The Requirements specification

1) The roles and their actions :

- THE HOST :
  - post an announce(picture, description …)
  - update an announce
  - delete an announce
  - rate the guest
  - get paid after 24 hours after guest arrival
  - create a profile page
  - upload at least one picture
  - post his/her phone number
  - calculate his/her expected income from his/her own accomodation
  - connect his/her profile with social networks

- THE GUEST :
  - pay by credit card
  - Book an accomodation
  - rate the host

- create an account

- provide more personal information (pictures, phone number, job ..)

- connect his/her profile with social networks

- THE COMPANY :

- establish the contact between host and guest

- handle the orders

- handle the transactions

- get 6-12% from guests and 3% from hosts after each deal done

- provide the access to various accomodations

1) Which data and functions are required?

- THE HOST :

- HostID {ID}

- First Name
- Last Name
- Email Address
- Phone Number
- Password
- Nationality

- Picture link
- Accomodation address (country, city, street and zip code)
- Accomodation description
- Accomodation picture(s)
- Accomodation price per night
- Accomodation availibility
- Accomodation category(category, vue, space)
- Rate
- Invoice
- Invoice Date
- Bank account number
- Bank name

* postAds()
* deleteAds()
* updateAds()
* rate()
* createProfile()
* uploadPhoto()
* postPhoneNumber()
* calculateIncome()

* shareProfil()

- THE GUEST :

- GuestID {ID}
- First Name
- Last Name
- Email Address
- Phone Number
- Job
- Marital Status
- Nationality
- Password

- Rate

- Invoice

- Invoice Date

- PhotoID {ID}

- Photo link
- CardID {ID}
- Card Number

- BookingID {ID}
- nbr of nights
- CheckIn Date
- CheckOut Date
- Total Cost
- nbr of persons

- BStatusID {ID}

- isBooked
- ExpirationDate

* rate()

* createProfile()

* uploadPhoto()

* postPhoneNumber()

* shareProfil()

* book()

* pay()

- THE COMPANY :

- AdminID {ID}
- Name
- Email Address
- Phone Number
- Password

- InvoiceID {ID}
- Invoice
- Date

- OrderID
- isConfirm
- Confirmation Date

- CardID {ID}
- Card Number

- BankAccountID {ID}
- Account Number
- Bank Name

- TransactionID {ID}
- Method
- Status
- AdminComission
- Host Comission
- Date

- CurrencyID {ID}
- Currency

* handleTransaction()

* handleOrders()

* establishContact()

* calculateComission()

3) Data dictionary:

The table name	Attribute name	Attribute description	Data type	Data range
Host	HostID	Assign a primary key to each host	INT	NOT NULL UNIQUE
	FirstName	Includes the first name of the host	VARCHAR	(50)
	LastName	Includes the last name of the host	VARCHAR	(50)
	EmailAddress	Hold the email address of the host	VARCHAR	(100) UNIQUE
	PhoneNumber	Describes the phone number	INT	
	Password	Includes the password of the host	CHAR	(100)

		profile		NOT NULL
	Nationality	Includes the origin of the host	CHAR	(200)
	Photo	Includes a link of the host photo	VARBINARY	(1500)
Accommodation	AccommodationID	Assign a primary key to each accommodation	INT	NOT NULL UNIQUE
	Description	Provide the accommodation with its description	TEXT	
	Price/night	Hold the price of one night of the described accommodation	REAL	
	HostID	Identify the owner of the accommodation as a foreign key	INT	
Rating	RatingID	Assign a primary key to every rating	INT	NOT NULL UNIQUE
	Rating	Include the rating assigned by the guests	Decimal	(2,1)
	HostID	Identify the owner of the rating as a foreign key	INT	
Host Commission	CommissionID	Assign a primary key for each commission	INT	NOT NULL UNIQUE
	Commission	Includes the amount of the commission	REAL	
	Date	When the host gets his commission from the admin	DATE	
	IncomeID	Identify the income as a foreign key	INT	
	HostID	Identify the owner of the commission as a foreign key	INT	
	CardID	Identify which card paid the commission as a foreign key	INT	
Host BankAccount	BankAccountID	Assign a primary key for each bank account	INT	NOT NULL UNIQUE
	Account Number	Describes the number of the bank account	INT	NOT NULL UNIQUE
	Bank Name	Describes the name of the bank account	CHAR	(100)

	HostID	Identify the owner of the bank account as a foreign key	INT	
	TransactionID	Identify the owner of the transaction as a foreign key	INT	
Pictures	PictureID	Assign a primary key for each picture	INT	NOT NULL UNIQUE
	Link	Includes the link for the photos	VARBINARY	(1500)
	AccommodationID	Identify the ownership of the pictures as a foreign key	INT	
Category	CategoryID	Assign a primary key for accommodation category	INT	NOT NULL UNIQUE
	Category	Describes the category of the accommodation	CHAR	(100)
	Space	Includes the space of the visited place	REAL	
	Vue	Mentions the vue of the place	CHAR	(80)
	AccommodationID	Identify the possessor of the category as a foreign key	INT	
Status	StatusID	Assign a primary key for the status of the accommodation	INT	NOT NULL UNIQUE
	isAvailable	Describes the status of the reserved accommodation	BOOLEAN	
	AccommodationID	Identify the possessor of the category as a foreign key	INT	
Country	CountryID	Assign a primary key for the country of the accommodation	INT	NOT NULL UNIQUE
	Name	Includes the name of the country	VARCHAR	(500)
	AccommodationID	Identify the possessor of the category as a foreign key	INT	
City	CityID	Assign a primary key for the city	INT	NOT NULL UNIQUE
	City	Includes the name of the city	VARCHAR	(500)
	Zip Code	Includes the zip code of the city	INT	
	CountryID	Identify the country primary key as a foreign key	INT	

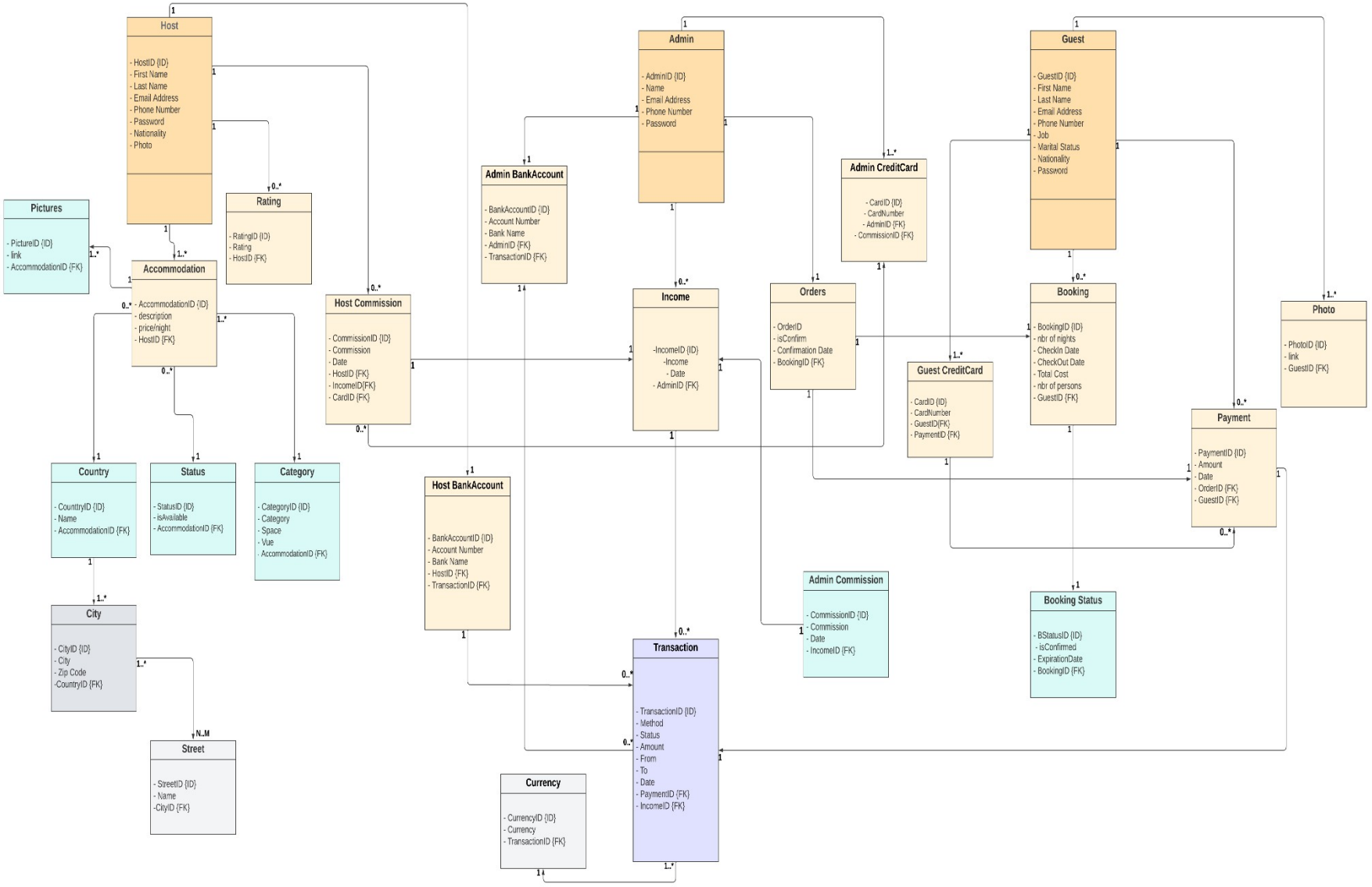
Admin	AdminID	Assigns a primary key for the platform	INT	NOT NULL UNIQUE
	FullName	Includes the name of the platform	VARCHAR	(200)
	Email Address	Hold the email address of the admin	CHAR	(200)
	Phone Number	Describes the phone number	INT	
	Password	Includes the password of the admin profile	CHAR	(100) NOT NULL
Admin BankAccount	BankAccountID	Assign a primary key for each bank account	INT	NOT NULL UNIQUE
	Account Number	Describes the number of the bank account	INT	NOT NULL UNIQUE
	Bank Name	Describes the name of the bank account	CHAR	(80)
	AdminID	Identify the owner of the bank account as a foreign key	INT	
	TransactionID	Identify the owner of the transaction as a foreign key	INT	
Income	IncomeID	Assign a primary key for each income	INT	NOT NULL UNIQUE
	Income	Includes the cost of the reservation	REAL	
	Date	Identifies when the admin gets the income	DATE	
	AdminID	Identify the owner of the income as a foreign key	INT	
Admin Commission	CommissionID	Assign a primary key for each commission	INT	NOT NULL UNIQUE
	Commission	Includes the amount of the commission	REAL	
	Date	When the admin gets his commission from one income	DATE	
	IncomeID	Identify the income as a foreign key	INT	

Orders	OrderID	Assign a primary key for order	INT	NOT NULL UNIQUE
	isConfirm	Describes the status of the order	BOOLEAN	
	Confirmation Date	The date of the confirmation	DATE	
	BookingID	Identify the order is for which booking as a foreign key	INT	
Admin CreditCard	CardID	Assign a primary key for each credit card	INT	NOT NULL UNIQUE
	CardNumber	Holds the number of the credit card	INT	
	AdminID	Identify the owner of the credit card as a foreign key	INT	
	InvoiceID	Identify which credit card paid for which invoice as a foreign key	INT	
Guest	GuestID	Assign a primary key to each guest	INT	NOT NULL UNIQUE
	First Name	Includes the first name of the guest	VARCHAR	(50)
	Last Name	Includes the last name of the guest	VARCHAR	(50)
	Email Address	Hold the email address of the guest	VARCHAR	(100) UNIQUE
	Phone number	Describes the phone number	INT	
	Password	Includes the password of the guest profile	CHAR	(100) NOT NULL
	Nationality	Includes the origin of the guest	CHAR	(200)
	Marital status	Includes the marital status of the guest	VARCHAR	(40)
	Job	Describes the guest's job	CHAR	(60)
Guest CreditCard	CardID	Assign a primary key for each credit card	INT	NOT NULL UNIQUE
	CardNumber	Holds the number of the credit card	INT	

	GuestID	Identify the owner of the credit card as a foreign key	INT	
	PaymentID	Identify which credit card paid for which invoice as a foreign key	INT	
Booking	BookingID	Assign a primary key for each credit card	INT	NOT NULL UNIQUE
	nbrOfNights	The number of nights consumed by guests	DECIMAL(2,1)	
	ChekInDate	The check in date	DATE	
	ChekOutDate	The check out date	DATE	
	Total	The total cost of one reservation	REAL	
	nbrOfPersons	The number of persons of one reservation	INT	NOT NULL
	GuestID	Identify the owner of the booking as a foreign key	INT	
Payment	Payment ID	Assign a primary key for each payment	INT	NOT NULL UNIQUE
	Amount	Includes the amount of the transactions	REAL	
	Date	The date of the invoice	DATE	
	GuestID	Identify the owner of the invoice as a foreign key	INT	
	OrderID	Identify the order of the invoice as a foreign key	INT	
Photo	PhotoID	Assign a primary key for each user photo	INT	
	Link	Includes the link for the photos	VARBINARY	(1500)
	GuestID	Identify the owner of the photo as a foreign key	INT	
Booking Status	BStatusID	Assign a primary key for the booking status	INT	NOT NULL UNIQUE
	isConfirmed	Describes the status of the booking	BOOLEAN	
	ExpirationDate	The date of the booking's expiration	DATE	

	BookingID	Identify the booking as a foreign key	INT	
Transaction	TransactionID	Assign a primary key for the booking status	INT	NOT NULL UNIQUE
	Method	The method of the payment could be for example by credit card or by bank	CHAR	(20)
	Status	Is transaction done or in progress ?	CHAR	(20)
	Amount	The amount of the transaction	REAL	
	From	From who's guest	VARCHAR	(100)
	To	To the company account	VARCHAR	(100)
	Date	The date of the transaction	DATE	
	PaymentID	Identify the transaction is for which payment as a foreign key	INT	
	IncomeID	Identify the income of the admin as a foreign key	INT	
Currency	CurrencyID	Assign a primary key for each currency	INT	NOT NULL UNIQUE
	Currency	The currency could be euros or dollars or others	CHAR	(20)
	TransactionID	Identify the owner of the transaction as a foreign key	INT	

- **The ER Model**


Host
- HostID {ID}
- First Name
- Last Name
- Email Address
- Phone Number
- Password
- Nationality
- Photo
Admin
- AdminID {ID}
- Name
- Email Address
- Phone Number
- Password
Guest
- GuestID {ID}
- First Name
- Last Name
- Email Address
- Phone Number
- Job
- Marital Status
- Nationality
- Password
Pictures
- PictureID {ID}
- link
- AccommodationID {FK}
Rating
- RatingID {ID}
- Rating
- HostID {FK}
Admin BankAccount
- BankAccountID {ID}
- Account Number
- Bank Name
- AdminID {FK}
- TransactionID {FK}
Admin CreditCard
- CardID {ID}
- CardNumber
- AdminID {FK}
- CommissionID {FK}
Accommodation
- AccommodationID {ID}
- description
- price/night
- HostID {FK}
Host Commission
- CommissionID {ID}
- Commission
- Date
- HostID {FK}
- IncomeID{FK}
- CardID {FK}
Income
-IncomeID (ID)
-Income
- Date
- AdminID {FK}
Orders
- OrderID
- isConfirm
- Confirmation Date
- BookingID {FK}
Booking
- BookingID {ID}
- nbr of nights
- CheckIn Date
- CheckOut Date
- Total Cost
- nbr of persons
- GuestID {FK}
Photo
- PhotoID {ID}
- link
- GuestID {FK}
Guest CreditCard
- CardID {ID}
- CardNumber
- GuestID{FK}
- PaymentID {FK}
Payment
- PaymentID {ID}
- Amount
- Date
- OrderID {FK}
- GuestID {FK}
Country
- CountryID {ID}
- Name
- AccommodationID {FK}
Status
- StatusID {ID}
- isAvailable
- AccommodationID {FK}
Category
- CategoryID {ID}
- Category
- Space
- Vue
- AccommodationID {FK}
Host BankAccount
- BankAccountID {ID}
- Account Number
- Bank Name
- HostID {FK}
- TransactionID {FK}
Admin Commission
- CommissionID {ID}
- Commission
- Date
- IncomeID {FK}
Booking Status
- BStatusID {ID}
- isConfirmed
- ExpirationDate
- BookingID {FK}
City
- CityID {ID}
- City
- Zip Code
-CountryID {FK}
Transaction
- TransactionID {ID}
- Method
- Status
- Amount
- From
- To
- Date
- PaymentID {FK}
- IncomeID {FK}
Street
- StreetID {ID}
- Name
-CityID {FK}
Currency
- CurrencyID {ID}
- Currency
- TransactionID {FK}

PROJECT: BUILD A DATA MART IN SQL

FIRST NAME : DORRA

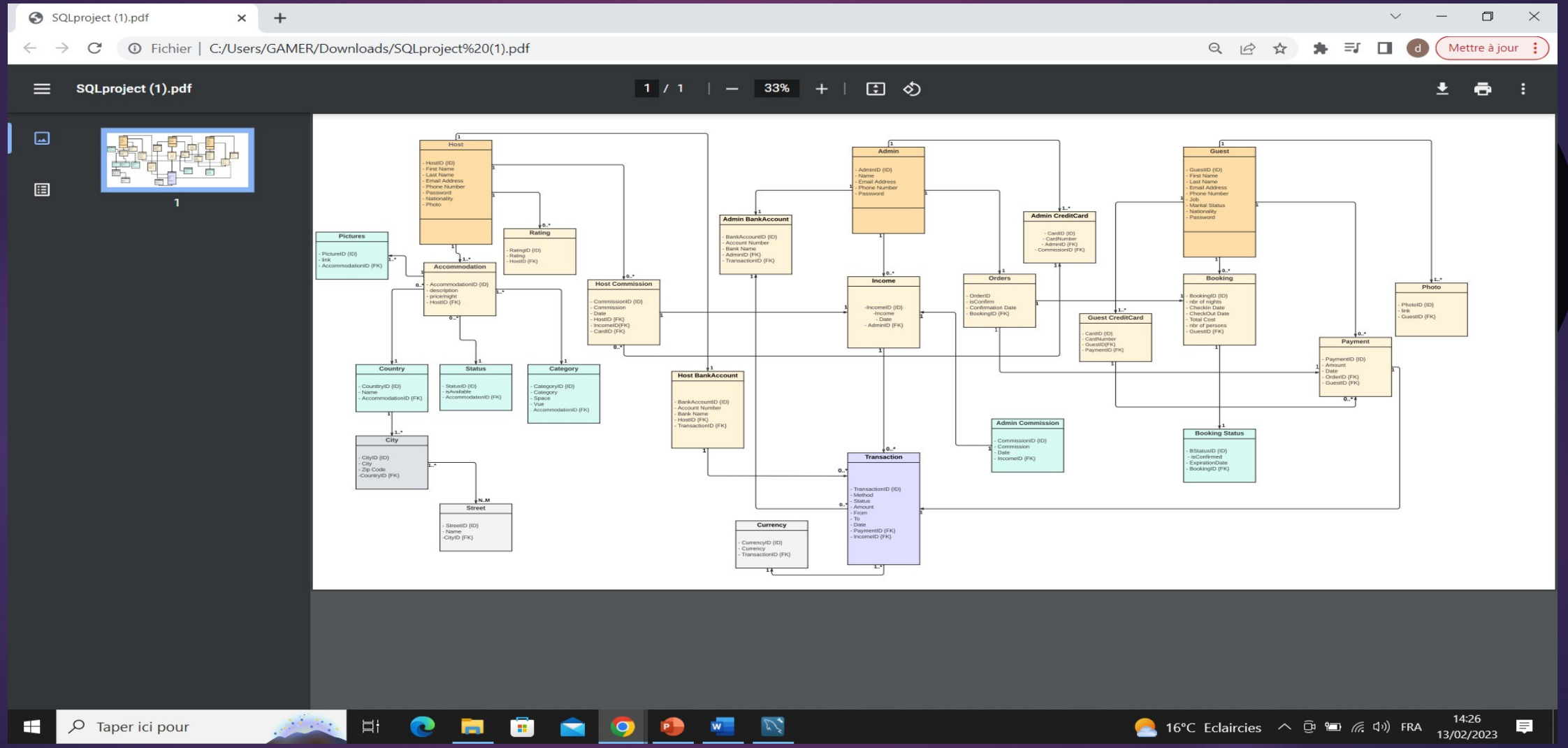
LAST NAME : KAHLA

MATRICULATIO N° : 92108575

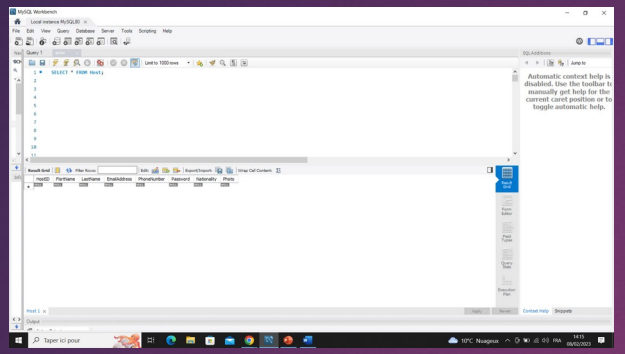
A SUMMARY

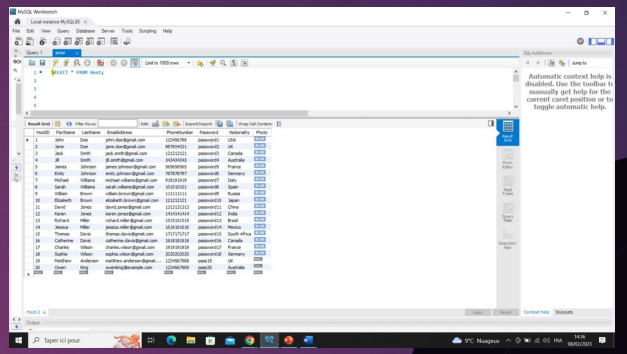
- In this phase, I used MySQL as a database management system to implement the my SQL queries according to the modeling phase .
- In the following slides you will find the ER model of the project then the implementation of each entity separated each in its own slide .
- The slides include the creation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

The ER Diagram

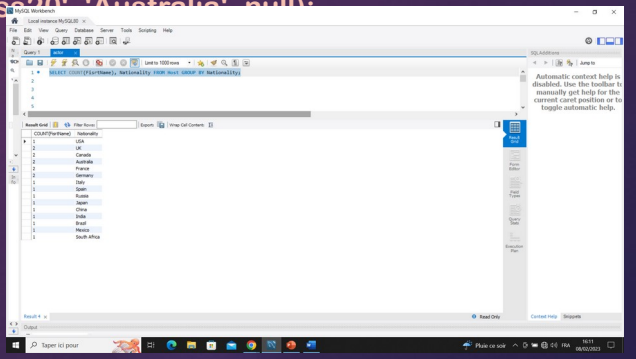


- CREATE TABLE Host (HostID INT NOT NULL UNIQUE PRIMARY KEY,FisrtName VARCHAR(50), LastName VARCHAR(50), EmailAddress VARCHAR(100) UNIQUE, PhoneNumber INT, Password CHAR(100) NOT NULL, Nationality CHAR(200), Photo VARBINARY(1500));



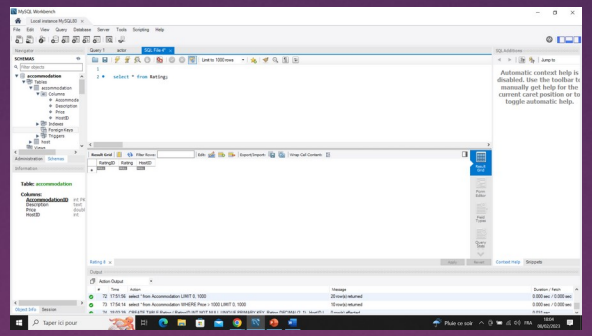


- INSERT INTO Host (HostID, FisrtName, LastName, EmailAddress, PhoneNumber, Password, Nationality, Photo)VALUES (1, 'John', 'Doe', 'john.doe@gmail.com', 123456789, 'password1', 'USA', 0x01),(2, 'Jane', 'Doe', 'jane.doe@gmail.com', 987654321, 'password2', 'UK', 0x02),(3, 'Jack', 'Smith', 'jack.smith@gmail.com', 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);

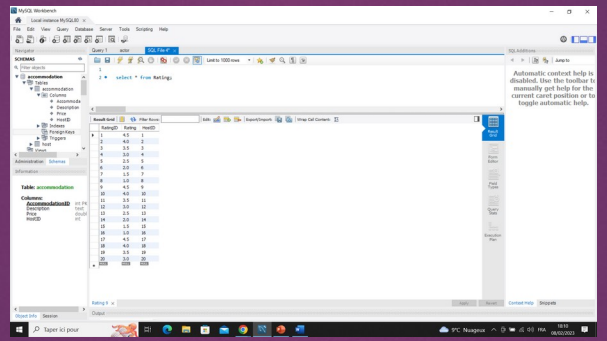


- Test Case : SELECT COUNT(FisrtName), Nationality FROM Host GROUP BY Nationality;

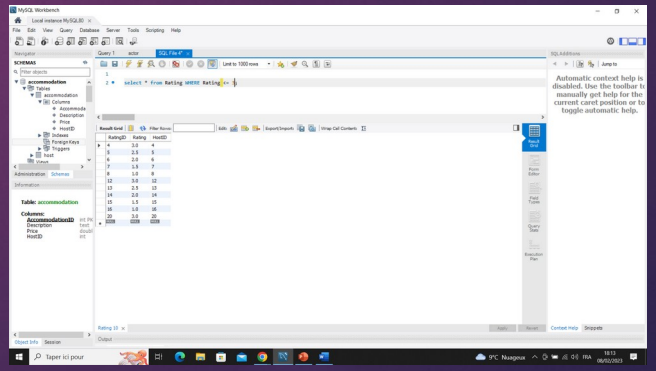
- CREATE TABLE Rating (RatingID INT NOT NULL UNIQUE PRIMARY KEY,Rating DECIMAL(2, 1), HostID INT REFERENCES Host(HostID))



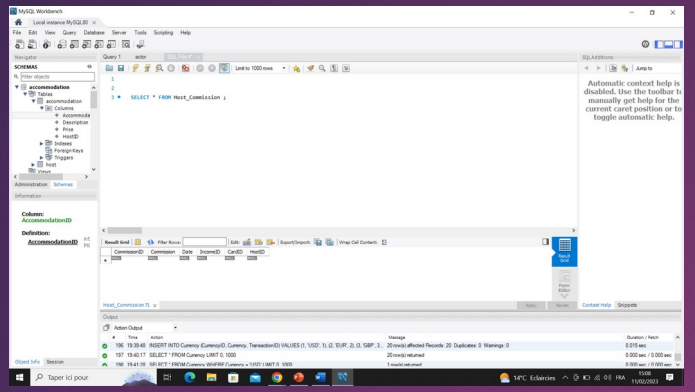
- INSERT INTO Rating (RatingID, Rating, HostID) VALUES (1, 4.5, 1), (2, 4.0, 2), (3, 3.5, 3), (4, 3.0, 4), (5, 2.5, 5), (6, 2.0, 6), (7, 1.5, 7), (8, 1.0, 8), (9, 4.5, 9), (10, 4.0, 10), (11, 3.5, 11), (12, 3.0, 12), (13, 2.5, 13), (14, 2.0, 14), (15, 1.5, 15), (16, 1.0, 16), (17, 4.5, 17), (18, 4.0,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

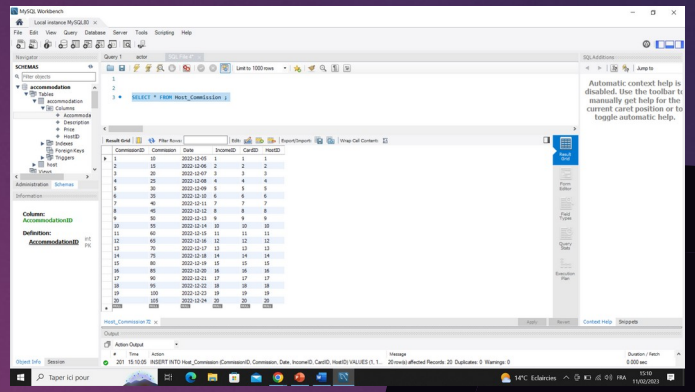


- Test case : select * from Rating WHERE Rating <= 3;



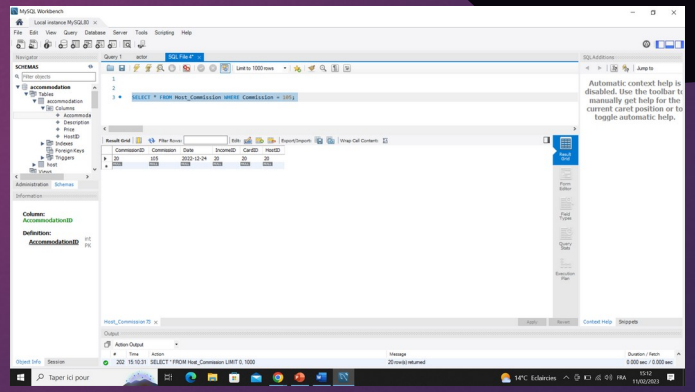
- CREATE TABLE Host_Commission (CommissionID INT NOT NULL UNIQUE PRIMARY KEY,Commission REAL,Date DATE, IncomeID INT REFERENCES Income(IncomeID),CardID INT REFERENCES Card(CardID),HostID INT REFERENCES Host(HostID));



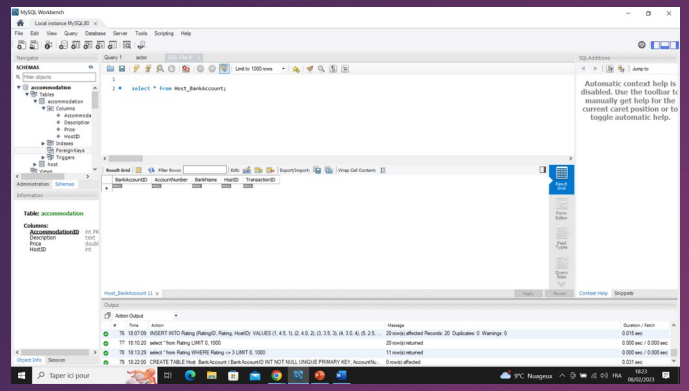


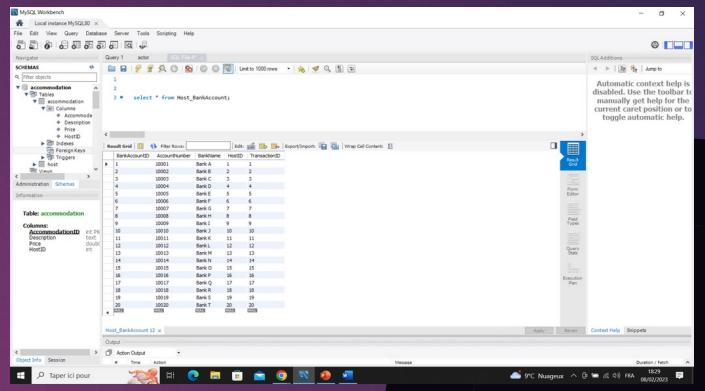
- INSERT INTO Host_Commission (CommissionID, Commission, Date, IncomeID, CardID, HostID)VALUES(1, 10.0, '2022-12-05', 1, 1, 1),(2, 15.0, '2022-12-06', 2, 2, 2),(3, 20.0, '2022-12-07', 3, 3, 3),(4, 25.0, '2022-12-08', 4, 4, 4),(5, 30.0, '2022-12-09', 5, 5, 5),(6, 35.0, '2022-12-10', 6, 6, 6),(7, 40.0, '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);

- Test case : SELECT * FROM Host_Commission WHERE Commission = 105;



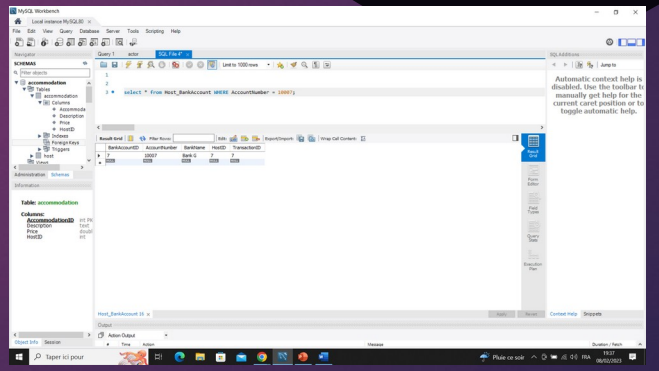
- CREATE TABLE Host_BankAccount (BankAccountID INT NOT NULL UNIQUE PRIMARY KEY,AccountNumber INT NOT NULL UNIQUE, BankName CHAR(100), HostID INT REFERENCES Host(HostID), TransactionID INT REFERENCES Transaction(TransactionID));



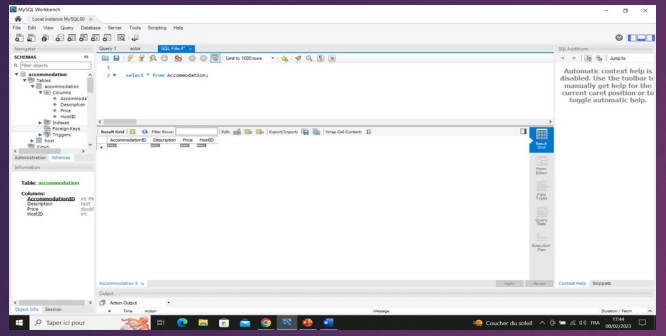


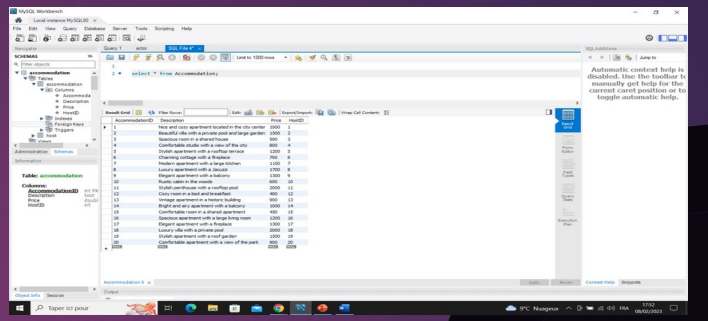
- INSERT INTO Host_BankAccount (BankAccountID, AccountNumber, BankName, HostID, TransactionID)VALUES (1, 10001, 'Bank A', 1, 1), (2, 10002, 'Bank B', 2, 2), (3, 10003, 'Bank C', 3, 3), (4, 10004, 'Bank D', 4, 4), (5, 10005, 'Bank E', 5, 5), (6, 10006, 'Bank F', 6, 6),(7, 10007, 'Bank G', 7, 7), (8, 10008, '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);

- Test case : select * from Host_BankAccount WHERE AccountNumber = 10007;



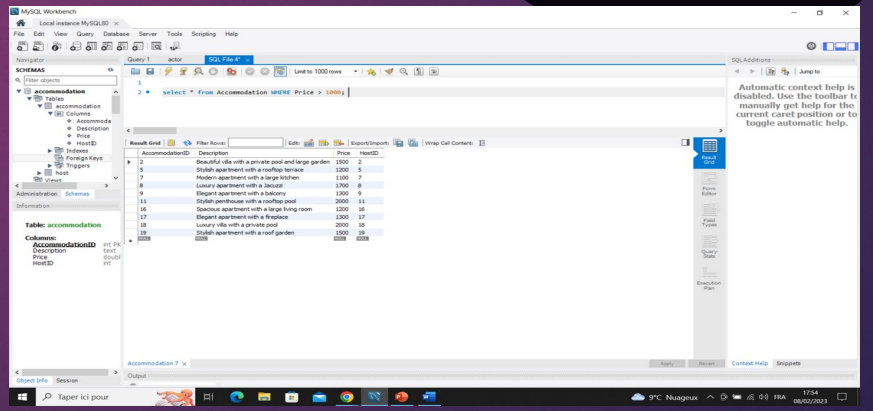
- CREATE TABLE Accommodation (AccommodationID INT NOT NULL UNIQUE PRIMARY KEY,Description TEXT,Price REAL, HostID int REFERENCES Host(HostID)



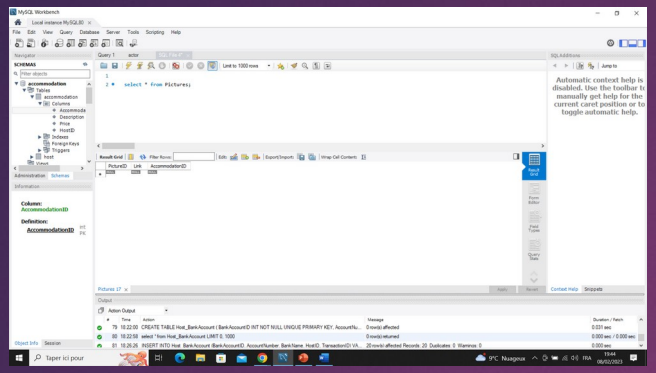


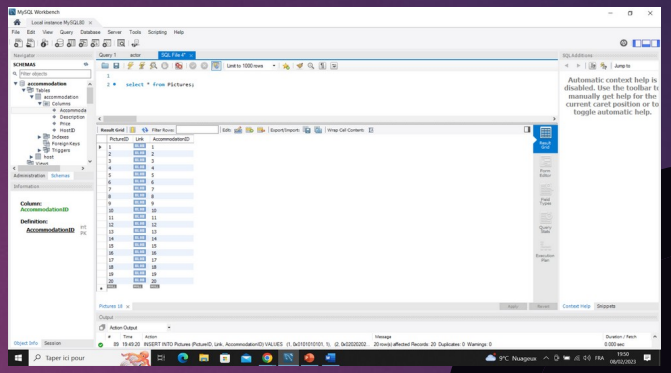
- INSERT INTO Accommodation (AccommodationID, Description, Price, HostID) VALUES (1, 'Nice and cozy apartment located in the city center', 1000, 1), (2, 'Beautiful villa with a private pool and large garden', 1500, 2), (3, 'Spacious room in a shared house', 500, 3), (4, 'Comfortable studio with a view 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);

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



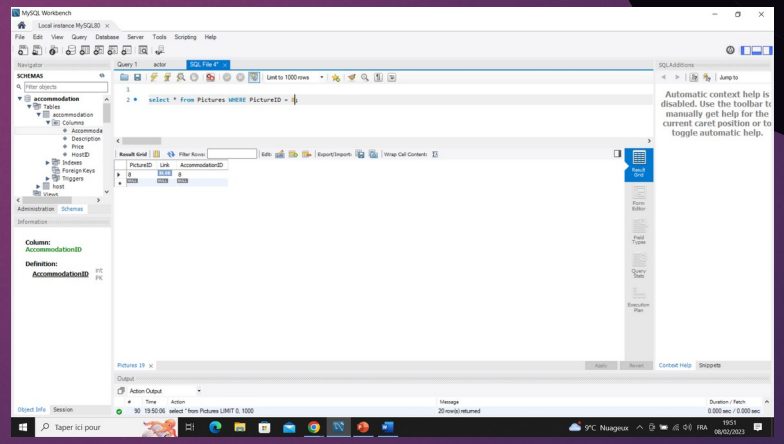
- CREATE TABLE Pictures (PictureID INT NOT NULL UNIQUE PRIMARY KEY,Link VARBINARY(1500), AccommodationID INT REFERENCES Accommodation(AccommodationID));



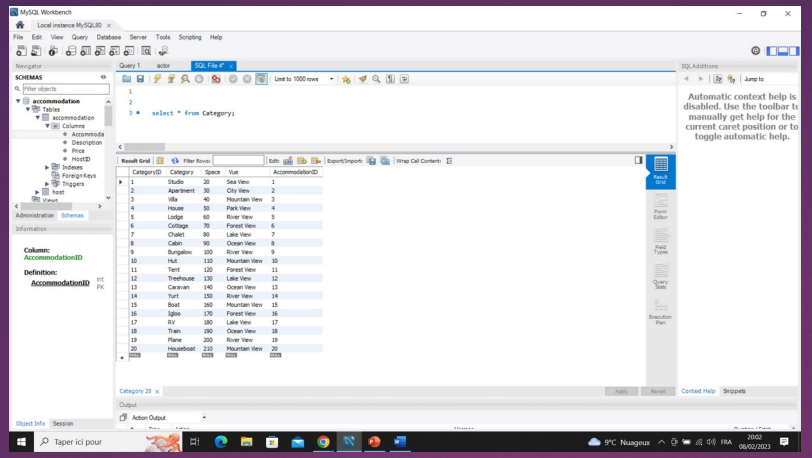


- INSERT INTO Pictures (PictureID, Link, AccommodationID) VALUES (1, 0x0101010101, 1), (2, 0x0202020202, 2), (3, 0x0303030303, 3), (4, 0x0404040404, 4), (5, 0x0505050505, 5), (6, 0x0606060606, 6), (7, 0x0707070707, 7), (8, 0x0808080808, 8), (9, 0x0909090909, 9), (10, 0x1010101010, 10), (11, 0x1111111111, 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;

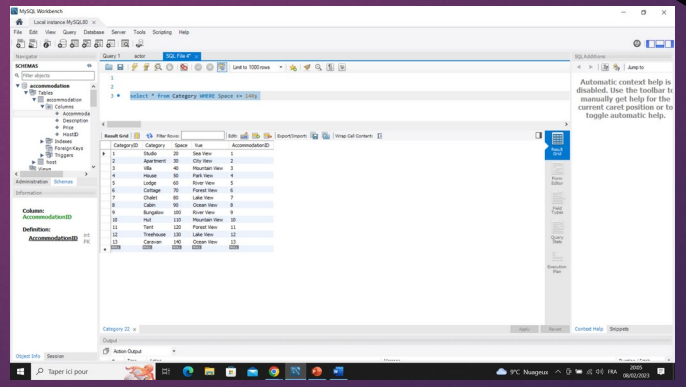


- CREATE TABLE Category (CategoryID INT NOT NULL UNIQUE PRIMARY KEY,Category CHAR(100), Space REAL, Vue CHAR(80), AccommodationID INT REFERENCES Accommodation(AccommodationID));

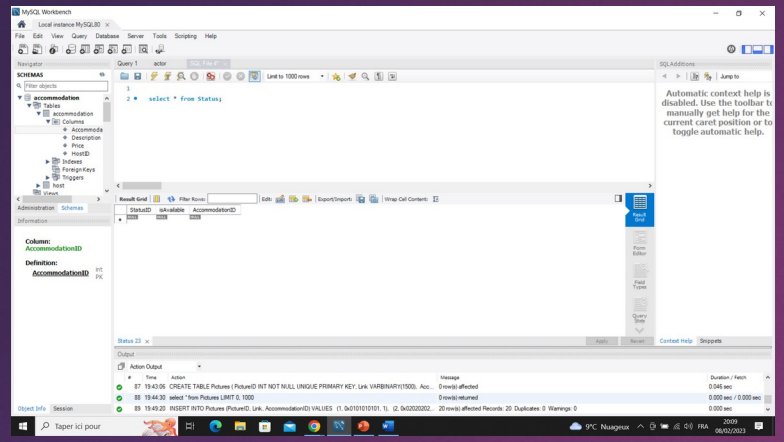


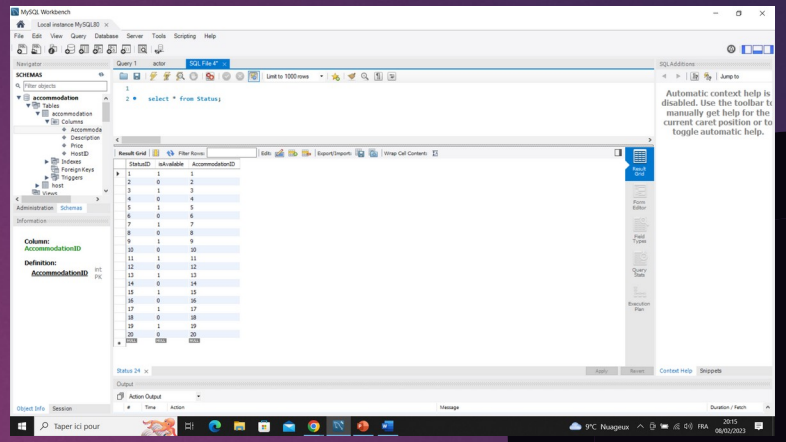
- INSERT INTO Category (CategoryID, Category, Space, Vue, AccommodationID)VALUES(1, 'Studio', 20, 'Sea View', 1),(2, 'Apartment', 30, 'City View', 2),(3, 'Villa', 40, 'Mountain View', 3),(4, 'House', 50, 'Park View', 4),(5, 'Lodge', 60, 'River View', 5),(6, 'Cottage', 70, 'Forest View', 6),(7, 'Chalet', 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);

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

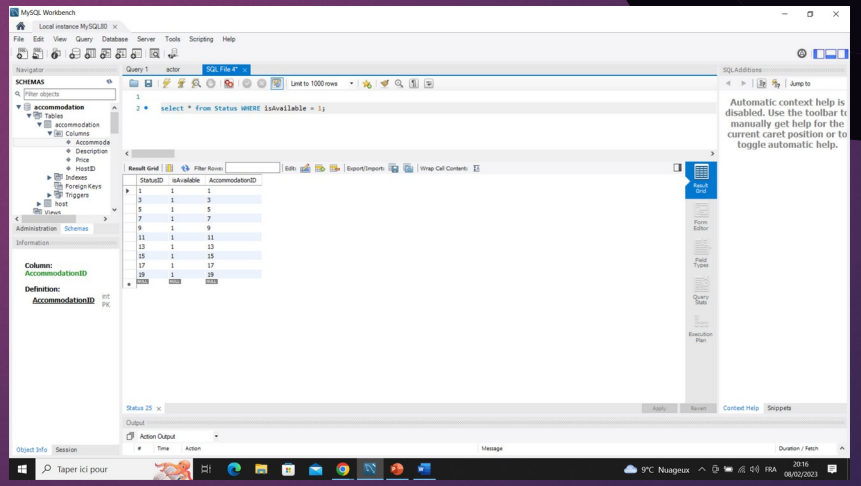


- CREATE TABLE Status (StatusID INT NOT NULL UNIQUE PRIMARY KEY,isAvailable BOOLEAN, AccommodationID INT REFERENCES Accommodation(AccommodationID));

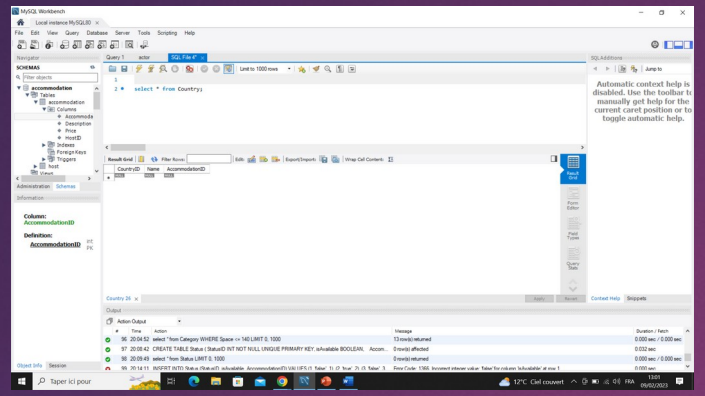


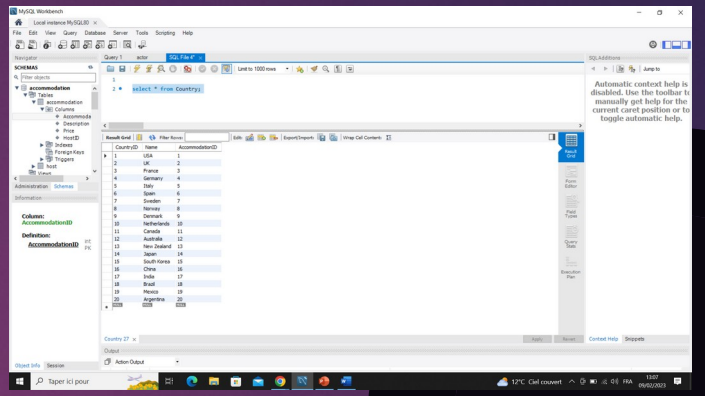


- INSERT INTO Status (StatusID, isAvailable, AccommodationID) VALUES (1, 1, 1), (2, 0, 2), (3, 1, 3), (4, 0, 4), (5, 1, 5), (6, 0, 6), (7, 1, 7), (8, 0, 8), (9, 1, 9), (10, 0, 10), (11, 1, 11), (12, 0, 12), (13, 1, 13), (14, 0, 14), (15, 1, 15), (16, 0, 16), (17, 1, 17), (18, 0, 18), (19, 1, 19), (20,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



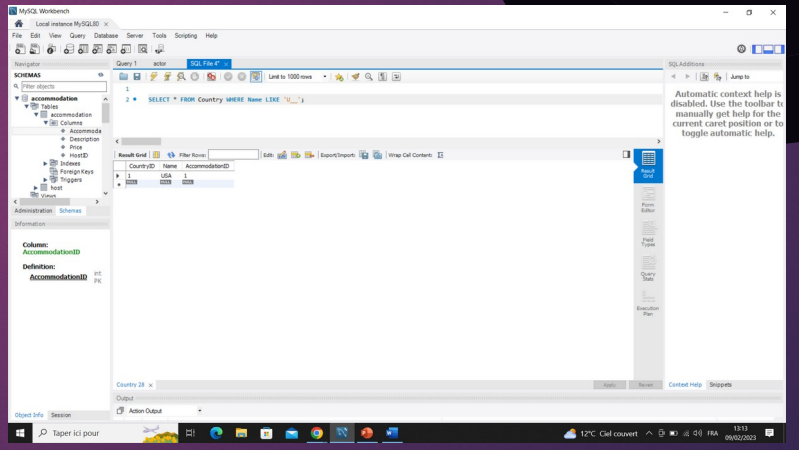
- CREATE TABLE Country (CountryID INT NOT NULL UNIQUE PRIMARY KEY,Name VARCHAR(500), AccommodationID INT REFERENCES Accommodation(AccommodationID));



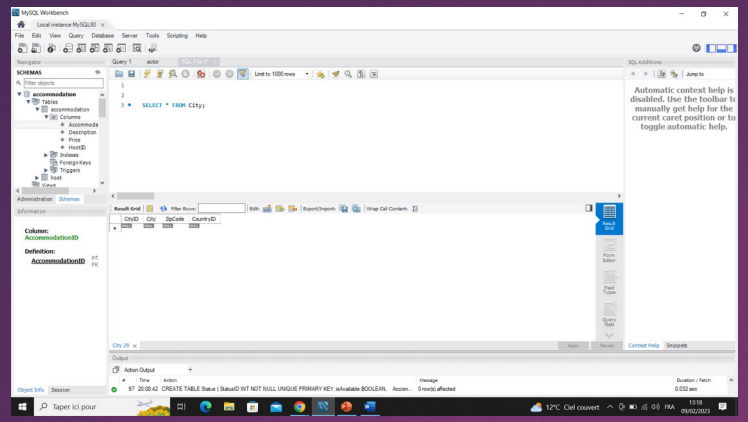


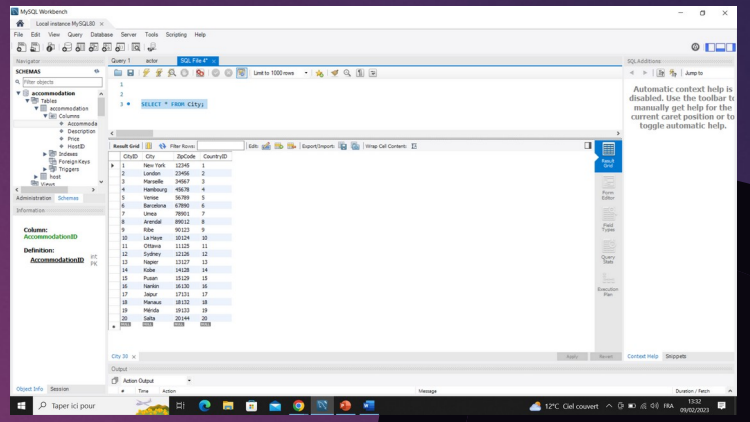
- INSERT INTO Country (CountryID, Name, AccommodationID) VALUES (1, 'USA', 1), (2, 'UK', 2), (3, 'France', 3), (4, 'Germany', 4), (5, 'Italy', 5), (6, 'Spain', 6), (7, 'Sweden', 7), (8, 'Norway', 8), (9, 'Denmark', 9), (10, 'Netherlands', 10), (11, 'Canada', 11), (12, 'Australia', 12), (13, 'New Zealand',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

- Test case : SELECT * FROM Country WHERE Name LIKE 'U__';

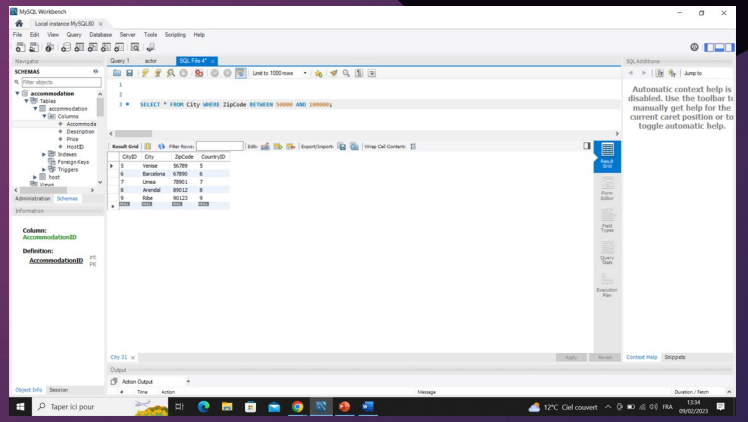


- CREATE TABLE City (CityID INT NOT NULL UNIQUE PRIMARY KEY,City VARCHAR(500), ZipCode INT,CountryID INT REFERENCES Country(CountryID));

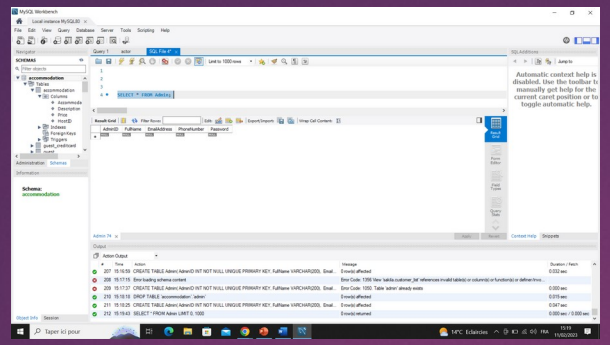


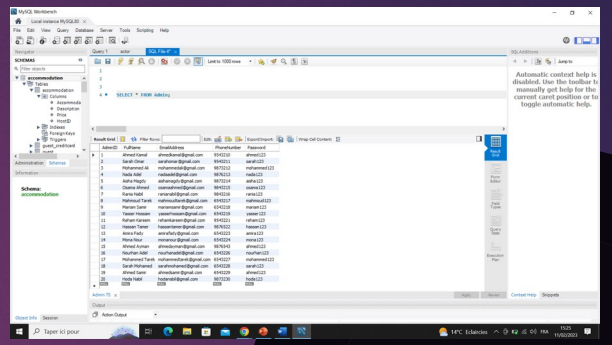


- INSERT INTO City (CityID, City, ZipCode, CountryID) VALUES (1, 'New York', 12345, 1), (2, 'London', 23456, 2), (3, 'Marseille', 34567, 3), (4, 'Hambourg', 45678, 4), (5, 'Venise', 56789, 5), (6, 'Barcelona', 67890, 6), (7, 'Umea', 78901, 7), (8, 'Arendal', 89012, 8), (9, 'Ribe', 90123, 9), (10, 'La 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);
- Test case : SELECT * FROM City WHERE ZipCode BETWEEN 50000 AND 100000;



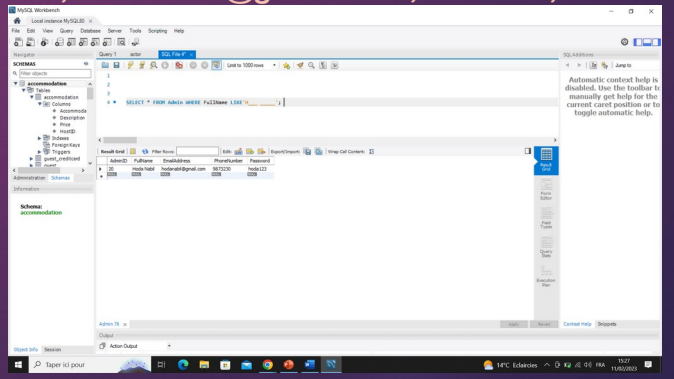
- CREATE TABLE Admin(AdminID INT NOT NULL UNIQUE PRIMARY KEY, FullName VARCHAR(200), EmailAddress CHAR(200), PhoneNumber INT, Password CHAR(100) NOT NULL);



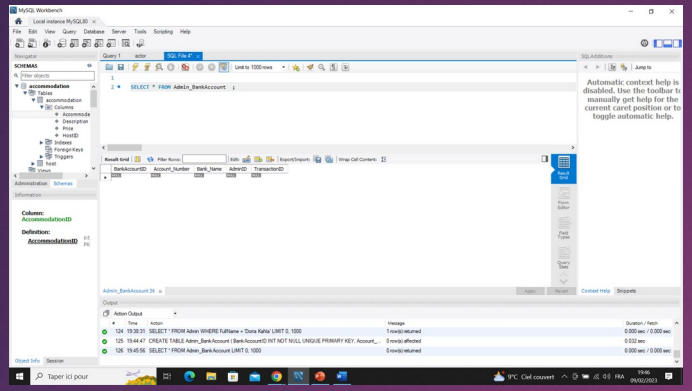


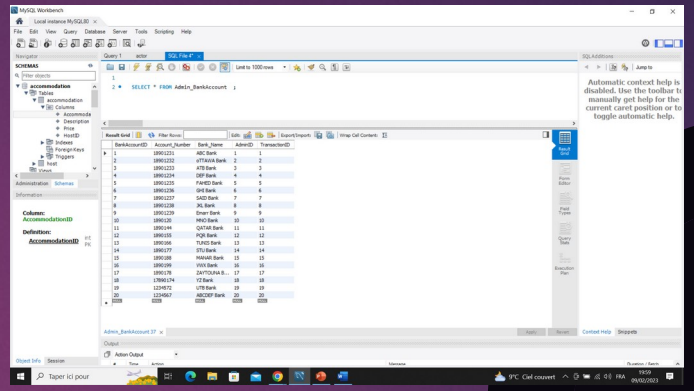
- INSERT INTO Admin (AdminID, FullName, EmailAddress, PhoneNumber, Password)VALUES(1, 'Ahmed Kamal', 'ahmedkamal@gmail.com', 9543210, 'ahmed123'),(2, 'Sarah Omar', 'sarahomar@gmail.com', 9543211, 'sarah123'),(3, 'Mohammed Ali', 'mohammedali@gmail.com', 9873212, 'mohammed123'),(4, 'Nada Adel', 'nadaadel@gmail.com', 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’);

- Test case :SELECT * FROM Admin WHERE FullName LIKE'H___ _____';



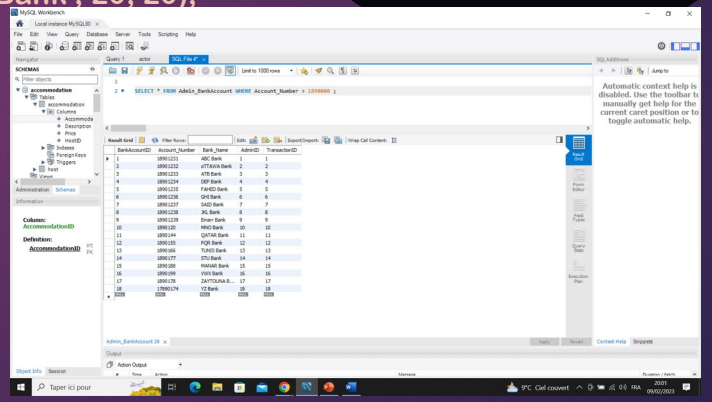
- CREATE TABLE Admin_BankAccount (BankAccountID INT NOT NULL UNIQUE PRIMARY KEY,Account_Number INT NOT NULL UNIQUE,Bank_Name CHAR(80), AdminID INT REFERENCES Admin(AdminID), TransactionID INT REFERENCES Transaction(TransactionID));



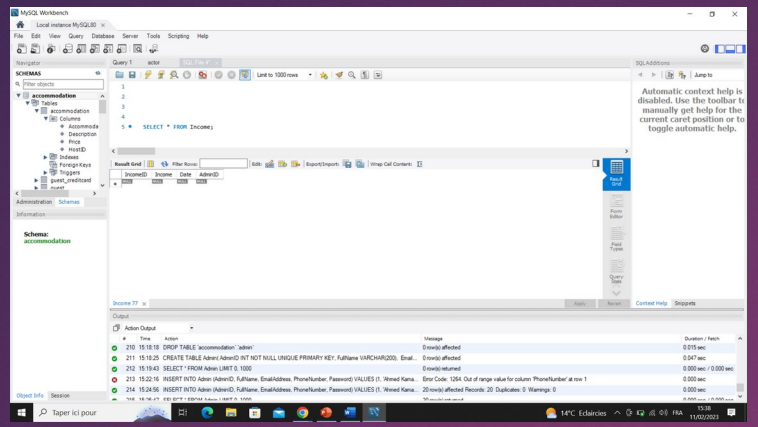


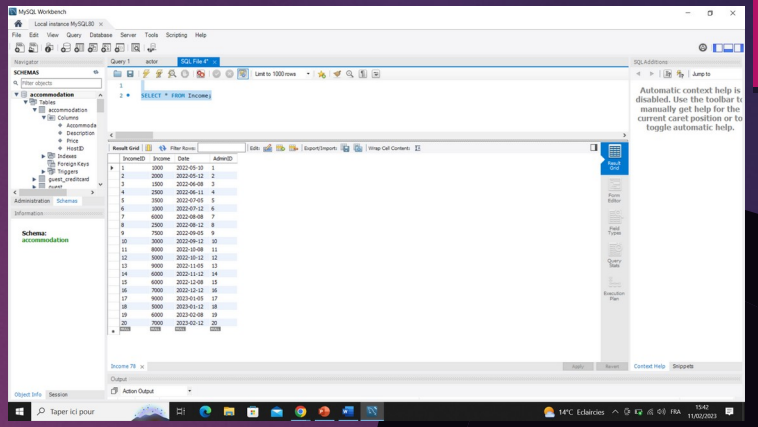
- INSERT INTO Admin_BankAccount (BankAccountID, Account_Number, Bank_Name, AdminID, TransactionID)VALUES(1, 18901231, 'ABC Bank', 1, 1),(2, 18901232, 'oTTAWA Bank', 2, 2),(3, 18901233, 'ATB Bank', 3, 3),(4, 18901234, 'DEF Bank', 4, 4),(5, 18901235, 'FAHED Bank', 5, 5),(6, 18901236, 'GHI Bank', 6, 6),(7, 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);

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



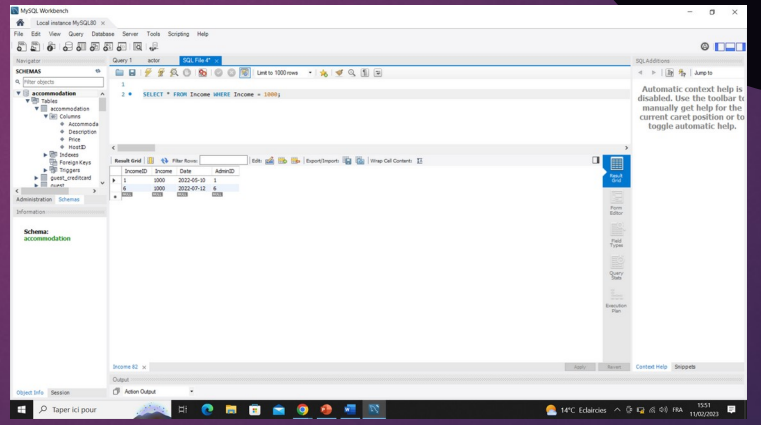
- CREATE TABLE Income (IncomeID INT NOT NULL UNIQUE PRIMARY KEY,Income REAL,Date DATE, AdminID INT REFERENCES Admin(AdminID));



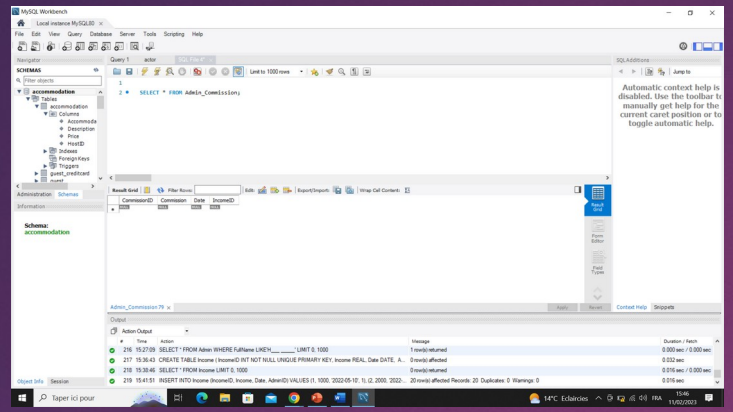


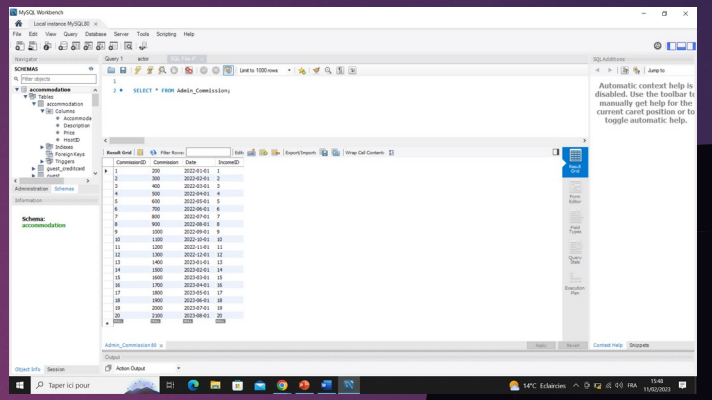
- INSERT INTO Income (IncomeID, Income, Date, AdminID) VALUES(1, 1000, '2022-05-10', 1),(2, 2000, '2022-05-12', 2),(3, 1500, '2022-06-08', 3),(4, 2500, '2022-06-11', 4),(5, 3500, '2022-07-05', 5),(6, 1000, '2022-07-12', 6),(7, 6000, '2022-08-08', 7),(8, 2500, '2022-08-12', 8),(9, 7500, '2022-09-05', 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);

- Test case : SELECT * FROM Income WHERE Income = 1000;

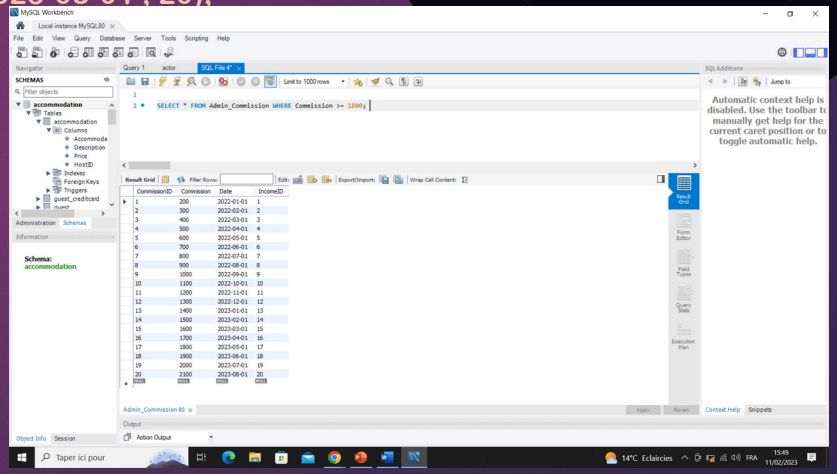


- CREATE TABLE Admin_Commission (CommissionID INT NOT NULL UNIQUE PRIMARY KEY,Commission REAL,Date DATE, IncomeID INT REFERENCES Income(IncomeID));

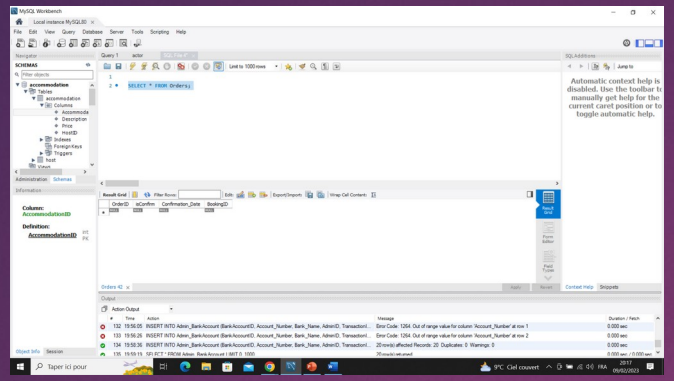


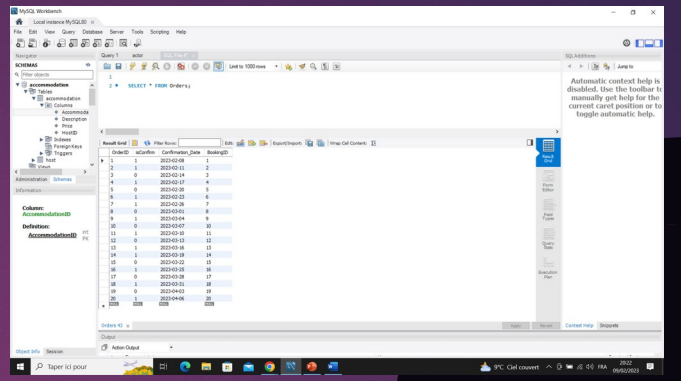


- INSERT INTO Admin_Commission (CommissionID, Commission, Date, IncomeID) VALUES (1, 200.0, '2022-01-01', 1),(2, 300.0, '2022-02-01', 2),(3, 400.0, '2022-03-01', 3),(4, 500.0, '2022-04-01', 4),(5, 600.0, '2022-05-01', 5),(6, 700.0, '2022-06-01', 6),(7, 800.0, '2022-07-01', 7),(8, 900.0, '2022-08-01', 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);
- Test case : SELECT * FROM Admin_Commission WHERE Commission >= 1800;



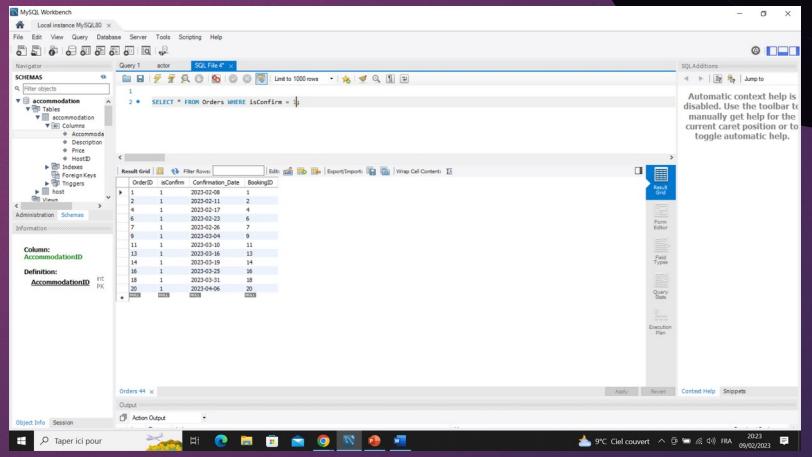
- CREATE TABLE Orders (OrderID INT NOT NULL UNIQUE PRIMARY KEY,isConfirm BOOLEAN,Confirmation_Date DATE, BookingID INT REFERENCES Booking(BookingID));



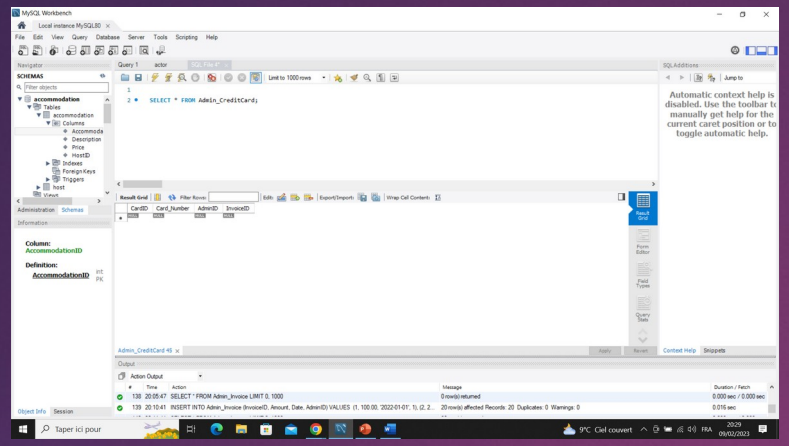


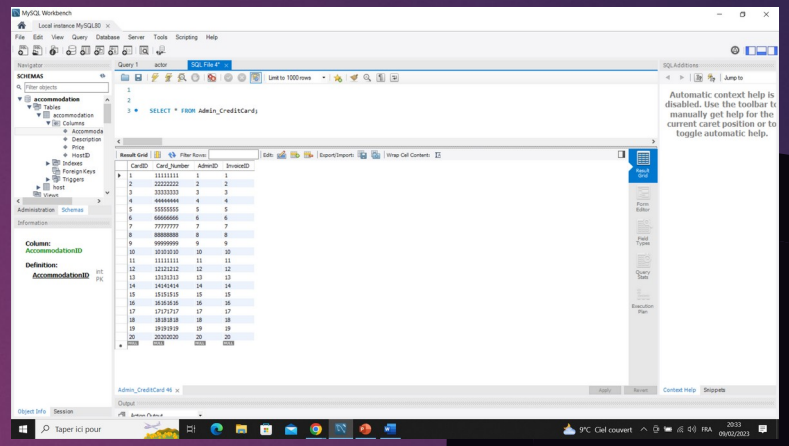
- INSERT INTO Orders (OrderID, isConfirm, Confirmation_Date, BookingID)VALUES (1, 1, '2023-02-08', 1), (2, 1, '2023-02-11', 2), (3, 0, '2023-02-14', 3), (4, 1, '2023-02-17', 4), (5, 0, '2023-02-20', 5), (6, 1, '2023-02-23', 6), (7, 1, '2023-02-26', 7), (8, 0, '2023-03-01', 8), (9, 1, '2023-03-04', 9), (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);

- Test case : SELECT * FROM Orders WHERE isConfirm = 1;

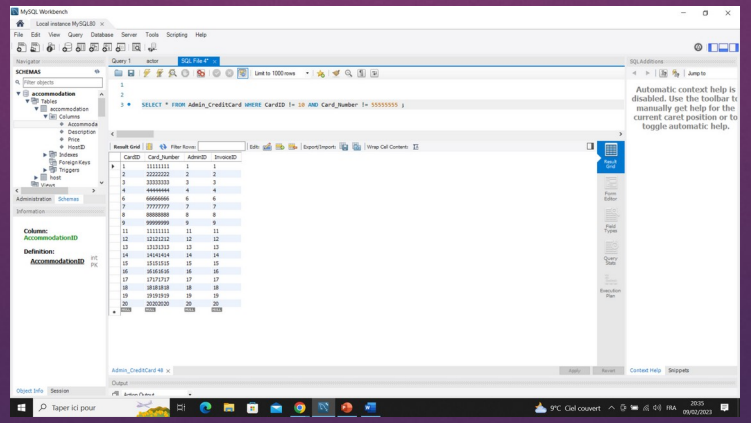


- CREATE TABLE Admin_CreditCard (CardID INT NOT NULL UNIQUE PRIMARY KEY,Card_Number INT,AdminID INT REFERENCES Admin(AdminID), InvoiceID INT REFERENCES Invoice(InvoiceID));

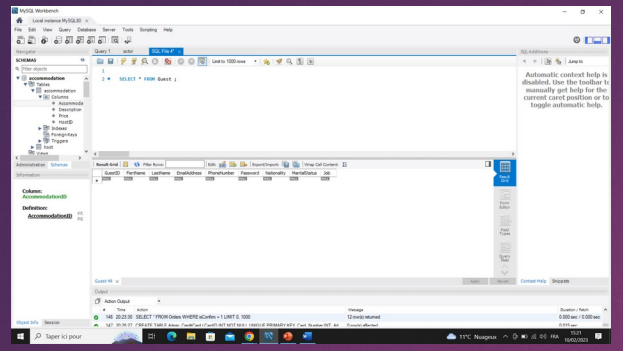


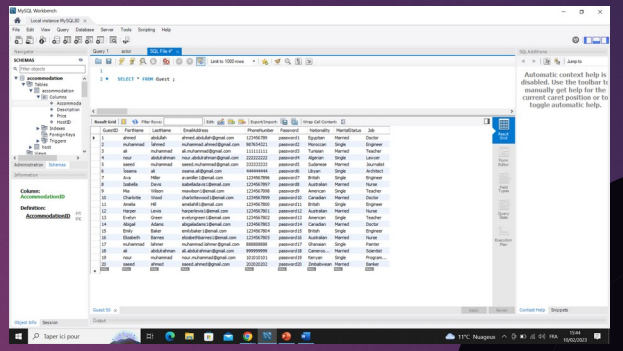


- INSERT INTO Admin_CreditCard (CardID, Card_Number, AdminID, InvoiceID) VALUES (1, 11111111, 1, 1), (2, 22222222, 2, 2), (3, 33333333, 3, 3), (4, 44444444, 4, 4), (5, 55555555, 5, 5), (6, 66666666, 6, 6), (7, 77777777, 7, 7), (8, 88888888, 8, 8), (9, 99999999, 9, 9), (10, 10101010, 10, 10), (11, 11111111, 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 ;



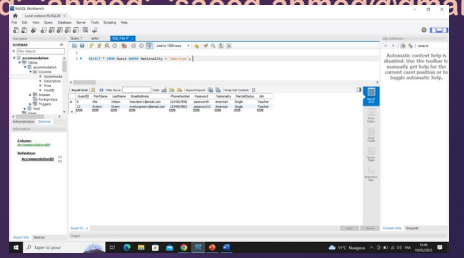
- CREATE TABLE Guest (GuestID INT NOT NULL UNIQUE PRIMARY KEY,FisrtName VARCHAR(50), LastName VARCHAR(50), EmailAddress VARCHAR(100) UNIQUE, PhoneNumber INT, Password CHAR(100) NOT NULL, Nationality CHAR(200), MaritalStatus VARCHAR(40), Job CHAR(60));



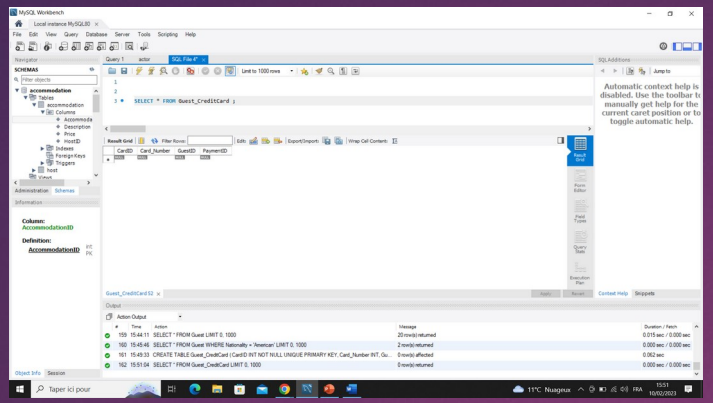


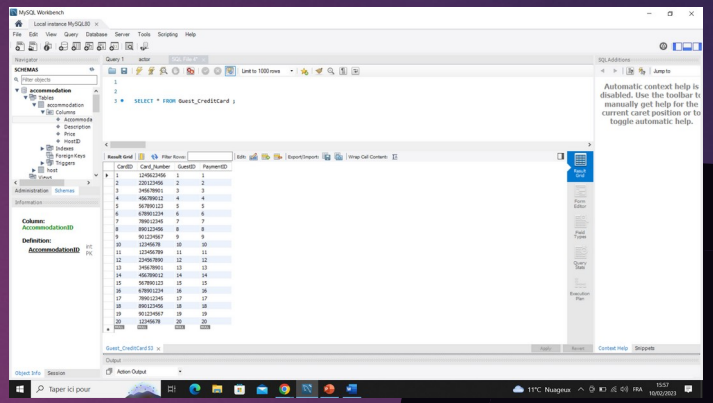
- INSERT INTO Guest (GuestID, FisrtName, LastName, EmailAddress, PhoneNumber, Password, Nationality, MaritalStatus, Job)VALUES (1, 'ahmed', 'abdullah', 'ahmed.abdullah@gmail.com', 123456789, 'password1', 'Egyptian', 'Married', 'Doctor'),(2, 'muhammad', 'ahmed', 'muhammad.ahmed@gmail.com', 987654321, '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');

- Test case : SELECT * FROM Guest WHERE Nationality = 'American';



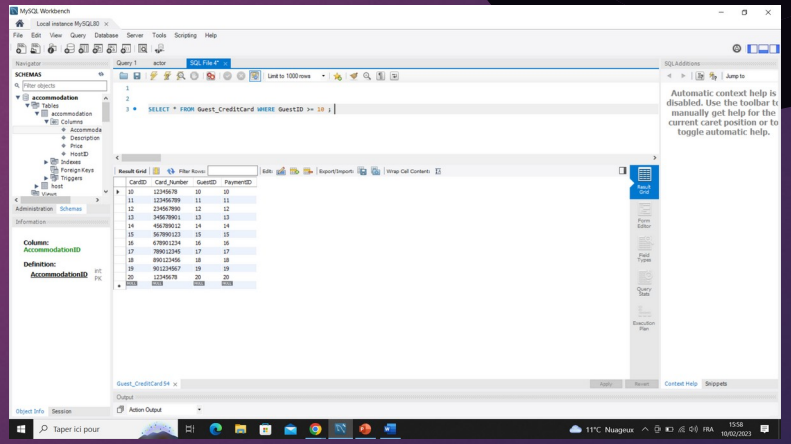
- CREATE TABLE Guest_CreditCard (CardID INT NOT NULL UNIQUE PRIMARY KEY,Card_Number INT,GuestID INT REFERENCES Guest(GuestID), PaymentID INT REFERENCES Payment(PaymentID));



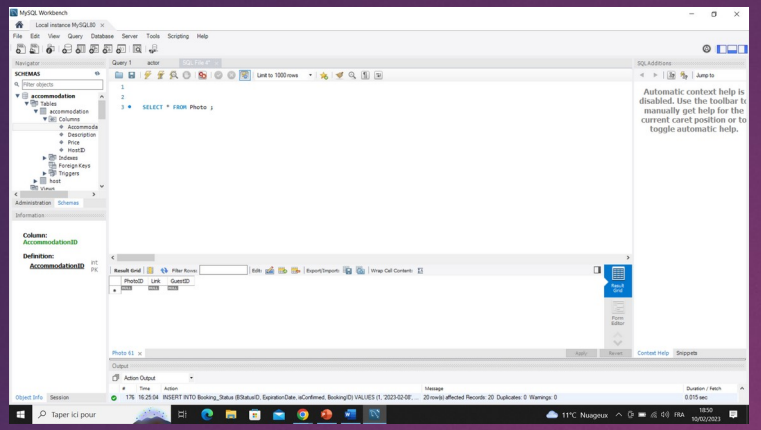


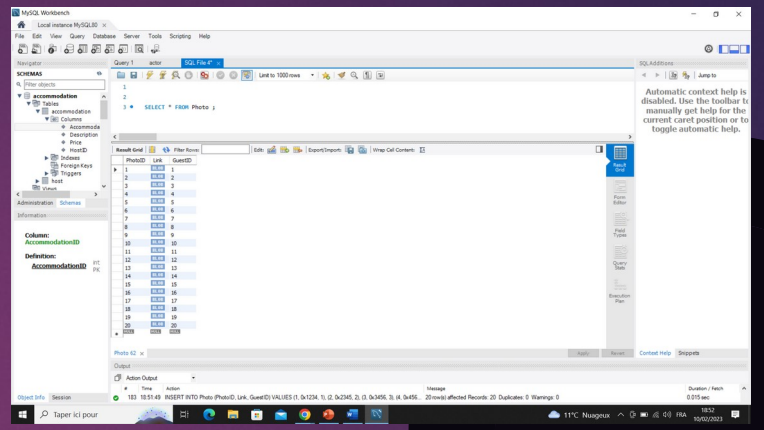
- INSERT INTO Guest_CreditCard (CardID, Card_Number, GuestID, PaymentID) VALUES (1, 1245623456, 1, 1), (2, 220123456, 2, 2), (3, 345678901, 3, 3), (4, 456789012, 4, 4), (5, 567890123, 5, 5), (6, 678901234, 6, 6), (7, 789012345, 7, 7), (8, 890123456, 8, 8), (9, 901234567, 9, 9), (10, 012345678, 10, 10), (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);

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

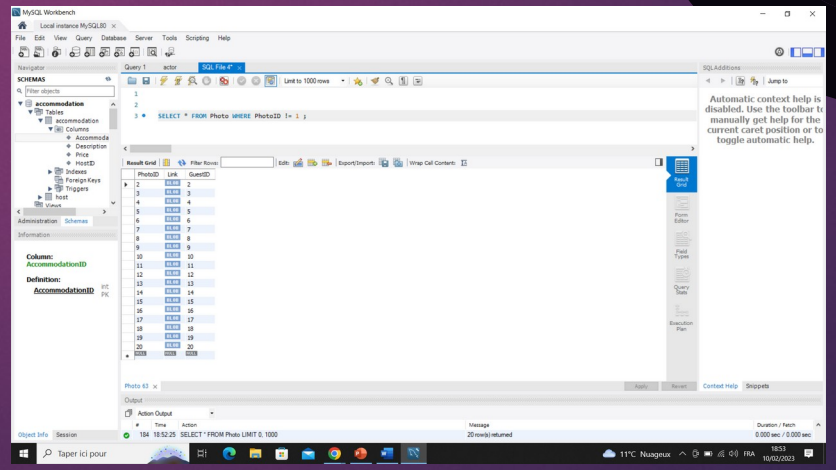


- CREATE TABLE Photo (PhotoID INT NOT NULL UNIQUE PRIMARY KEY,Link VARBINARY(1500), GuestID INT REFERENCES Guest(GuestID));

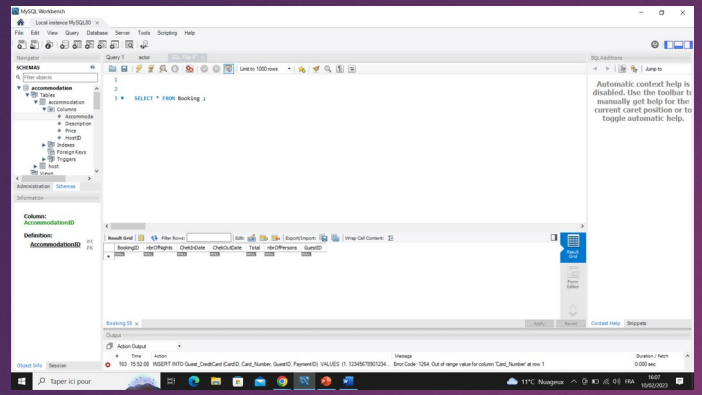


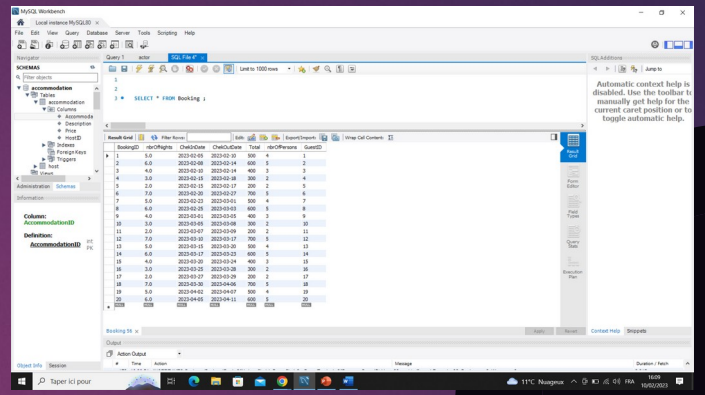


- INSERT INTO Photo (PhotoID, Link, GuestID) VALUES(1, 0x1234, 1),(2, 0x2345, 2),(3, 0x3456, 3),(4, 0x4567, 4),(5, 0x5678, 5),(6, 0x6789, 6),(7, 0x7890, 7),(8, 0x8901, 8),(9, 0x9012, 9),(10, 0x0123, 10),(11, 0x1234, 11),(12, 0x2345, 12),(13, 0x3456, 13),(14, 0x4567, 14),(15, 0x5678, 15), (16, 0x6789,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



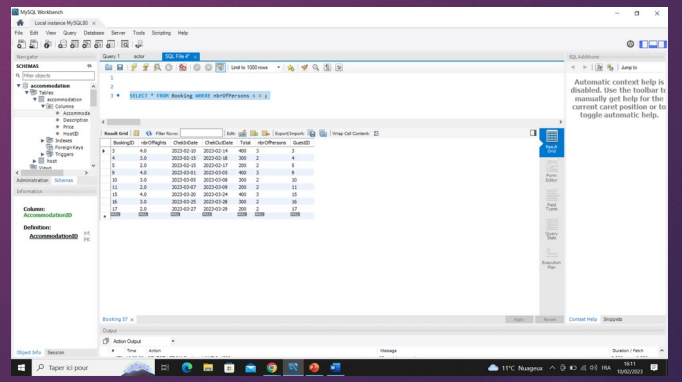
- CREATE TABLE Booking (BookingID INT NOT NULL UNIQUE PRIMARY KEY,nbrOfNights DECIMAL(2,1),ChekInDate DATE,ChekOutDate DATE,Total REAL,nbrOfPersons INT NOT NULL,GuestID INT REFERENCES Guest(GuestID));



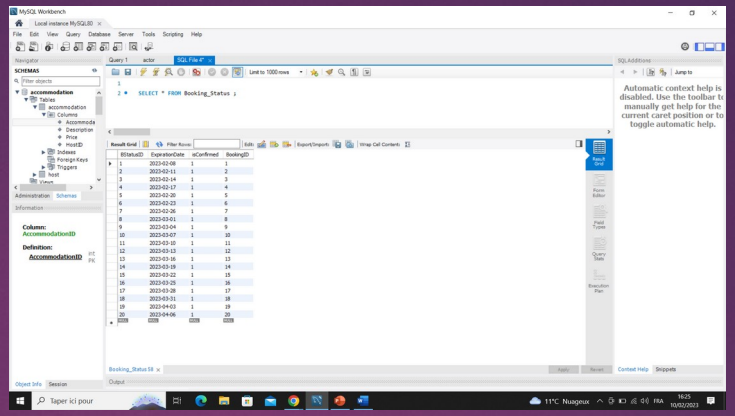


- INSERT INTO Booking (BookingID, nbrOfNights, ChekInDate, ChekOutDate, Total, nbrOfPersons, GuestID)VALUES (1, 5, '2023-02-05', '2023-02-10', 500, 4, 1),(2, 6, '2023-02-08', '2023-02-14', 600, 5, 2),(3, 4, '2023-02-10', '2023-02-14', 400, 3, 3),(4, 3, '2023-02-15', '2023-02-18', 300, 2, 4),(5, 2, '2023-02-15', '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);

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

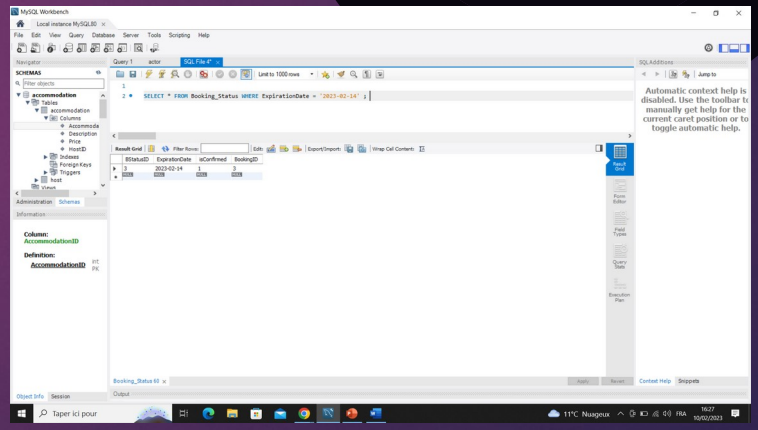


- CREATE TABLE Booking_Status (BStatusID INT NOT NULL UNIQUE PRIMARY KEY,ExpirationDate DATE,isConfirmed BOOLEAN,BookingID INT REFERENCES Booking(BookingID));

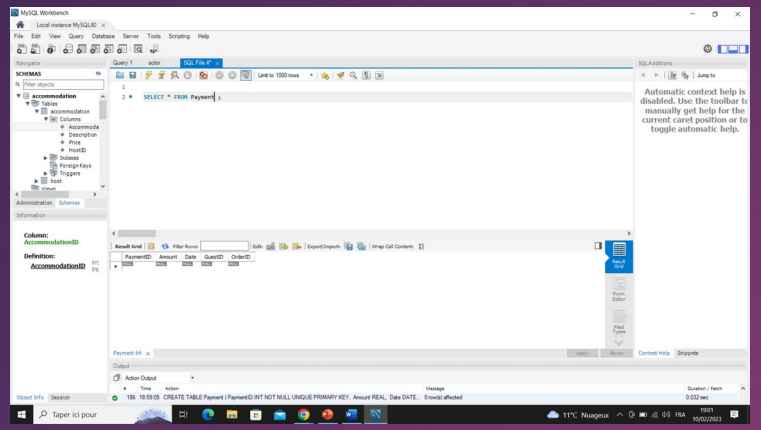


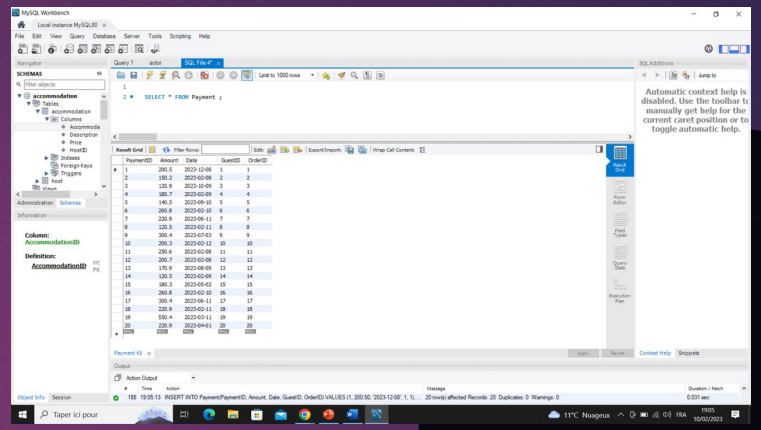
- INSERT INTO Booking_Status (BStatusID, ExpirationDate, isConfirmed, BookingID)VALUES(1, '2023-02-08', 1, 1),(2, '2023-02-11', 1, 2),(3, '2023-02-14', 1, 3),(4, '2023-02-17', 1, 4),(5, '2023-02-20', 1, 5),(6, '2023-02-23', 1, 6),(7, '2023-02-26', 1, 7),(8, '2023-03-01', 1, 8),(9, '2023-03-04', 1, 9),(10, '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);

- Test case : SELECT * FROM Booking_Status WHERE ExpirationDate = '2023-02-14' ;



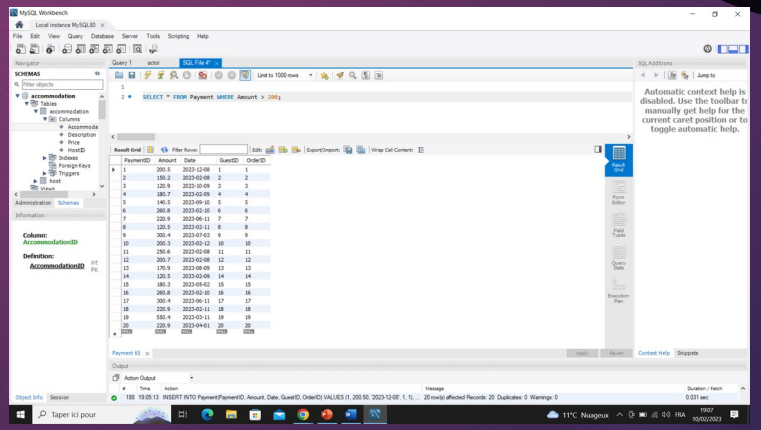
- CREATE TABLE Payment (PaymentID INT NOT NULL UNIQUE PRIMARY KEY, Amount REAL, Date DATE, GuestID INT REFERENCES Guest(GuestID), OrderID INT REFERENCES Orders(OrderID));



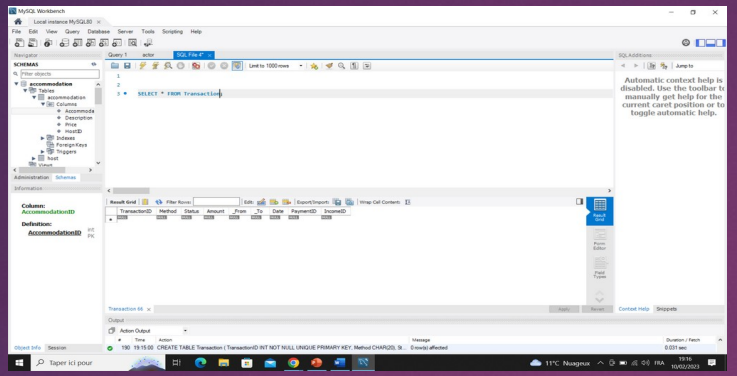


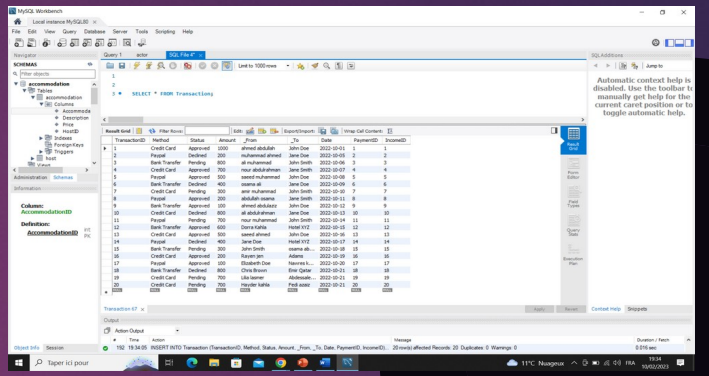
- INSERT INTO Payment(PaymentID, Amount, Date, GuestID, OrderID)VALUES(1, 200.50, '2023-12-08', 1, 1),(2, 150.20, '2023-02-08', 2, 2),(3, 120.90, '2023-10-09', 3, 3),(4, 180.70, '2023-02-09', 4, 4),(5, 140.50, '2023-09-10', 5, 5),(6, 260.80, '2023-02-10', 6, 6),(7, 220.90, '2023-06-11', 7, 7),(8, 120.50, '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);

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



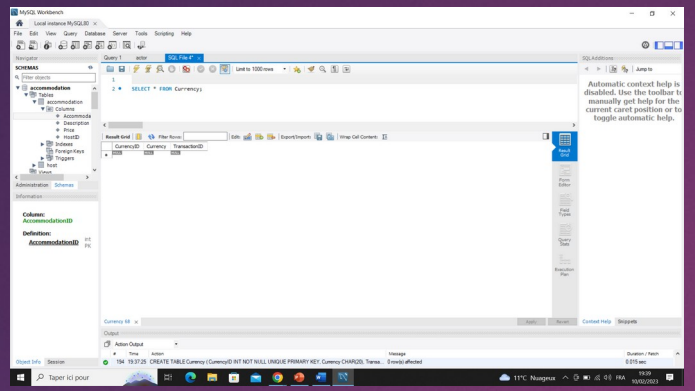
- CREATE TABLE Transaction (TransactionID INT NOT NULL UNIQUE PRIMARY KEY,Method CHAR (20),Status CHAR (20),Amount REAL,_From VARCHAR(100), _To VARCHAR(100), Date DATE,PaymentID INT REFERENCES Payment(PaymentID),IncomeID INT REFERENCES Income(IncomeID));

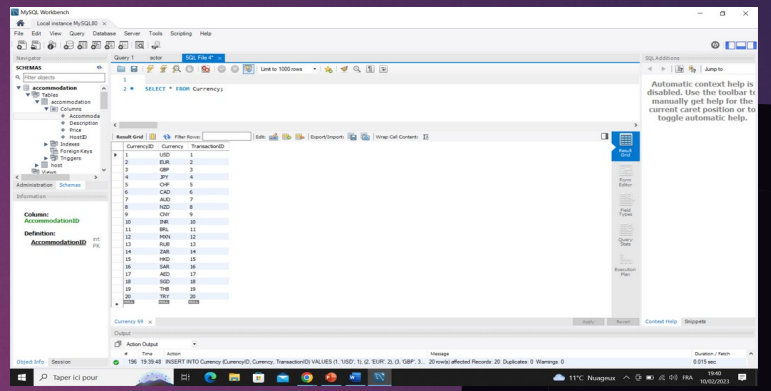




- INSERT INTO Transaction (TransactionID, Method, Status, Amount, _From, _To, Date, PaymentID, IncomeID) VALUES (1, 'Credit Card', 'Approved', 1000.0, 'ahmed abdullah', 'John Doe', '2022-10-01', 1, 1),(2, 'Paypal', 'Declined', 200.0, 'muhammad ahmed','Jane Doe', '2022-10-05', 2, 2),(3, 'Bank Transfer', '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);

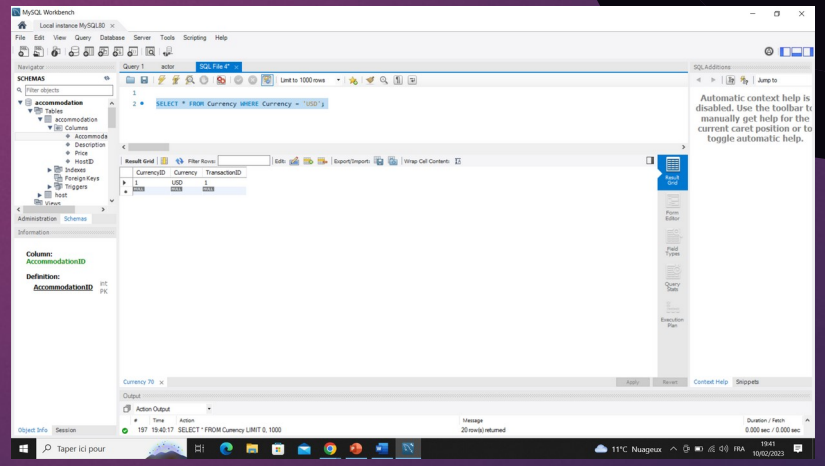
- CREATE TABLE Currency (CurrencyID INT NOT NULL UNIQUE PRIMARY KEY,Currency CHAR(20),TransactionID INT REFERENCES Transaction(TransactionID));





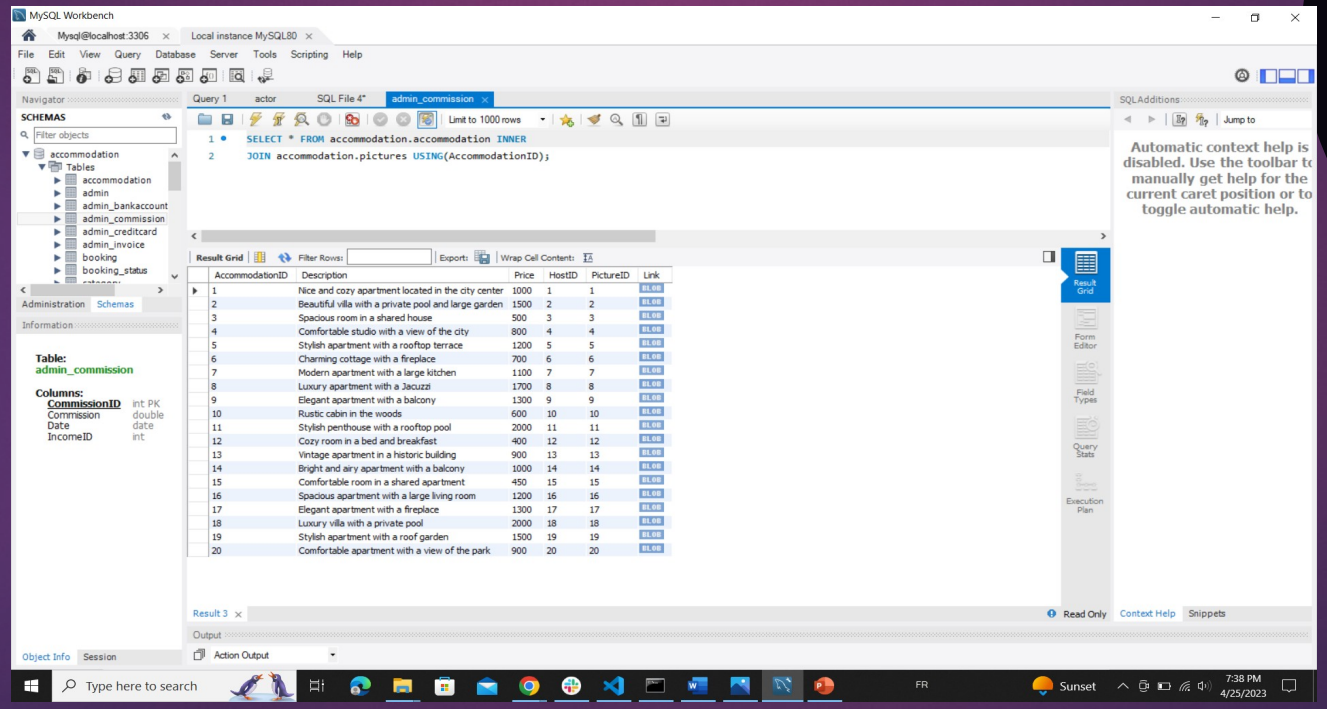
INSERT INTO Currency (CurrencyID, Currency, TransactionID)VALUES(1, 'USD', 1),(2, 'EUR', 2),(3, 'GBP', 3),(4, 'JPY', 4),(5, 'CHF', 5),(6, 'CAD', 6),(7, 'AUD', 7),(8, 'NZD', 8),(9, 'CNY', 9),(10, 'INR', 10),(11, 'BRL', 11),(12, 'MXN', 12),(13, 'RUB', 13),(14, 'ZAR', 14),(15, 'HKD', 15),(16, 'SAR', 16),(17,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

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

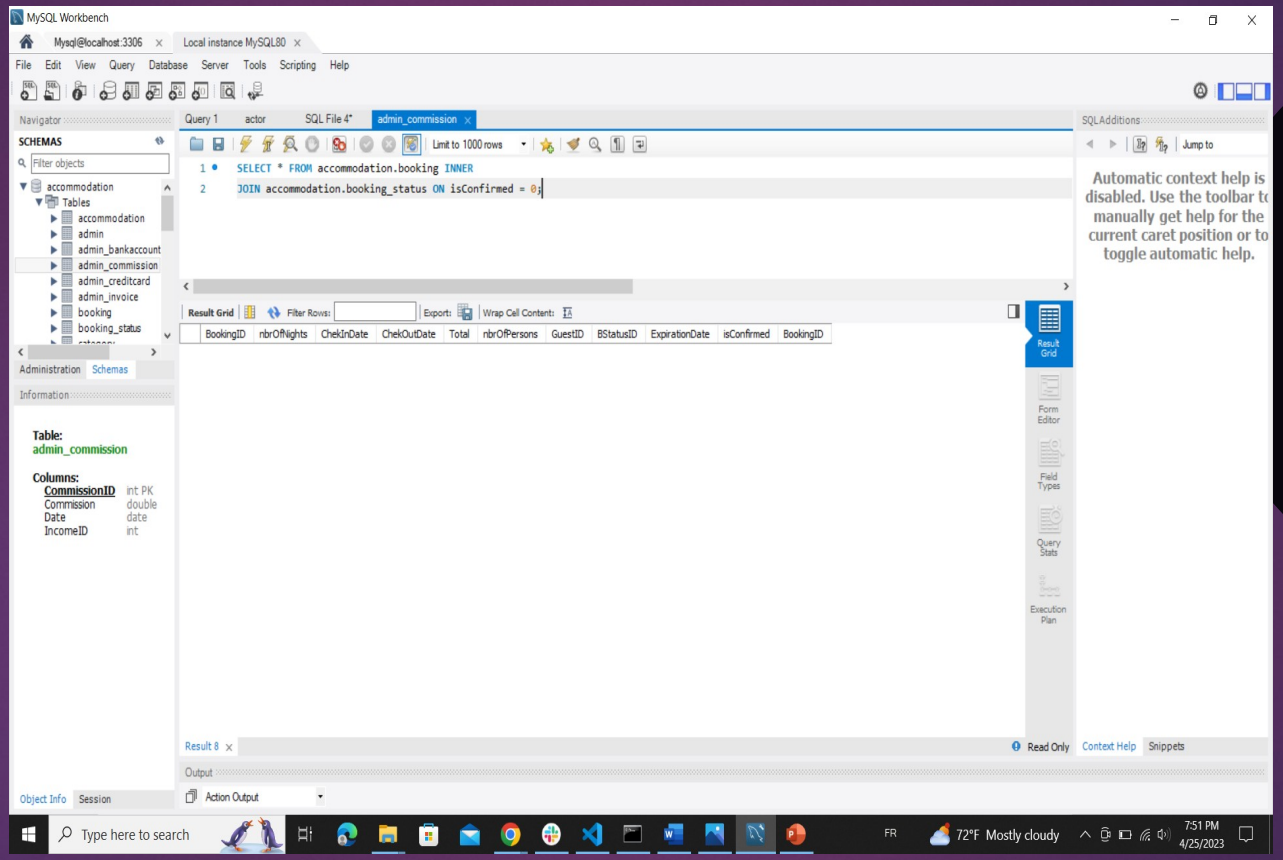


Complex Test Cases

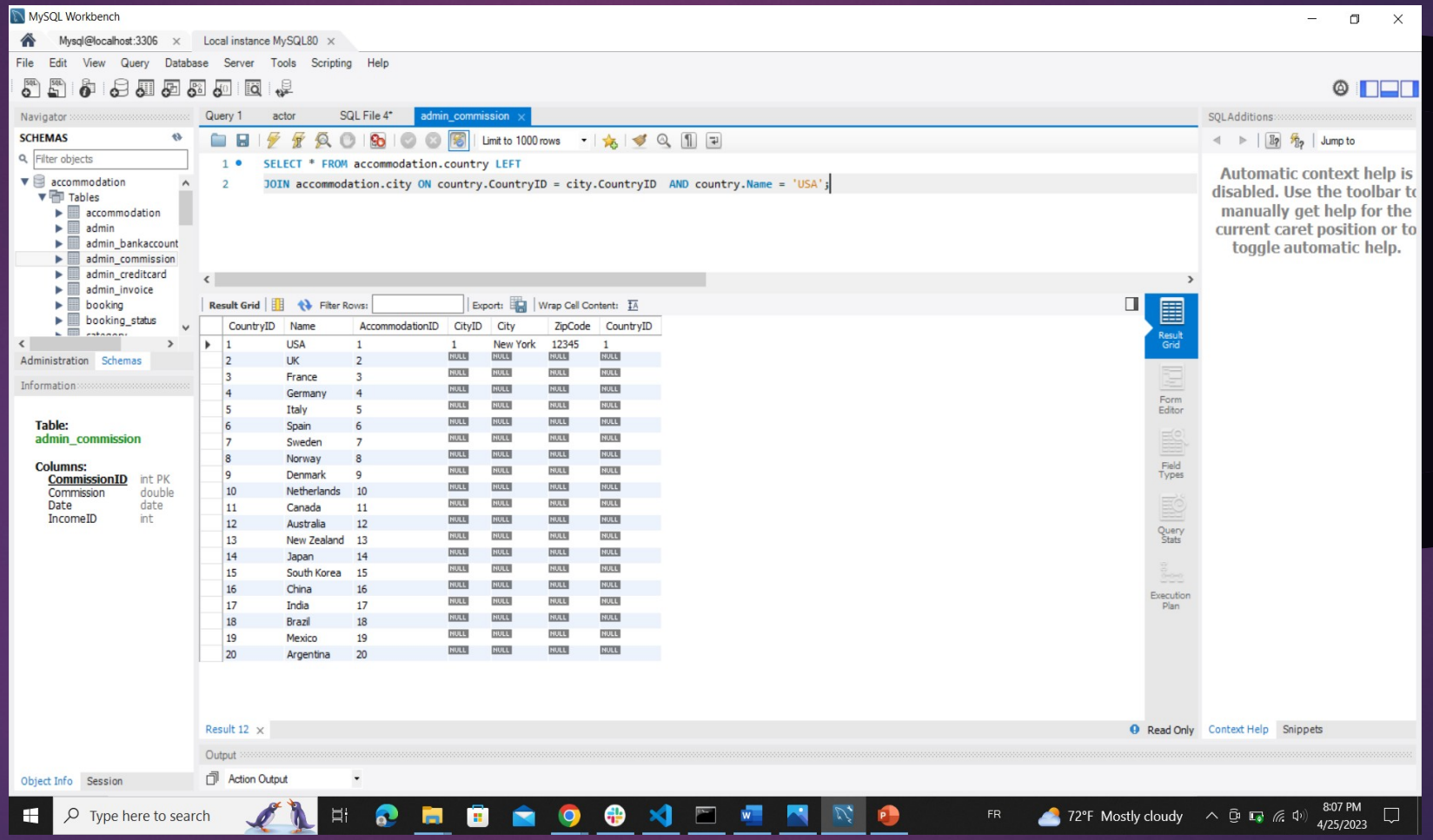
- SELECT * FROM accommodation.accommodation INNERJOIN accommodation.pictures USING(AccommodationID);



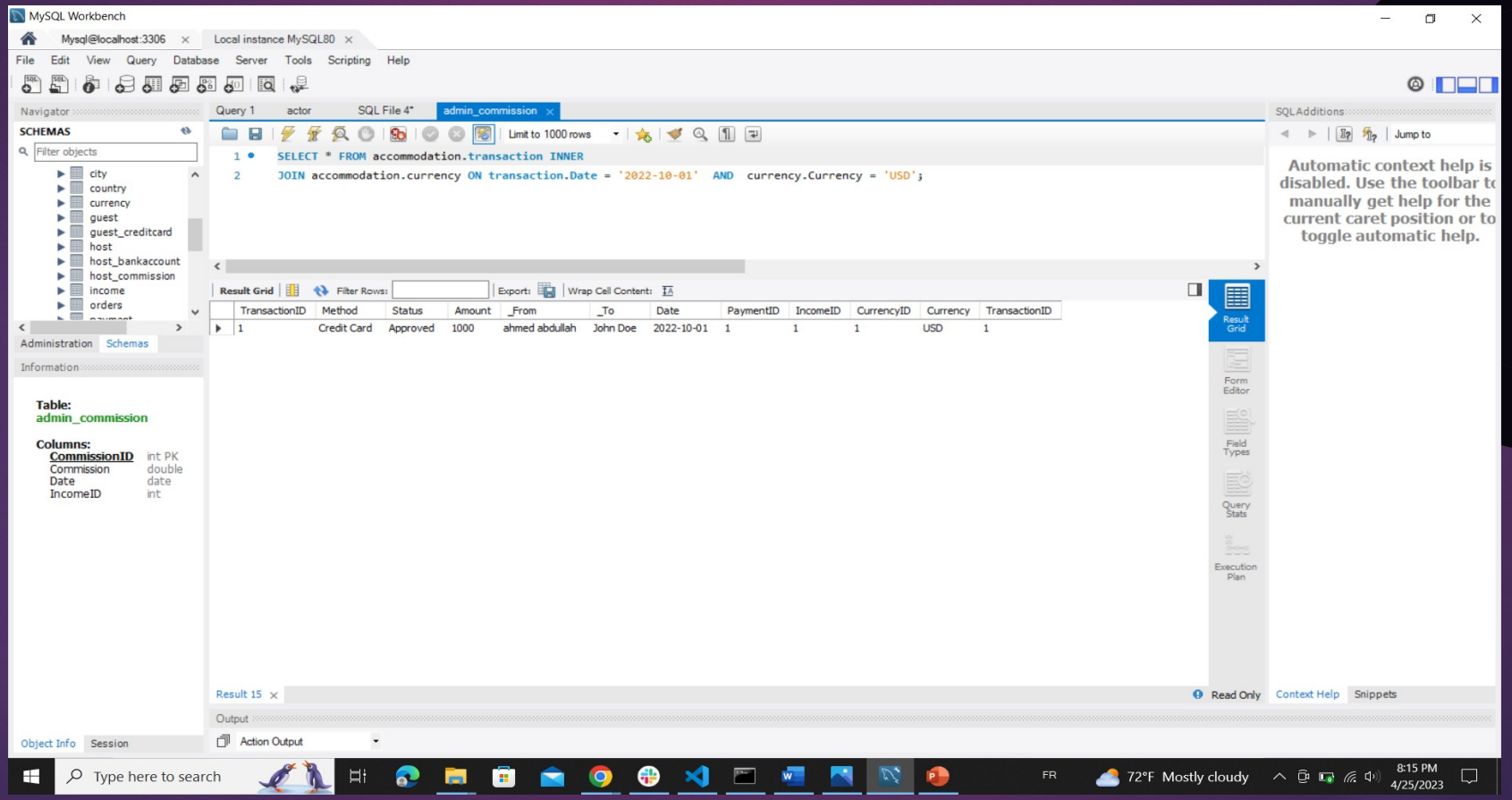
- SELECT * FROM accommodation.booking INNERJOIN accommodation.booking_status ON isConfirmed = 0;



- 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';



Database Management for Airbnb

Airbnb is an online marketplace for short-term rentals of homes, apartments, and other lodgings. In this project, I tried to develop a database for storing and processing information related to the Airbnb use case.

The developed database for the Airbnb-like platform serves as the backbone for managing and storing data related to user profiles, accommodations, bookings, and ratings. The latter is responsible for facilitating the transaction between hosts and guests by handling the booking process and managing payments. In one hand, The database enables hosts to create a textual and visual representation of their accommodations, and in the other hand, it enables guests to browse and book accommodations based on their preferences.

To ensure data integrity, constraints such as data type and data range were set up to prevent invalid data entry. The database is also supporting querying and reporting functionality, allowing for valuable insights to be extracted from the data. Proper documentation of the database schema and data dictionary was implemented to help other developers to understand the structure of the database and how to interact with it. In short, the database was developed with high focus on small details to ensure the efficient and effective functioning of it, facilitating smooth transactions between hosts and guests and enabling valuable insights to be extracted from the data.

Entity Relationship Model

The entity relationship model (ERM) was built to describe the structure of the database, including the entities (tables), their attributes, and the relationships between them. Here is the main components of the database :

- Accommodations: includes information about each accommodation, such as its category, description, price, location and availability.
- Users: includes information about each user, such as their name, email address, phone number, bank account etc .
- Orders: includes information about each order, such as its status (if it is confirmed or not), the confirmation date and the booking it belongs to.
- Transactions: includes information about each transaction, such as the amount of the transaction, the currency, the method used etc .
- The commission: This component was specifically implemented to accurately identify the commission token from both the guest and the host, ensuring efficient and error-free processing of commission payments.

We then defined the relationships between these entities. For example, each accommodation is associated with a user who owns it, and each transaction needs one payment to be processed and then forwarded to the company bank account .

Database Management System

I chose to use MySQL as the database management system for this project. MySQL is a popular open-source database system that supports SQL as its basic language.

I defined the structure of the database in MySQL, including the creation of tables and their corresponding attributes. I also created dummy data to ensure that the database was appropriately populated.

Normalization

I normalized the database in an appropriate way to ensure that only necessary data was stored. This involved breaking down larger tables into smaller ones and ensuring that each table had a primary key.

Metadata

The database consists of 25 tables: Host, Pictures, Rating, Accommodation, HostCommission, Category, Status, Country, City, Street, Host BankAccount, Transaction, Currency, Admin, Admin BankAccount, Income, Orders, Admin CreditCard, Admin Commission, Guest, Booking, Payment, Photo, Guest CreditCard and Booking Status. Each table has 20 entries . The total size of the database is approximately 15 MB.

Overall, the developed database provides an efficient and effective way to store and process information related to the Airbnb use case.