CSE 3330 Project 2 Part 2

Car Rental database

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| **HONOR CODE** |
| I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.  I promise that I will submit only work that I personally create or that I contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code. |

Signature: Shubham Arya

## Task 1 Commands:

The screenshot of the create table statements for the Car\_Rental database is given below.

For the **customer table**, the attribute CustID was given an integer type with unsigned value as it will not be a negative number. To automatically generate the customer ID when a new customer is added to the database, we also made it to AUTO\_INCREMENT. The Name attribute was given a VARCHAR type with NOT NULL properties as a customer has to have a name. Similarly, Phone was also made NOT NULL as a customer has to have a Phone Number. Phone has type of VARCHAR (14). It has 14 characters as there are 10 characters for the numbers, 2 for the parentheses, 1 for hyphen, and 1 for a space. CustID was chosen as the primary key because it will be unique for each new customer.

For the **rental table**, we have CustID and VehicleID as a composite primary key. CustID has the same data types as in the customer table and similarly for VehicleID. StartDate, OrderDate, ReturnDate are all of type date that cannot be NULL. Qty is the quantity which is of an unsigned integer type. TotalAmount is of type float as the amount can have dollars and cents. PaymentDue is of type date too but it can be a NULL.

For the **vehicle table**, vehicleID is the primary key with a VARCHAR type. Year, Category, Type are all integer types and description are of VARCHAR type. All the attributes in vehicle table are not null.

For the **rate table**, Type and Category are integer types that cannot be NULL. Daily and Weekly are attributes that are of type FLOAT as rate can have decimals points to represent cents. These attributes can also not be NULL.

Screenshot to create table is on the next page.

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## Task 2:

We populated the table by importing the csv files into MySQL Workbench tables.

A screenshot of a computer screen

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To import the files, we clicked on the export/Import option that is circled in **yellow** in the screenshot above. From there, we selected the input files that were in csv format and imported it to load our data.

For rate table, we didn’t set up any primary key for an attribute as all the attributes had repeating values. Due to this, we faced difficulty in importing the csv file. MySQL Workbench did not allow us to import data into a table without a primary key. To temporarily solve this problem, we created a temporary primary key for an attribute, imported the data into the table and then removed the temporary primary key. This worked fine for us and we were able to successfully upload data into the table..

Below are the commands to calculate total records in the tables.

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Below is the output of total records per table from the above queries.

**Output of line 2: 31 -> 32** after Task 3 Question 1

**Output of line 3: 12 -> 14** after Task 3 Question 4b

**Output of line 4: 23**

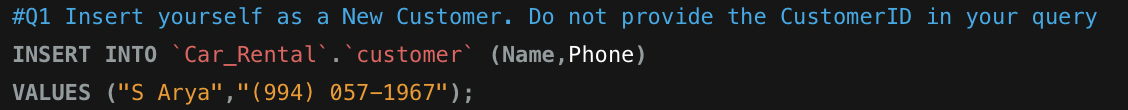
**Output of line 5: 61**

## Task 3:

**Question 1. Insert yourself as a New Customer. Do not provide the CustomerID in your query.**

INSERT INTO `Car\_Rental`.`customer` (Name,Phone)

VALUES ("S Arya","(994) 057-1967");



A close up of a scoreboard

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Graphical user interface, application

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**Question 2. Update your phone number to (837) 721-8965**

UPDATE `Car\_Rental`.`customer`

SET Phone = "(837) 721-8965"

WHERE Phone = "(994) 057-1967";

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A close up of a piece of paper

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**Question 3. Increase only daily rates for luxury vehicles by 5%.**

UPDATE `Car\_Rental`.`rate`

SET Daily = 1.05\*Daily

WHERE Category = 1;

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A picture containing cup

Description automatically generated

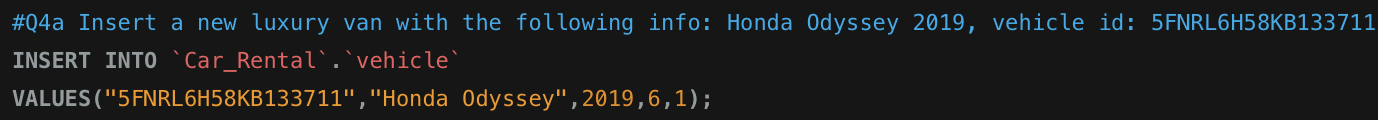
Graphical user interface, application

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**Question 4a. Insert a new luxury van with the following info: Honda Odyssey 2019, vehicle id: 5FNRL6H58KB133711.**

INSERT INTO `Car\_Rental`.`vehicle`

VALUES ("5FNRL6H58KB133711","Honda Odyssey",2019,6,1);



This couldn’t be inserted because it said that there was a duplicate entry. The csv file that we loaded already had a car with that vehicleID so this record could not be inserted into that table. The number of records in the vehicle table remained unchanged, i.e., 61.

Error Code: 1062. Duplicate entry '5FNRL6H58KB133711' for key 'vehicle.PRIMARY'

**Question 4b. You need to insert the following rates.**

A close up of a clock

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INSERT INTO `Car\_Rental`.`rate`

VALUES(5,1,900,150),

(6,1,800,135);

A picture containing graphical user interface, text

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A picture containing calendar

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Total Records are now 14 in rate table.

**Question 5. Return all Compact (1) & Luxury (1) vehicles that were available for rent from June 01, 2019 until June 20, 2019. List VehicleID as VIN, Description, year, and how many days have been rented so far. You need to change the weeks into days.**

For this query, I have assumed that if a car had a start date or return date starting from June 01, 2019 to June 20, 2019, it is not available as I am assuming that someone needs it for the entirety of that period. On doing this, I only get 1 car in return and all the cars that might fall under this category contradict my assumption. I am also only accounting for cars that have been rented by June 20, 2019 as the question says, “how many days have been rented so far.”

SELECT V.VehicleID AS 'VIN', V.Description, V.Year, SUM(R.RentalType\*R.Qty) AS "Days Rented"

FROM `Car\_Rental`.`vehicle` AS V, `Car\_Rental`.`rental` AS R

WHERE (V.VehicleID, R.Qty, R.RentalType) IN

(SELECT DISTINCT VehicleID,Qty, RentalType

FROM `Car\_Rental`.`rental`

WHERE (ReturnDate NOT BETWEEN '2019-06-01' AND '2019-06-20')

AND (StartDate NOT BETWEEN'2019-06-01' AND '2019-06-20')

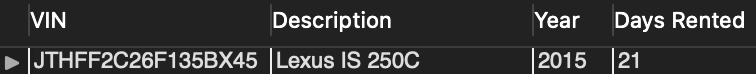
AND StartDate < '2019-06-20')

AND V.Type = 1 AND V.Category = 1

GROUP BY V.VehicleID;

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Records returned = 1

**Question 6: Return a list with the remaining balance for the customer with the id ‘221’. List customer name, and the balance.**

I have assumed that the total amount attribute on the table is the payment and if the payment date is null, then that amount is due.

SELECT C.Name, SUM(TotalAmount) AS "Balance"

FROM Car\_Rental.customer AS C, Car\_Rental.rental AS R

WHERE (C.CustID, TotalAmount, PaymentDate) IN

(SELECT CustID, TotalAmount, PaymentDate

FROM Car\_Rental.rental

WHERE CustID = 221 AND PaymentDate IS NOT NULL);

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1 record returned.

**Question 7: Create a report that will return all vehicles. List the VehicleID as VIN, Description, Year, Type, Category, and Weekly and Daily rates. For the vehicle Type and Category, you need to use the SQL Case statement to substitute the numbers with text. Order your results based on Category (first Luxury and then Basic) and Type based on the Type number, not the text.**

SELECT VehicleID AS "VIN", Description,

Year,

CASE WHEN V.Type = 1 THEN 'Compact'

WHEN V.Type = 2 THEN 'Medium'

WHEN V.Type = 3 THEN 'Large'

WHEN V.Type = 4 THEN 'SUV'

WHEN V.Type = 5 THEN 'Truck'

WHEN V.Type = 6 THEN 'VAN'

END AS Type,

CASE WHEN V.Category = 0 THEN 'Basic'

WHEN V.Category = 1 THEN 'Luxury'

END AS Category,

R.Daily,

R.Weekly

FROM Car\_Rental.vehicle AS V, Car\_Rental.rate AS R

WHERE V.Type = R.Type AND V.Category = R.Category

ORDER BY V.Category DESC,

V.Type DESC;

Records returned = 61

Text

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**A picture containing calendar

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**Question 8: What is the total of money that customers paid to us until today?**

SELECT SUM(TotalAmount) AS "Total Money"

FROM Car\_Rental.rental

WHERE ReturnDate <= curdate();

Graphical user interface, text

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Graphical user interface, text, application

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Records returned = 1

**Question 9-a: Create a report for the J. Brown customer with all vehicles he rented. List the description, year, type, and category. Also, calculate the unit price for every rental, the total duration mention if it is on weeks or days, the total amount, and if there is any payment. Similarly, as in Question 7, you need to change the numeric values to the corresponding text. Order the results by the StartDate.**

I have assumed that the unit price for every rental means the bill amount a user has to pay. For the “if there is any payment” part, I have calculated the amount customer has to pay more which is the difference off the Unit\_Price and the TotalAmount in Payment.

I have also hard coded the rate value for the customer’s car since I had difficulty in getting the values for each car without hard coding.

SELECT DISTINCT V.VehicleID, Description, Year,

CASE WHEN V.Type = 1 THEN 'Compact'

WHEN V.Type = 2 THEN 'Medium'

WHEN V.Type = 3 THEN 'Large'

WHEN V.Type = 4 THEN 'SUV'

WHEN V.Type = 5 THEN 'Truck'

WHEN V.Type = 6 THEN 'VAN'

END AS Type,

CASE WHEN V.Category = 0 THEN 'Basic'

WHEN V.Category = 1 THEN 'Luxury'

END AS Category,

Qty\*RentalType AS 'Duration Days',

CASE WHEN RentalType = 1 THEN 105\*Qty

WHEN RentalType = 7 THEN 600\*Qty

END AS Unit\_Price,

TotalAmount,

CASE WHEN RentalType = 1 THEN 105\*Qty - TotalAmount

WHEN RentalType = 7 THEN 600\*Qty - TotalAmount

END AS Payment,

StartDate

FROM Car\_Rental.vehicle AS V, Car\_Rental.rental, Car\_Rental.rate

WHERE (V.VehicleID,StartDate) IN

(SELECT VehicleID, StartDate

FROM Car\_Rental.rental

WHERE CustID IN

(SELECT CustID

FROM Car\_Rental.customer

WHERE Name = "J. Brown"))

ORDER BY StartDate ASC;

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The number of records returned = 10.

**Question 9-b: For the same customer return the current balance**.

Same assumptions as question 9a.

SELECT SUM(CASE WHEN RentalType = 1 THEN 105\*Qty

WHEN RentalType = 7 THEN 600\*Qty

END) AS "Total Purchases",

SUM(TotalAmount) AS "Total Paid",

SUM(CASE WHEN RentalType = 1 THEN 105\*Qty - TotalAmount

WHEN RentalType = 7 THEN 600\*Qty - TotalAmount

END) AS Balance

FROM Car\_Rental.rental

WHERE CustID IN

(SELECT CustID

FROM Car\_Rental.customer

WHERE Name = "J. Brown");

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1 record returned for current balance of customer.

**Question 10: Retrieve all weekly rentals for the VehicleID ‘19VDE1F3XEE414842’ that are not paid yet. List the Customer Name, the start and return date, and the amount.**

SELECT DISTINCT Name, StartDate, ReturnDate, TotalAmount

FROM Car\_Rental.customer AS C, Car\_Rental.rental AS R

WHERE (C.CustID, StartDate, ReturnDate, TotalAmount) IN

(SELECT CustID, StartDate, ReturnDate, TotalAmount

FROM Car\_Rental.rental

WHERE VehicleID = "19VDE1F3XEE414842" AND RentalType = 7 AND PaymentDate IS NOT NULL);

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Records returned = 2

**Question 11: Return all customers that they never rent a vehicle.**

SELECT Name

FROM Car\_Rental.customer

WHERE CustID NOT IN

(SELECT CustID

FROM Car\_Rental.rental);

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Records returned = 26

**Question 12: Return all rentals that the customer paid on the StartDate. List Customer Name, Vehicle Description, StartDate, ReturnDate, and TotalAmount. Order by Customer Name.**

Assuming that it means that the payment date the same as the start date.

SELECT DISTINCT Name, StartDate, ReturnDate, TotalAmount, Description

FROM Car\_Rental.customer AS C, Car\_Rental.rental AS R, Car\_Rental.vehicle AS V

WHERE (Name, StartDate, ReturnDate, TotalAmount, V.VehicleID) IN

(SELECT Name, StartDate, ReturnDate, TotalAmount,VehicleID

FROM Car\_Rental.customer AS C, Car\_Rental.rental AS R

WHERE (C.CustID, StartDate, ReturnDate, TotalAmount,VehicleID) IN

(SELECT CustID, StartDate, ReturnDate, TotalAmount, VehicleID

FROM Car\_Rental.rental

WHERE StartDate = PaymentDate))

ORDER BY C.Name;

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Records returned = 7