FCIS-310 Database Design
Assignment #8
60 points

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After you have successfully completed Assignments 4 and 7 as well as Small Group Activities 7 and 8, the Premiere Products database containing five tables (REP, CUSTOMER, ORDERS, PART, and ORDER_LINE) populated with the data and the entity relationship diagram (ERD) should already be in your SQL Server account. You will find ERD and the five database tables at the end of this document.

Part A (10 points).

In Assignment 4, we defined the primary key(s) PK(s) for each table in the CREATE TABLE command. The foreign key (FK) constraints were defined while you were creating the ERD for the Premiere Products database. You should have the ERD in the database diagram folder.

In this assignment we will take a different approach to enforcing referential integrity constraints on the FKs. We will do it by writing and running the SQL code. The code is pretty much self-explanatory and the SQL commands that you will se are described in Chapter 8.

Open in the SQL Server the SQL code given in a file named ***Assignment 8 – Fall 2021 - SQL Code*** that resides in the Assignment 8 folder. The code first drops the five tables, if they exist. (They do exist in your database.) The associated ERD that you created in Assignment 4 will be dropped as well. Note that the tables have to be dropped in the right order to avoid the referential integrity violations. First, we drop the ORDER_LINE table which has two FKs (ORDER_NUM pointing to ORDERS and PART_NUM pointing to PART. Then we drop the tables PART, ORDERS and then CUSTOMER, each having one FK. Lastly, we drop table REP that does not have the FK. Next, the SQL creates the structure for each of the five tables, one at a time. Each table gets a unique name (REP, CUSTOMER, etc.) and we name the PK attribute(s) and non-prime attributes and their data types for each table. Then, the SQL code adds and names constraints on the FK(s) for the CUSTOMER, ORDERS and ORDER_LINE tables. It alters the metadata in the database dictionary. Finally, the last segment of the code populates the five tables, one at a time. Again, the order in which each of the tables are populated matters. They are populated in the reverse sequence to that how they were dropped. So, table REP that does not have the FK will be populated first followed by CUSTOMER, ORDERS, PART, and ORDER_LINE will be populated last.

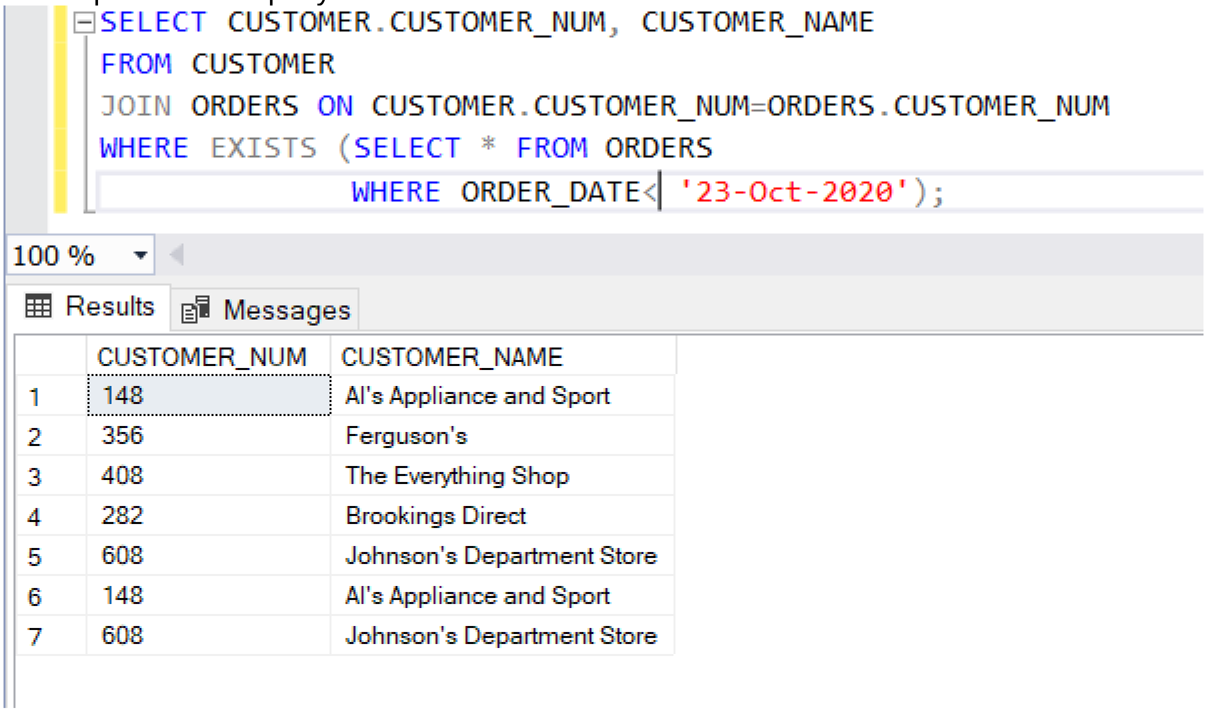
Part B (50 points).

Using the Premiere Products database write the SQL queries for ten of the following problems. Save the ten queries in a single SQL file or in ten separate files in your account on J drive. Run each query. Paste each query and the output it generated after each of the ten problems.

After you paste the queries and the output save this document as Word or pdf file named Assignment8_YourFirstName_YourLastName and submit via Blackboard. See the Assignments/Assignments/Assignment 8 folder.

Problem 1.

Use the EXISTS operator to find the customer number and customer name of each customer that placed an order before Oct 23 2020. Run the query on SQL Server. Paste the query and the output from the query below.

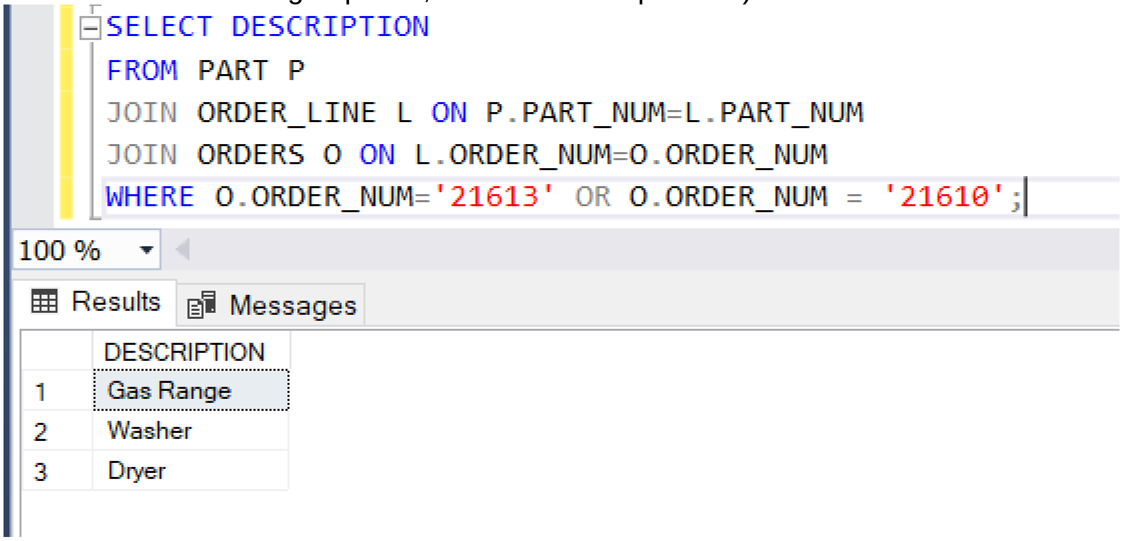


```
SELECT CUSTOMER.CUSTOMER_NUM, CUSTOMER_NAME
FROM CUSTOMER
JOIN ORDERS ON CUSTOMER.CUSTOMER_NUM=ORDERS.CUSTOMER_NUM
WHERE EXISTS (SELECT * FROM ORDERS
                            WHERE ORDER_DATE< '23-Oct-2020');
```

	CUSTOMER_NUM	CUSTOMER_NAME
1	148	Al's Appliance and Sport
2	356	Ferguson's
3	408	The Everything Shop
4	282	Brookings Direct
5	608	Johnson's Department Store
6	148	Al's Appliance and Sport
7	608	Johnson's Department Store

Problem 2.

Find the description of each part included in the order number 21610 or the order number 21613. Run the query on SQL Server. Paste the query and the output from the query below. (Note that the ORDER_NUM attribute is of the character type and values such as 21610 must be enclosed in the single quotes, '21610' for comparison.)

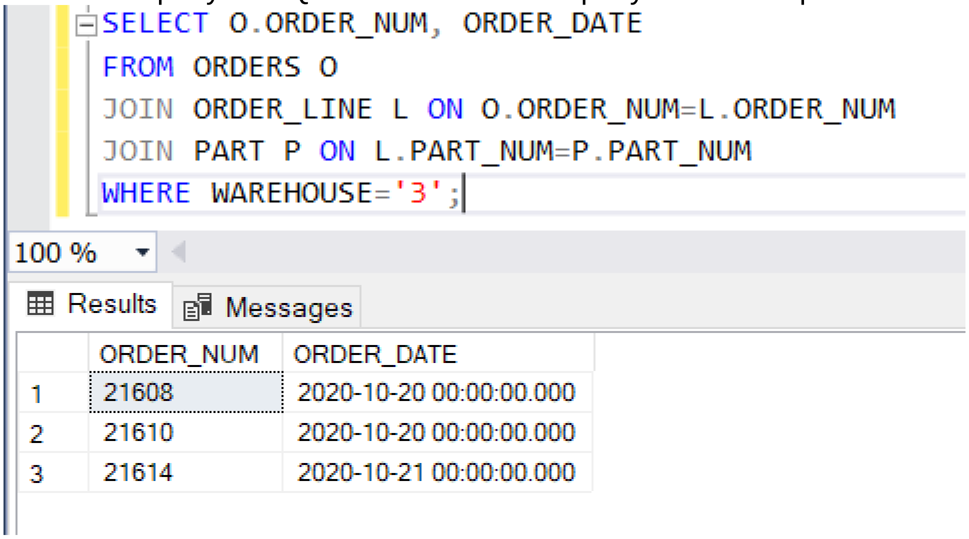


```
SELECT DESCRIPTION
FROM PART P
JOIN ORDER_LINE L ON P.PART_NUM=L.PART_NUM
JOIN ORDERS O ON L.ORDER_NUM=O.ORDER_NUM
WHERE O.ORDER_NUM='21613' OR O.ORDER_NUM = '21610';
```

	DESCRIPTION
1	Gas Range
2	Washer
3	Dryer

Problem 3.

Find the order number and order date for each order that includes a part located in warehouse 3. Run the query on SQL Server. Paste the query and the output from the query below.

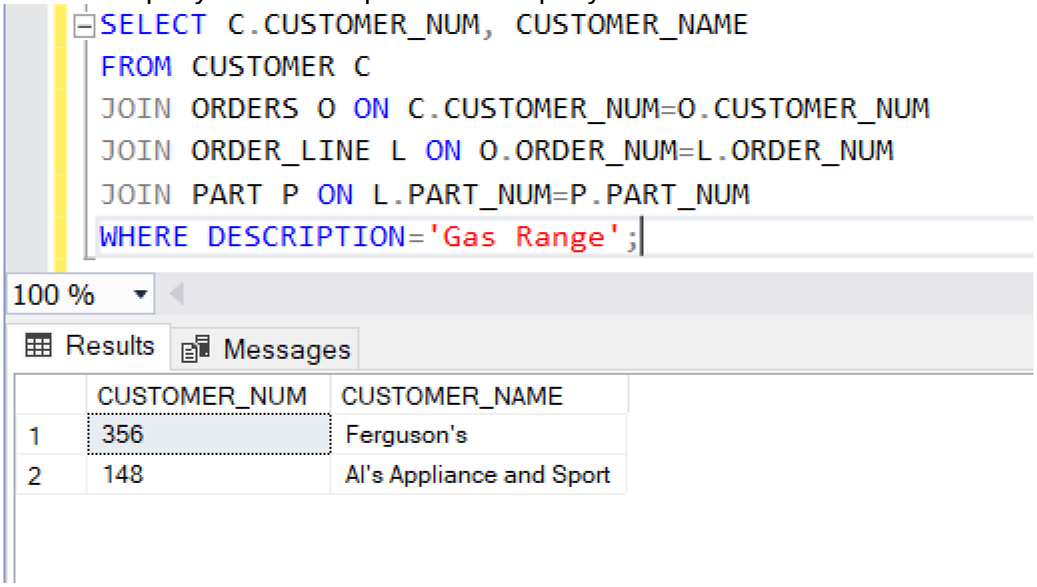


```sql
SELECT O.ORDER_NUM, ORDER_DATE
FROM ORDERS O
JOIN ORDER_LINE L ON O.ORDER_NUM=L.ORDER_NUM
JOIN PART P ON L.PART_NUM=P.PART_NUM
WHERE WAREHOUSE='3';
```

	ORDER_NUM	ORDER_DATE
1	21608	2020-10-20 00:00:00.000
2	21610	2020-10-20 00:00:00.000
3	21614	2020-10-21 00:00:00.000

Problem 4.

List the customer number and customer name for each customer who placed an order on the Gas Range. (Note that you have to link several tables here.) Run the query on SQL Server. Paste the query and the output from the query below.

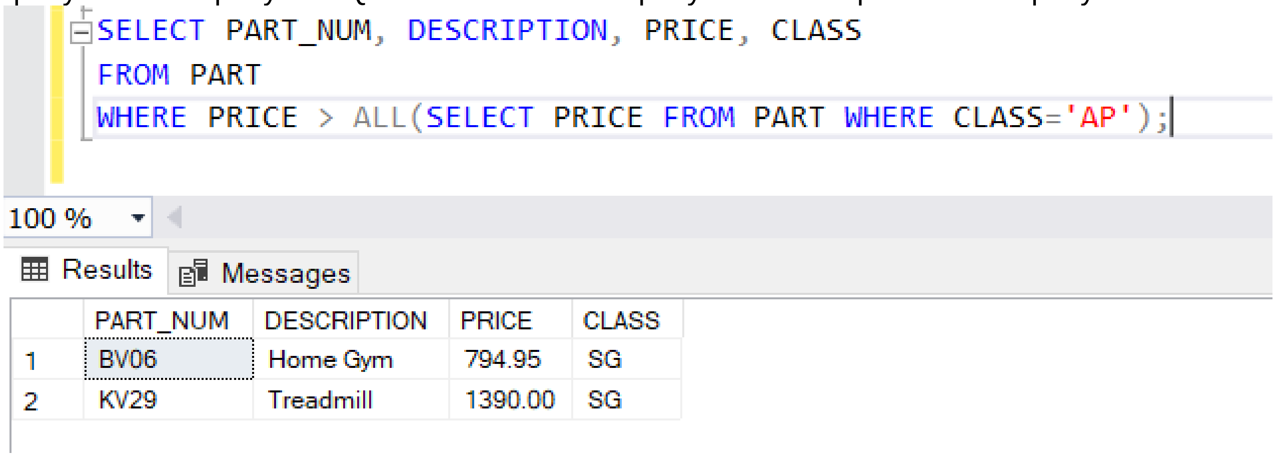


```sql
SELECT C.CUSTOMER_NUM, CUSTOMER_NAME
FROM CUSTOMER C
JOIN ORDERS O ON C.CUSTOMER_NUM=O.CUSTOMER_NUM
JOIN ORDER_LINE L ON O.ORDER_NUM=L.ORDER_NUM
JOIN PART P ON L.PART_NUM=P.PART_NUM
WHERE DESCRIPTION='Gas Range';
```

	CUSTOMER_NUM	CUSTOMER_NAME
1	356	Ferguson's
2	148	Al's Appliance and Sport

Problem 5.

List the part number, part description, unit price, and item class for each part that has a unit price greater than the unit price of every part in item class AP. Use the ALL operator in your query. Run the query on SQL Server. Paste the query and the output from the query below.

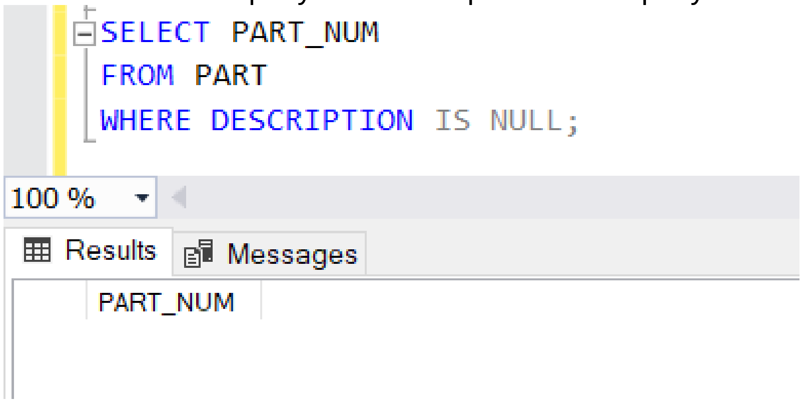


```sql
SELECT PART_NUM, DESCRIPTION, PRICE, CLASS
FROM PART
WHERE PRICE > ALL(SELECT PRICE FROM PART WHERE CLASS='AP');
```

	PART_NUM	DESCRIPTION	PRICE	CLASS
1	BV06	Home Gym	794.95	SG
2	KV29	Treadmill	1390.00	SG

Problem 6.

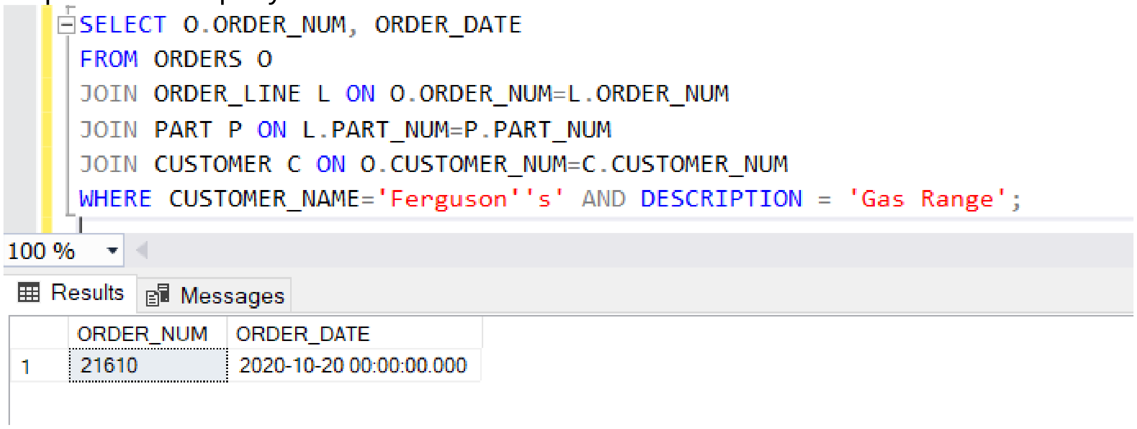
List the part number of any part with an unknown description. (Note that if a part has a description no part numbers will be returned.) Use the NULL operator. Run the query on SQL Server. Paste the query and the output from the query below.



```sql
SELECT PART_NUM
FROM PART
WHERE DESCRIPTION IS NULL;
```

	PART_NUM

Problem 7.
List the order number and order date for each order that was placed by Ferguson's and that contains an order line for a Gas Range. Run the query on SQL Server. Paste the query and the output from the query below.

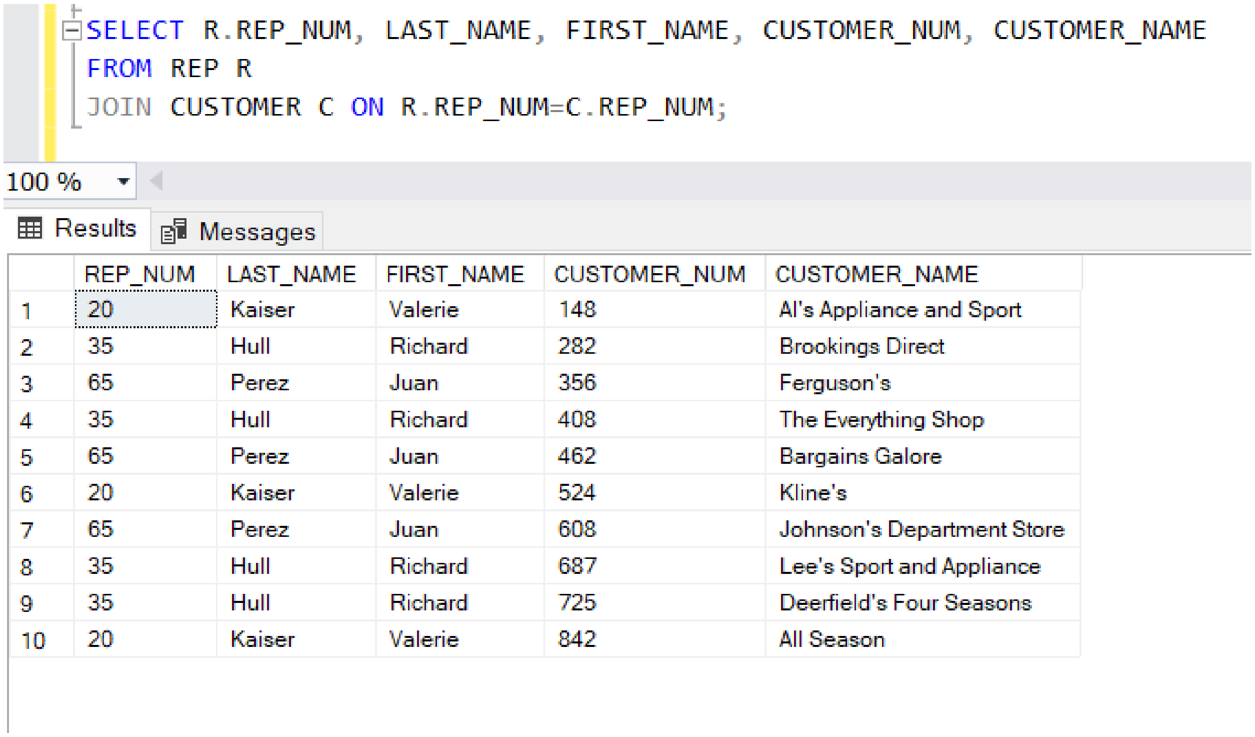


```sql
SELECT O.ORDER_NUM, ORDER_DATE
FROM ORDERS O
JOIN ORDER_LINE L ON O.ORDER_NUM=L.ORDER_NUM
JOIN PART P ON L.PART_NUM=P.PART_NUM
JOIN CUSTOMER C ON O.CUSTOMER_NUM=C.CUSTOMER_NUM
WHERE CUSTOMER_NAME='Ferguson''s' AND DESCRIPTION = 'Gas Range';
```

	ORDER_NUM	ORDER_DATE
1	21610	2020-10-20 00:00:00.000

Problem 8.

List the number, last name, and first name for each sales rep together with the number and name for each customer the sales rep represents. Use aliases R and C for REP and CUSTOMER. Run the query on SQL Server. Paste the query and the output from the query below.

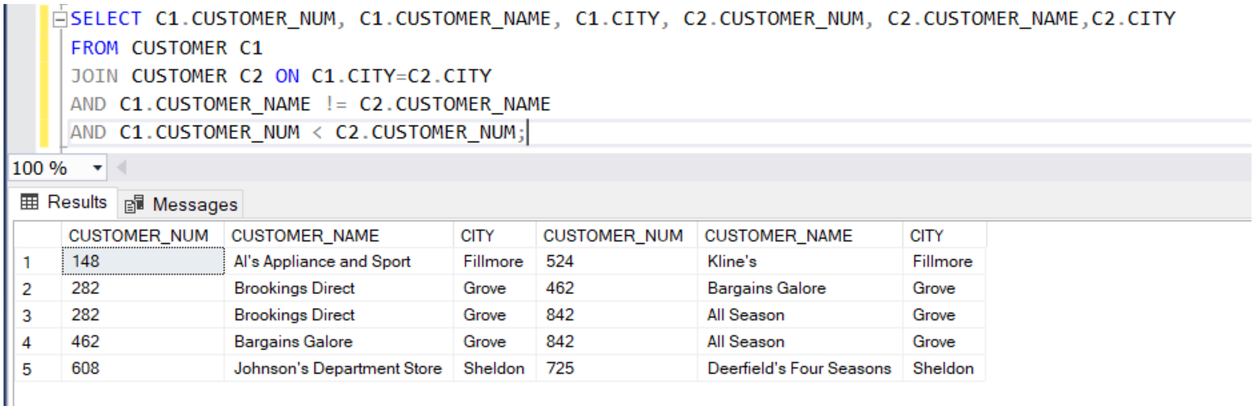


```sql
SELECT R.REP_NUM, LAST_NAME, FIRST_NAME, CUSTOMER_NUM, CUSTOMER_NAME
FROM REP R
JOIN CUSTOMER C ON R.REP_NUM=C.REP_NUM;
```

	REP_NUM	LAST_NAME	FIRST_NAME	CUSTOMER_NUM	CUSTOMER_NAME
1	20	Kaiser	Valerie	148	Al's Appliance and Sport
2	35	Hull	Richard	282	Brookings Direct
3	65	Perez	Juan	356	Ferguson's
4	35	Hull	Richard	408	The Everything Shop
5	65	Perez	Juan	462	Bargains Galore
6	20	Kaiser	Valerie	524	Kline's
7	65	Perez	Juan	608	Johnson's Department Store
8	35	Hull	Richard	687	Lee's Sport and Appliance
9	35	Hull	Richard	725	Deerfield's Four Seasons
10	20	Kaiser	Valerie	842	All Season

Problem 9.

For each pair of customers located in the same city, display the customer number, customer name, and city. You need to join the table to itself. Run the query on SQL Server. Paste the query and the output from the query below.

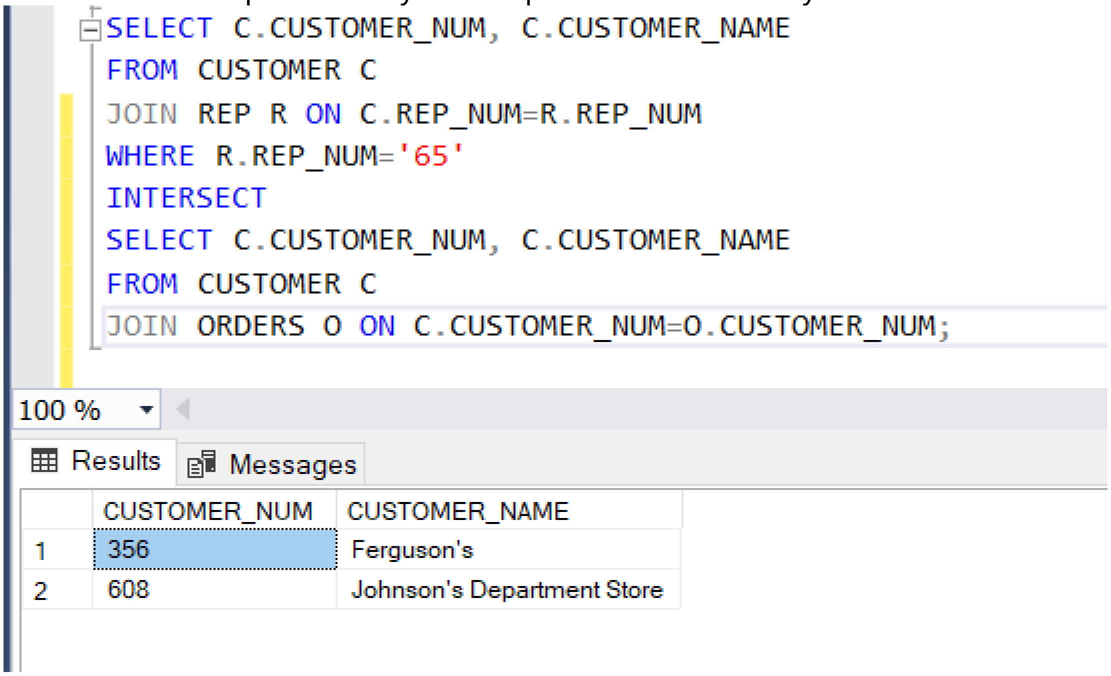


```sql
SELECT C1.CUSTOMER_NUM, C1.CUSTOMER_NAME, C1.CITY, C2.CUSTOMER_NUM, C2.CUSTOMER_NAME,C2.CITY
FROM CUSTOMER C1
JOIN CUSTOMER C2 ON C1.CITY=C2.CITY
AND C1.CUSTOMER_NAME != C2.CUSTOMER_NAME
AND C1.CUSTOMER_NUM < C2.CUSTOMER_NUM;
```

	CUSTOMER_NUM	CUSTOMER_NAME	CITY	CUSTOMER_NUM	CUSTOMER_NAME	CITY
1	148	Al's Appliance and Sport	Fillmore	524	Kline's	Fillmore
2	282	Brookings Direct	Grove	462	Bargains Galore	Grove
3	282	Brookings Direct	Grove	842	All Season	Grove
4	462	Bargains Galore	Grove	842	All Season	Grove
5	608	Johnson's Department Store	Sheldon	725	Deerfield's Four Seasons	Sheldon

Problem 10.

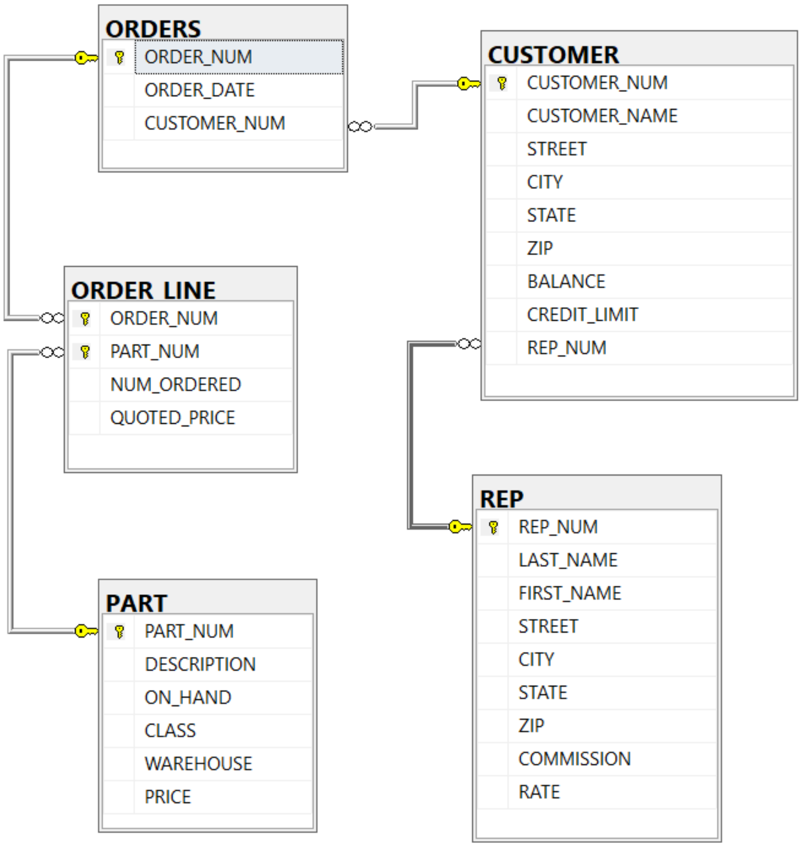
Use the IN operator or the INTERSECT set operator to list the number and name of each customer that is represented by sales rep 65 and that currently has orders on file.



```sql
SELECT C.CUSTOMER_NUM, C.CUSTOMER_NAME
FROM CUSTOMER C
JOIN REP R ON C.REP_NUM=R.REP_NUM
WHERE R.REP_NUM='65'
INTERSECT
SELECT C.CUSTOMER_NUM, C.CUSTOMER_NAME
FROM CUSTOMER C
JOIN ORDERS O ON C.CUSTOMER_NUM=O.CUSTOMER_NUM;
```

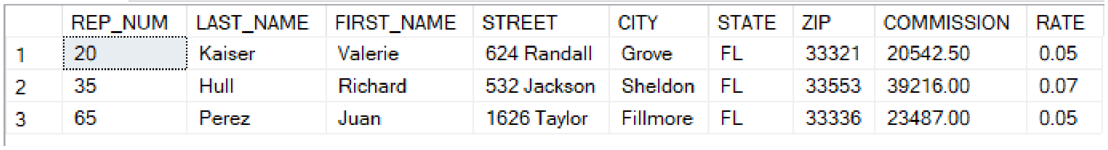
	CUSTOMER_NUM	CUSTOMER_NAME
1	356	Ferguson's
2	608	Johnson's Department Store

ERD – PREMIERE PRODUCTS DATABASE



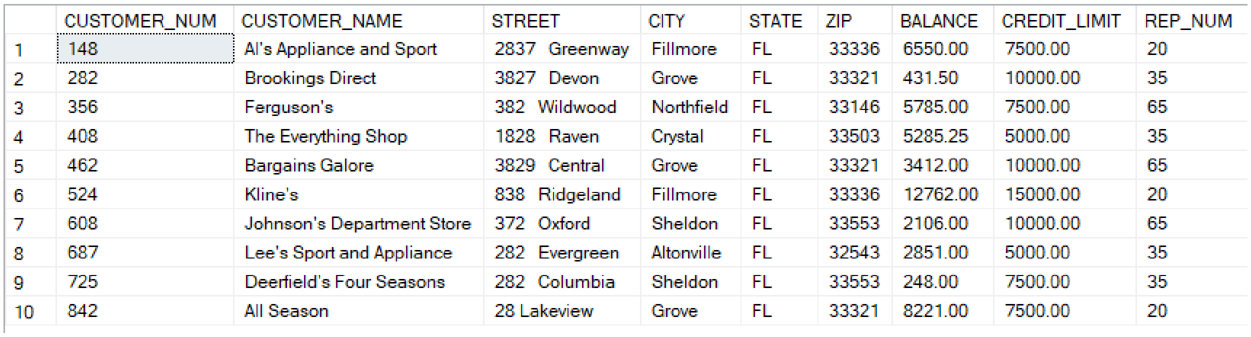
PREMIERE PRODUCTS SCHEMA

TABLE REP



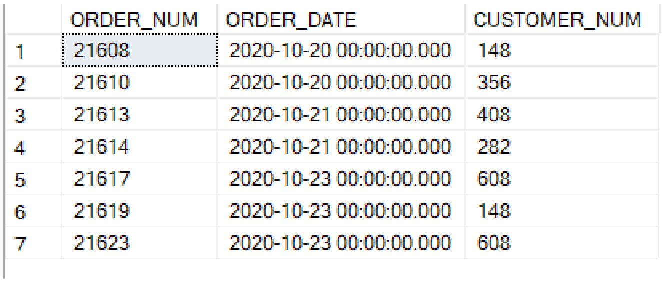
	REP_NUM	LAST_NAME	FIRST_NAME	STREET	CITY	STATE	ZIP	COMMISSION	RATE
1	20	Kaiser	Valerie	624 Randall	Grove	FL	33321	20542.50	0.05
2	35	Hull	Richard	532 Jackson	Sheldon	FL	33553	39216.00	0.07
3	65	Perez	Juan	1626 Taylor	Fillmore	FL	33336	23487.00	0.05

TABLE CUSTOMER



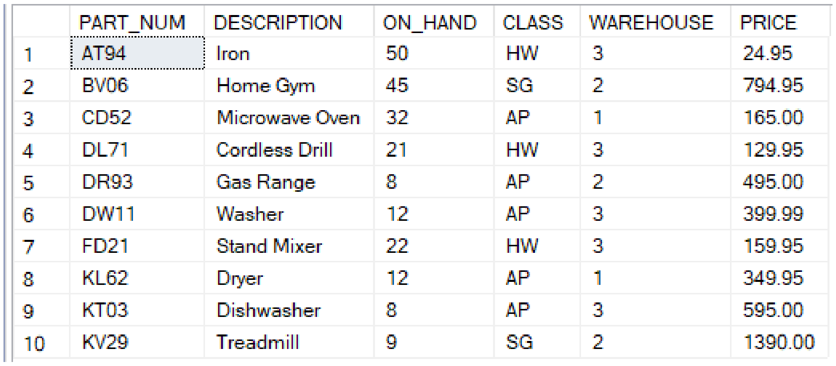
	CUSTOMER_NUM	CUSTOMER_NAME	STREET	CITY	STATE	ZIP	BALANCE	CREDIT_LIMIT	REP_NUM
1	148	Al's Appliance and Sport	2837 Greenway	Fillmore	FL	33336	6550.00	7500.00	20
2	282	Brookings Direct	3827 Devon	Grove	FL	33321	431.50	10000.00	35
3	356	Ferguson's	382 Wildwood	Northfield	FL	33146	5785.00	7500.00	65
4	408	The Everything Shop	1828 Raven	Crystal	FL	33503	5285.25	5000.00	35
5	462	Bargains Galore	3829 Central	Grove	FL	33321	3412.00	10000.00	65
6	524	Kline's	838 Ridgeland	Fillmore	FL	33336	12762.00	15000.00	20
7	608	Johnson's Department Store	372 Oxford	Sheldon	FL	33553	2106.00	10000.00	65
8	687	Lee's Sport and Appliance	282 Evergreen	Altonville	FL	32543	2851.00	5000.00	35
9	725	Deerfield's Four Seasons	282 Columbia	Sheldon	FL	33553	248.00	7500.00	35
10	842	All Season	28 Lakeview	Grove	FL	33321	8221.00	7500.00	20

TABLE ORDERS



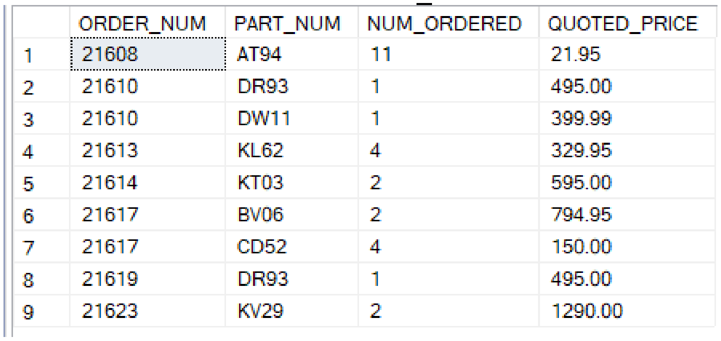
	ORDER_NUM	ORDER_DATE	CUSTOMER_NUM
1	21608	2020-10-20 00:00:00.000	148
2	21610	2020-10-20 00:00:00.000	356
3	21613	2020-10-21 00:00:00.000	408
4	21614	2020-10-21 00:00:00.000	282
5	21617	2020-10-23 00:00:00.000	608
6	21619	2020-10-23 00:00:00.000	148
7	21623	2020-10-23 00:00:00.000	608

TABLE PART



	PART_NUM	DESCRIPTION	ON_HAND	CLASS	WAREHOUSE	PRICE
1	AT94	Iron	50	HW	3	24.95
2	BV06	Home Gym	45	SG	2	794.95
3	CD52	Microwave Oven	32	AP	1	165.00
4	DL71	Cordless Drill	21	HW	3	129.95
5	DR93	Gas Range	8	AP	2	495.00
6	DW11	Washer	12	AP	3	399.99
7	FD21	Stand Mixer	22	HW	3	159.95
8	KL62	Dryer	12	AP	1	349.95
9	KT03	Dishwasher	8	AP	3	595.00
10	KV29	Treadmill	9	SG	2	1390.00

TABLE ORDER_LINE



	ORDER_NUM	PART_NUM	NUM_ORDERED	QUOTED_PRICE
1	21608	AT94	11	21.95
2	21610	DR93	1	495.00
3	21610	DW11	1	399.99
4	21613	KL62	4	329.95
5	21614	KT03	2	595.00
6	21617	BV06	2	794.95
7	21617	CD52	4	150.00
8	21619	DR93	1	495.00
9	21623	KV29	2	1290.00