Name : Siva Rama Krishna Nallapati
Id No : 190031154

Database and System Security Practical-1

Pre-Lab:

Q1.What is a role and user in oracle.

Sol) **Role :** A role is Created by the Users, those who are most Commonly Administrators to group together a bunch of Privileges and to grant those Privileges to a bunch of users at a time.

User : On the other side, a User is someone who can connect to a database if he has enough privileges and who can own objects like tables in a database provided he has enough privileges.

Q2. Write a query to create a role

Sol) To Create a role, First we have to Login with the System Credentials or in other words Admin Credentials.

Then, Type in the following command to create a role.

CREATE ROLE <ROLE_NAME>;

Q3. What is the default role a user gets when it is created.

Sol) No role is given as default for a user who has been newly created.

Q4. What privilege does CONNECT role provide.

Sol) CONNECT role grants a user, the following privileges. Connect to the database, to create views, synonyms, and database links, and to perform table or user exports.

Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q5.List different types of privileges and explain each of them.

Sol) There are six major categories of privileges.

They are,

System Privileges : It is the right to perform a particular action, or to perform an action on any schema objects of a particular type

Schema Object Privileges : It can be Stated as a permission to perform a particular action on a specific schema object.

Object Privileges : An object privilege is the right to perform a particular action on an object or to access another user's object.

Q6.) Write a query to grant permissions to a role or a user.

Sol) GRANT <PRIVILEGE_NAME>, < PRIVILEGE_NAME >, < PRIVILEGE_NAME > TO <USER_NAME>;

(Or)

GRANT <PRIVILEGE_NAME>, < PRIVILEGE_NAME >, < PRIVILEGE_NAME > TO <Role_Name>;

Example : grant create session, select any dictionary to payrolespecialist.

Q7.) Write a query to grant password protected role to a user.

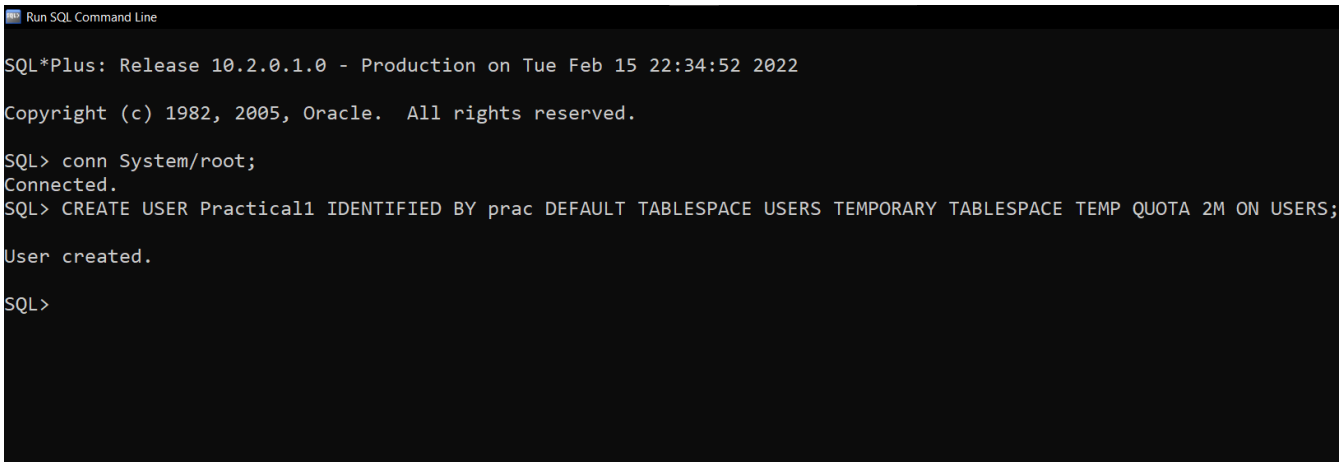
Sol) CREATE ROLE <Role_Name> IDENTIFIED BY <Password>;

Name : Siva Rama Krishna Nallapati
Id No : 190031154

IN LAB:

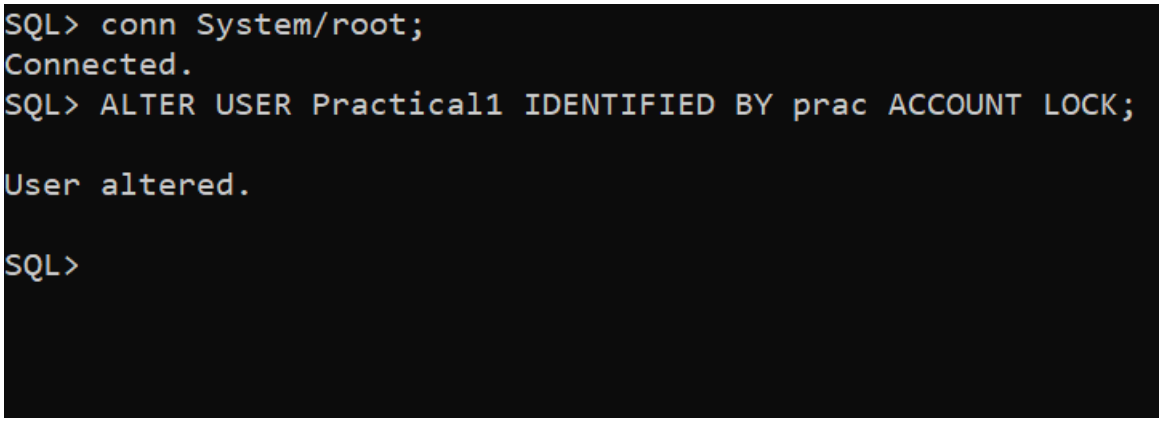
Q1. Create a user with a default tablespace, temporary tablespace and with a 2M quota.

Query : create user Practical1 identified by prac default tablespace users temporary tablespace temp quota 2M on users;



Q2. Alter the earlier created user and change his password as well as lock his account.

Query : ALTER USER Practical1 IDENTIFIED BY prac ACCOUNT LOCK;



Name : Siva Rama Krishna Nallapati
Id No : 190031154

Now to Unlock, the query is

Query : ALTER USER Practical1 IDENTIFIED BY prac ACCOUNT UNLOCK;

```
SQL> ALTER USER Practical1 IDENTIFIED BY prac ACCOUNT UNLOCK;

User altered.

SQL>
```

Creating a simple employee table in HR schema

Query : CREATE TABLE HR.Employee(fname varchar2(50)NOT NULL, lname varchar2(50)NOT NULL, department varchar2(50));

```
Run SQL Command Line

SQL*Plus: Release 10.2.0.1.0 - Production on Tue Feb 15 11:36:51 2022

Copyright (c) 1982, 2005, Oracle.  All rights reserved.

SQL> conn System/root;
Connected.
SQL> create table hr.Employee(fname varchar2(50)NOT NULL,lname varchar2(50)NOT NULL, department varchar2(50));

Table created.

SQL>
```

Name : Siva Rama Krishna Nallapati
Id No : 190031154

Sample Data Inserted into the Employee table.

```
Run SQL Command Line

SQL*Plus: Release 10.2.0.1.0 - Production on Tue Feb 15 11:36:51 2022

Copyright (c) 1982, 2005, Oracle.  All rights reserved.

SQL> conn System/root;
Connected.
SQL> create table hr.Employee(fname varchar2(50)NOT NULL,lname varchar2(50)NOT NULL, department varchar2(50));

Table created.

SQL> insert into hr.Employee VALUES('Siva', 'RamaKrishna', 'CSE');

1 row created.

SQL> insert into hr.Employee VALUES('Dhiren', 'Dommeti', 'CSE');

1 row created.

SQL> insert into hr.Employee VALUES('Subramanyam', 'Yadavalli', 'ECE');

1 row created.

SQL> insert into hr.Employee VALUES('Sasidhar', 'Kolisetty', 'CSE');

1 row created.

SQL>
```

Q3. Display the count of employees.

Query: SELECT COUNT(*) FROM HR.Employee;

```
SQL> ALTER USER Practical1 IDENTIFIED BY prac ACCOUNT UNLOCK;

User altered.

SQL> SELECT COUNT(*) FROM HR.Employee;

  COUNT(*)
----------
         4

SQL>
```

Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q4. PayrollSpecialist - this group of employee needs to create a session and is responsible for working with all of the Employee data. Create this role using SQL.

Query : CREATE ROLE payrolespecialist;

```
SQL> CREATE ROLE payrolespecialist;

Role created.

SQL>
```

Q5. Provide system and object privileges to the role created earlier.

Query : Granting system Privileges.

grant create session, select any dictionary to payrolespecialist;

```
Run SQL Command Line
         4

SQL> CREATE ROLE payrolespecialist;

Role created.

SQL> GRANT CREATE SESSION, SELECT ANY DICTIONARY TO payrolespecialist;

Grant succeeded.

SQL>
```

Name : Siva Rama Krishna Nallapati
Id No : 190031154

Query : Granting object privileges

grant select, insert, update on hr.Employee to payrolespecialist;

```
SQL> GRANT SELECT,INSERT,UPDATE ON HR.Employee TO payrolespecialist;

Grant succeeded.

SQL>
```

Q6. Grant the earlier created role with the added privileges.

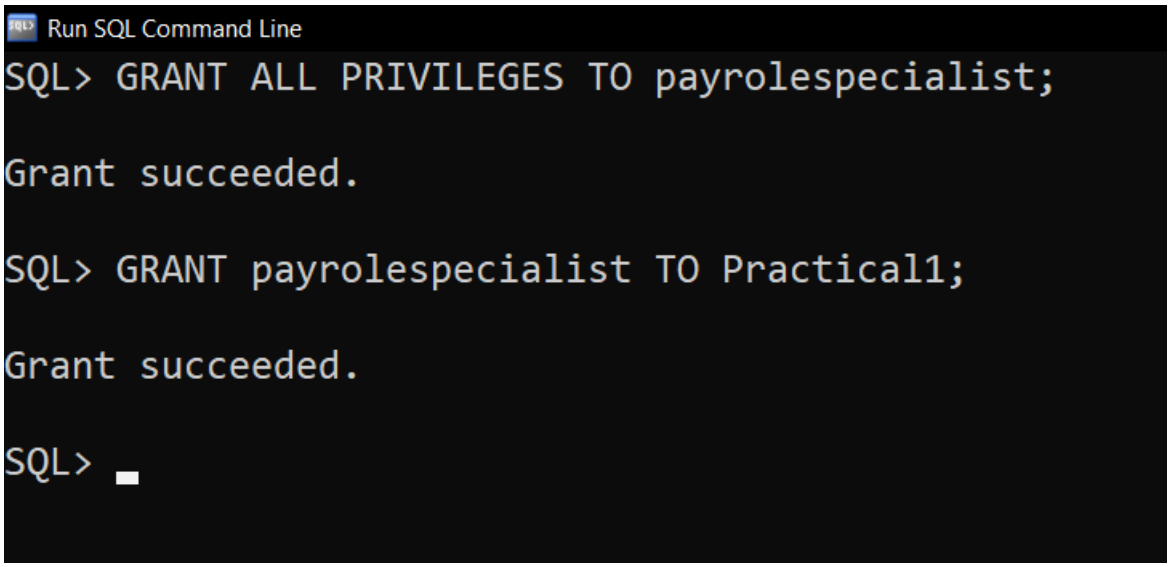
Query : grant all privileges to payrolespecialist;

```
SQL> GRANT ALL PRIVILEGES TO payrolespecialist;

Grant succeeded.

SQL>
```

Name : Siva Rama Krishna Nallapati
Id No : 190031154

Grant earlier created role to earlier created user.

Query : grant payrolespecialist to <user_name>;



Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q7. Now you will test if the earlier created user can SELECT from the hr.EMPLOYEES table. Display all the employees with the last name 'something'.

First connect through the newly created user account.

connect <username>/<password>;

Query : select * from HR.Employee where last_name='smith';

```
SQL> connect Practical1/prac;
Connected.
SQL> SELECT * FROM HR.Employee WHERE lname='RamaKrishna';

FNAME
--------------------------------------------------
LNAME
--------------------------------------------------
DEPARTMENT
--------------------------------------------------
Siva
RamaKrishna
CSE


SQL>
```

Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q8. Remove the earlier granted privilege from the user.

Query : revoke payrolespecialist from <User_name>;

```
SQL> SELECT * FROM HR.Employee WHERE fname='Subramanyam';

FNAME
--------------------------------------------------
LNAME
--------------------------------------------------
DEPARTMENT
--------------------------------------------------
Subramanyam
Yadavalli
ECE


SQL> REVOKE payrolespecialist FROM Practical1;

Revoke succeeded.

SQL> _
```

Testing if the role is revoked.

```
Run SQL Command Line

SQL*Plus: Release 10.2.0.1.0 - Production on Tue Feb 15 12:10:19 2022

Copyright (c) 1982, 2005, Oracle.  All rights reserved.

SQL> conn Practical1/prac;
Connected.
SQL> SELECT * FROM HR.Employee WHERE fname='Siva';
SELECT * FROM HR.Employee WHERE fname='Siva'
                 *
ERROR at line 1:
ORA-00942: table or view does not exist
```

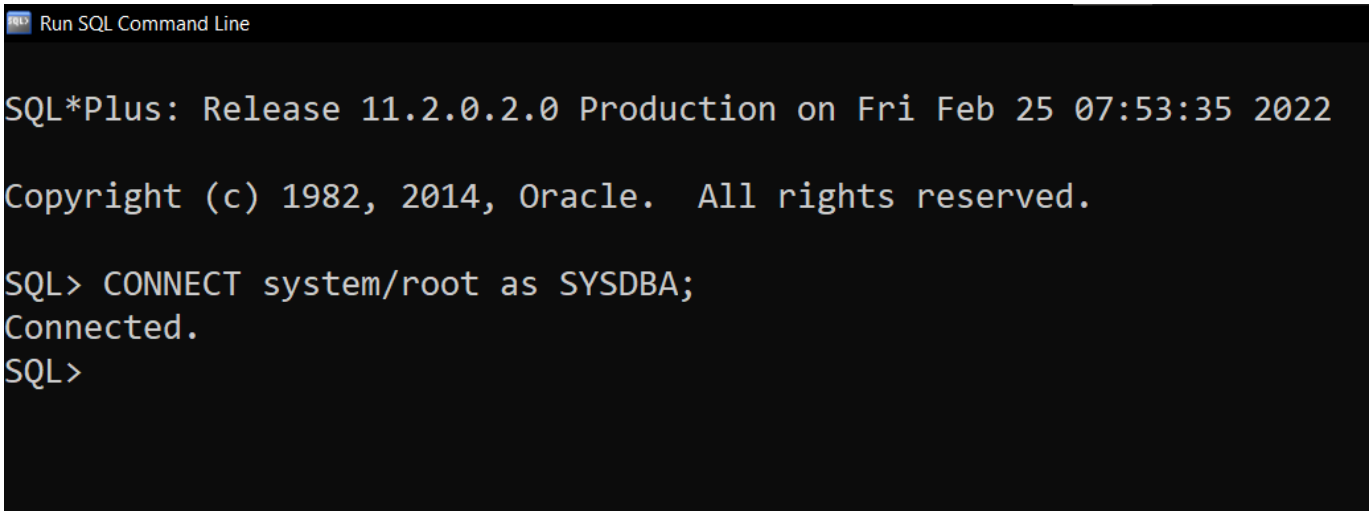
Name : Siva Rama Krishna Nallapati
Id No : 190031154

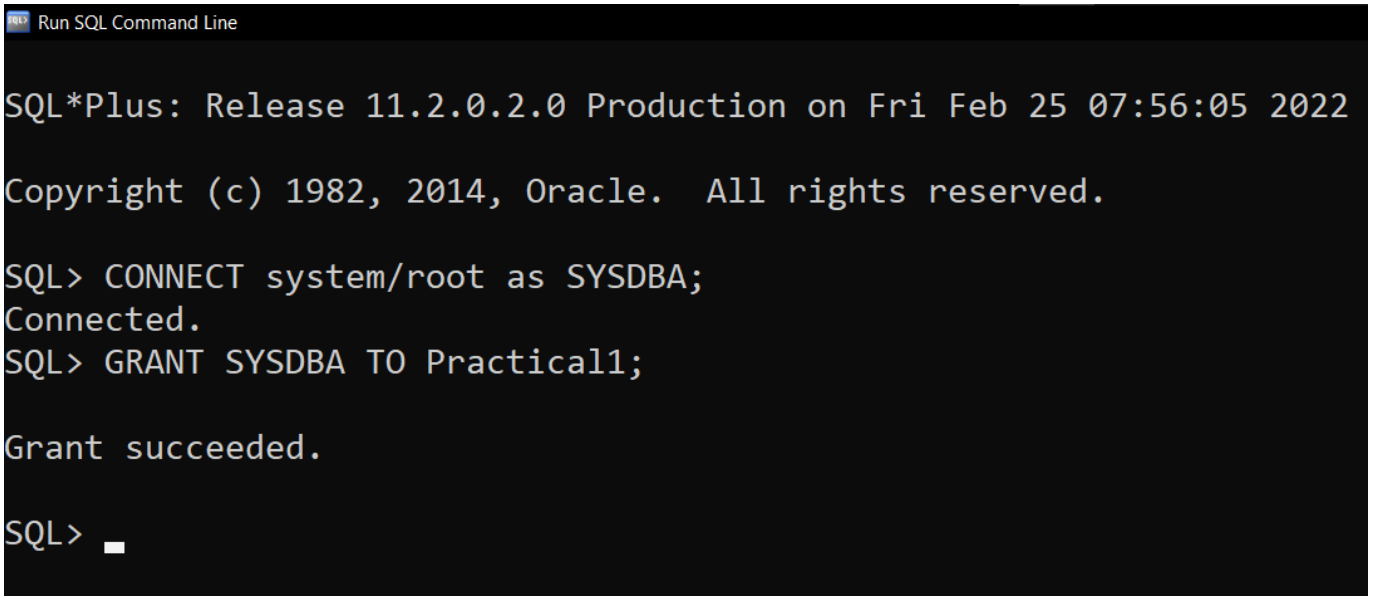
POST LAB :

Q1. Connect to any database as SYS user and grant him SYSDBA privilege.

Query : 1.)CONNECT system/root as SYSDBA;

2.)GRANT SYSDBA TO Practical1;

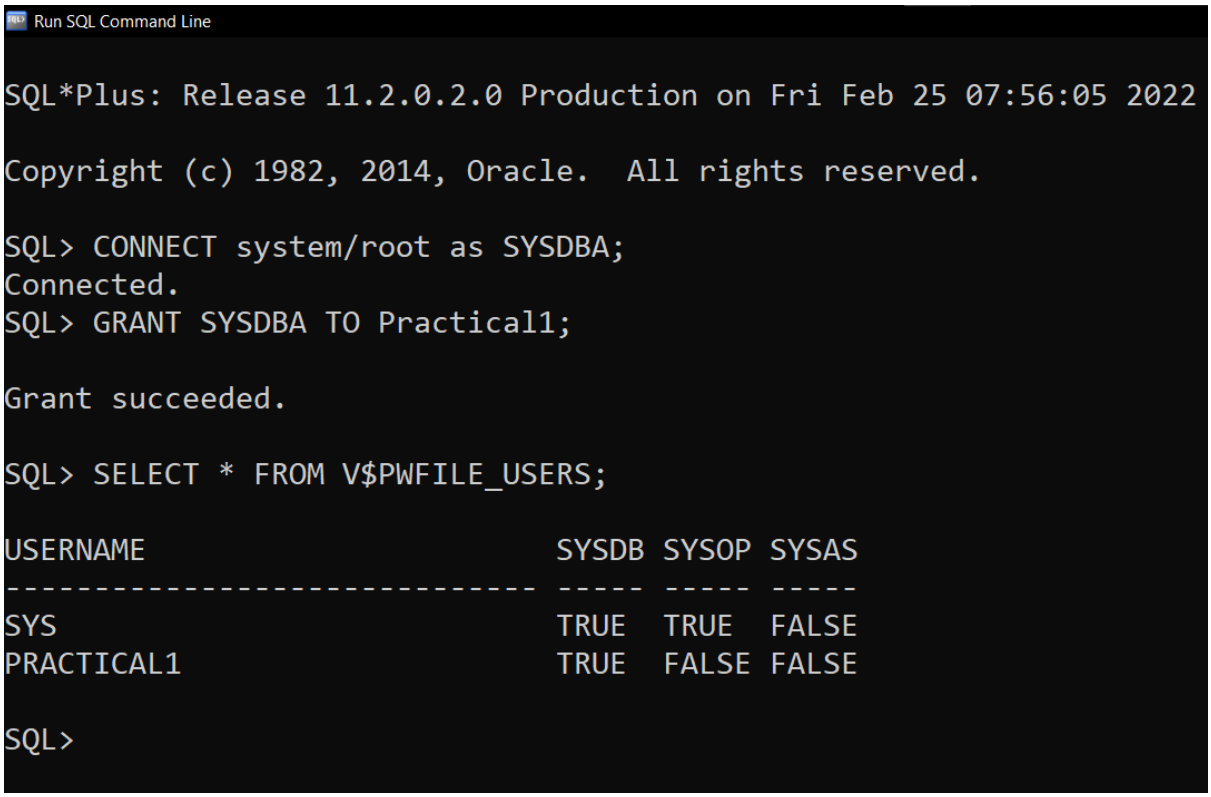




Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q2. Write a query to retrieve all the columns of data from V$PWFILE_USERS view.

Query : SELECT * FROM V$PWFILE_USERS;



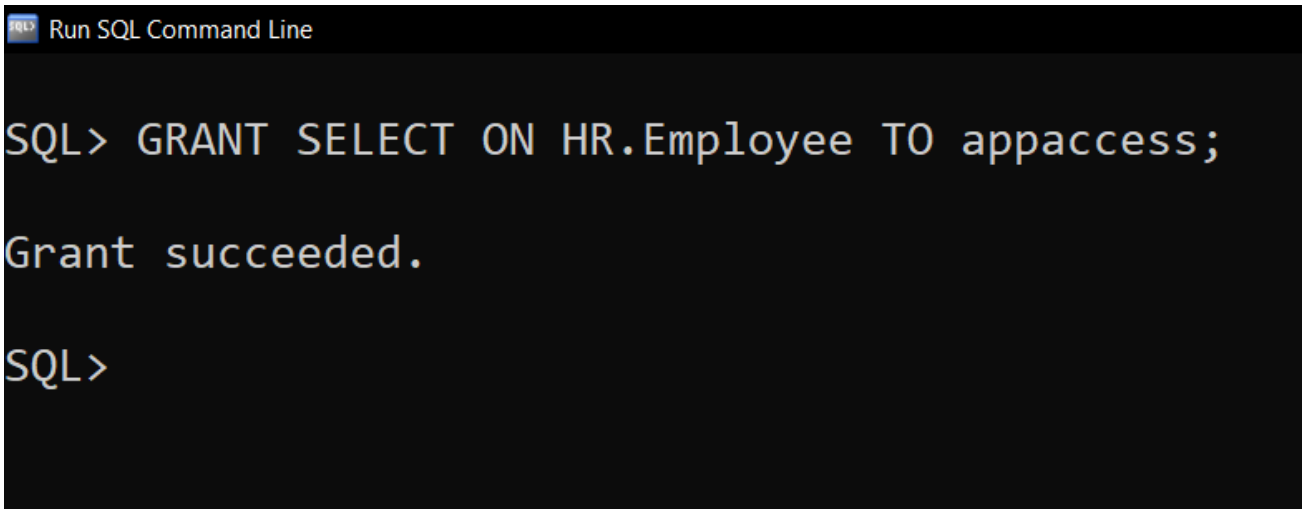
Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q3. Create a role named appaccess and grant the ability to read the application tables to that role.

Query : 1.)CREATE ROLE appaccess;

2.) GRANT SELECT ON HR.Employee TO appaccess;

```
SQL> CREATE ROLE appaccess;

Role created.

SQL>
```



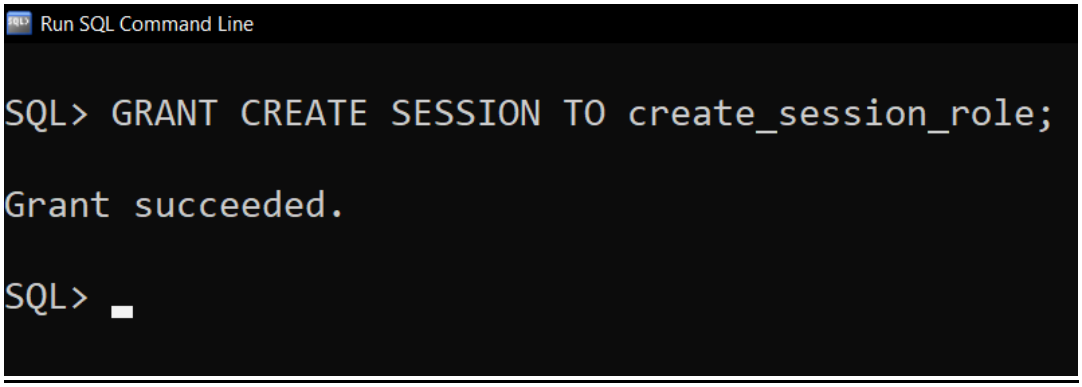
Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q4. Create a role create_session_role that will have only one privilege CREATE SESSION in order to connect to an ORACLE database.

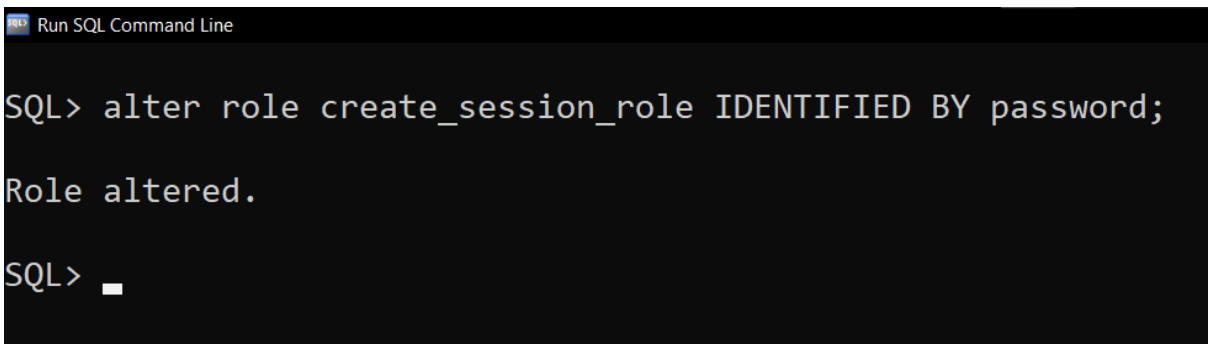
Query : 1.)CREATE ROLE create_session_role;

2.)GRANT CREATE SESSION TO create_session_role;

```
SQL> CREATE ROLE create_session_role;

Role created.

SQL>
```



Create_session_role is Password Protected.



Name : Siva Rama Krishna Nallapati
Id No : 190031154

Q5. Create the user secadm and grant him password protected create_session_role

Query : 1.)CREATE USER secadm;

2.)GRANT create_session_role TO secadm;