

Lab 06 – Transactions and Security

Objectives:

The purpose of this lab is to introduce the student to both transactions and security. In the real-world, databases tasks often involve multiple steps and if any step in the middle fails, the procedure is a failure. This lab walks the student through a couple transactions and lets them learn how various steps have varying consequences that they need to be aware of.

By the end of this lab, the student will be able to:

- Describe the steps of a transaction, how a transaction begins and ends and walk through live scenarios of a variety of transactions
- Understand and act appropriately on what needs to be done in the case of transaction failure
- Grant and revoke permissions to and from other users and public users from the database

Submission:

Your submission will be a single WORD file with the query and result screenshot from Oracle SQL developer

Make sure every SQL statement terminates with a semicolon.

- You will use following data to complete the given tasks:
- **SET TRANSACTION READ WRITE** starts a new transaction.
- **COMMIT** commits the current transaction, making its changes permanent.
- **SAVEPOINT <name>** sets a pointer to a location that can be rolled back to.
- **ROLLBACK** rolls back the current transaction, canceling its changes.
- **SET autocommit** disables or enables the default **autocommit** mode for the current session.

Tasks:

It is very important that these tasks/questions be performed in the order presented here for maximum learning.

PART A - Transactions

1. Execute the following commands.

```
SET AUTOCOMMIT OFF;  
SET TRANSACTION READ WRITE;
```

Using SQL, create an **empty** table, that is the same as the RETAILCUSTOMERS table, and name it **newCustomers**.

```
SET AUTOCOMMIT OFF;  
SET TRANSACTION READ WRITE;  
  
CREATE TABLE newCustomers(  
    CUSTOMERNUMBER number(38,0) NOT NULL PRIMARY KEY,  
    CUSTOMERNAME varchar2(50) NOT NULL,  
    CONTACTLASTNAME varchar2(50) NOT NULL,  
    CONTACTFIRSTNAME varchar2(50) NOT NULL,  
    PHONE varchar2(50) NOT NULL,  
    ADDRESSLINE1 varchar2(50) NOT NULL,  
    ADDRESSLINE2 varchar2(50),  
    CITY varchar2(50) NOT NULL,  
    PROVINCE varchar2(50),  
    POSTALCODE varchar2(15),  
    COUNTRY varchar2(50) NOT NULL,  
    SALESREPLOYEEENUMBER number(38,0) REFERENCES RETAILEMPLOYEES (EMPLOYEEENUMBER),  
    CREDITLIMIT number(10,2)  
);
```

The screenshot shows the Oracle SQL Developer interface. On the left, the Connections pane shows a single connection named 'DBS211NJ-SUMMER2022'. The Tables pane lists several tables under the 'RETAILCUSTOMERS' schema, including 'CUSTOMERNUMBER', 'CUSTOMERNAME', 'CONTACTLASTNAME', 'CONTACTFIRSTNAME', 'PHONE', 'ADDRESSLINE1', 'ADDRESSLINE2', 'CITY', 'STATE', and 'POSTALCODE'. The central workspace contains a SQL Worksheet titled 'DBS211NJ-Summer2022.sql' with the following code:

```

SET AUTOCOMMIT OFF;
SET TRANSACTION READ WRITE;

CREATE TABLE newCustomers(
    CUSTOMERNUMBER number(38,0) NOT NULL PRIMARY KEY,
    CUSTOMERNAME varchar2(50) NOT NULL,
    CONTACTLASTNAME varchar2(50) NOT NULL,
    CONTACTFIRSTNAME varchar2(50) NOT NULL,
    PHONE varchar2(50) NOT NULL,
    ADDRESSLINE1 varchar2(50) NOT NULL,
    ADDRESSLINE2 varchar2(50),
    CITY varchar2(50) NOT NULL,
    PROVINCE varchar2(50),
    POSTALCODE varchar2(15),
    COUNTRY varchar2(50) NOT NULL,
    SALESREPLOYEEENUMBER number(38,0) REFERENCES RETAILEMPLOYEES (EMPLOYEEENUMBER),
    CREDITLIMIT number(10,2)
);

```

The bottom right corner of the workspace shows status indicators: Line 2 Column 1, Insert, Modified, Unix/Mac: LF.

The Script Output window at the bottom displays the message: "Table NEWCUSTOMERS created." and "Task completed in 0.138 seconds".

- Write an INSERT statement to populate the **newCustomers** table with the rows of the sample data. (Write a single INSERT statement to insert all the rows, combine firstname and last name to get full name during insert)

customerNumber	contactLastName	contactFirstName	Phone	addressLine1	city	country
100	Patel	Ralph	2233355555	10 SenecaWay	Paris	France
101	Denis	Betty	3344455555	110 SenecaWay	Chicago	USA
102	Biri	Ben	44555445544	13000 SenecaWay	Toronto	Canada
103	Newman	Chad	66777332233	12 SenecaWay	Mexico city	Mexico
104	Ropeburn	Audrey	7788811212	15000 SenecaWay	Havana	Cuba
105	Lucy	Preston	45555511111	12 SenecaWay	Charlotte	USA

INSERT ALL

```
INTO NEWCUSTOMERS VALUES (100,'Patel Ralph','Patel','Ralph',2233355555,'10 SenecaWay','Paris','France')

INTO NEWCUSTOMERS VALUES (101,'Denis Betty','Denis','Betty',3344455555,'110
SenecaWay','Chicago','USA')

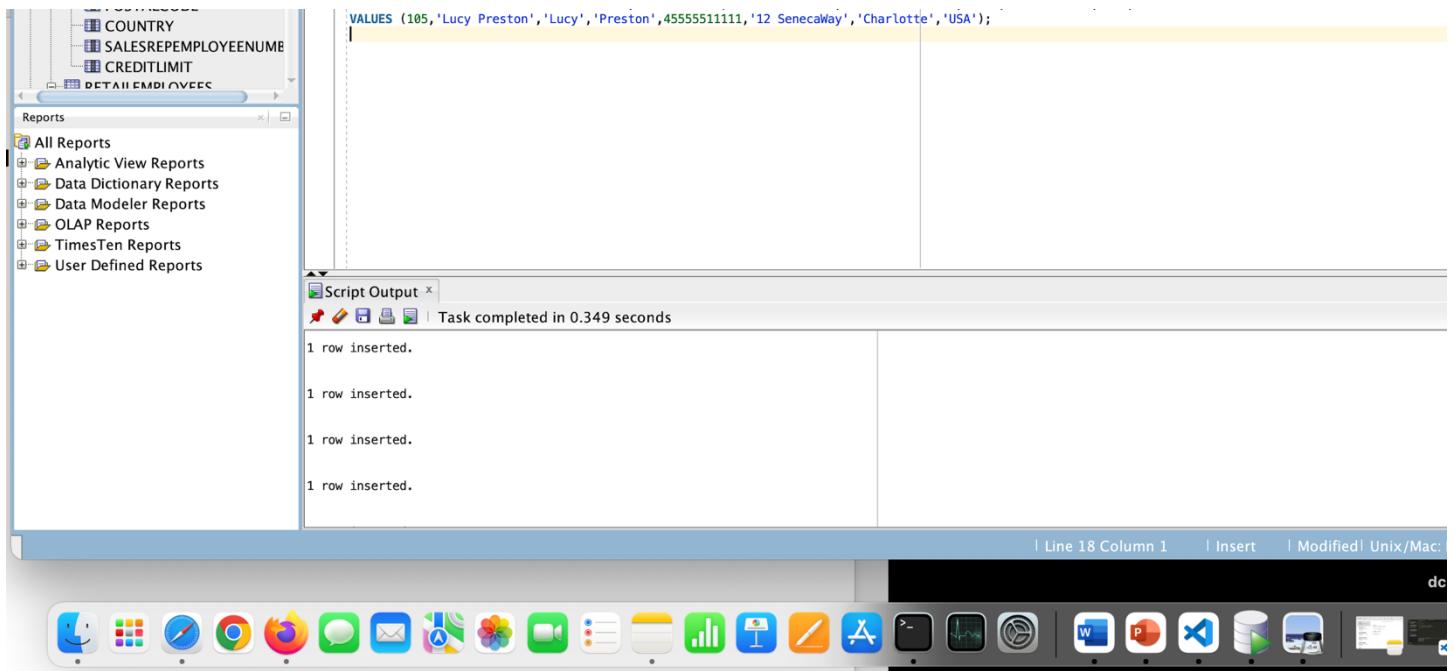
INTO NEWCUSTOMERS VALUES (102,'Biri Ben','Biri','Ben',44555445544,'13000 SenecaWay','Toronto','Canada')

INTO NEWCUSTOMERS VALUES (103,'Newnham Chad','Newnham','Chad',66777332233,'12
SenecaWay','Mexico city','Mexico')

INTO NEWCUSTOMERS VALUES (104,'Ropeburn Audrey','Ropeburn','Audrey',7788811212,'15000
SenecaWay','Havana','Cuba')

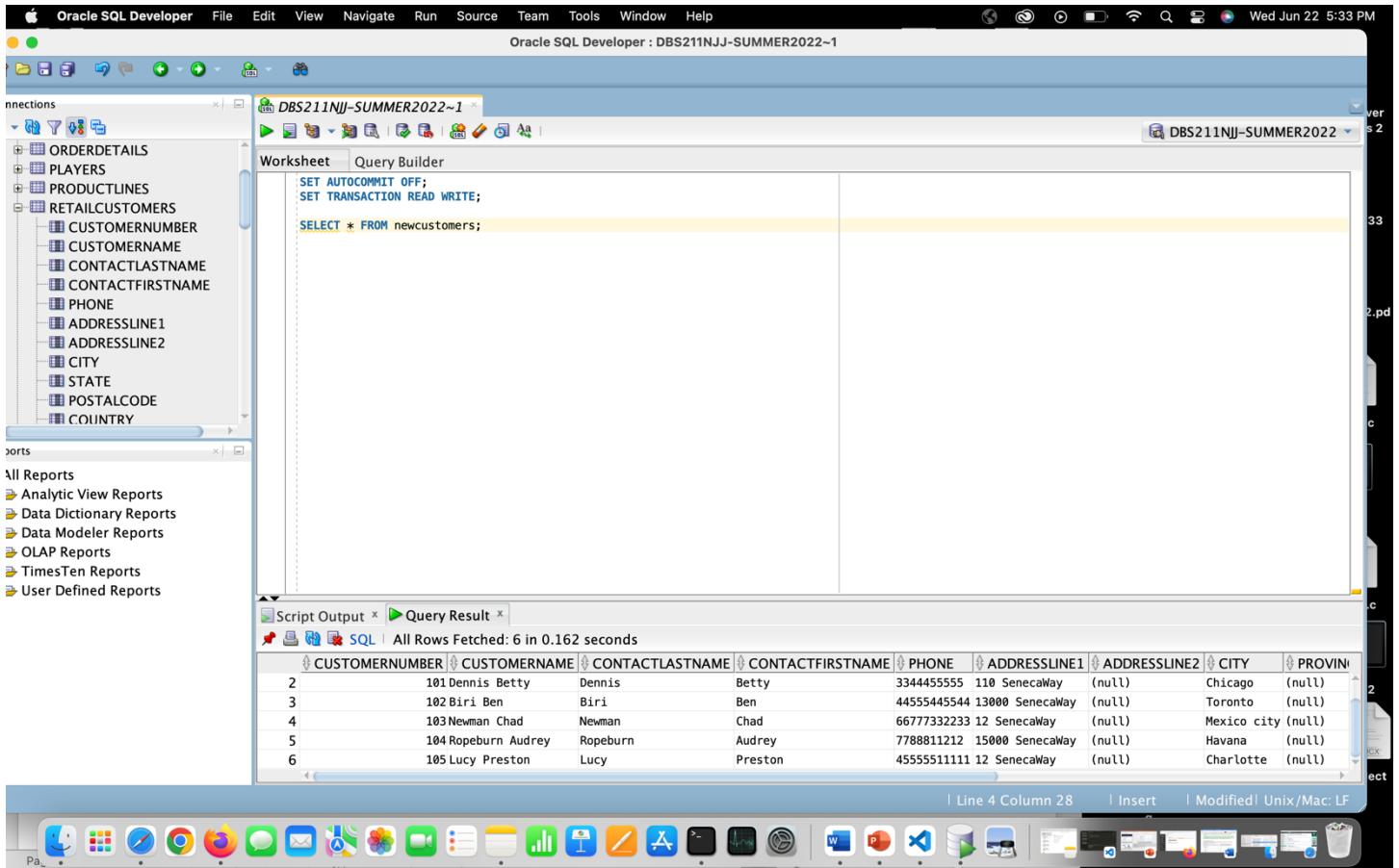
INTO NEWCUSTOMERS VALUES (105,'Lucy Preston','Lucy','Preston',45555511111,'12
SenecaWay','Charlotte','USA')

SELECT * FROM DUAL;
```



3. Create a query that shows all the inserted rows from the newCustomers table. How many rows are selected?

```
SELECT * FROM newcustomers;
```



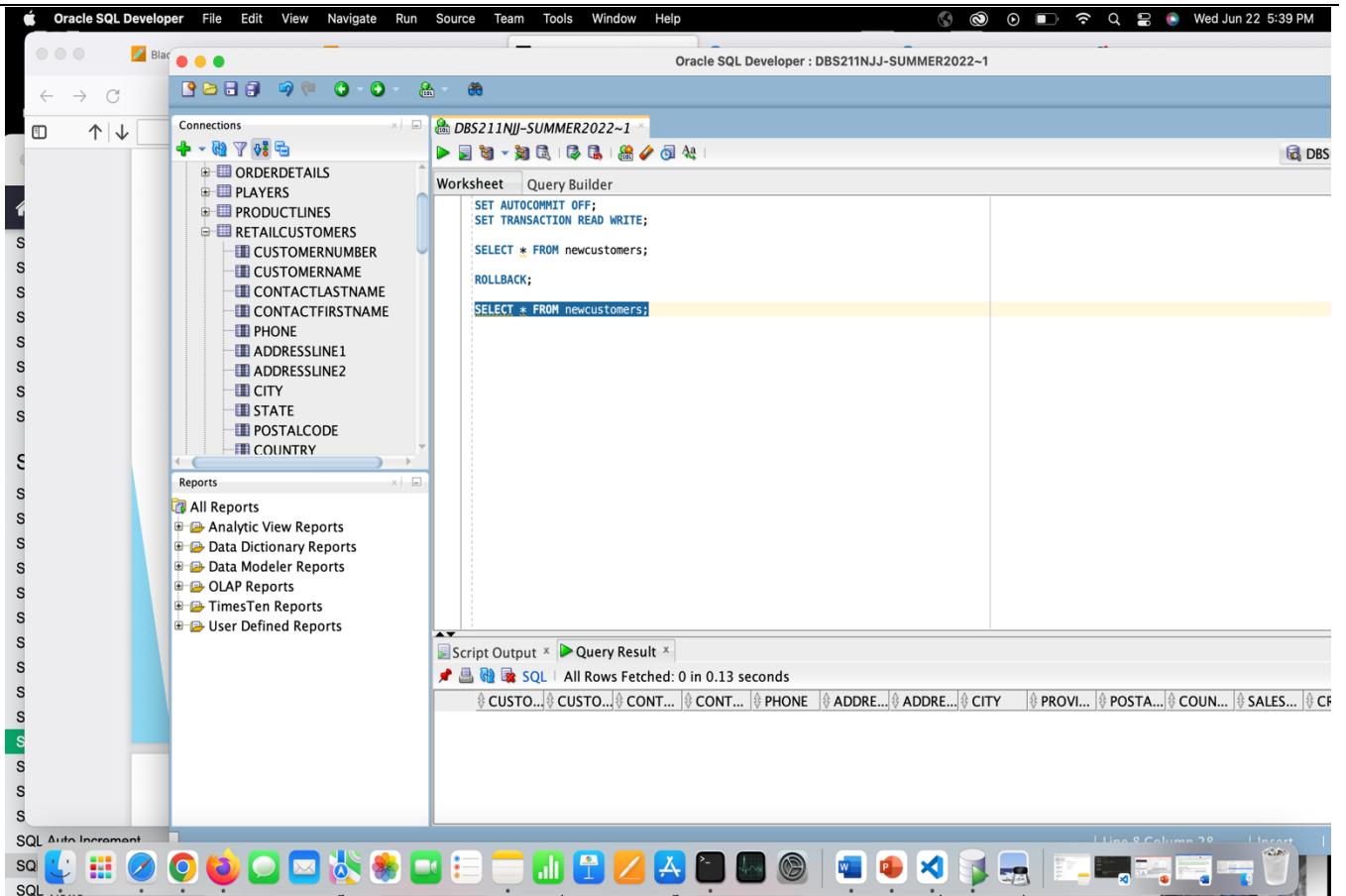
→ In total, six rows were selected.

4. Execute the rollback command. Display all rows and columns from the newCustomers table. How many rows are selected?

```
SELECT * FROM newcustomers;
```

```
ROLLBACK;
```

```
SELECT * FROM newcustomers;
```



→ No, rows were selected, after executing the rollback command.

5. Repeat Question 2. Make the insertion permanent to the table newCustomers. Display all rows and columns from the newCustomers table. How many rows are selected?

```
SET AUTOCOMMIT OFF;
```

```
SET TRANSACTION READ WRITE;
```

```
COMMIT;
```

```
INSERT INTO
NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
```

```
VALUES (100,'Patel Ralph','Patel','Ralph',2233355555,'10 SenecaWay','Paris','France');
```

```
INSERT INTO
NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
```

```
VALUES (101,'Denis Betty','Denis','Betty',3344455555,'110 SenecaWay','Chicago','USA');
```

```
INSERT INTO
```

```
NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
```

```
VALUES (102,'Biri Ben','Biri','Ben',44555445544,'13000 SenecaWay','Toronto','Canada');
```

```
INSERT INTO
```

```
NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
```

```
VALUES (103,'Newnham Chad','Newnham','Chad',66777332233,'12 SenecaWay','Mexico city','Mexico');
```

```
INSERT INTO
```

```
NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
```

```
VALUES (104,'Ropeburn Audrey','Ropeburn','Audrey',7788811212,'15000 SenecaWay','Havana','Cuba');
```

```
INSERT INTO
```

```
NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
```

```
VALUES (105,'Lucy Preston','Lucy','Preston',45555511111,'12 SenecaWay','Charlotte','USA');
```

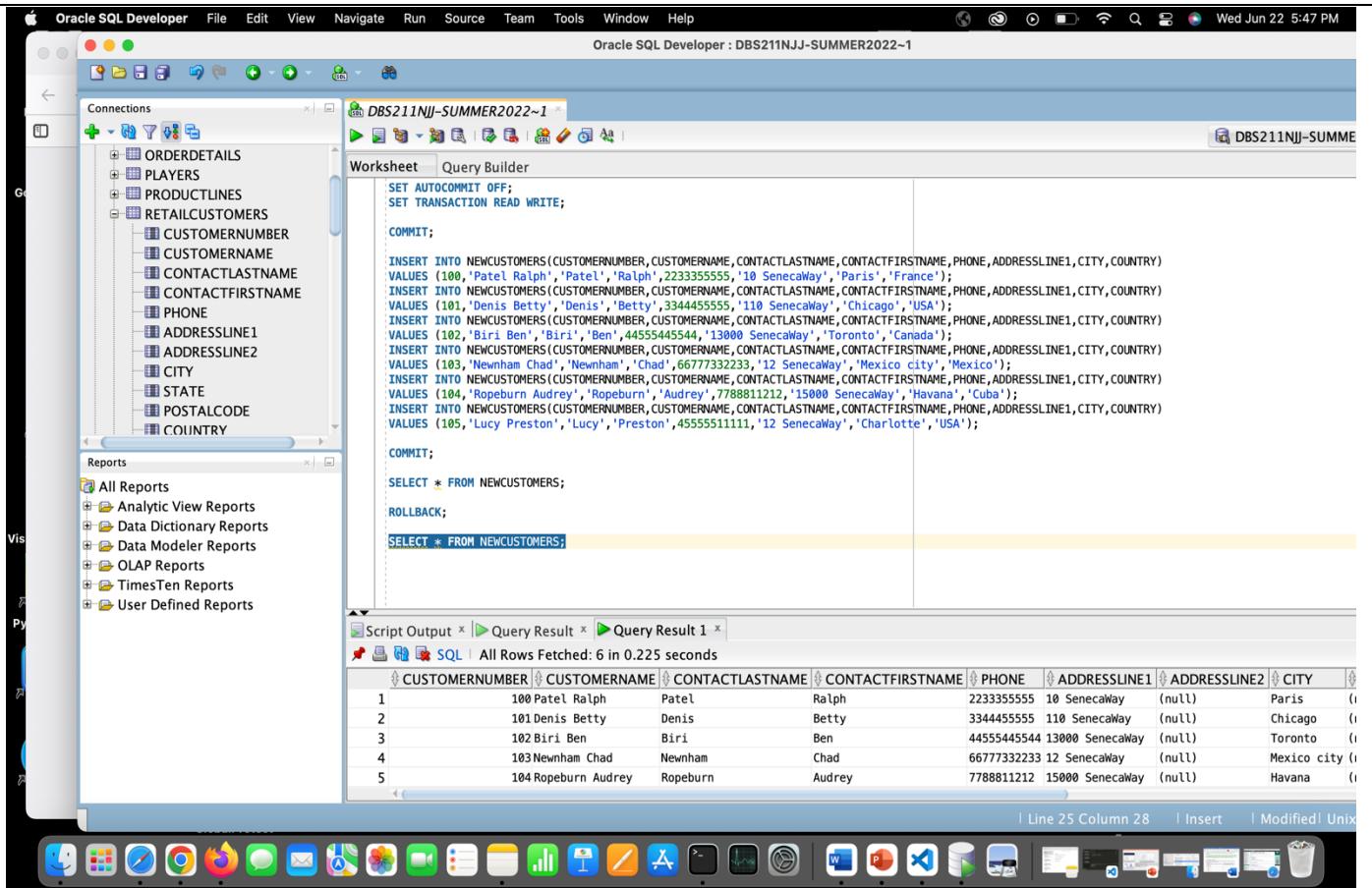
```
COMMIT;
```

```
SELECT * FROM NEWCUSTOMERS;
```

```
ROLLBACK;
```

```
SELECT * FROM NEWCUSTOMERS;
```

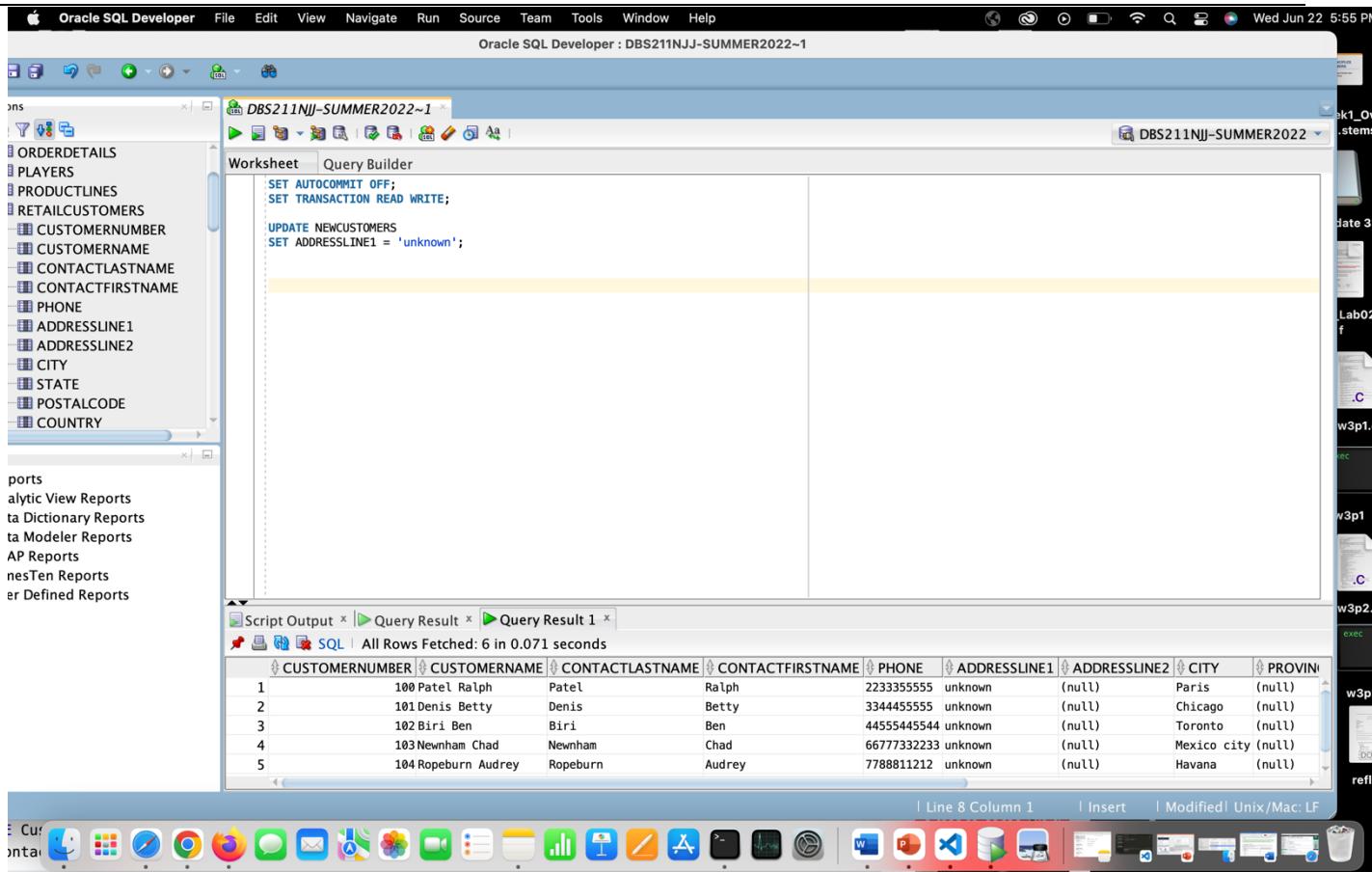
➔ All the six rows were selected, even after executing rollback.



6. Write an update statement to update the value of column addressLine1 to 'unknown' for all the customers in the newCustomers table.

UPDATE NEWCUSTOMERS

SET ADDRESSLINE1 = 'unknown';



7. Make your changes permanent.

```
SET AUTOCOMMIT OFF;
```

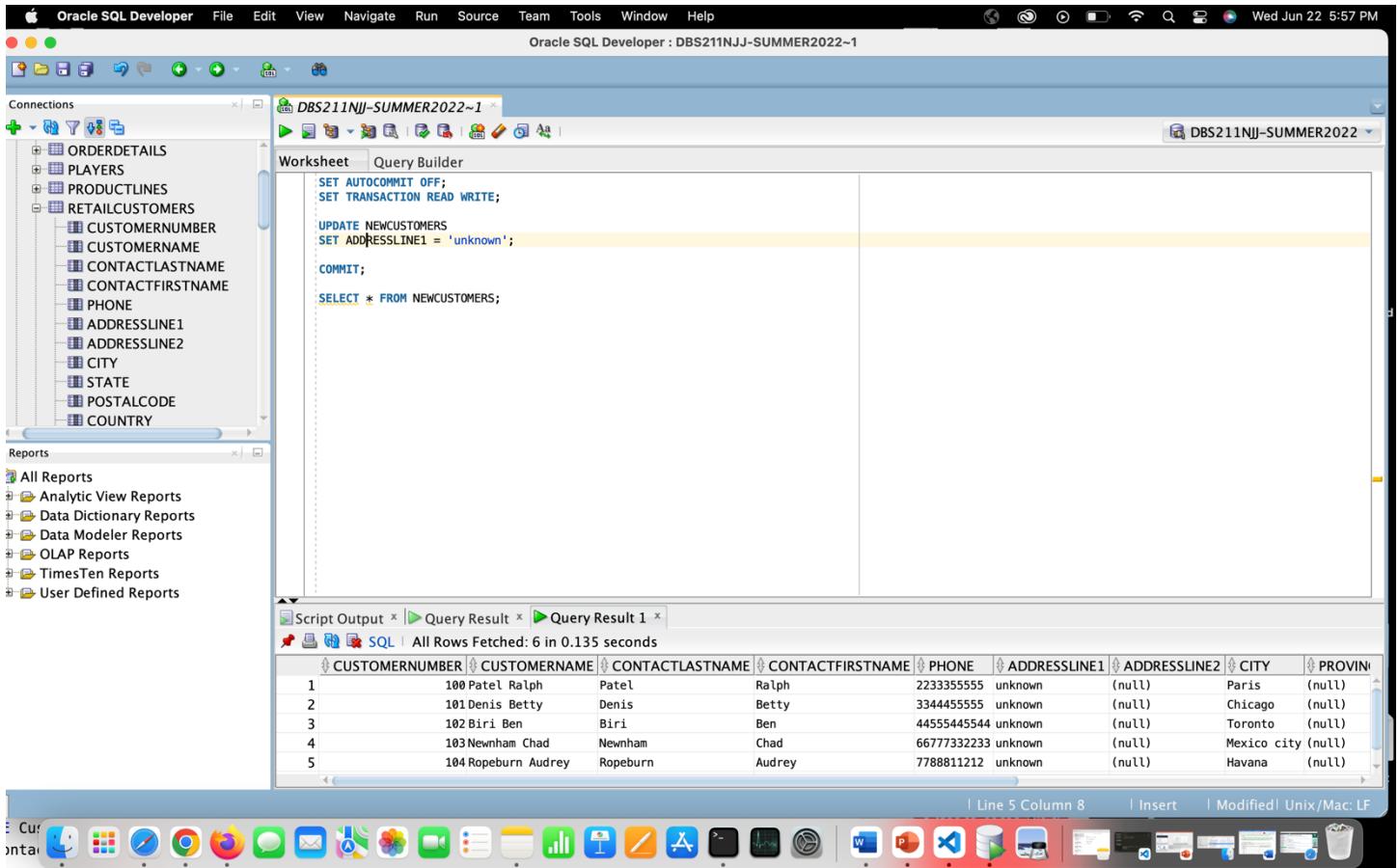
```
SET TRANSACTION READ WRITE;
```

```
UPDATE NEWCUSTOMERS
```

```
SET ADDRESSLINE1 = 'unknown';
```

```
COMMIT;
```

```
SELECT * FROM NEWCUSTOMERS;
```



8. Execute the rollback command.

- Display all customers from the newCustomers table whose address is 'unknown'. How many rows are still updated?

```
SET AUTOCOMMIT OFF;
```

```
SET TRANSACTION READ WRITE;
```

```
UPDATE NEWCUSTOMERS
```

```
SET ADDRESSLINE1 = 'unknown';
```

COMMIT;

SELECT * FROM NEWCUSTOMERS;

ROLLBACK;

SELECT * FROM NEWCUSTOMERS;

The screenshot shows the Oracle SQL Developer interface. In the Connections pane, a connection named 'DBS211NJ-SUMMER2022~1' is selected. In the Worksheet tab, the following SQL code is written:

```

SET AUTOCOMMIT OFF;
SET TRANSACTION READ WRITE;

UPDATE NEWCUSTOMERS
SET ADDRESSLINE1 = 'unknown';

COMMIT;

SELECT * FROM NEWCUSTOMERS;

ROLLBACK;

SELECT * FROM NEWCUSTOMERS;

```

In the Query Result pane, the output of the first SELECT statement is shown:

CUSTOMERNUMBER	CUSTOMERNAME	CONTACTLASTNAME	CONTACTFIRSTNAME	PHONE	ADDRESSLINE1	ADDRESSLINE2	CITY	PROVINCE
1	100 Patel Ralph	Patel	Ralph	223355555	unknown	(null)	Paris	(null)
2	101 Denis Betty	Denis	Betty	334455555	unknown	(null)	Chicago	(null)
3	102 Biri Ben	Biri	Ben	4455445544	unknown	(null)	Toronto	(null)
4	103 Newham Chad	Newham	Chad	66777332233	unknown	(null)	Mexico city	(null)
5	104 Ropeburn Audrey	Ropeburn	Audrey	7788811212	unknown	(null)	Havana	(null)

b. Was the rollback command effective?

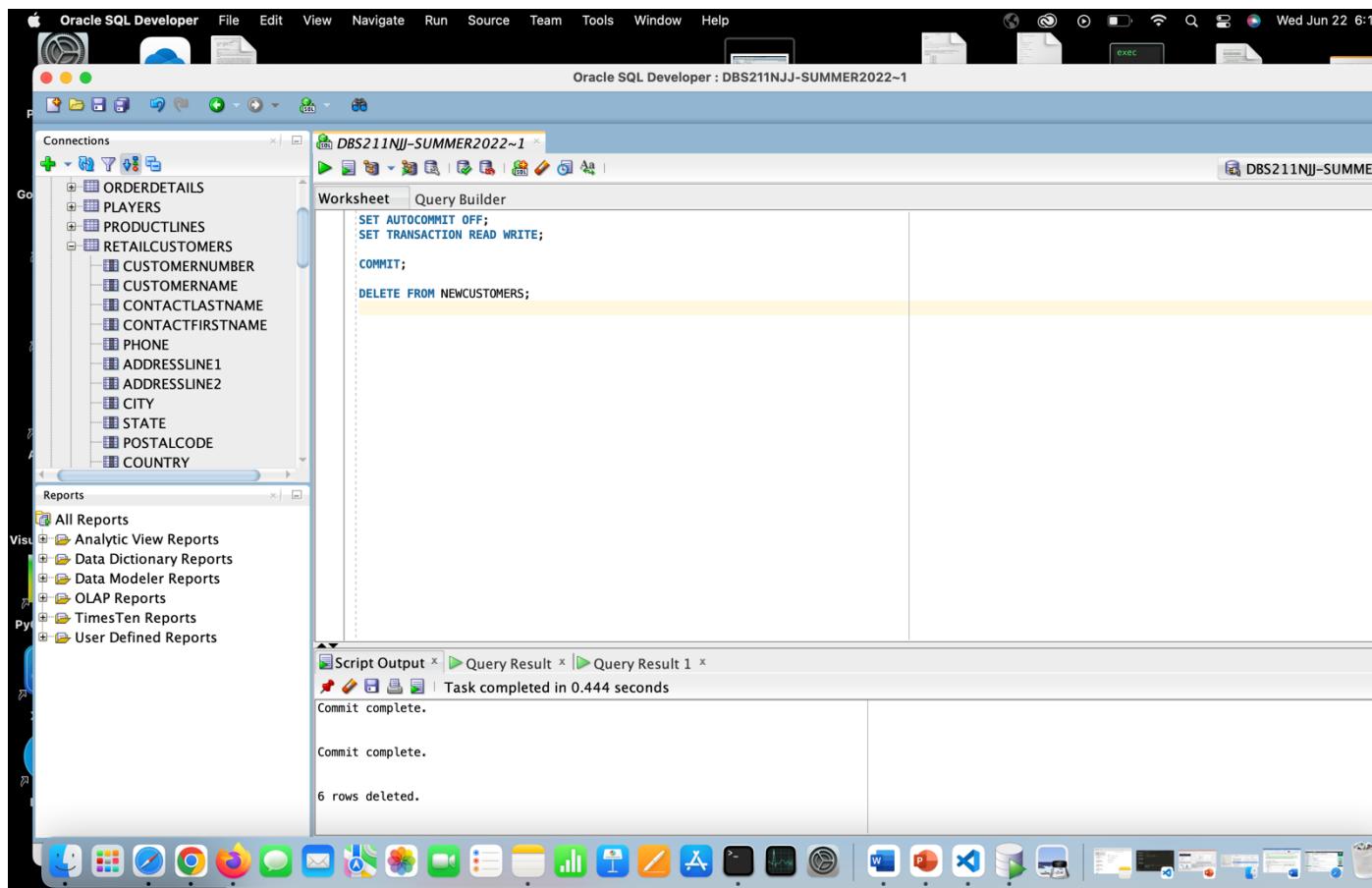
→ No, it was not effective, at all.

c. What was the difference between the result of the rollback execution from Question 6 and the result of the rollback execution of this task?

→ In the previous question, we used rollback before permanently saving our results of the previous query, that's why in that case, rollback statement was effective, but now we have used commit after our update query, so it saves the result of the change being made in the table. Hence, in this task, rollback was not effective, at all.

9. Begin a new transaction and then create a statement to delete the customers from the newCustomers table

```
SET AUTOCOMMIT OFF;  
SET TRANSACTION READ WRITE;  
COMMIT;  
DELETE FROM NEWCUSTOMERS;
```



10. Perform a rollback to undo the deletion of the customers

```
SET AUTOCOMMIT OFF;  
SET TRANSACTION READ WRITE;  
COMMIT;  
DELETE FROM NEWCUSTOMERS;
```

ROLLBACK;

SELECT * FROM NEWCUSTOMERS;

The screenshot shows the Oracle SQL Developer interface. In the 'Worksheet' tab, a script is being run:

```

SET AUTOCOMMIT OFF;
SET TRANSACTION READ WRITE;

COMMIT;

DELETE FROM NEWCUSTOMERS;

ROLLBACK;

SELECT * FROM NEWCUSTOMERS;
  
```

The 'Script Output' tab shows the results of the query:

	CUSTOMERNUMBER	CUSTOMERNAME	CONTACTLASTNAME	CONTACTFIRSTNAME	PHONE	ADDRESSLINE1	ADDRESSLINE2	CITY	PROVIN
1	100	Patel Ralph	Patel	Ralph	223355555	unknown	(null)	Paris	(null)
2	101	Denis Betty	Denis	Betty	334455555	unknown	(null)	Chicago	(null)
3	102	Biri Ben	Biri	Ben	4455445544	unknown	(null)	Toronto	(null)
4	103	Newham Chad	Newham	Chad	66777332233	unknown	(null)	Mexico city	(null)
5	104	Ropeburn Audrey	Ropeburn	Audrey	7788811212	unknown	(null)	Havana	(null)

The status bar at the bottom indicates "All Rows Fetched: 6 in 0.916 seconds".

a. How many customers are now in the newCustomers table?

→ There are six customers, in the table, as expected before.

b. Was the rollback effective and why?

Yes, it was effective, since we forced a new transaction and after executing the delete statement for deleting the columns of newCustomers, we did not execute commit statement to save the changes and hence, the rollback was effective here.

11. Begin a new transaction and rerun the data insertion from Question 2 (copy the code down to Question 11 and run it)

```
COMMIT;
```

```
INSERT ALL
```

```
INTO NEWCUSTOMERS VALUES (100,'Patel Ralph','Patel','Ralph',2233355555,'10 SenecaWay','Paris','France')
```

```
INTO NEWCUSTOMERS VALUES (101,'Denis Betty','Denis','Betty',3344455555,'110  
SenecaWay','Chicago','USA')
```

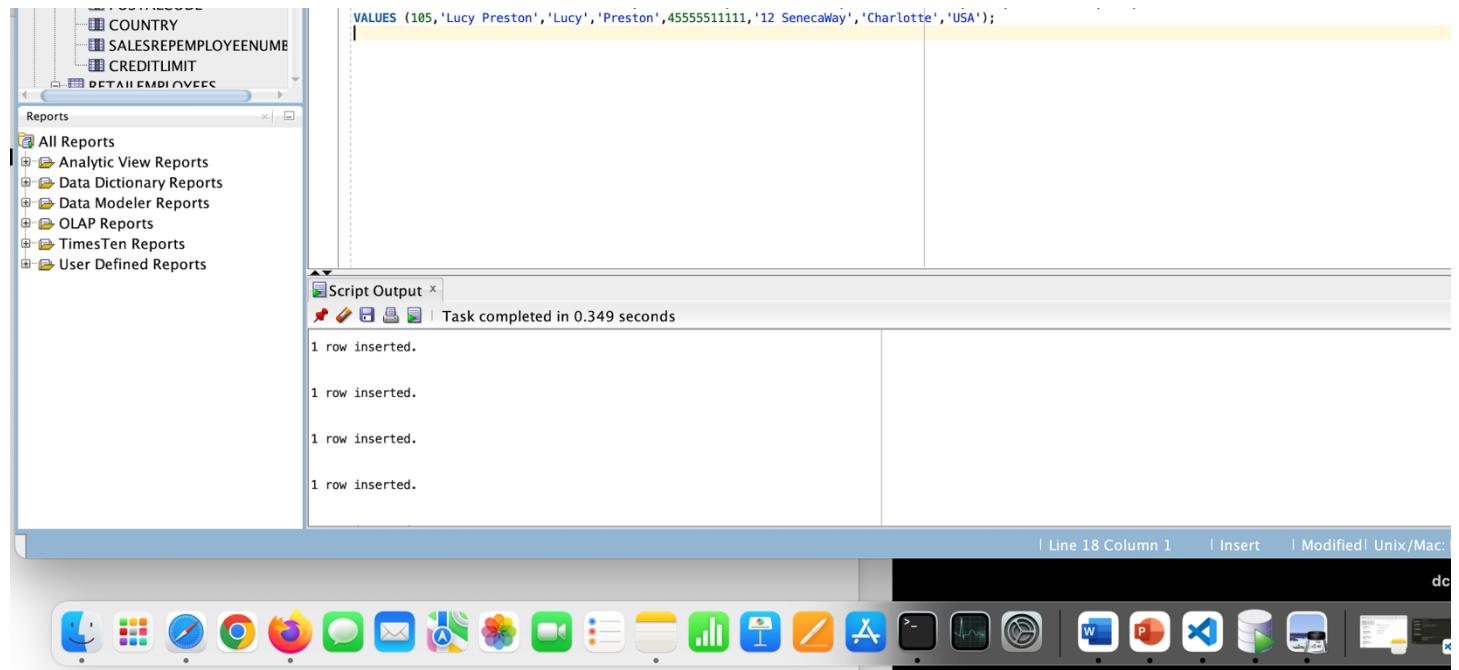
```
INTO NEWCUSTOMERS VALUES (102,'Biri Ben','Biri','Ben',44555445544,'13000 SenecaWay','Toronto','Canada')
```

```
INTO NEWCUSTOMERS VALUES (103,'Newnham Chad','Newnham','Chad',66777332233,'12  
SenecaWay','Mexico city','Mexico')
```

```
INTO NEWCUSTOMERS VALUES (104,'Ropeburn Audrey','Ropeburn','Audrey',7788811212,'15000  
SenecaWay','Havana','Cuba')
```

```
INTO NEWCUSTOMERS VALUES (105,'Lucy Preston','Lucy','Preston',45555511111,'12  
SenecaWay','Charlotte','USA')
```

```
SELECT * FROM DUAL;
```

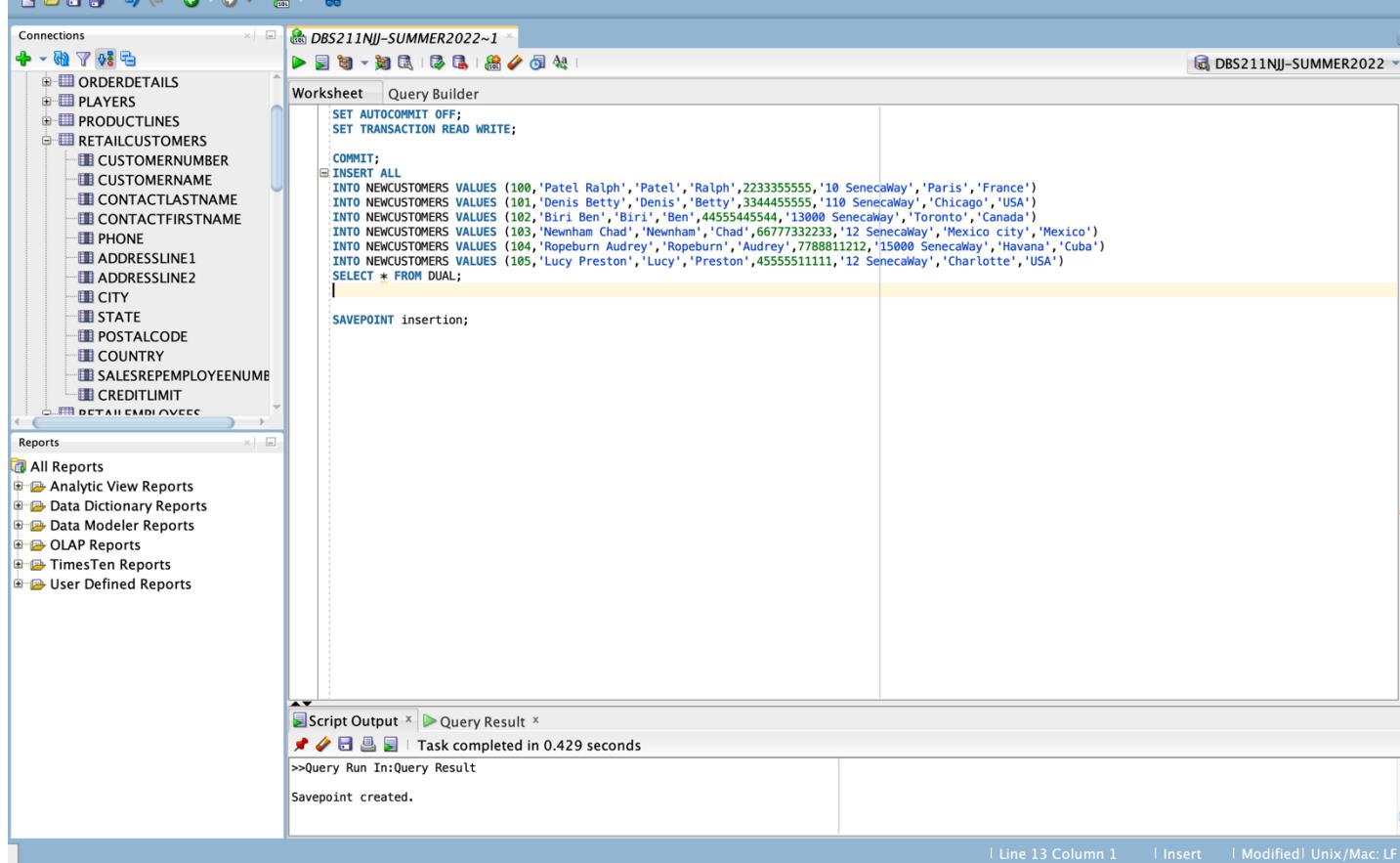


12. Set a Savepoint, called ***insertion***, after inserting the data

```
COMMIT;
```

```
INSERT ALL
```

```
INTO NEWCUSTOMERS VALUES (100,'Patel Ralph','Patel','Ralph',2233355555,'10  
SenecaWay','Paris','France')  
INTO NEWCUSTOMERS VALUES (101,'Denis Betty','Denis','Betty',3344455555,'110  
SenecaWay','Chicago','USA')  
INTO NEWCUSTOMERS VALUES (102,'Biri Ben','Biri','Ben',44555445544,'13000  
SenecaWay','Toronto','Canada')  
INTO NEWCUSTOMERS VALUES (103,'Newnham Chad','Newnham','Chad',66777332233,'12  
SenecaWay','Mexico city','Mexico')  
INTO NEWCUSTOMERS VALUES (104,'Ropeburn Audrey','Ropeburn','Audrey',7788811212,'15000  
SenecaWay','Havana','Cuba')  
INTO NEWCUSTOMERS VALUES (105,'Lucy Preston','Lucy','Preston',45555511111,'12  
SenecaWay','Charlotte','USA')  
  
SELECT * FROM DUAL;  
  
SAVEPOINT insertion;
```



```
SET AUTOCOMMIT OFF;
SET TRANSACTION READ WRITE;

COMMIT;
INSERT ALL
INTO NEWCUSTOMERS VALUES (100,'Patel Ralph','Patel','Ralph',2233355555,'10 SenecaWay','Paris','France')
INTO NEWCUSTOMERS VALUES (101,'Denis Betty','Denis','Betty',3344455555,'110 SenecaWay','Chicago','USA')
INTO NEWCUSTOMERS VALUES (102,'Biri Ben','Biri','Ben',44555445544,'13000 SenecaWay','Toronto','Canada')
INTO NEWCUSTOMERS VALUES (103,'Newnham Chad','Newnham','Chad',66777332233,'12 SenecaWay','Mexico city','Mexico')
INTO NEWCUSTOMERS VALUES (104,'Ropeburn Audrey','Ropeburn','Audrey',7788811212,'15000 SenecaWay','Havana','Cuba')
INTO NEWCUSTOMERS VALUES (105,'Lucy Preston','Lucy','Preston',45555511111,'12 SenecaWay','Charlotte','USA')
SELECT * FROM DUAL;

SAVEPOINT insertion;
```

Script Output x | Query Result x
Task completed in 0.429 seconds
>>Query Run In:Query Result
Savepoint created.

13. Rerun the update statement from Question 6 and run a query to view the data (copy the code down and run it again)

UPDATE NEWCUSTOMERS

```
SET ADDRESSLINE1 = 'unknown';
```

```
SELECT * FROM NEWCUSTOMERS;
```

The screenshot shows the Oracle SQL Developer interface. The left pane displays the Connections tree, which includes ORDERDETAILS, PLAYERS, PRODUCTLINES, RETAILCUSTOMERS (with sub-nodes CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, ADDRESSLINE2, CITY, STATE, POSTALCODE, COUNTRY, SALESREPLOYEEENUM, CREDITLIMIT), and DETAIL EMPLOYEE. The middle pane is the Worksheet, containing the following SQL code:

```

CREATE TABLE NEWCUSTOMERS (
    CUSTOMERNUMBER number(10,0) NOT NULL,
    CUSTOMERNAME varchar2(50),
    CONTACTLASTNAME varchar2(50),
    CONTACTFIRSTNAME varchar2(50),
    PHONE varchar2(20),
    ADDRESSLINE1 varchar2(50) NOT NULL,
    ADDRESSLINE2 varchar2(50),
    CITY varchar2(50) NOT NULL,
    PROVINCE varchar2(50),
    POSTALCODE varchar2(15),
    COUNTRY varchar2(50) NOT NULL,
    SALESREPLOYEEENUM number(38,0) REFERENCES RETAILEMPLOYEES (EMPLOYEENUMBER),
    CREDITLIMIT number(10,2)
);

COMMIT;

INSERT INTO NEWCUSTOMERS (CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (100, 'Patel Ralph', 'Patel', 'Ralph', 2233355555, '10 SenecaWay', 'Paris', 'France');

INSERT INTO NEWCUSTOMERS (CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (101, 'Denis Betty', 'Denis', 'Betty', 3344455555, '110 SenecaWay', 'Chicago', 'USA');

INSERT INTO NEWCUSTOMERS (CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (102, 'Biri Ben', 'Biri', 'Ben', 44555445544, '1300 SenecaWay', 'Toronto', 'Canada');

INSERT INTO NEWCUSTOMERS (CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (103, 'Newnham Chad', 'Newnham', 'Chad', 66777332233, '12 SenecaWay', 'Mexico city', 'Mexico');

INSERT INTO NEWCUSTOMERS (CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (104, 'Ropeburn Audrey', 'Ropeburn', 'Audrey', 7788811212, '15000 SenecaWay', 'Havana', 'Cuba');

INSERT INTO NEWCUSTOMERS (CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (105, 'Lucy Preston', 'Lucy', 'Preston', 4555511111, '12 SenecaWay', 'Charlotte', 'USA');

SELECT * FROM DUAL;

SAVEPOINT insertion;

UPDATE NEWCUSTOMERS
SET ADDRESSLINE1 = 'unknown';

SELECT * FROM NEWCUSTOMERS;

```

The bottom pane is the Script Output, showing the results of the SELECT query:

	CUSTOMERNUMBER	CUSTOMERNAME	CONTACTLASTNAME	CONTACTFIRSTNAME	PHONE	ADDRESSLINE1	ADDRESSLINE2	CITY	PROVINCE
1	100	Patel Ralph	Patel	Ralph	2233355555	unknown	(null)	Paris	(null)
2	101	Denis Betty	Denis	Betty	3344455555	unknown	(null)	Chicago	(null)
3	102	Biri Ben	Biri	Ben	44555445544	unknown	(null)	Toronto	(null)
4	103	Newnham Chad	Newnham	Chad	66777332233	unknown	(null)	Mexico city	(null)

14. Rollback the transaction to the Savepoint created in Question 12 above and run a query to view the data.

What does the data look like (i.e. describe what happened?)

SAVEPOINT insertion;

UPDATE NEWCUSTOMERS

```
SET ADDRESSLINE1 = 'unknown';
```

```
SELECT * FROM NEWCUSTOMERS;
```

ROLLBACK TO insertion;

```
SELECT * FROM NEWCUSTOMERS;
```

The screenshot shows the Oracle SQL Developer interface. On the left, the Connections tree shows several schemas like ORDERDETAILS, PLAYERS, PRODUCTLINES, RETAILCUSTOMERS, and others. Below it, the Reports section lists various report types. The central area is the Worksheet tab where the following SQL script is pasted:

```

COMMIT;

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
VALUES (100,'Patel Ralph','Patel','Ralph',2233355555,'10 SenecaWay','Paris','France');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
VALUES (101,'Denis Betty','Denis','Betty',3344455555,'110 SenecaWay','Chicago','USA');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
VALUES (102,'Biri Ben','Biri','Ben',44555445544,'13000 SenecaWay','Toronto','Canada');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
VALUES (103,'Newnham Chad','Chad',6677732233,'12 SenecaWay','Mexico city','Mexico');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
VALUES (104,'Ropeburn Audrey','Ropeburn','Audrey',7788811212,'15000 SenecaWay','Havana','Cuba');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER,CUSTOMERNAME,CONTACTLASTNAME,CONTACTFIRSTNAME,PHONE,ADDRESSLINE1,CITY,COUNTRY)
VALUES (105,'Lucy Preston','Lucy','Preston',4555551111,'12 SenecaWay','Charlotte','USA');

SELECT * FROM DUAL;

SAVEPOINT insertion;

UPDATE NEWCUSTOMERS
SET ADDRESSLINE1 = 'unknown';

SELECT * FROM NEWCUSTOMERS;

ROLLBACK TO insertion;

SELECT * FROM NEWCUSTOMERS;

```

Below the worksheet, the Script Output tab shows the results of the query. The results grid displays the following data:

CUSTOMERNUMBER	CUSTOMERNAME	CONTACTLASTNAME	CONTACTFIRSTNAME	PHONE	ADDRESSLINE1	ADDRESSLINE2	CITY	PROVIN
1	100 Patel Ralph	Patel	Ralph	2233355555	10 SenecaWay	(null)	Paris	(null)
2	101 Denis Betty	Denis	Betty	3344455555	110 SenecaWay	(null)	Chicago	(null)
3	102 Biri Ben	Biri	Ben	44555445544	13000 SenecaWay	(null)	Toronto	(null)
4	103 Newnham Chad	Newnham	Chad	6677732233	12 SenecaWay	(null)	Mexico city	(null)

- Here, the data look like what we have inserted as the actual data with the insert statement, Because we have executed rollback insertion statement, which undo the modification we did for updating the row of AddressLine1 to ‘unknown’.

15. Use the rollback statement and again view the data. Describe what the results look like and what happened.

ROLLBACK;

```
SELECT * FROM NEWCUSTOMERS;
```

```

Connections
+ ORDERDETAILS
+ PLAYERS
+ PRODUCTLINES
+ RETAILCUSTOMERS
  - CUSTOMERNUMBER
  - CUSTOMERNAME
  - CONTACTLASTNAME
  - CONTACTFIRSTNAME
  - PHONE
  - ADDRESSLINE1
  - ADDRESSLINE2
  - CITY
  - STATE
  - POSTALCODE
  - COUNTRY
  - SALESREPLOYEEENUM
  - CREDITLIMIT
  - DETAILEMPLOYEE

Reports
+ All Reports
+ Analytic View Reports
+ Data Dictionary Reports
+ Data Modeler Reports
+ OLAP Reports
+ TimesTen Reports
+ User Defined Reports

DBS211NJ-SUMMER2022~1
Worksheet Query Builder

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (100, 'Patel Ralph', 'Patel', 'Ralph', 2233355555, '10 SenecaWay', 'Paris', 'France');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (101, 'Denis Betty', 'Denis', 'Betty', 3344455555, '110 SenecaWay', 'Chicago', 'USA');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (102, 'Biri Ben', 'Biri', 'Ben', 44555445544, '13000 SenecaWay', 'Toronto', 'Canada');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (103, 'Newham Chad', 'Newham', 'Chad', 66777332233, '12 SenecaWay', 'Mexico City', 'Mexico');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (104, 'Ropeburn Audrey', 'Ropeburn', 'Audrey', 7788811212, '15000 SenecaWay', 'Havana', 'Cuba');

INSERT INTO NEWCUSTOMERS(CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, CITY, COUNTRY)
VALUES (105, 'Lucy Preston', 'Lucy', 'Preston', 45555511111, '12 SenecaWay', 'Charlotte', 'USA');

SELECT * FROM DUAL;

SAVEPOINT insertion;
UPDATE NEWCUSTOMERS
SET ADDRESSLINE1 = 'unknown';
SELECT * FROM NEWCUSTOMERS;
ROLLBACK TO insertion;
SELECT * FROM NEWCUSTOMERS;
ROLLBACK;
SELECT * FROM NEWCUSTOMERS;

Script Output x | Query Result x | Query Result 1 x | Query Result 2 x | Query Result 3 x | Query Result 4 x | Query Result 5 x | Query Result 6 x | Line 57 Column 1 | Insert | Modified! Unix/Mac: LF
SQL | All Rows Fetched: 0 in 0.133 seconds
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| CUSTO...| CUSTO...| CONTA...| CONTA...| PHONE | ADDRE...| ADDRE...| CITY | PROVI...| POSTA...| COUN...| SALES...| CREDI...
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

Part B - Permissions

16. Write a statement that denies all access to the newCustomers table for all public users

ROLLBACK;

SELECT * FROM NEWCUSTOMERS;

The screenshot shows the Oracle SQL Developer interface. On the left, the Connections tree displays several tables under the RETAILCUSTOMERS node, including CUSTOMERNUMBER, CUSTOMERNAME, CONTACTLASTNAME, CONTACTFIRSTNAME, PHONE, ADDRESSLINE1, ADDRESSLINE2, CITY, STATE, POSTALCODE, COUNTRY, SALESREPLOYEEENUM, and CREDITLIMIT. Below the connections tree is a Reports section containing various report types. The central area features a Worksheet tab where the following SQL code is entered:

```
SET AUTOCOMMIT OFF;
SET TRANSACTION READ WRITE;

REVOKE ALL ON
NEWCUSTOMERS FROM PUBLIC;
```

Below the worksheet is the Script Output tab, which shows the execution results:

```
Task completed in 0.165 seconds
--query run in query result 0
Rollback complete.

Revoke succeeded.
```

At the bottom of the interface, status indicators show "Line 8 Column 1", "Insert", and "Modified Unix/Mac: LF".

17. Write a statement that allows a person ‘RGNANAOLIVU’ read only access to the newCustomers table.

GRANT SELECT ON NEWCUSTOMERS

TO RGNANAOLIVU;

The screenshot shows the Oracle SQL Developer interface. In the top right corner, there are two tabs: "DBS211NJ-SUMMER2022~1" and "DBS211NJ-SUMMER2022". The left sidebar contains a "Connections" tree with nodes like STATE, POSTALCODE, COUNTRY, SALESREPLOYEEENUM, RETAILLIMIT, RETAILEMPLOYEES, EMPLOYEEENUMBER, LASTNAME, FIRSTNAME, EXTENSION, EMAIL, OFFICECODE, REPORTSTO, JOBTITLE, RETAILOFFICES, RETAILORDERS, RETAILPAYMENTS, and DETAILPRODUCTS. Below it is a "Reports" section with options like All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, and User Defined Reports. The main area has a "Worksheet" tab selected, showing the following SQL code:

```
SET AUTOCOMMIT OFF;
SET TRANSACTION READ WRITE;

GRANT SELECT ON NEWCUSTOMERS
TO RGNANAOLIVU;
```

Below the worksheet is a "Script Output" tab showing the results of the executed command:

```
Revoke succeeded.

Grant succeeded.
```

18. Write a statement that allows the same person ‘RGNANAOLIVU’ to modify (insert, update and delete) the data of the newCustomers table.

```
GRANT INSERT,UPDATE,DELETE ON NEWCUSTOMERS
TO RGNANAOLIVU;
```

The screenshot shows the Oracle SQL Developer interface. In the top right corner, the title bar reads "DBS211NJ-SUMMER2022~1". The main area consists of three tabs: "Worksheet", "Query Builder", and "Script Output". The "Worksheet" tab contains the following SQL code:

```
SET AUTOCOMMIT OFF;
SET TRANSACTION READ WRITE;
GRANT INSERT,UPDATE,DELETE ON NEWCUSTOMERS
TO RGNANAOLIVU;
```

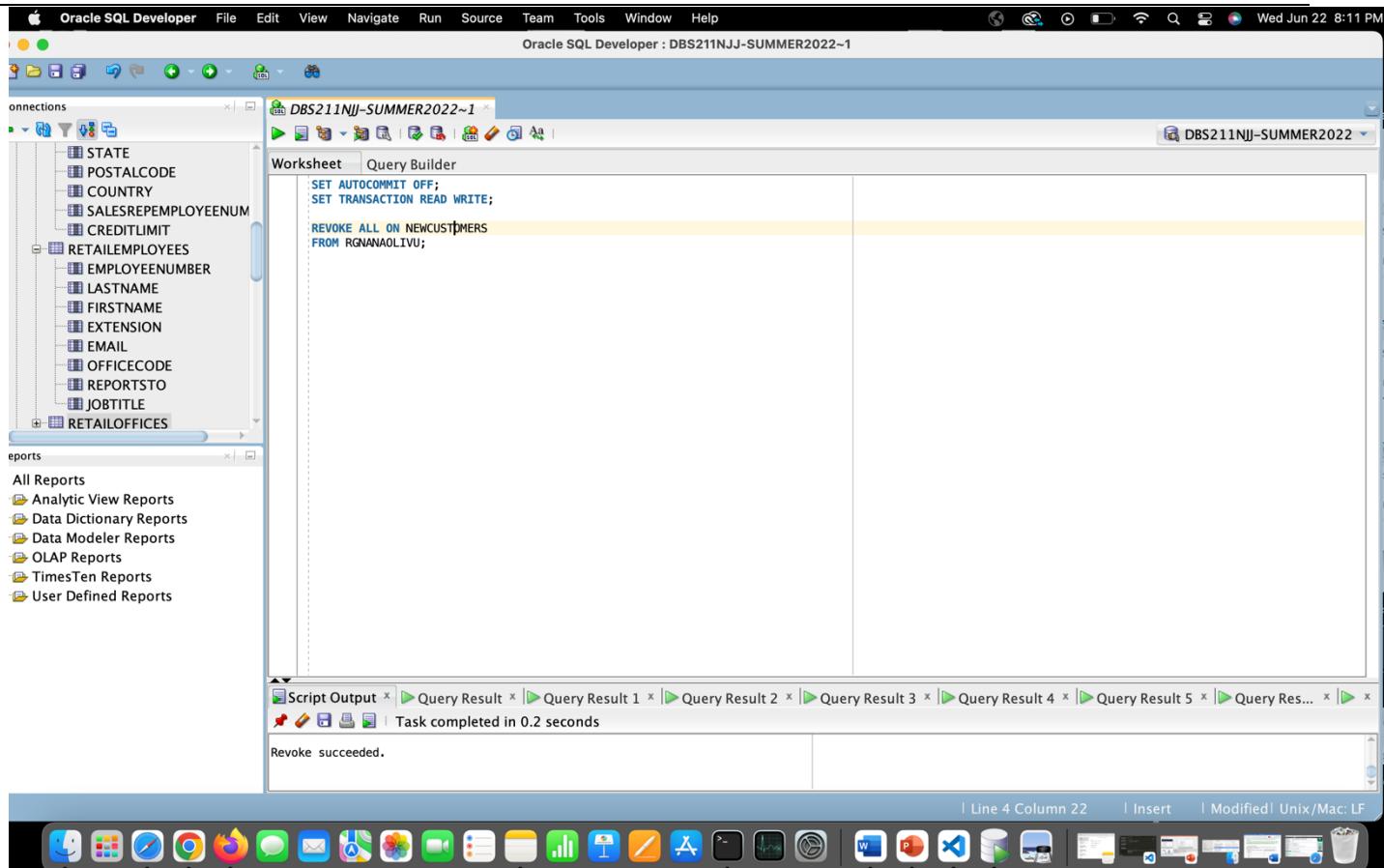
The "Script Output" tab shows the results of the grant command:

```
Grant succeeded.  
Grant succeeded.
```

19. Write a statement that denies all access to the newCustomers table for the same person 'RGNANAOLIVU'.

REVOKE ALL ON NEWCUSTOMERS

FROM RGNANAOLIVU;



Part C – Clean up

20. Write statements to permanently remove the view and table created for this lab

```
DROP TABLE NEWCUSTOMERS;
```

