','Jane Doe', '2022-10-05', 2, 2),(3, 'Bank Transfer', 'Pending', 800.0, 'ali muhammad','John Smith', '2022-10-06', 3, 3),(4, 'Credit Card', 'Approved', 700.0, 'nour abdulrahman','Jane Smith', '2022-10-07', 4, 4),(5, 'Paypal', 'Approved', 500.0, 'saeed muhammad', 'John Doe', '2022-10-08', 5, 5),(6, 'Bank Transfer', 'Declined', 400.0, 'osama ali','Jane Doe', '2022-10-09', 6, 6),(7, 'Credit Card', 'Pending', 300.0, 'amir muhammad','John Smith', '2022-10-10', 7, 7),(8, 'Paypal', 'Approved', 200.0, 'abdullah osama','Jane Smith', '2022-10-11', 8, 8),(9, 'Bank Transfer', 'Approved', 100.0, 'ahmed abdulaziz','John Doe', '2022-10-12', 9, 9),(10, 'Credit Card', 'Declined', 800.0, 'ali abdulrahman', 'Jane Doe', '2022-10-13', 10, 10),(11, 'Paypal', 'Pending', 700.0, 'nour muhammad', 'John Smith', '2022-10-14', 11, 11),(12, 'Bank Transfer', 'Approved', 600.0, 'Dorra Kahla', 'Hotel XYZ', '2022-10-15', 12, 12),(13, 'Credit Card', 'Approved', 500.0, 'saeed ahmed','John Doe', '2022-10-16', 13, 13),(14, 'Paypal', 'Declined', 400.0, 'Jane Doe', 'Hotel XYZ', '2022-10-17', 14, 14),(15, 'Bank Transfer', 'Pending', 300.0, 'John Smith', 'osama abdullah', '2022-10-18', 15, 15),(16, 'Credit Card', 'Approved', 200.0, 'Rayen jen', 'Adams', '2022-10-19', 16, 16),(17, 'Paypal', 'Approved', 100.0, 'Elizabeth Doe', 'Nawres kahla', '2022-10-20', 17, 17),(18, 'Bank Transfer', 'Declined', 800.0, 'Chris Brown', 'Emir Qatar', '2022-10-21', 18, 18),(19, 'Credit Card', 'Pending', 700.0, 'Lilia lasmer', 'Abdessalem lahmer', '2022-10-21', 19, 19), (20, 'Credit Card', 'Pending', 700.0, 'Hayder kahla', 'Fedi azaiz', '2022-10-21', 20, 20);

- CREATE TABLE Currency (CurrencyID INT NOT NULL UNIQUE PRIMARY KEY,Currency CHAR(20),TransactionID INT REFERENCES Transaction(TransactionID));

INSERT INTO Currency (CurrencyID, Currency, TransactionID)VALUES(1, 'USD', 1),(2, 'EUR', 2),(3, 'GBP', 3),(4, 'JPY', 4),(5, 'CHF', 5),(6, 'CAD', 6),(7, 'AUD', 7),(8, 'NZD', 8),(9, 'CNY', 9),(10, 'INR', 10),(11, 'BRL', 11),(12, 'MXN', 12),(13, 'RUB', 13),(14, 'ZAR', 14),(15, 'HKD', 15),(16, 'SAR', 16),(17, 'AED', 17),(18, 'SGD', 18),(19, 'THB', 19),(20, 'TRY', 20);

Test case : SELECT * FROM Currency WHERE Currency = 'USD';

Complex Test Cases

- SELECT * FROM accommodation.accommodation INNERJOIN accommodation.pictures USING(AccommodationID);
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- SELECT * FROM accommodation.booking INNERJOIN accommodation.booking_status ON isConfirmed = 0;
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- SELECT * FROM accommodation.country LEFTJOIN accommodation.city ON country.CountryID = city.CountryID AND country.Name = 'USA';

- SELECT * FROM accommodation.transaction INNERJOIN accommodation.currency ON transaction.Date = '2022-10-01' AND currency.Currency = 'USD';
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