**Lab: Advanced Structured Query Language (SQL) Queries Template**

**Deliverables**:

Write queries that will satisfy the following requirements. To receive credit for this assignment, **all queries must be executed in SQL Server** and be displayed appropriately. For each question:

* **TYPE** the SQL query below the instructions.
* Take a screenshot of your query that was executed in SQL server. **Be sure to capture the query as well as the results in your screen shot.**
* Paste the screenshot below the typed query.

**The first question has been done for you.**

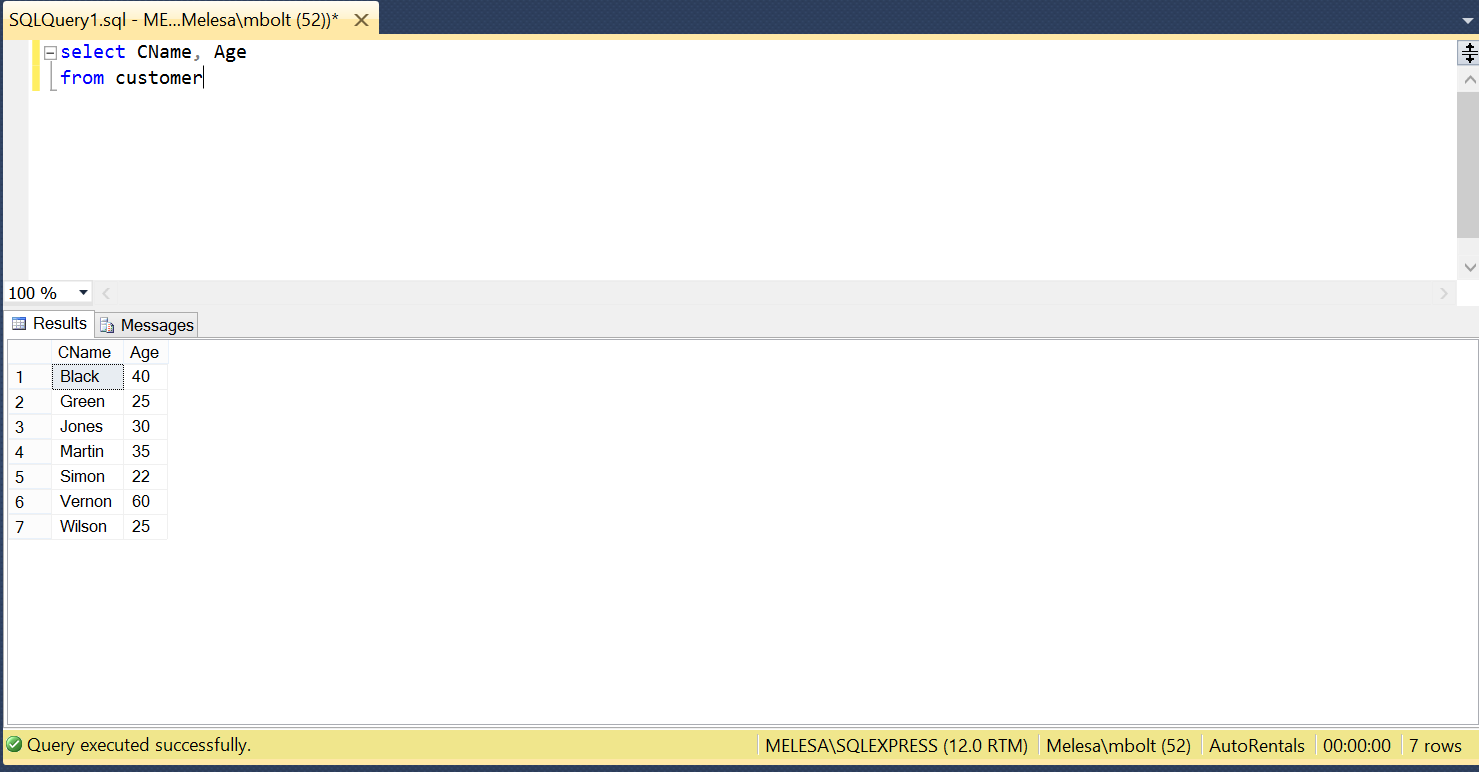
1. Write and execute a query that will return the name and age of all customers. You should have 7 rows in your result:

**Answer**:

This is the query typed out.

select CName, Age

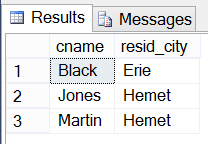
from customer



This is the query when executed in SQL Server. Note the capture displays the query, the results, and the number of rows returned.

2. Write and execute a query that will display the name and resid\_city of all customers that were born in Tampa.

You should have 3 rows in your result:



**Answer**:

select cname, resid\_city

from Customer

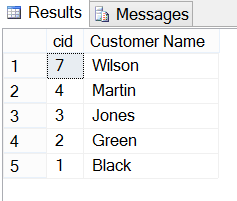
where BirthPlace = 'Tampa'

Graphical user interface, application, Word

Description automatically generated

3. Write and execute a query that will show the customer id and name of customers between the ages of 25 (inclusive) and 40 (inclusive). Order your results by Cname in descending order. Display the CName column with the heading “Customer Name” 🡨 note the capitalizing and the space between words. (Note that you will need to use a column alias for this using the keyword “AS.”)

Your output should look like this:



**Answer**:

select CID, CName as 'Customer Name'

from Customer

where age >= 25 and age <= 40

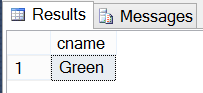
order by CID Desc

Graphical user interface, text, application

Description automatically generated

4. Write and execute a query that will list any customers whose names begin with the letter “G”.

Your query should return 1 row like this:



**Answer**:

select CName

from Customer

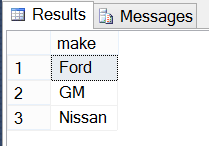
where CName like 'G%'

Graphical user interface, application

Description automatically generated

5. Write and execute a query that will display a **unique** list of all the automobile Makes that have ever been rented. Order your results by Make.

You should have 3 rows in your resultset.



**Answer**:

select distinct make

from Rentals

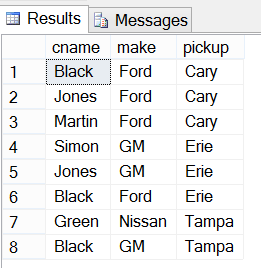
order by Make

Graphical user interface, application

Description automatically generated

6. Write and execute a query that will display all of the customers who have ever rented an automobile. Include the customer name, make, pickup location in your results. Order your list in ascending order by pickup.

Your results should include 8 rows:



**Answer**:

select CName, Make, Pickup

from Rentals, Customer

where Rentals.CID = Customer.CID

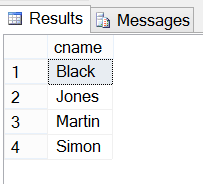
order by pickup

Graphical user interface, application

Description automatically generated

7. Write and execute a query that will return the names of customers who rented a Ford or GM.

You should have 4 rows in your resultset.



**Answer**:

select distinct CName

from Customer, rentals

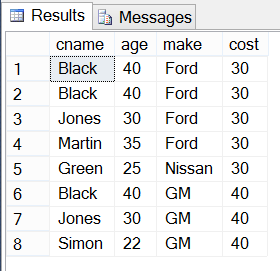
where Customer.CID = rentals.CID and (Rentals.Make = 'Ford' or Rentals.make = 'GM')

Graphical user interface, text, application

Description automatically generated

8. Write and execute a query that will display the customer names, ages, makes, and daily cost of each automobile that they rented. Order your results by cost.

You should have 8 rows in your answer:



**Answer**:

select cname, age, rentals.make, cost

from Customer, Rentals, Rentcost

where Customer.CID = Rentals.CID and Rentals.Make = Rentcost.Make

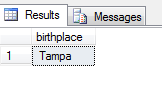
order by Cost

Graphical user interface, text, application

Description automatically generated

9. Write and execute a query that will return the **unique** list of birth places of everyone who has ever rented a Ford.

You should have one row in your result: Tampa



**Answer**:

select distinct BirthPlace

from Customer, Rentals

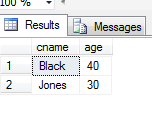
where Customer.CID = Rentals.CID and Make = 'Ford'

Graphical user interface, text, application

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10. Write a query that will return the Names and ages of customers who have rented any automobile during 2009. Make sure that each customer is listed only once in your output.

You should have two rows in your resultset:



**Answer**:

select distinct CName, Age

from Customer, Rentals

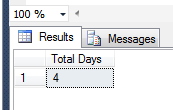
where Customer.CID = Rentals.CID and datepart(year, rentals.Date\_Out) = 2009

Graphical user interface, application

Description automatically generated

11. Write and execute a query that will determine the total number of days that Black rented a GM on November 1, 2009.

You should have one cell: 4



**Answer**:

select datediff(DAY,date\_out , date\_returned)

from Rentals, Customer

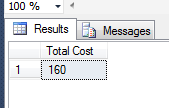
where Customer.CID = Rentals.CID and Rentals.Make = 'GM' and Date\_Out = '01-Nov-2009'

Graphical user interface, text, application, email

Description automatically generated

12. Write and execute a query that will determine the total cost of the automobile rented by Black on November 1, 2009.

You should have one cell: 160



**Answer**:

select datediff(DAY,date\_out , date\_returned) \* Cost

from Rentals, Customer, Rentcost

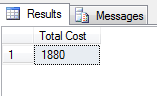
where Customer.CID = Rentals.CID and Rentals.Make = Rentcost.Make and Customer.CName = 'Black' and Rentals.Date\_Out = '01-Nov-2009'

Graphical user interface, text, application

Description automatically generated

13. Write and execute a query that will determine the Total cost of all the automobiles that have ever been rented.

You should have one cell: 1880



**Answer**:

select SUM(datediff(DAY,date\_out , date\_returned) \* Cost)

from Rentals, Customer, Rentcost

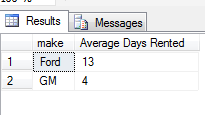
where Customer.CID = Rentals.CID and Rentals.Make = Rentcost.Make

Graphical user interface, text, application

Description automatically generated

14. Write and execute a query that will determine the average number of days that automobiles are rented. Show your result broken out by makes. Do not include an automobile if it has not yet been returned.

You should have two rows: Ford and GM with average days rented 13 and 4, respectively.



**Answer**:

select make, AVG(datediff(DAY,date\_out , date\_returned)) as ‘Average Days Rented’

from Rentals

where Date\_returned is not null

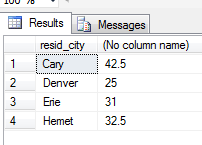
group by Make

Graphical user interface, application

Description automatically generated

15. Write and execute a query that will determine the average age of customers broken out by the city in which they reside. Note: Make sure that the average age is not truncated to an integer.

You should have 4 rows: Cary, Denver, Erie, and Hemet with average ages of 42.5, 25, 31, and 32.5



**Answer**:

select Resid\_City, AVG(Age\*1.0)

from Customer, Rentals

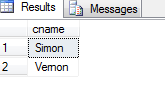
Group by Resid\_City

Graphical user interface, application

Description automatically generated

16. Write and execute a query that will show a list of customers who reside in the same city in which they were born.

You should have 2 rows: Simon and Vernon



**Answer**:

select CName

from Customer

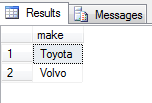
where Resid\_City = BirthPlace

Graphical user interface, application

Description automatically generated

17. Using a **left outer join**, write and execute a query that will display a **unique** list of the makes of automobiles that have never been rented.

You should have 2 rows: Toyota and Volvo



**Answer**:

select Rentcost.Make

from Rentcost

left outer join Rentals on Rentals.Make = Rentcost.Make

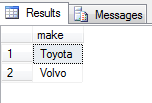
where Date\_Out is null

Graphical user interface, text, application

Description automatically generated

18. Using a **Type I query**, display a **unique** list of the makes of automobiles that have never been rented.

You should have 2 rows: Toyota and Volvo



**Answer**:

select distinct Rentcost.Make

from Rentcost

where Rentcost.Make not in

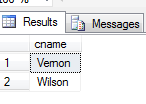
(select Make from rentals)

Graphical user interface, application

Description automatically generated

19. Using a **right outer join**, write and execute a query that will display a **unique** list of customers who have never rented an automobile.

You should have two rows: Vernon and Wilson



**Answer**:

select CName

from Rentals

right outer join Customer on rentals.CID = Customer.CID

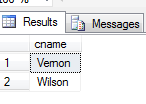
where Rtn is null

Graphical user interface, text, application

Description automatically generated

20. Using a **Type II query**, display a **unique** list of customers who have never rented an automobile.

You should have two rows: Vernon and Wilson



**Answer**:

select distinct Cname

from Customer

where not exists

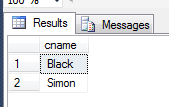
(select CID from Rentals where Rentals.CID = Customer.CID)

Graphical user interface, application

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21. Write and execute a query that will display a list of the customers who picked up their rental from the same city in which they reside.

You should have 2 rows: Black and Simon



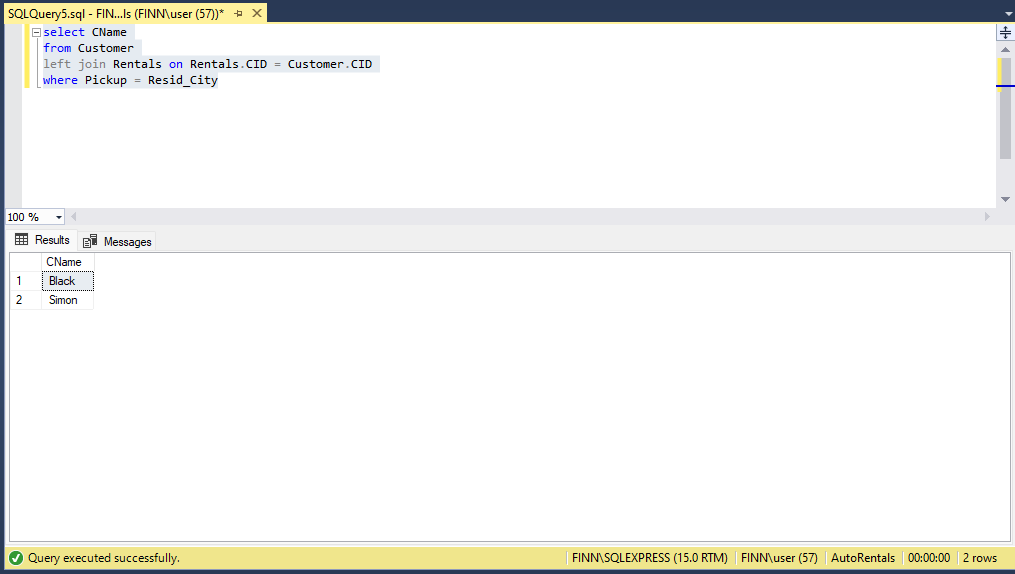
**Answer**:

select CName

from Customer

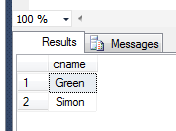
left join Rentals on Rentals.CID = Customer.CID

where Pickup = Resid\_City



22. Write a query that will display a list of customers who have not returned their rentals.

You should have 2 rows: Green and Simon



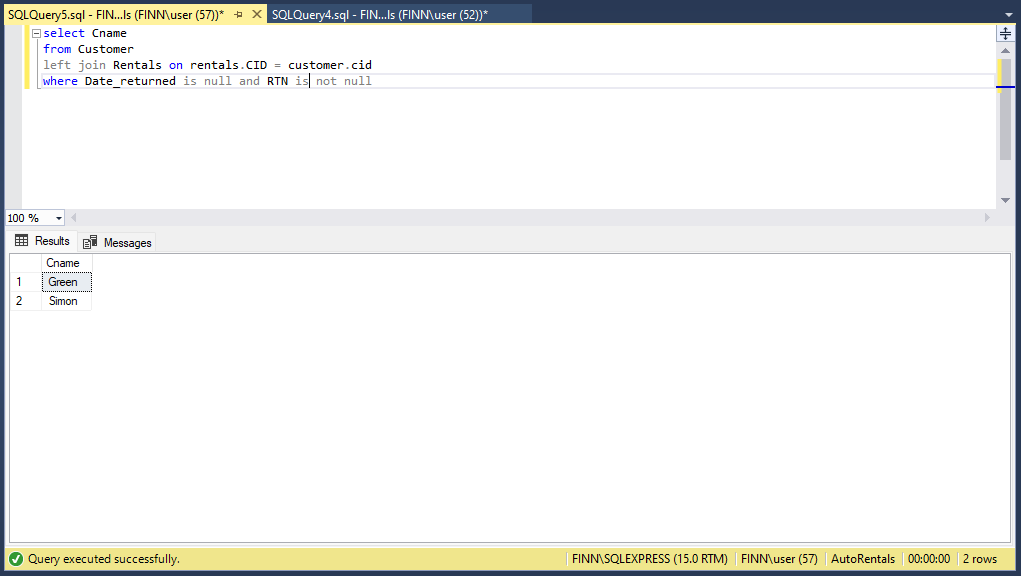
**Answer**:

select Cname

from Customer

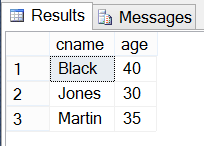
left join Rentals on rentals.CID = customer.cid

where Date\_returned is null and RTN is not null



23. Using a **Type I query**, show all of the names and ages of customers who have rented an automobile and returned it to Erie. Sort your results in ascending order by customer name.

You should have three rows: Black, Jones, Martin.



**Answer**:

select cname, age

from Customer

where exists

(select Return\_city

from Rentals

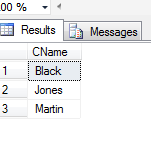
where Customer.CID = Rentals.CID and Return\_city='Erie')

Graphical user interface, application

Description automatically generated

24. Using a **Type II query**, show all of the customers who rented an automobile and picked it up in Cary.

You should have three rows: Black, Jones, and Martin



**Answer**:

select cname

from Customer

where exists

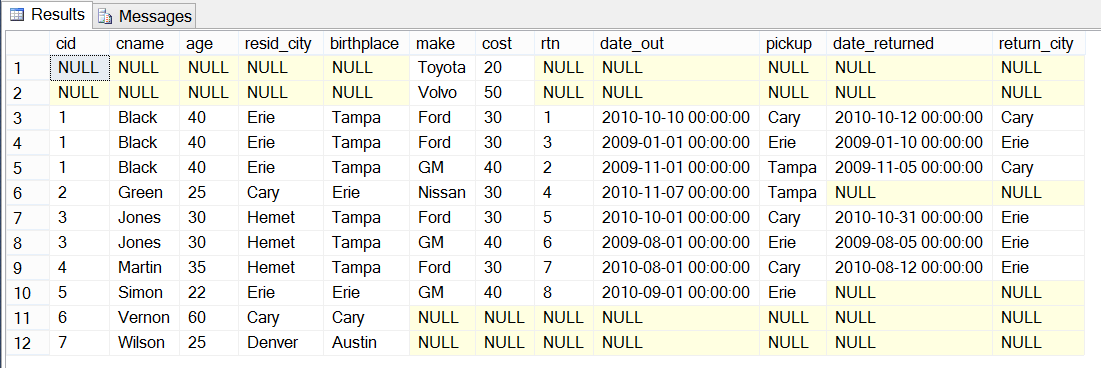
(select Pickup from Rentals where Customer.CID = Rentals.CID and Pickup='Cary')

Graphical user interface, text, application

Description automatically generated

25. Write and execute a single query that will display **all** of the information in the Customer, Rentals, and Rentcost tables in a single resultset. Be sure to display each field only once in your output. Order your results in ascending order by Customer.CID and Rentcost.Make .

You should have 12 rows and 12 columns in your result.



**Answer**:

/\*25\*/

select Customer.cid, cname, age, Resid\_City, BirthPlace, Rentals.Make, cost, rtn, Date\_Out, Pickup, Date\_returned, Return\_city

from Customer

full join Rentals on Rentals.CID = Customer.CID

full join Rentcost on Rentcost.Make = Rentals.Make

order by Customer.CID, rentcost.make

Graphical user interface, text, application

Description automatically generated