Wolaita Sodo University
School of Informatics
Department of Computer Science
Course : Advanced Database Systems

PROJECT TITLE: CAR RENTAL SYSTEM

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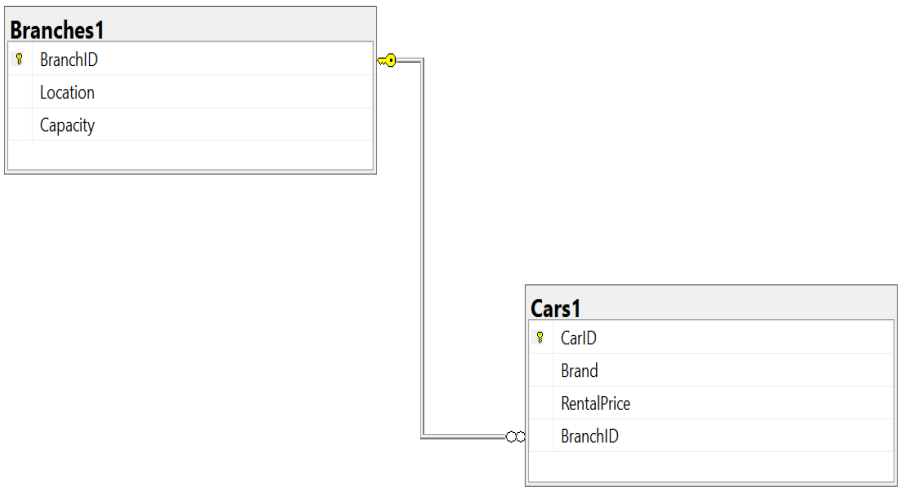
4	*MEBRATU BELETE*	*UGR/92690/16*
5	*NETSANET ENDALE*	*UGR/92115/16*

SUBMMIT TO :

Relational Schema



SQL Queries

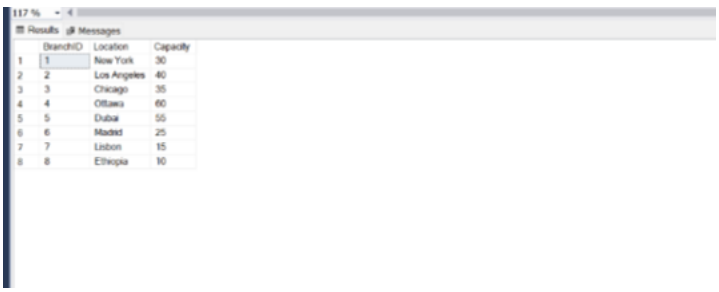
```
CREATE DATABASE CarRentalSystem1
USE CarRentalSystem1

drop table if exists Branches1
drop table if exists cars1

CREATE TABLE Branches1(
 BranchID INT PRIMARY KEY,
 Location VARCHAR(50) NOT NULL,
 Capacity INT NOT NULL,
);

CREATE TABLE Cars1(
 CarID INT PRIMARY KEY,
 Brand VARCHAR(50) NOT NULL,
 RentalPrice DECIMAL(10,2) NOT NULL,
 BranchID INT,
 FOREIGN KEY(BranchID) REFERENCES Branches1(BranchID)
);

INSERT INTO Branches1(BranchID,Location,Capacity) VALUES
(1,'New York',5),
(2,'Los Angeles',40),
(3,'Chicago',35),
(4,'Ottawa',60),
(5,'Dubai',55),
(6,'Madrid',25),
(7,'Lisbon',15),
(8,'Ethiopia',5);

INSERT INTO Cars1(CarID,Brand,RentalPrice,BranchID ) VALUES
(001,'Bugatti',350.00,1),
(002,'Rolls Royce',299.60,2),
(003,'Lamborghini',250,4),
(004,'Tesla',200.00,1),
(005,'Ford',170.50,2),
(006,'Mercedes',99.70,3),
(007,'Ferrari',100.40,1),
(008,'Chevrolete',50.50,1),
(009,'BMW',150.00,6),
(010,'Toyota',29.30,5),
(011,'Honda',90,7),
(012,'Nissan',60,8),
(013,'Audi',40,1),
(114,'Volvo Cars',110.00,1);

---1.Select all rental branches..
```

```sql
SELECT * FROM Branches1;

---2. Select all cars with a rental price higher than $100 per day.

SELECT * FROM Cars1 WHERE RentalPrice>100;

---3. Select all distinct car brands available for rent.

SELECT DISTINCT Brand FROM Cars1;

---4.Select the average rental price of all cars.

SELECT AVG(RentalPrice) AS AverageRentalPrice FROM Cars1;

---5.Select the branch ID and the average rental price of cars in each branch.

SELECT BranchID,AVG(RentalPrice) AS AverageRentalPrice FROM Cars1 GROUP BY BranchID;

---6. Select only the branches where the average rental price is greater than $80.

SELECT BranchID FROM Cars1 GROUP BY BranchID HAVING AVG(RentalPrice)>80;

---7. Select each car's ID along with the branch location where it's available.

SELECT cars1.CarID,Branches1.Location FROM Cars1 JOIN Branches1 ON
Cars1.BranchID=Branches1.BranchID;

---8. Select the branch IDs and the number of cars in each branch (including empty branches).

SELECT Branches1.BranchID,COUNT(cars1.CarID) AS NumberOfCars FROM Branches1
LEFT JOIN Cars1 ON Branches1.BranchID=Cars1.BranchID GROUP BY Branches1.BranchID;

---9. Select the branch IDs of all branches that are exceeding their car capacity.

SELECT b.BranchID FROM Branches1 b JOIN Cars1 c ON b.BranchID=c.BranchID
GROUP BY b.BranchID,b.Capacity HAVING COUNT(c.CarID)>b.Capacity;

--- 10. Select all cars located in "New York".

SELECT Cars1.*FROM Cars1 JOIN Branches1 ON Cars1.BranchID=Branches1.BranchID WHERE
Branches1.Location='New York';

---11. Add a new rental branch in "San Francisco" with a capacity of 50 cars.

INSERT INTO Branches1(BranchID,Location,Capacity) VALUES(9,'San Francisco',50);
SELECT * FROM Branches1;

---12.Add a new car "Tesla Model 3" with a rental price of $120, assigned to branch ID 3.

INSERT INTO Cars1(CarID,Brand,RentalPrice,BranchID) VALUES (015,'Tesla Model 3',120,3);
SELECT * FROM Cars1;

---13. Reduce the rental price of all cars by 10%.

UPDATE Cars1 SET RentalPrice=RentalPrice*0.9;
SELECT * FROM Cars1;

---14. Apply a 15% discount to cars with a rental price above the average.

UPDATE Cars1 SET RentalPrice=RentalPrice*0.85 WHERE RentalPrice>(SELECT AVG(RentalPrice)
FROM Cars1);
```

```
SELECT * FROM Cars1;

---15. Remove all cars with a rental price lower than $30.

DELETE FROM cars1 WHERE RentalPrice<30;
SELECT * FROM Cars1;

---16. Remove all cars from over-capacity branches.

DELETE FROM Cars1 WHERE BranchID IN(SELECT b.BranchID FROM Branches1 b JOIN Cars1 c
ON b.BranchID=c.BranchID
GROUP BY b.BranchID,b.Capacity HAVING COUNT(c.CarID)>b.Capacity);
```

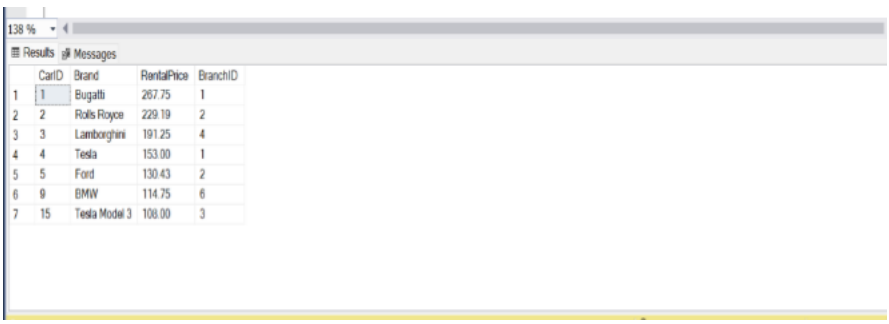
SQL Queries Results

1. Select all rental branches.



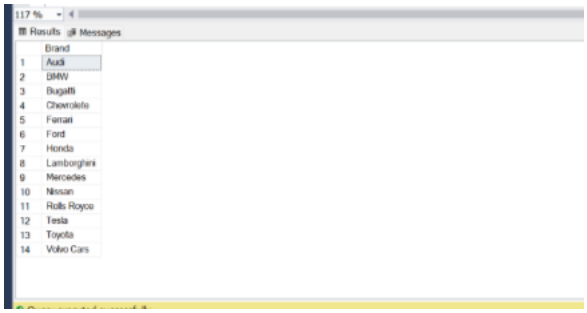
	BranchID	Location	Capacity
1	1	New York	30
2	2	Los Angeles	40
3	3	Chicago	35
4	4	Ottawa	60
5	5	Dubai	55
6	6	Madrid	25
7	7	Lisbon	15
8	8	Ethiopia	10

2. Select all cars with a rental price higher than $100 per day.

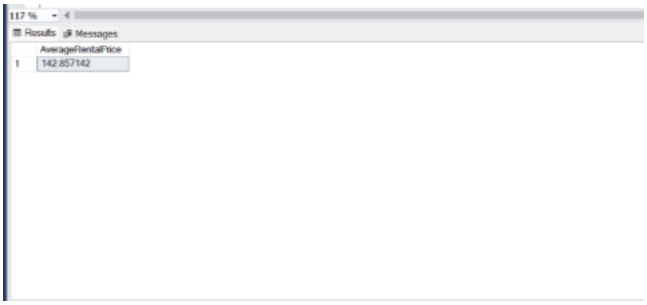


	CarID	Brand	RentalPrice	BranchID
1	1	Bugatti	267.75	1
2	2	Rolls Royce	229.19	2
3	3	Lamborghini	191.25	4
4	4	Tesla	153.00	1
5	5	Ford	130.43	2
6	9	BMW	114.75	6
7	15	Tesla Model 3	108.00	3

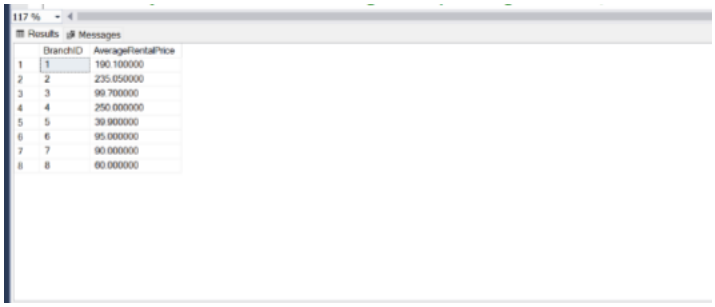
3. Select all distinct car brands available for rent.



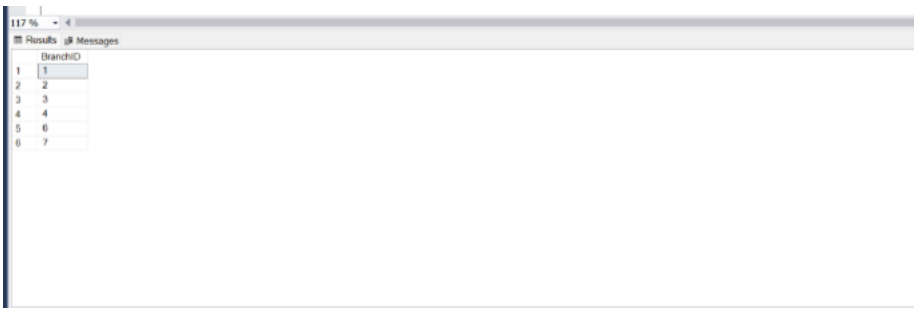
4. Select the average rental price of all cars.



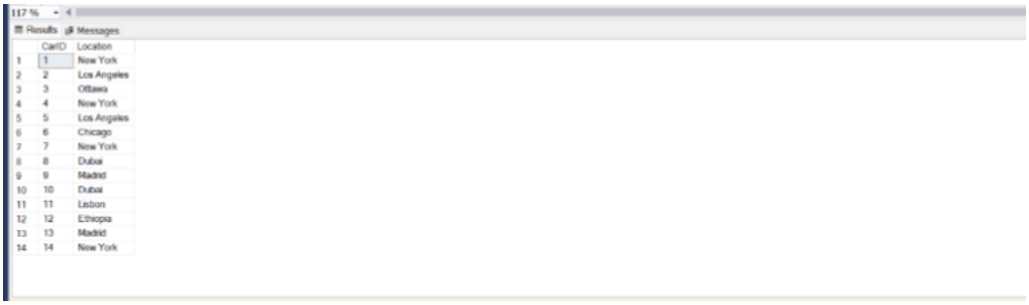
5. Select the branch ID and the average rental price of cars in each branch.



6.Select only the branches where the average rental price is greater than $80.

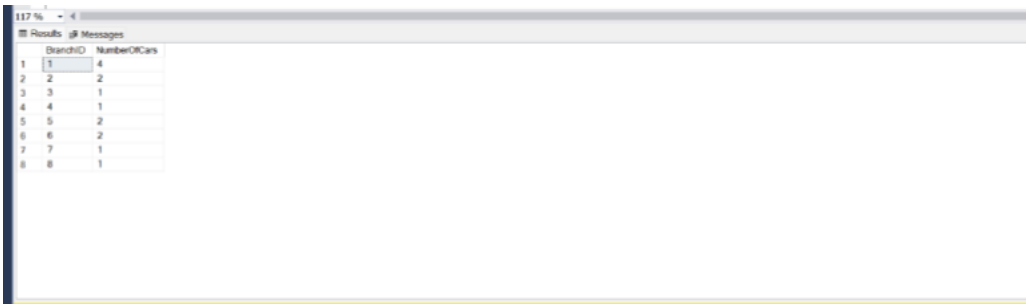


7.Select each car's ID along with the branch location where it's available.



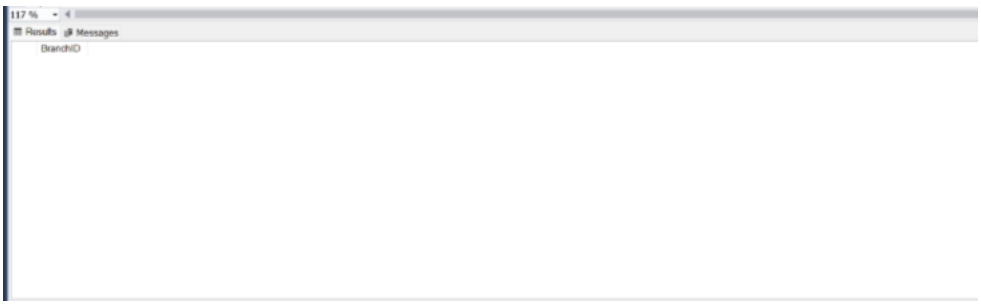
	CarID	Location
1	1	New York
2	2	Los Angeles
3	3	Ottawa
4	4	New York
5	5	Los Angeles
6	6	Chicago
7	7	New York
8	8	Dubai
9	9	Madrid
10	10	Dubai
11	11	Lisbon
12	12	Ethiopia
13	13	Madrid
14	14	New York

8.Select the branch IDs and the number of cars in each branch (including empty branches).



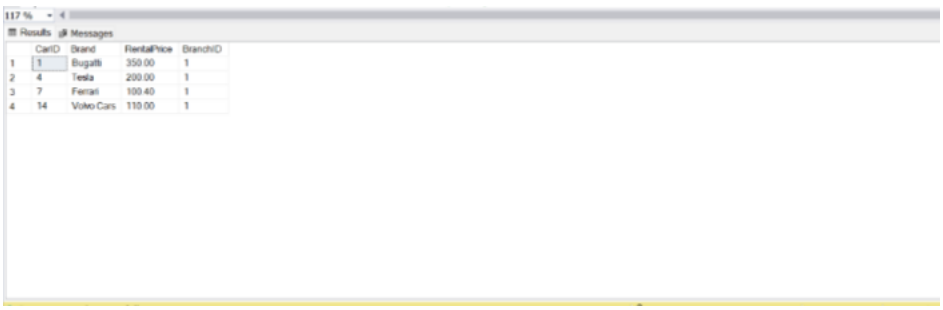
	BranchID	NumberOfCars
1	1	4
2	2	2
3	3	1
4	4	1
5	5	2
6	6	2
7	7	1
8	8	1

9.Select the branch IDs of all branches that are exceeding their car capacity.



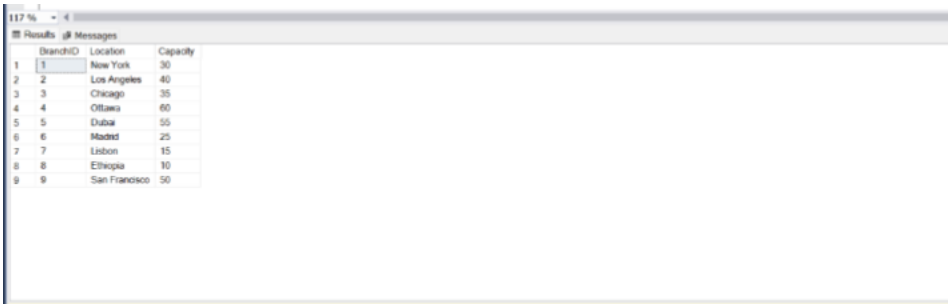
	BranchID
1	1

10.Select all cars located in "New York".



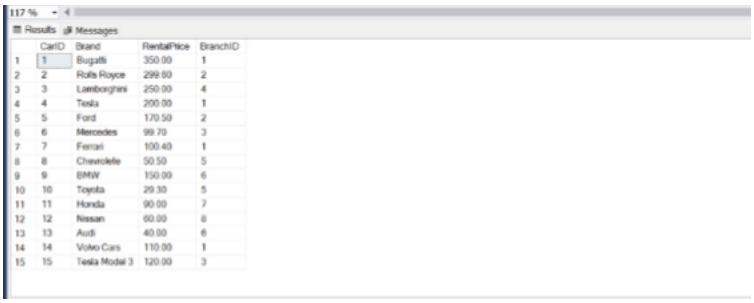
	CarID	Brand	RentalPrice	BranchID
1	1	Bugatti	350.00	1
2	4	Tesla	200.00	1
3	7	Ferrari	100.40	1
4	14	Volvo Cars	110.00	1

11. Add a new rental branch in "San Francisco" with a capacity of 50 cars.



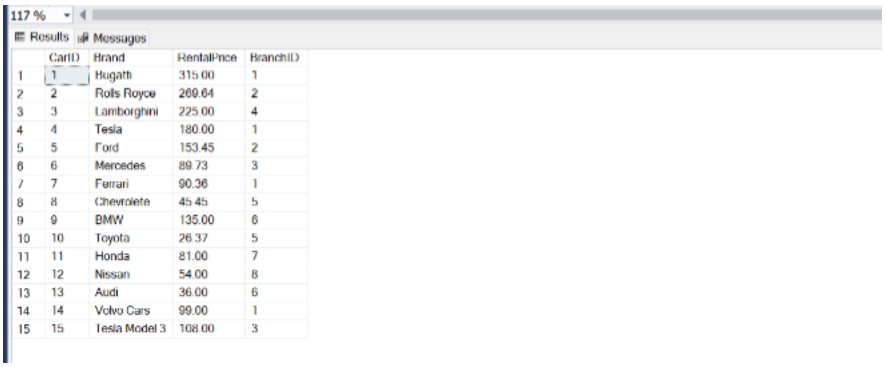
	BranchID	Location	Capacity
1	1	New York	30
2	2	Los Angeles	40
3	3	Chicago	35
4	4	Ottawa	60
5	5	Dubai	55
6	6	Madrid	25
7	7	Lisbon	15
8	8	Ethiopia	10
9	9	San Francisco	50

12. Add a new car "Tesla Model 3" with a rental price of $120, assigned to branch ID 3.



	CarID	Brand	RentalPrice	BranchID
1	1	Bugatti	350.00	1
2	2	Rolls Royce	299.60	2
3	3	Lamborghini	250.00	4
4	4	Tesla	200.00	1
5	5	Ford	170.50	2
6	6	Mercedes	99.70	3
7	7	Ferrari	100.40	1
8	8	Chevrolete	50.50	5
9	9	BMW	150.00	6
10	10	Toyota	29.30	5
11	11	Honda	90.00	7
12	12	Nissan	60.00	8
13	13	Audi	40.00	6
14	14	Volvo Cars	110.00	1
15	15	Tesla Model 3	120.00	3

13.Reduce the rental price of all cars by 10%.



	CarID	Brand	RentalPrice	BranchID
1	1	Bugatti	315.00	1
2	2	Rolls Royce	269.64	2
3	3	Lamborghini	225.00	4
4	4	Tesla	180.00	1
5	5	Ford	153.45	2
6	6	Mercedes	89.73	3
7	7	Ferrari	90.36	1
8	8	Chevrolete	45.45	5
9	9	BMW	135.00	6
10	10	Toyota	26.37	5
11	11	Honda	81.00	7
12	12	Nissan	54.00	8
13	13	Audi	36.00	6
14	14	Volvo Cars	99.00	1
15	15	Tesla Model 3	108.00	3

14.Apply a 15% discount to cars with a rental price above the average.