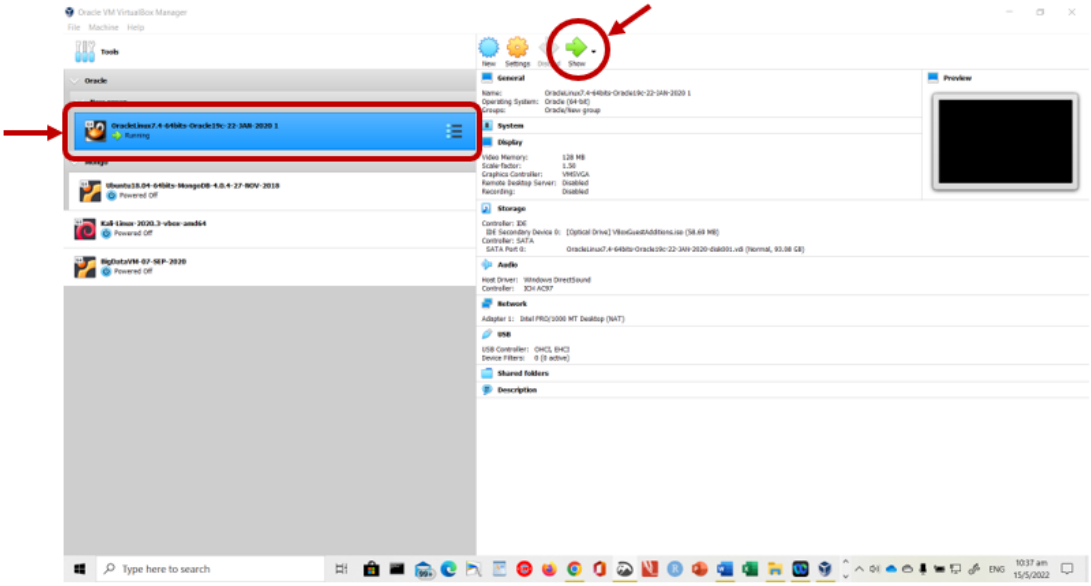
Creating TPCHR sample database

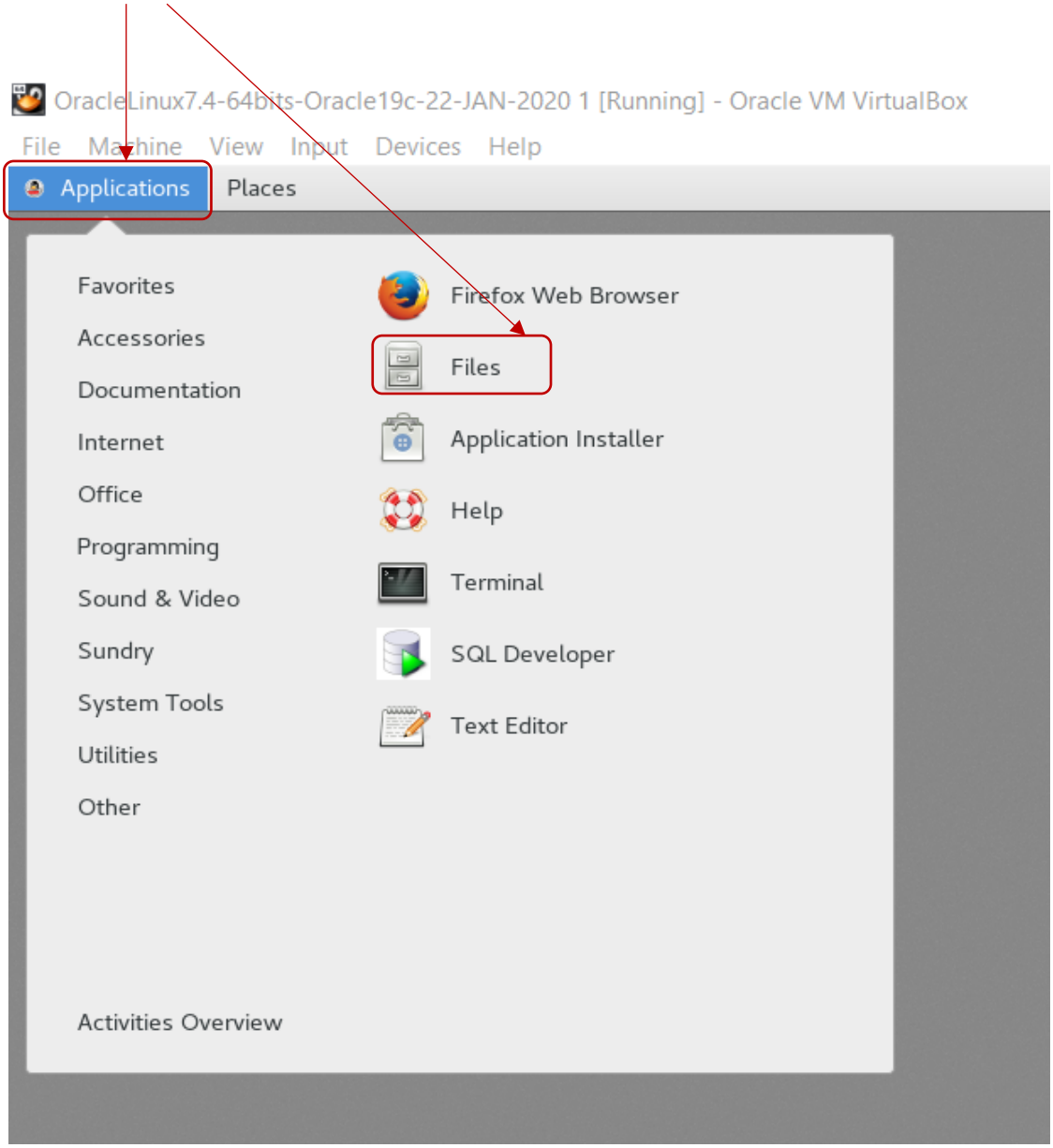
1. Unzip the **TPCHR-CSCI235.zip** file that you have downloaded from the **cloud**stor and save the unzipped file to a shared-folder (if you have created one), otherwise, save the unzipped file to a directory that is convenience to you.

2. If you have not installed the **VirtualBox** and the **Oracle19c virtual machine**, please do so. The instructions to install the VirtualBox and setup the Oracle19c virtual machine are specified in the document **VirtualBoxAndOracleVM-24Sept2022.pdf**.

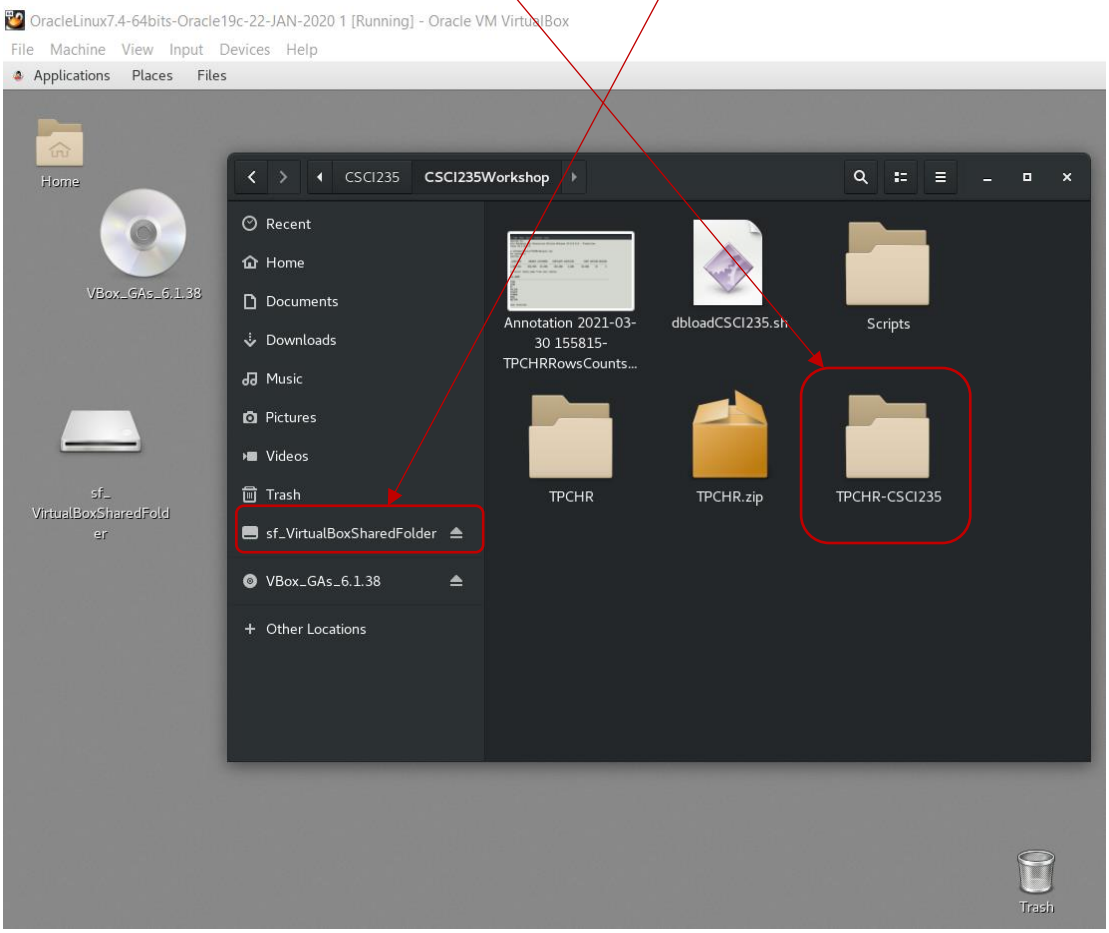
3. Start the Oracle19c virtual machine on the VirtualBox.



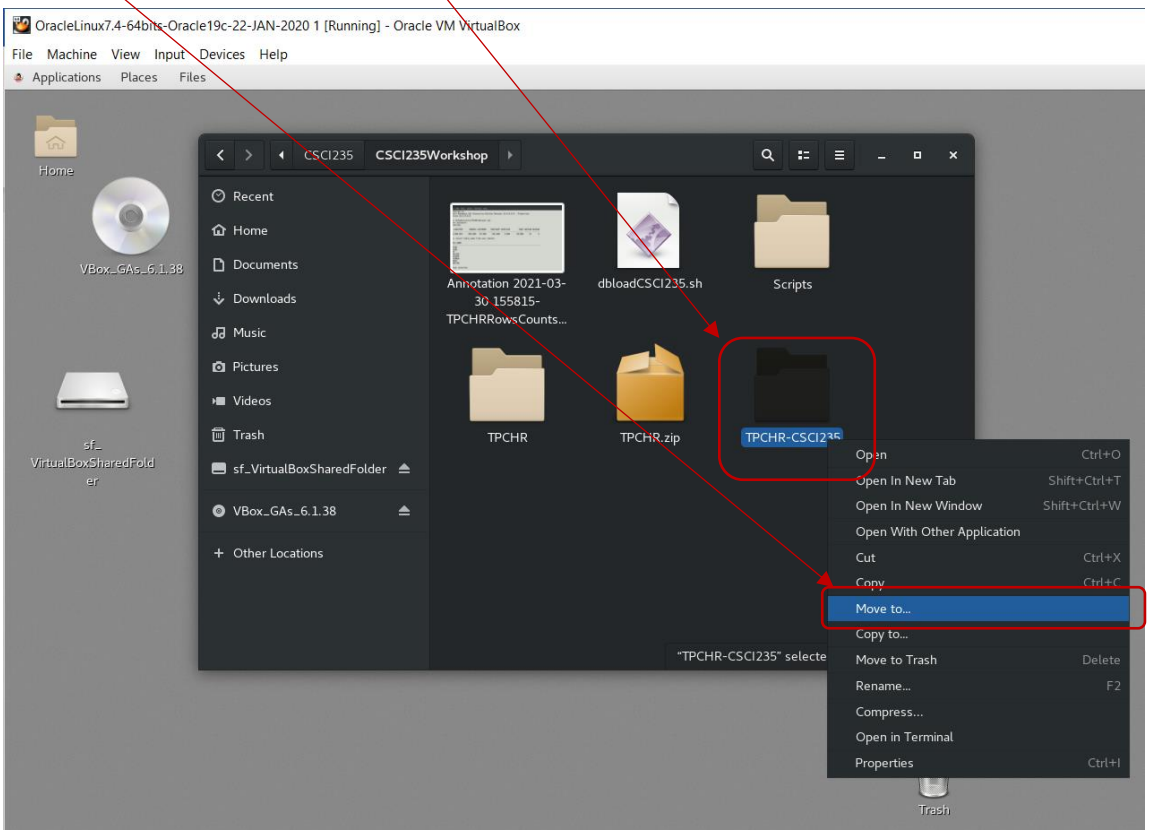
4. Once you have successfully logged in to the Virtual Machine, open the File explorer.



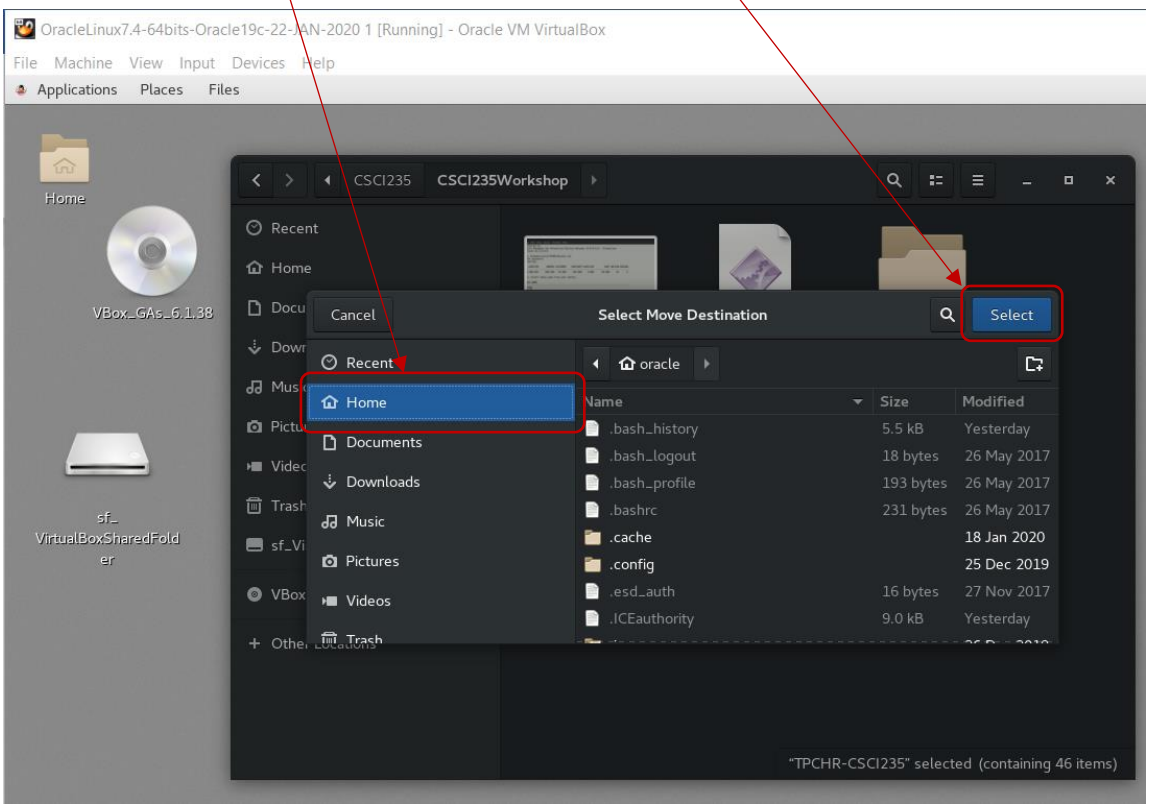
… and navigate to the directory in your shared-folder where you have the unzipped file (TPCHR-CSCI235) saved.



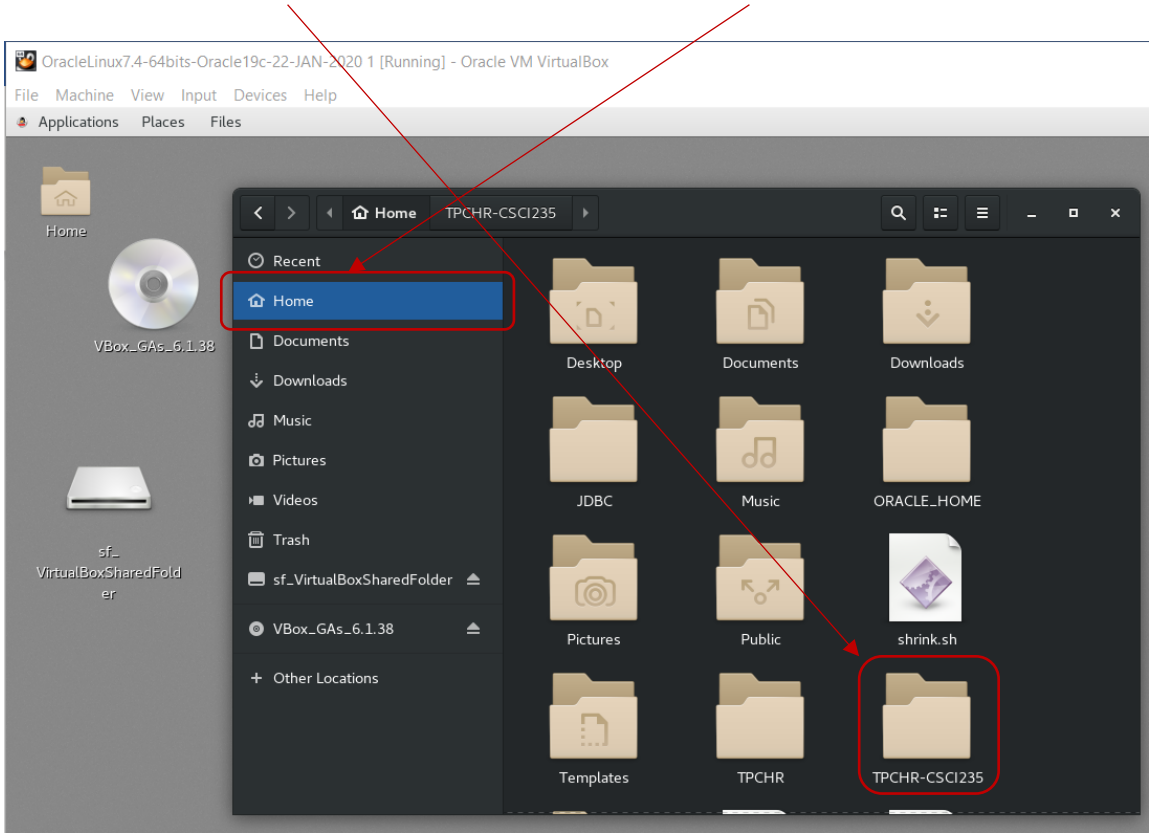
Move the folder TPCHR-CSCI235 to your home directory.



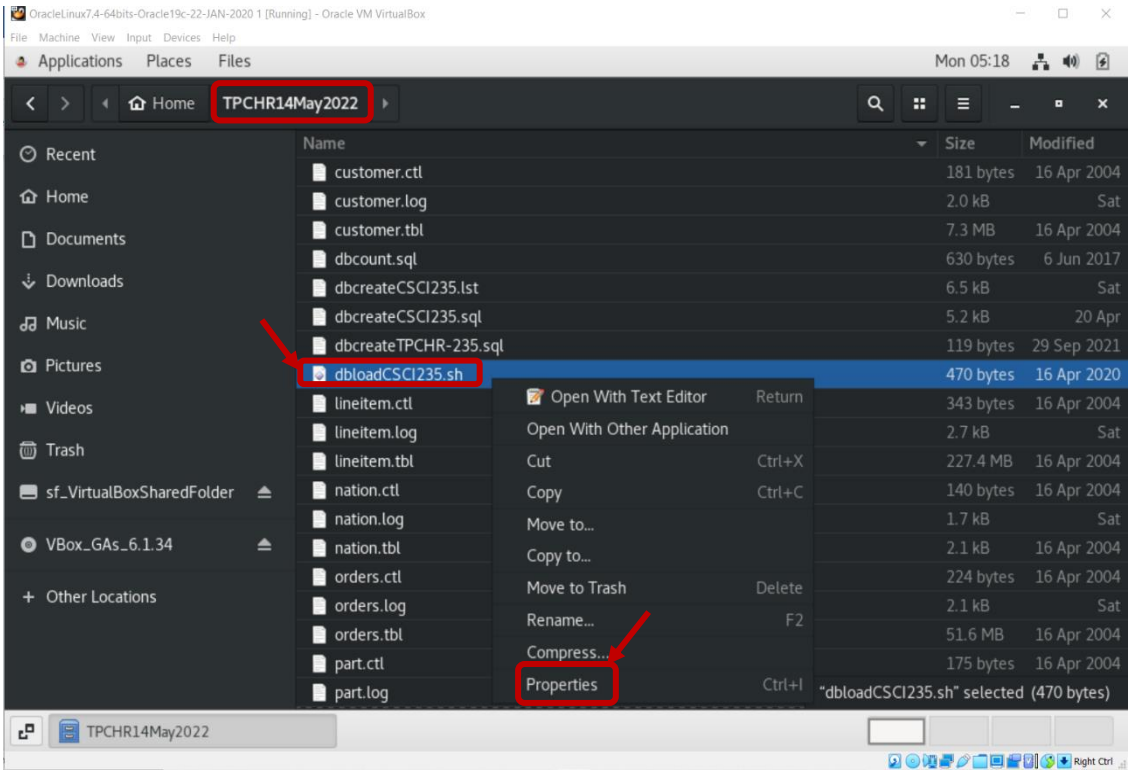
Select the Home folder and click on the Select button to move the file.



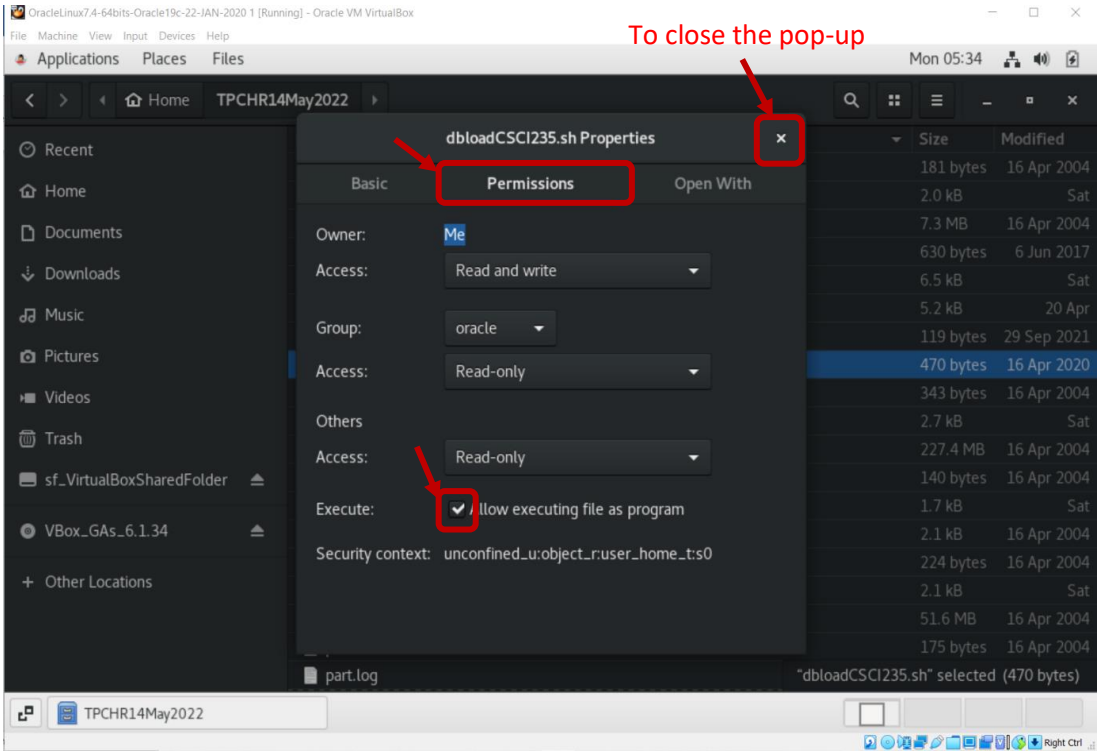
5. The folder TPCHR-CSCI235 should be in the Home directory now.



6. Before we proceed to set up the environment, we need to change the status of the shell script "dbloadhCSCI235.sh " to executable. To do that, navigate to the folder "TPCHR-CSCI235" and "Right-click" on the shell script 'dbloadCSCI235.sh', and in the pop-up window, click on the 'Property'



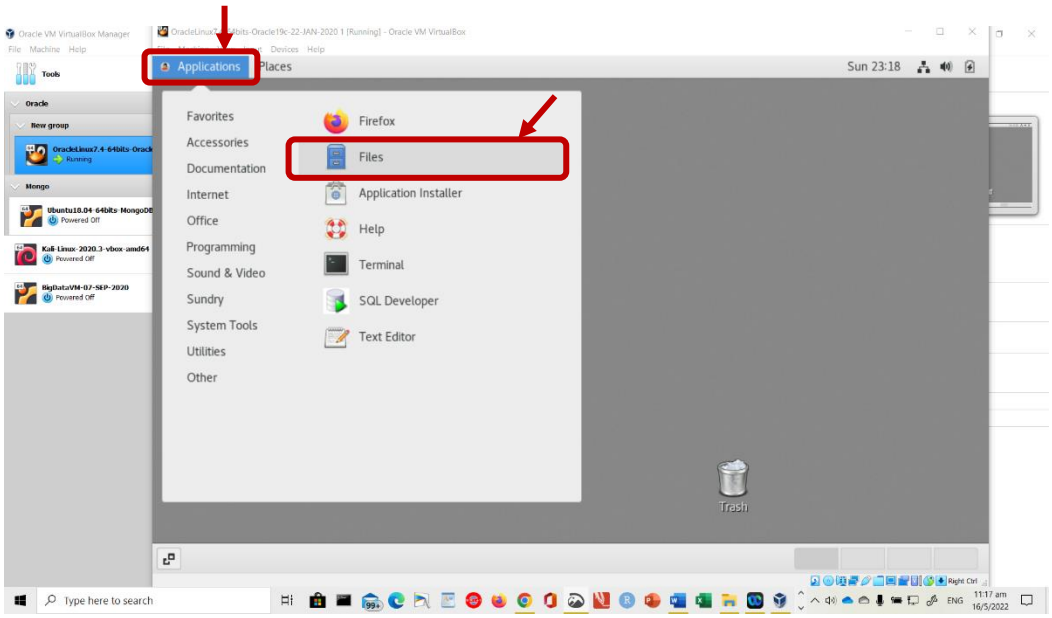
At the next pop-up window, click on the ‘Permissions’ tab, and check the ‘check-box’ next to the Execute option.



After changing the property of the shell script ‘dbloadCSCI235.sh’ you can close the pop-up window.

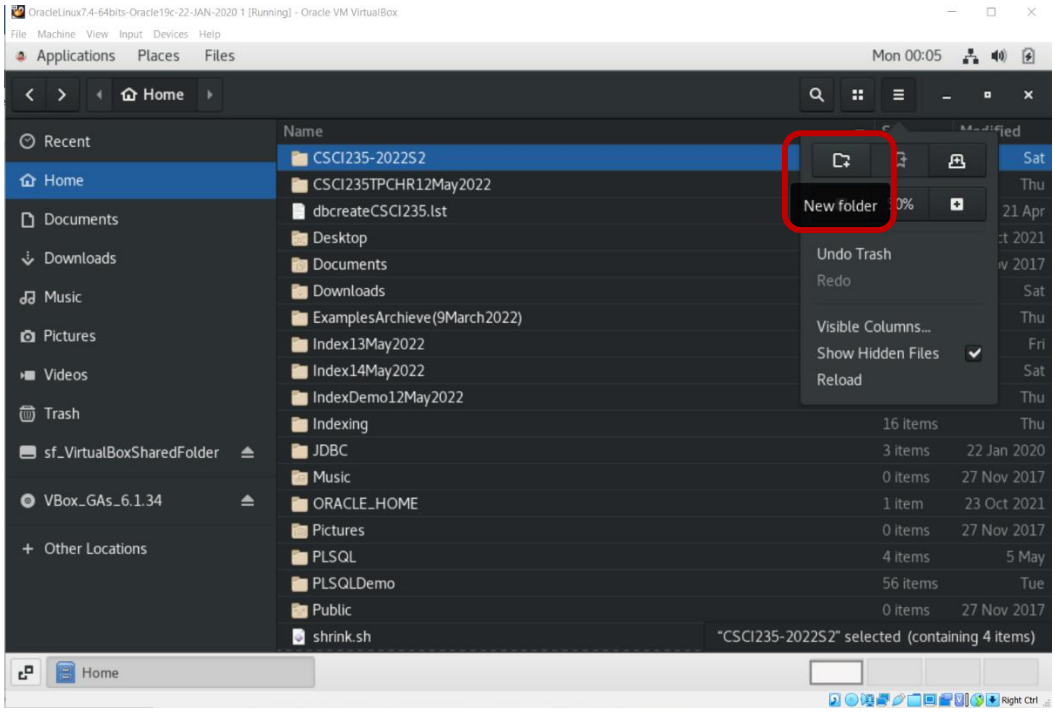
7. We leave the scripts as they are now. Next, we set up the environment for the setting up of a sample database.

   i. Open the file explorer.

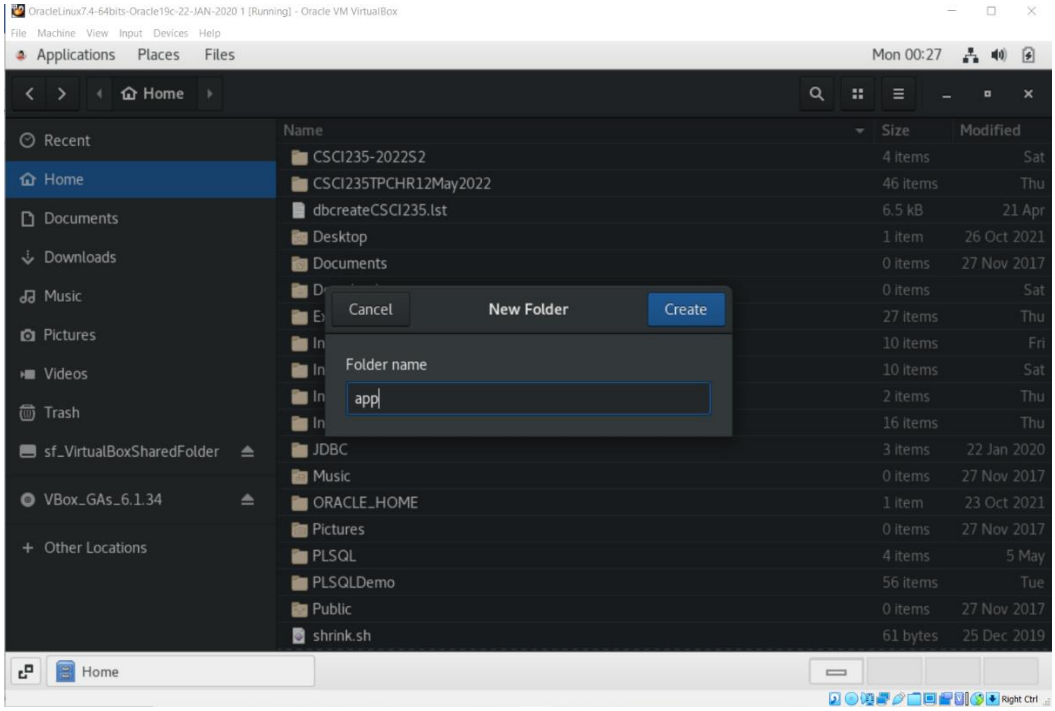


   ii. Navigate to the 'HOME' folder (directory) and create the required folders.

   Creating the 'app' folder:

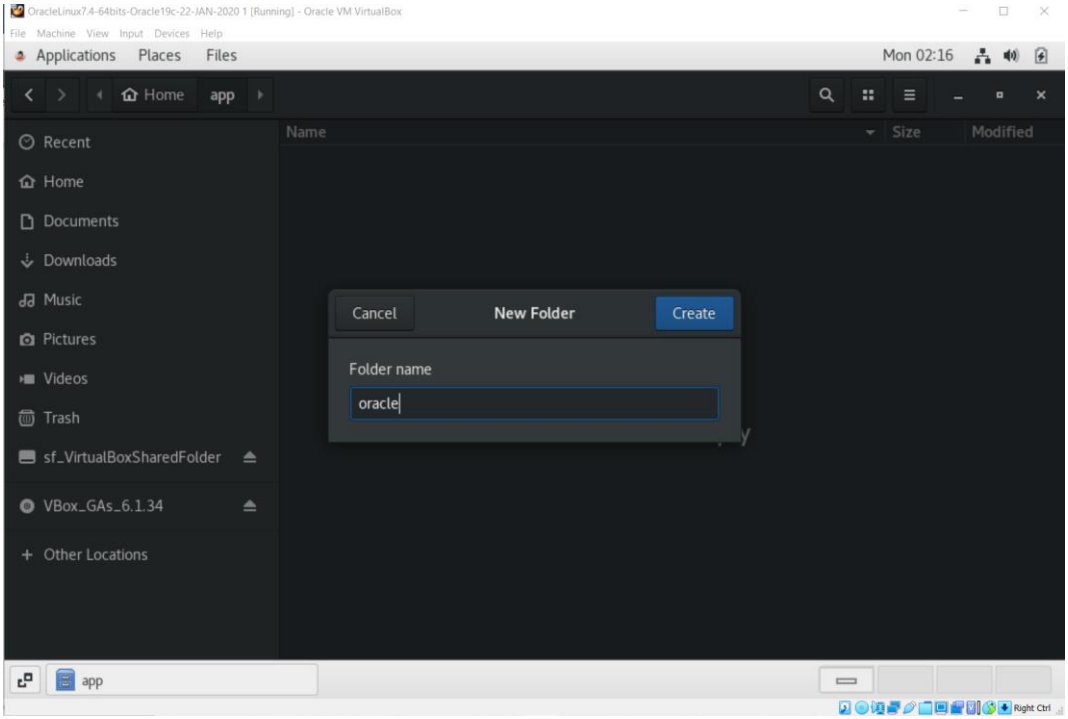


Name the folder ‘app’:

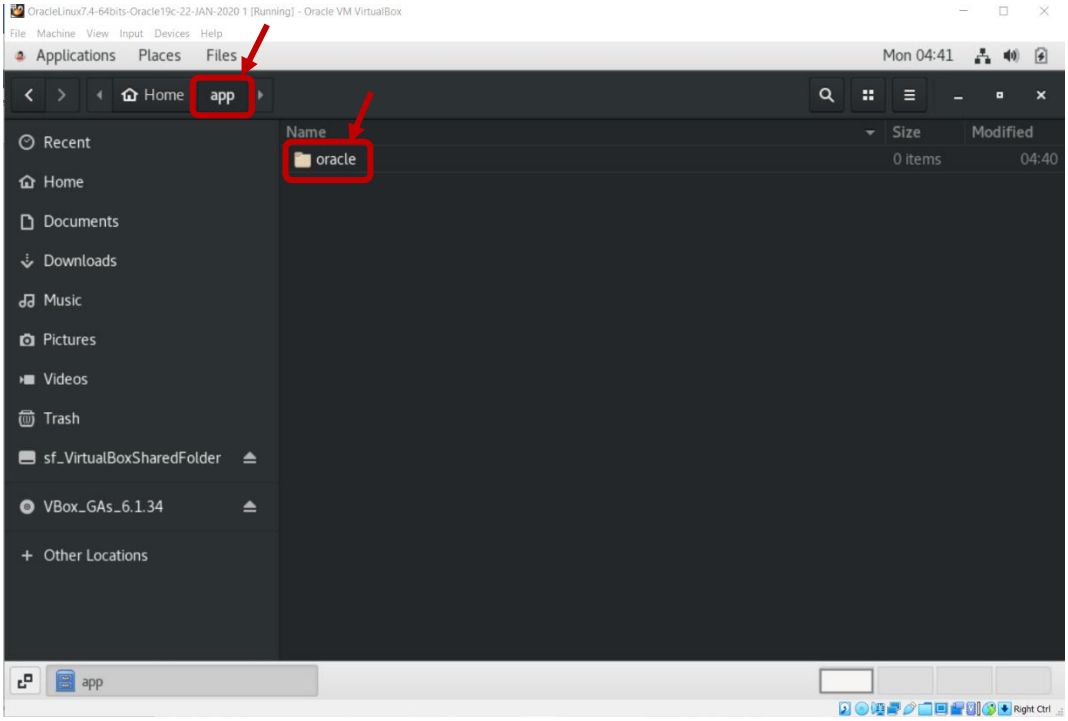


Navigate into the ‘app’ folder:

Inside the ‘app’ folder, create another new folder, and named it as ‘oracle’.

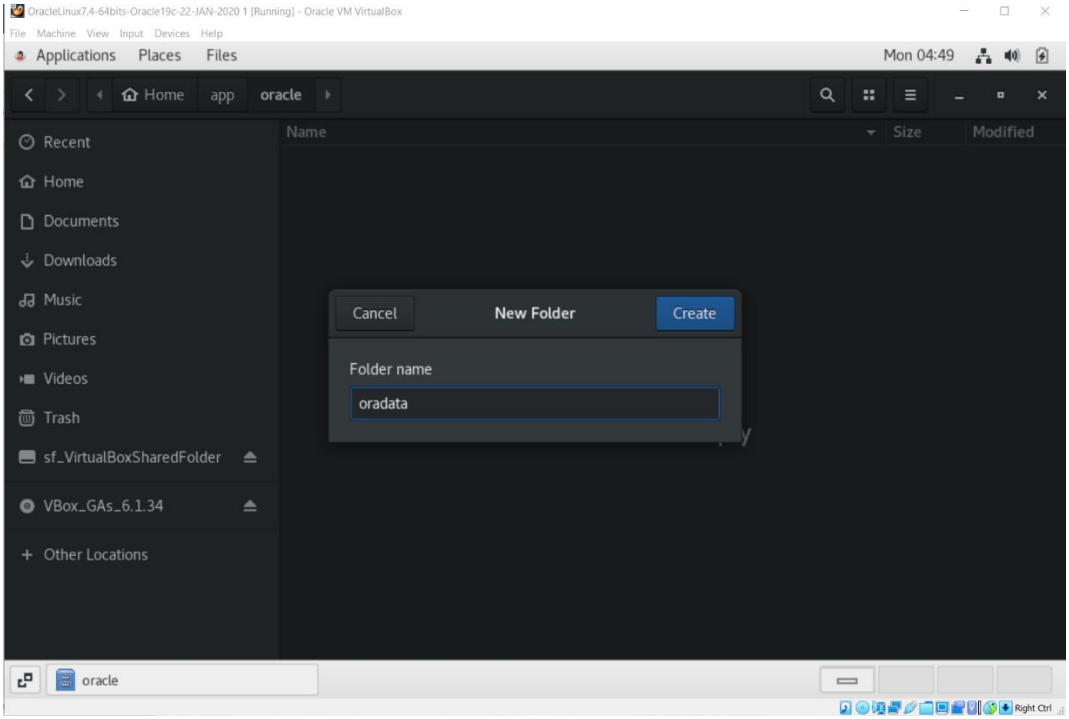


The ‘oracle’ folder is created.

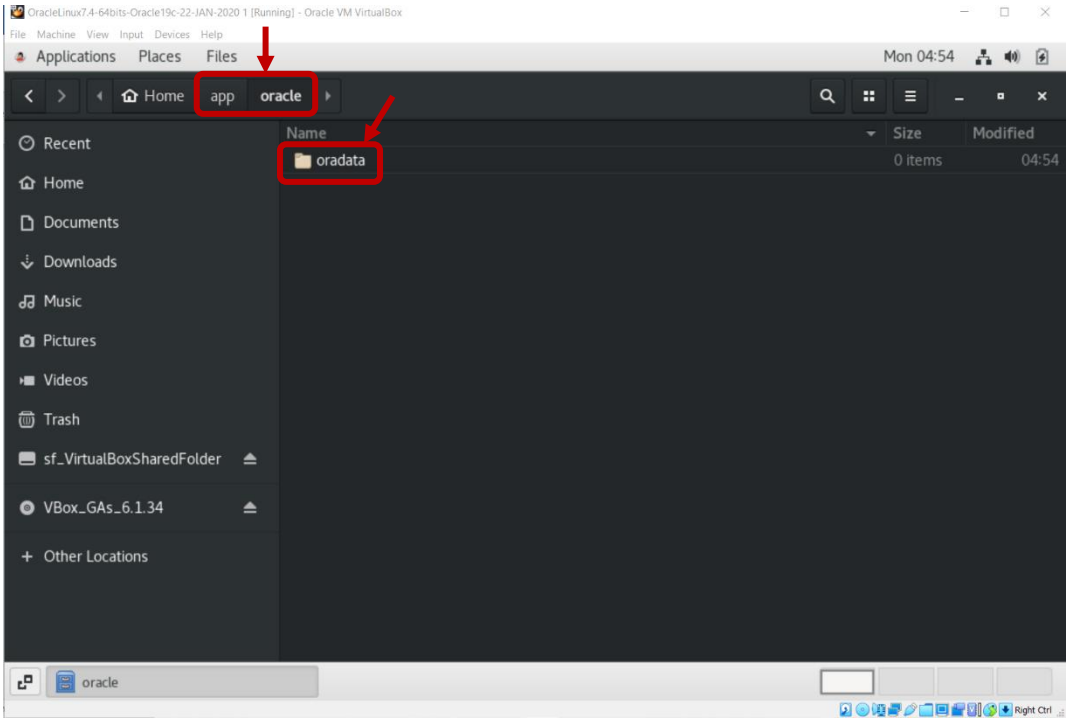


Navigate into the ‘oracle’ folder:

Inside the ‘oracle’ folder, create another new folder, and named it as ‘oradata’.

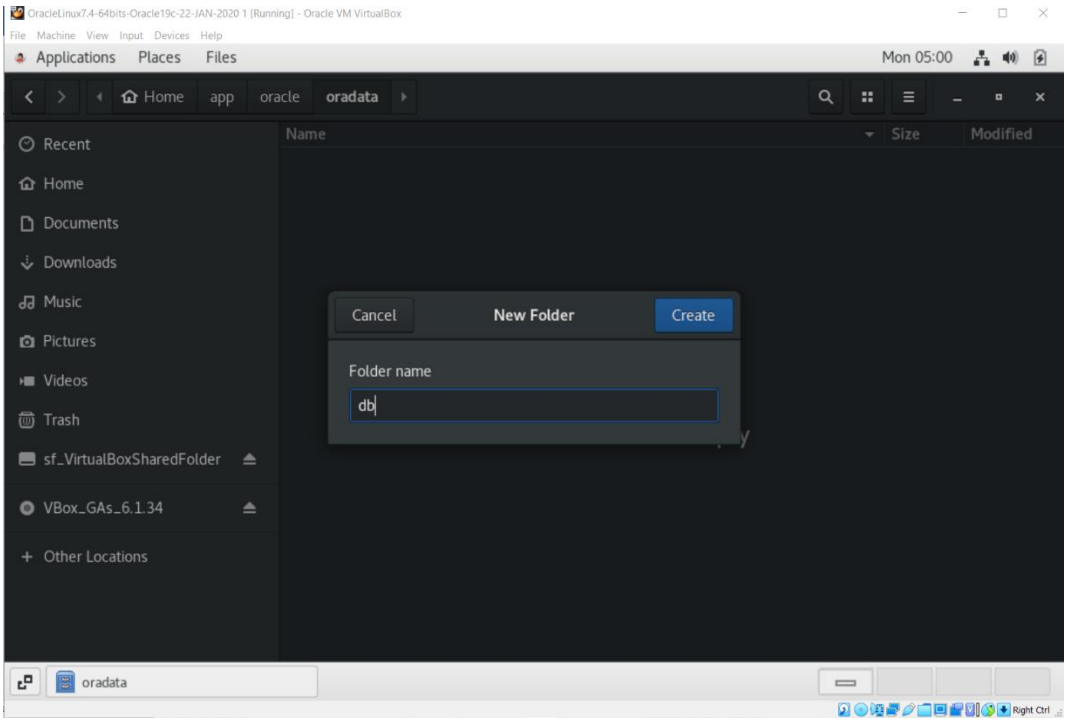


The ‘oradata’ folder is created.

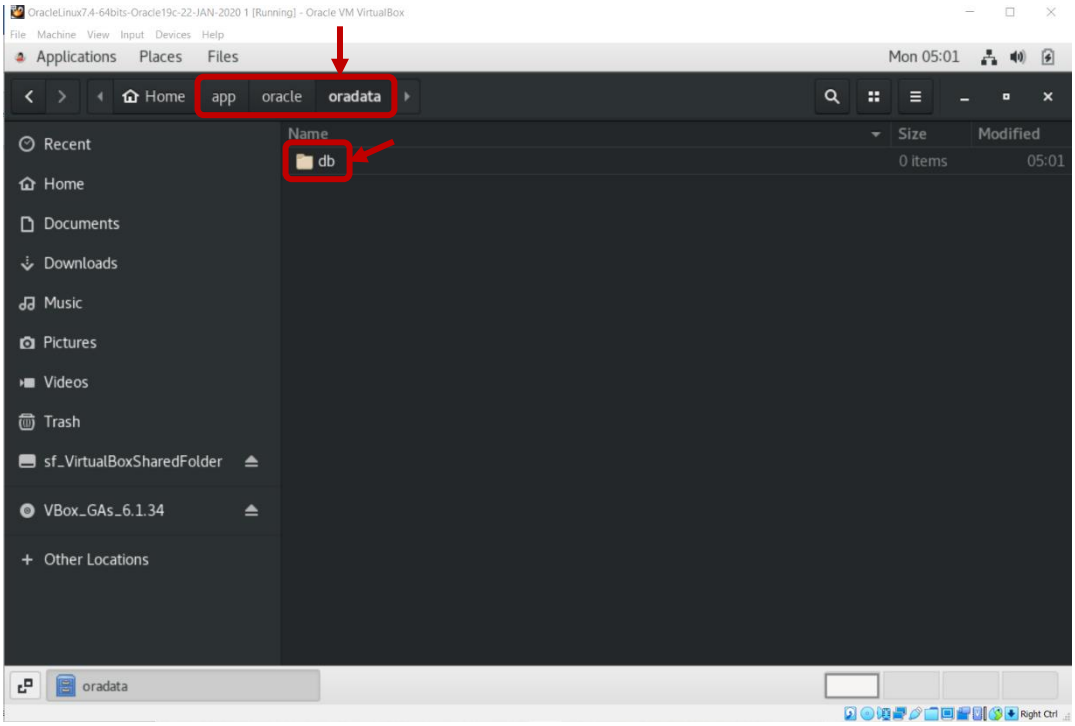


Navigate into the ‘oradata’ folder:

Inside the ‘oradata’ folder, create another new folder, and named it as ‘db’.



The ‘db’ folder is created.



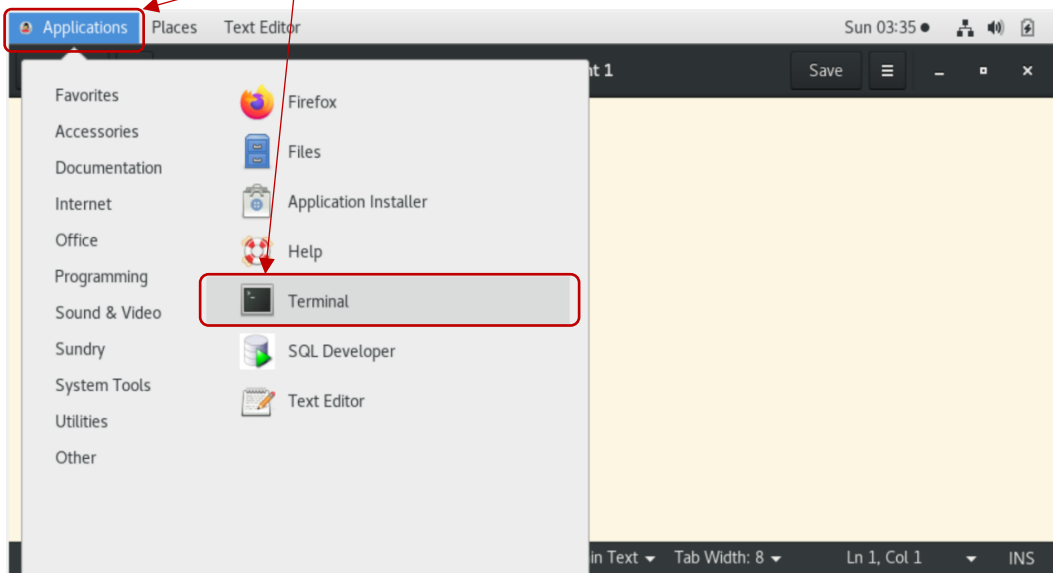
Please make sure that these folders are created correctly, that is, app/oracle/oradata/db.

We have now created the environment properly. We are ready to run the scripts to setup and install the TPCHR sample database.

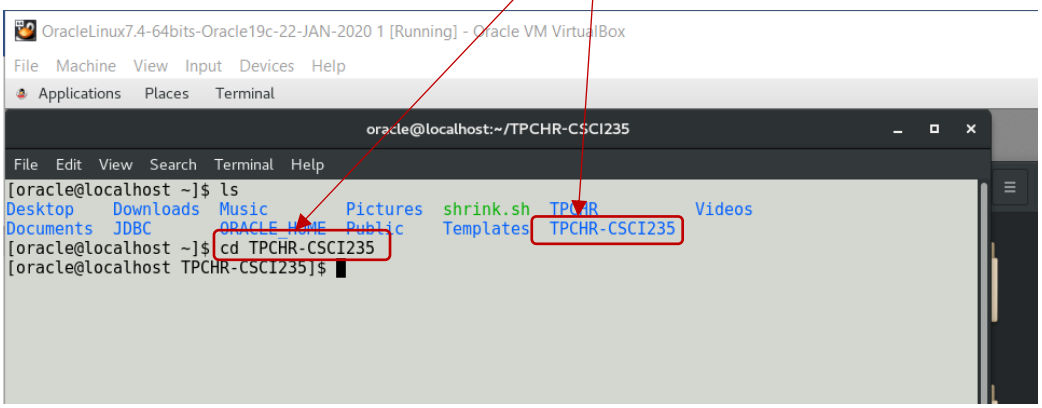
Setting up the TPCHR sample database:

8. Start a new Terminal window and …

i. Open a new Terminal window.



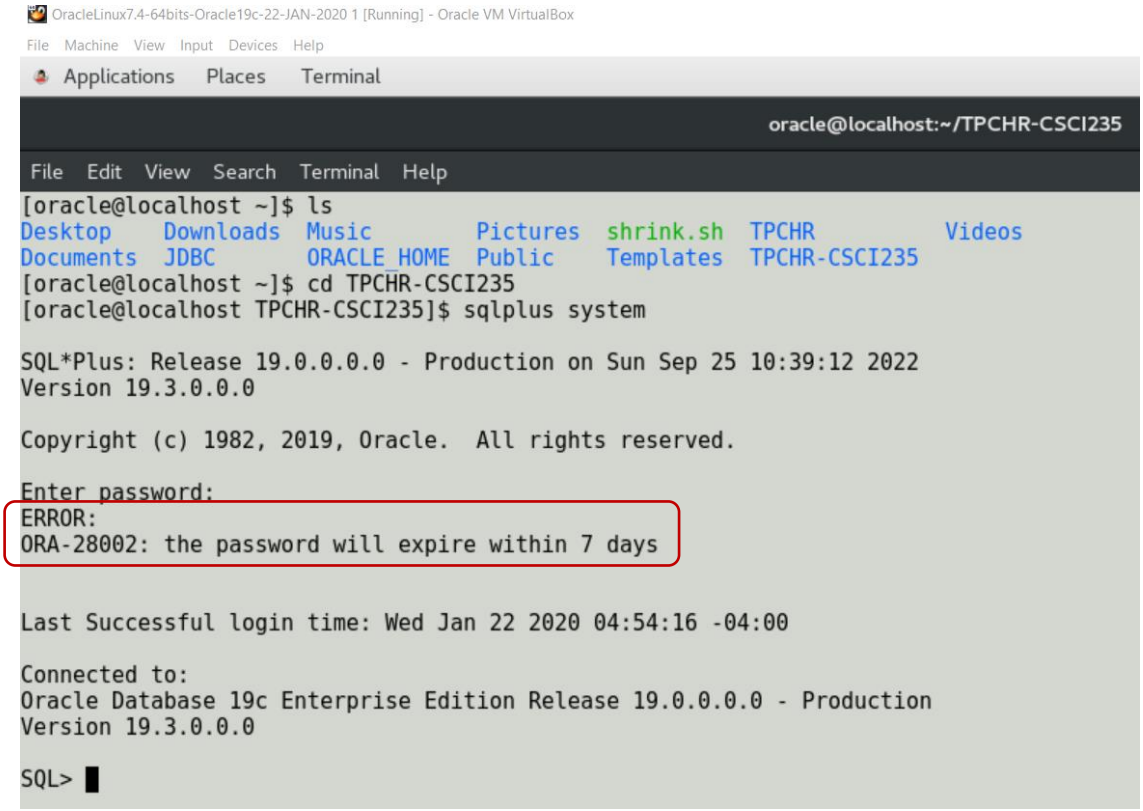
ii. Next change to the directory 'TPCHR-CSCI235'.



iii. Start SQLPlus, and log in using the userid SYSTEM. At the prompt, type the following:

```
[oracle@localhost TPCHR-CSCI235]$ sqlplus system
```

… and enter the appropriate password. (The password is oracle, if you did not change the password.)

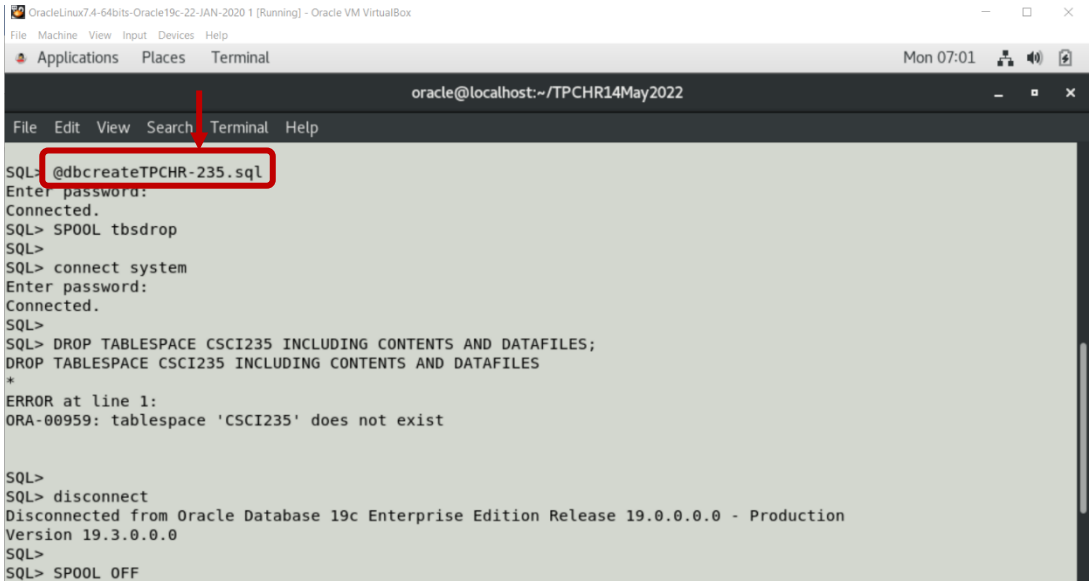


Note: If this is the first time you login to the Oracle, you will notice you will receive an error message stating:

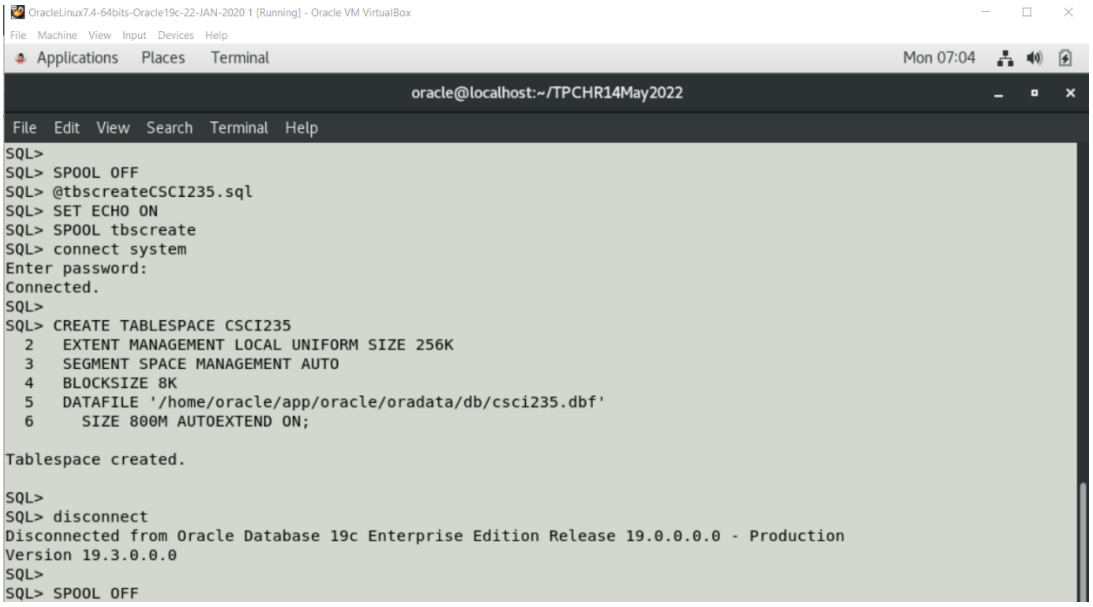
ORA-28002: the password will expire within 7 days

iv. Run the script 'dbcreateTPCHR-235.sql'

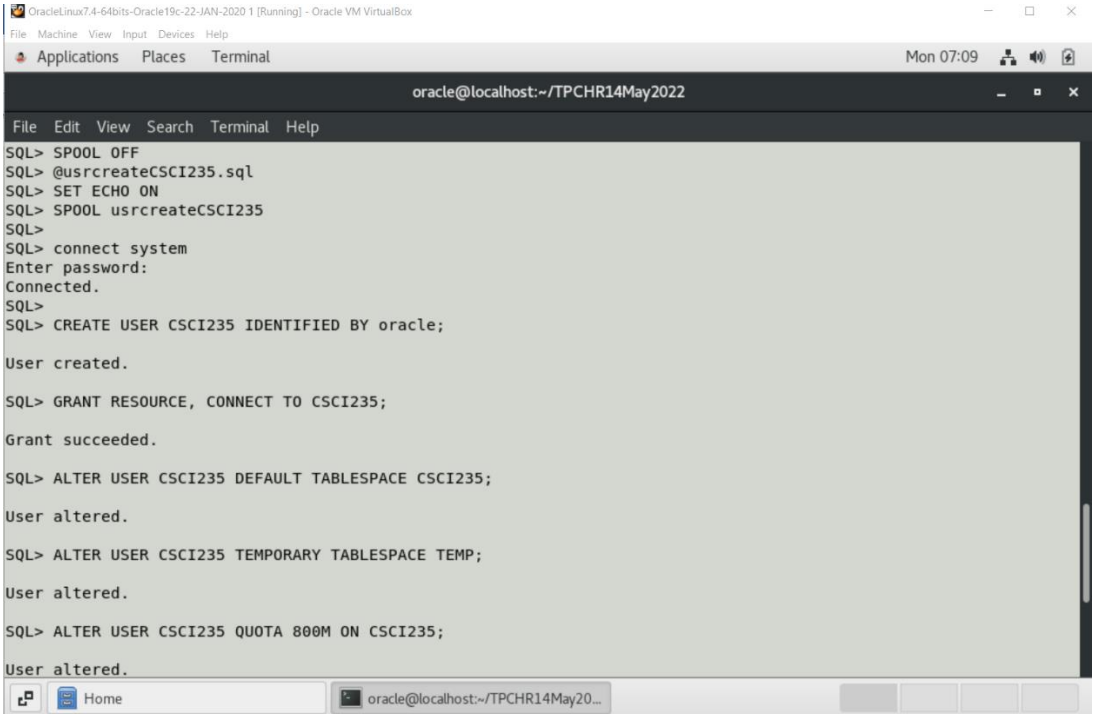
Note: If you did not change the password for the user account SYSTEM and CSCI235, then the password should be 'oracle' (without the single quote.)

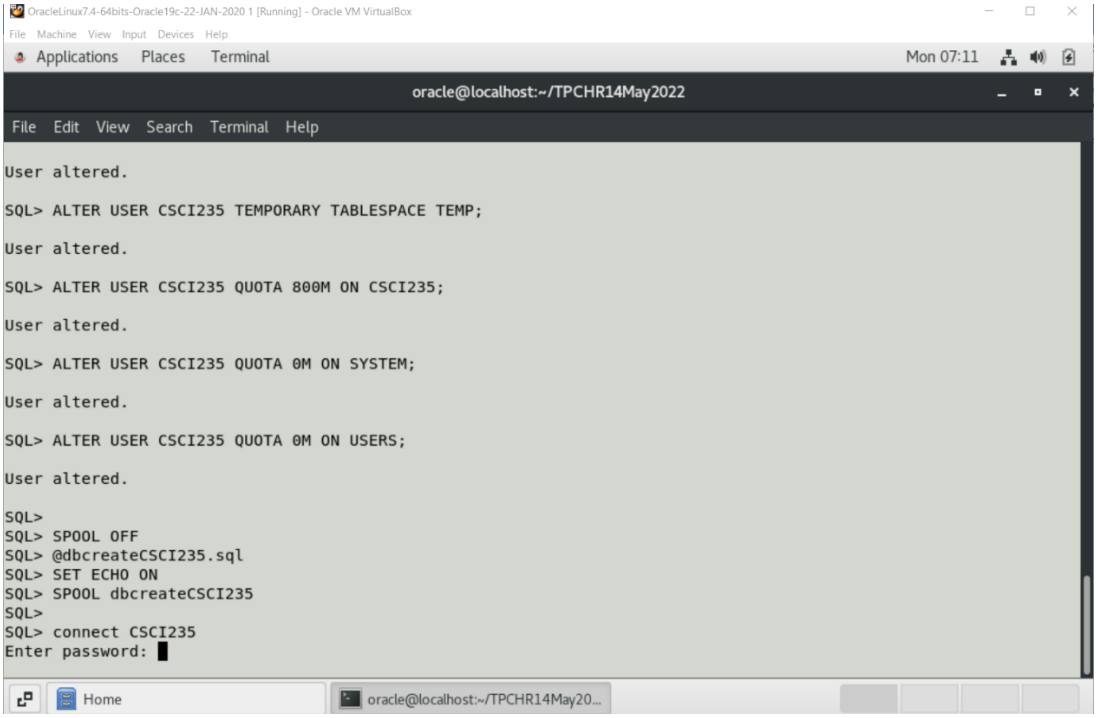


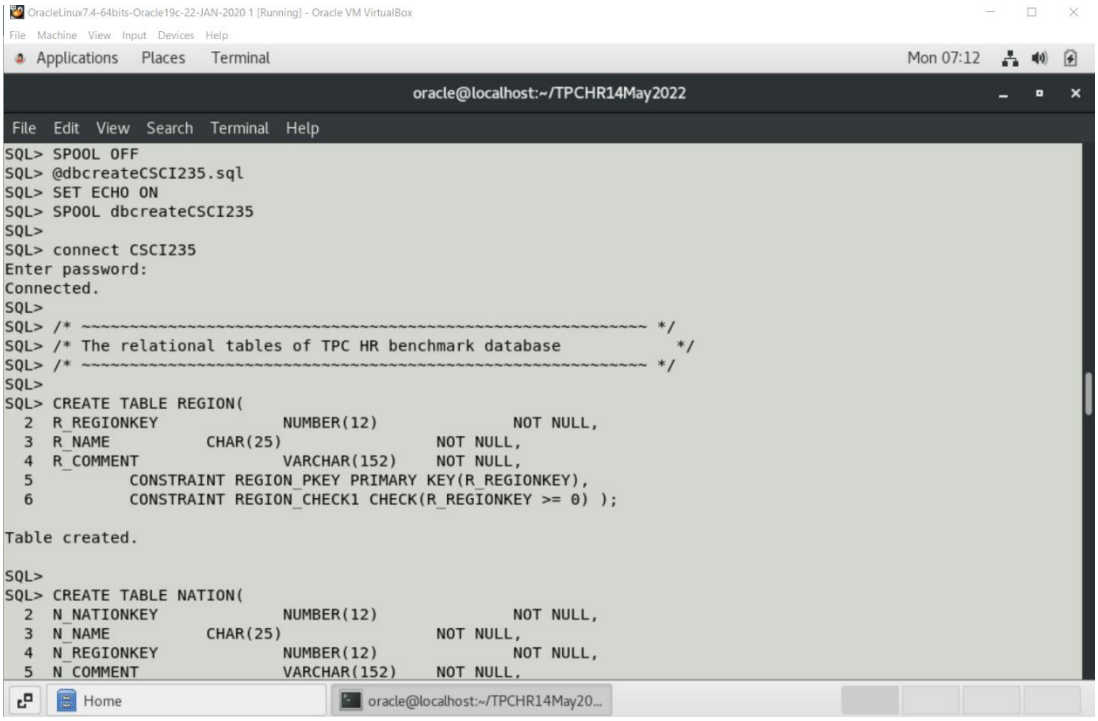
Follow the instructions. When asked to enter the password, please enter 'oracle' (if you have not changed the passwords for the user account SYSTEM and CSCI235.

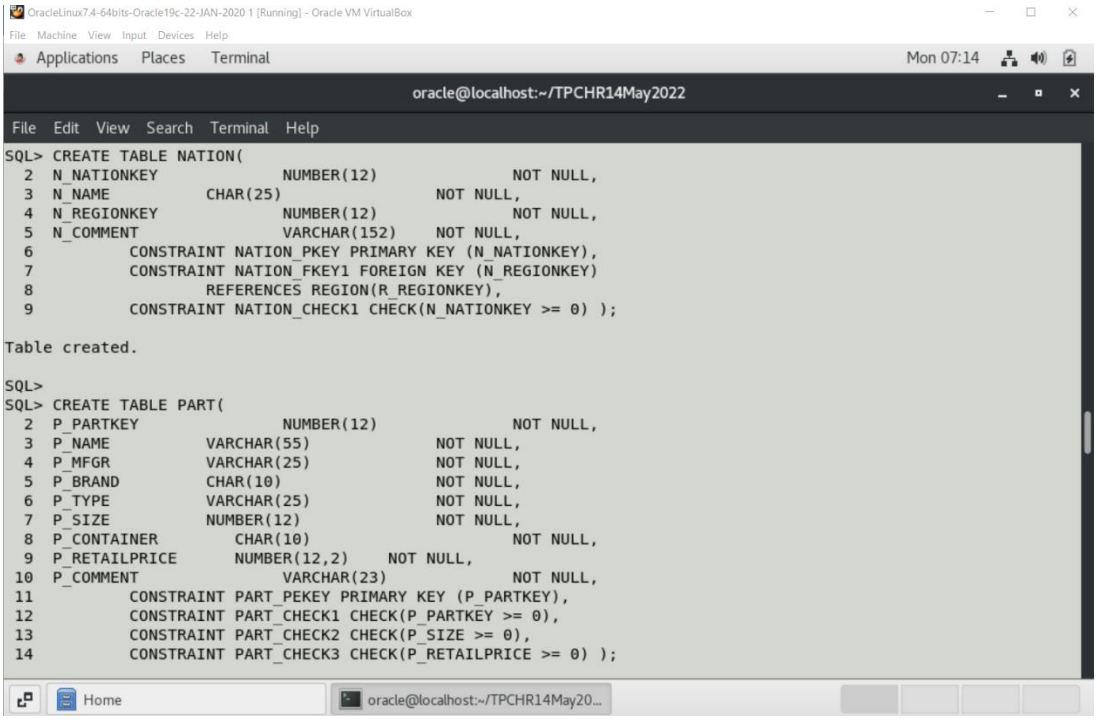


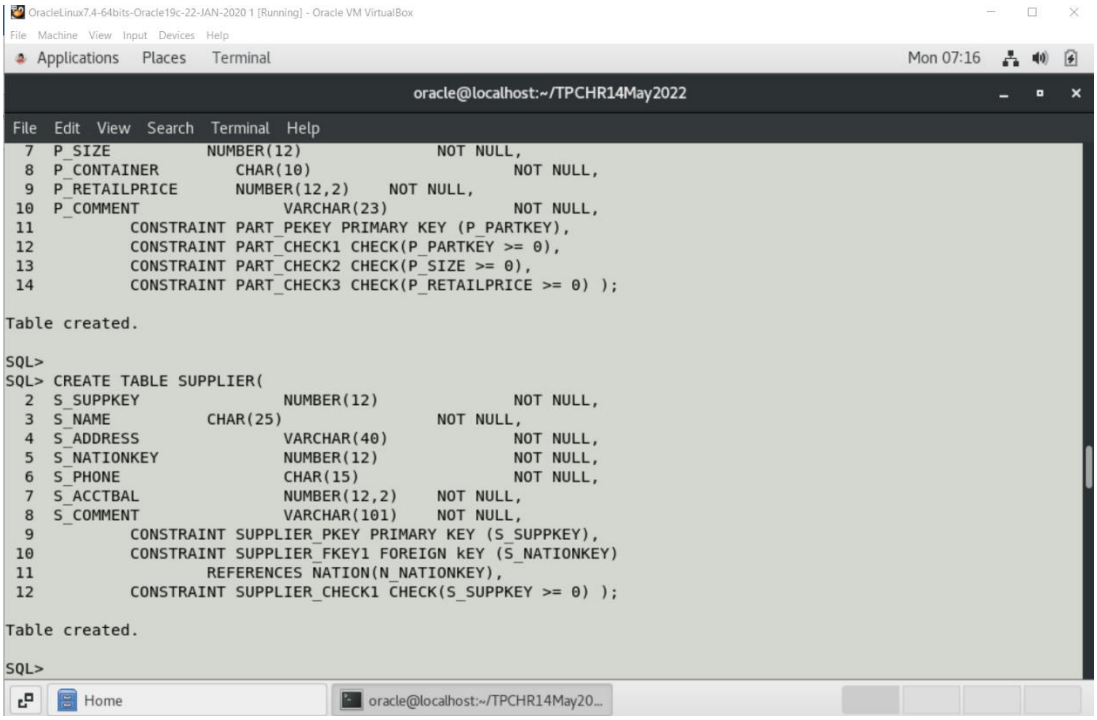

OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:07
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
SQL> SPOOL OFF
SQL> @usrdropCSCI235.sql
SQL> SET ECHO ON
SQL> SPOOL usrdrop
SQL>
SQL> connect system
Enter password:
Connected.
SQL>
SQL> DROP USER CSCI235 CASCADE;
User dropped.
SQL>
SQL> disconnect
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0
SQL>
SQL> SPOOL OFF

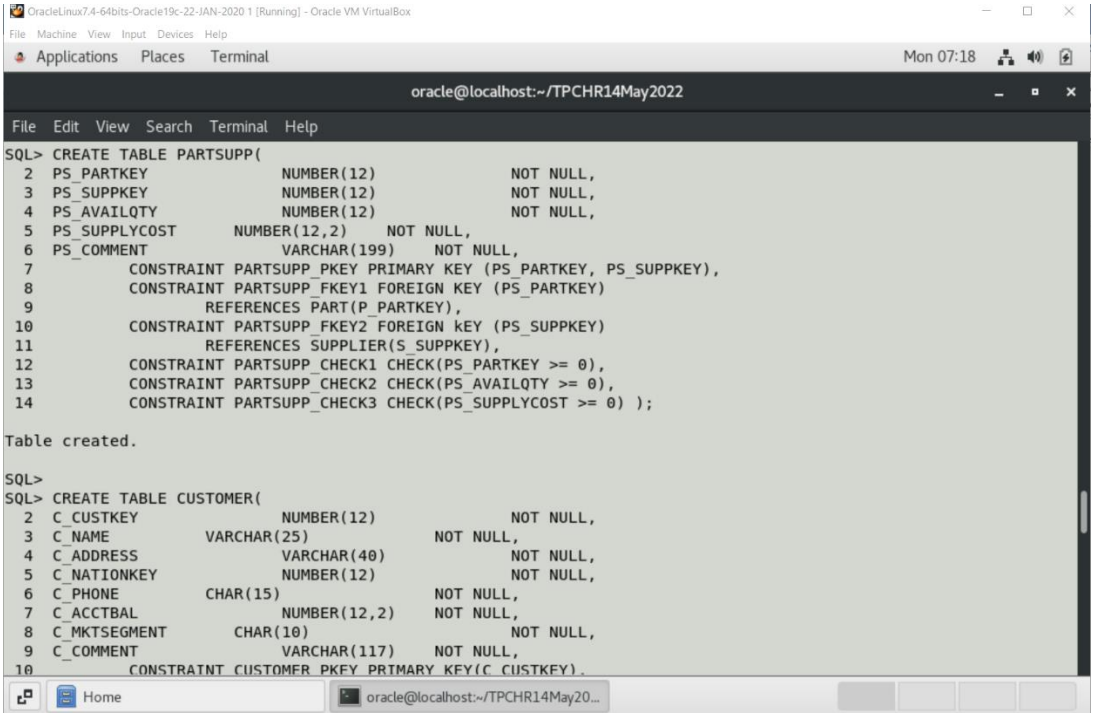

OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:09
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
SQL> SPOOL OFF
SQL> @usrcreateCSCI235.sql
SQL> SET ECHO ON
SQL> SPOOL usrcreateCSCI235
SQL>
SQL> connect system
Enter password:
Connected.
SQL>
SQL> CREATE USER CSCI235 IDENTIFIED BY oracle;
User created.
SQL> GRANT RESOURCE, CONNECT TO CSCI235;
Grant succeeded.
SQL> ALTER USER CSCI235 DEFAULT TABLESPACE CSCI235;
User altered.
SQL> ALTER USER CSCI235 TEMPORARY TABLESPACE TEMP;
User altered.
SQL> ALTER USER CSCI235 QUOTA 800M ON CSCI235;
User altered.
Home
oracle@localhost:~/TPCHR14May20...

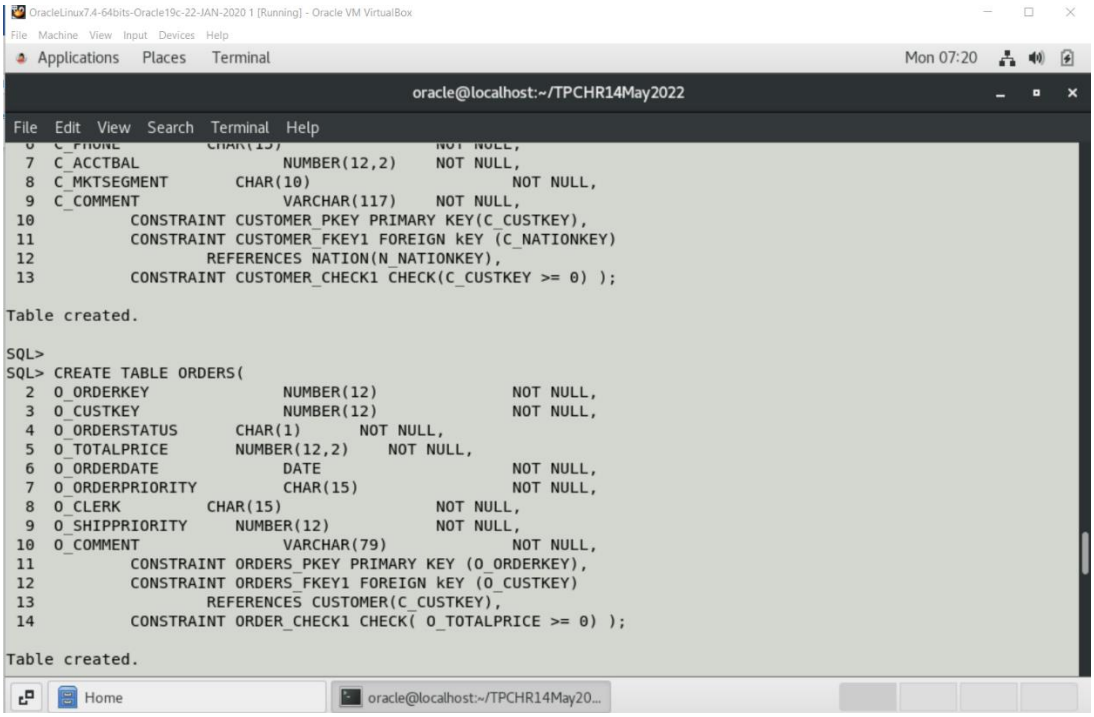

OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:11
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
User altered.
SQL> ALTER USER CSCI235 TEMPORARY TABLESPACE TEMP;
User altered.
SQL> ALTER USER CSCI235 QUOTA 800M ON CSCI235;
User altered.
SQL> ALTER USER CSCI235 QUOTA 0M ON SYSTEM;
User altered.
SQL> ALTER USER CSCI235 QUOTA 0M ON USERS;
User altered.
SQL>
SQL> SPOOL OFF
SQL> @dbcreateCSCI235.sql
SQL> SET ECHO ON
SQL> SPOOL dbcreateCSCI235
SQL>
SQL> connect CSCI235
Enter password:
Home
oracle@localhost:~/TPCHR14May20...

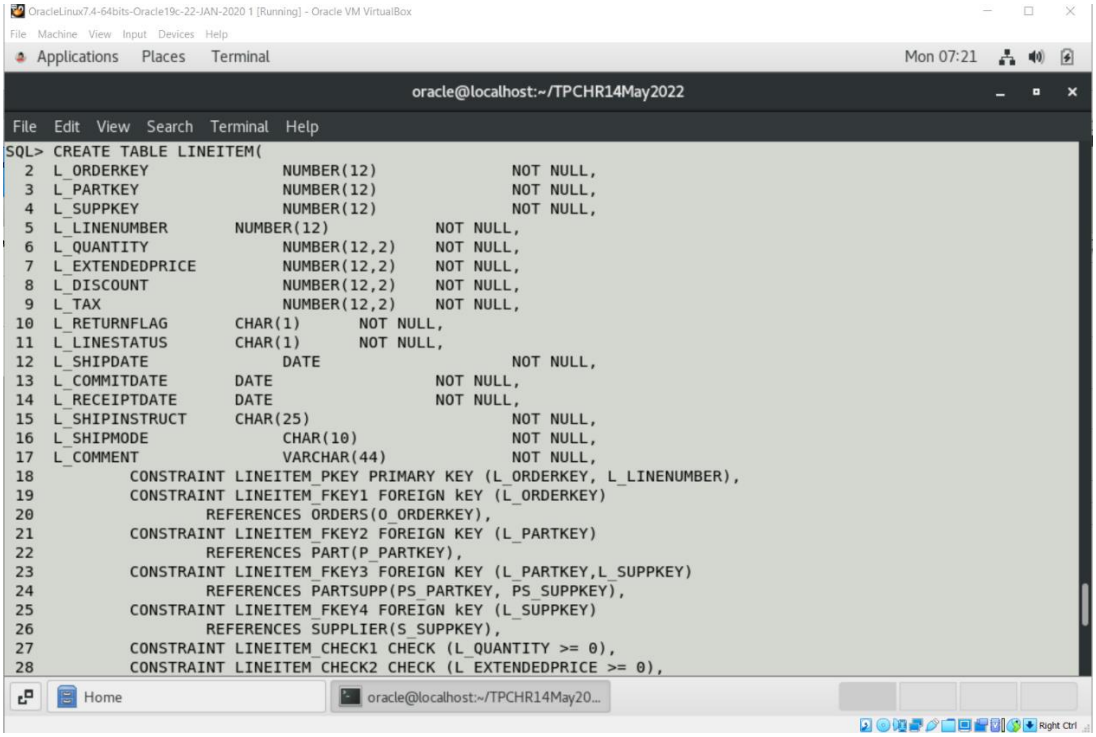

OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:12
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
SQL> SPOOL OFF
SQL> @dbcreateCSCI235.sql
SQL> SET ECHO ON
SQL> SPOOL dbcreateCSCI235
SQL>
SQL> connect CSCI235
Enter password:
Connected.
SQL>
SQL> /* ~~~~~~ */
SQL> /* The relational tables of TPC HR benchmark database */
SQL> /* ~~~~~~ */
SQL>
SQL> CREATE TABLE REGION(
2 R_REGIONKEY NUMBER(12) NOT NULL,
3 R_NAME CHAR(25) NOT NULL,
4 R_COMMENT VARCHAR(152) NOT NULL,
5 CONSTRAINT REGION_PKEY PRIMARY KEY(R_REGIONKEY),
6 CONSTRAINT REGION_CHECK1 CHECK(R_REGIONKEY >= 0));
Table created.
SQL>
SQL> CREATE TABLE NATION(
2 N_NATIONKEY NUMBER(12) NOT NULL,
3 N_NAME CHAR(25) NOT NULL,
4 N_REGIONKEY NUMBER(12) NOT NULL,
5 N_COMMENT VARCHAR(152) NOT NULL,
Home
oracle@localhost:~/TPCHR14May20...

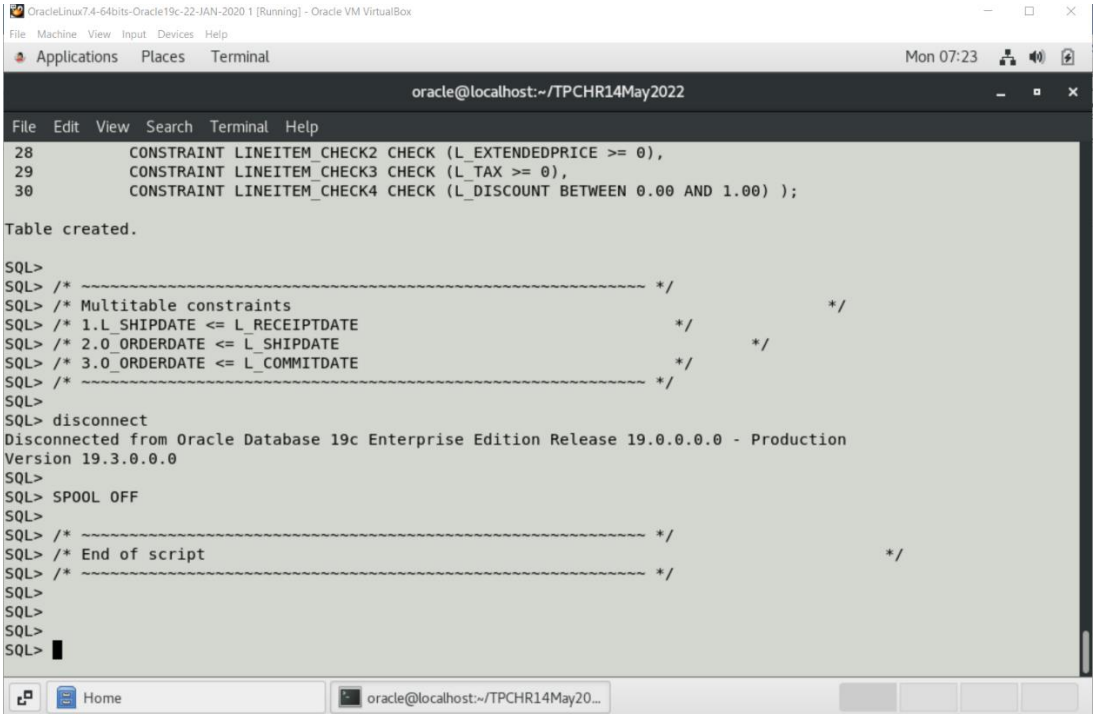

OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:14
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
SQL> CREATE TABLE NATION(
2 N_NATIONKEY NUMBER(12) NOT NULL,
3 N_NAME CHAR(25) NOT NULL,
4 N_REGIONKEY NUMBER(12) NOT NULL,
5 N_COMMENT VARCHAR(152) NOT NULL,
6 CONSTRAINT NATION_PKEY PRIMARY KEY (N_NATIONKEY),
7 CONSTRAINT NATION_FKEY1 FOREIGN KEY (N_REGIONKEY)
8 REFERENCES REGION(R_REGIONKEY),
9 CONSTRAINT NATION_CHECK1 CHECK(N_NATIONKEY >= 0));
Table created.
SQL>
SQL> CREATE TABLE PART(
2 P_PARTKEY NUMBER(12) NOT NULL,
3 P_NAME VARCHAR(55) NOT NULL,
4 P_MFGR VARCHAR(25) NOT NULL,
5 P_BRAND CHAR(10) NOT NULL,
6 P_TYPE VARCHAR(25) NOT NULL,
7 P_SIZE NUMBER(12) NOT NULL,
8 P_CONTAINER CHAR(10) NOT NULL,
9 P_RETAILPRICE NUMBER(12,2) NOT NULL,
10 P_COMMENT VARCHAR(23) NOT NULL,
11 CONSTRAINT PART_PEKEY PRIMARY KEY (P_PARTKEY),
12 CONSTRAINT PART_CHECK1 CHECK(P_PARTKEY >= 0),
13 CONSTRAINT PART_CHECK2 CHECK(P_SIZE >= 0),
14 CONSTRAINT PART_CHECK3 CHECK(P_RETAILPRICE >= 0));
Home
oracle@localhost:~/TPCHR14May20...

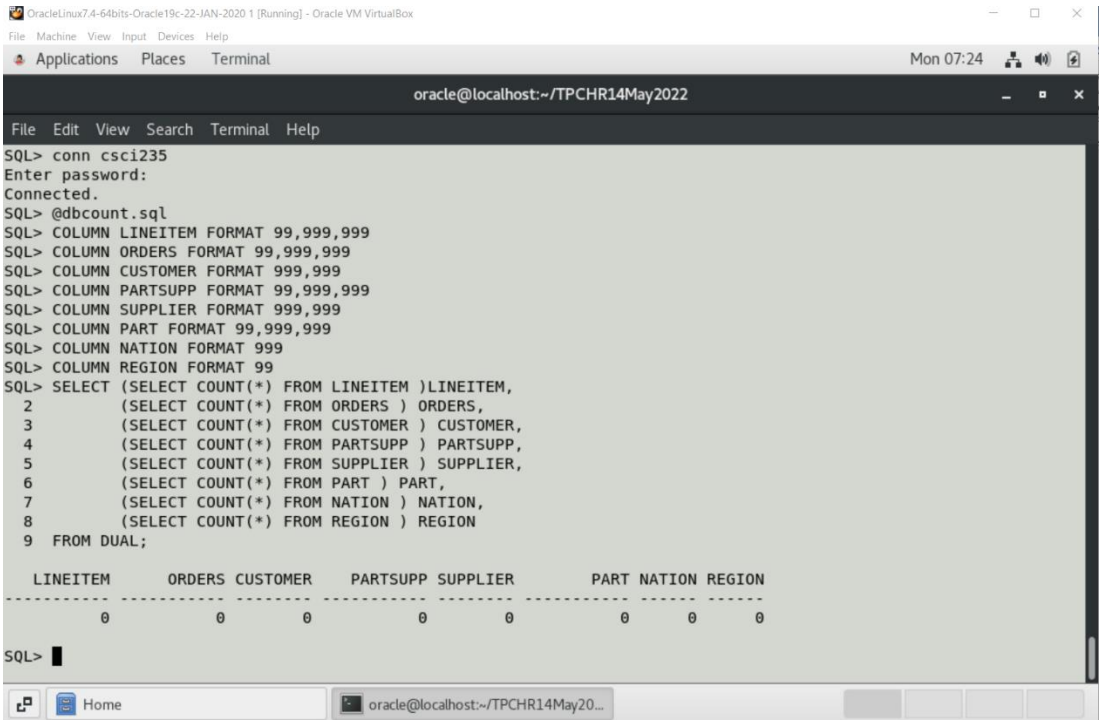

OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:16
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
7 P_SIZE NUMBER(12) NOT NULL,
8 P_CONTAINER CHAR(10) NOT NULL,
9 P_RETAILPRICE NUMBER(12,2) NOT NULL,
10 P_COMMENT VARCHAR(23) NOT NULL,
11 CONSTRAINT PART_PEKEY PRIMARY KEY (P_PARTKEY),
12 CONSTRAINT PART_CHECK1 CHECK(P_PARTKEY >= 0),
13 CONSTRAINT PART_CHECK2 CHECK(P_SIZE >= 0),
14 CONSTRAINT PART_CHECK3 CHECK(P_RETAILPRICE >= 0));
Table created.
SQL>
SQL> CREATE TABLE SUPPLIER(
2 S_SUPPKEY NUMBER(12) NOT NULL,
3 S_NAME CHAR(25) NOT NULL,
4 S_ADDRESS VARCHAR(40) NOT NULL,
5 S_NATIONKEY NUMBER(12) NOT NULL,
6 S_PHONE CHAR(15) NOT NULL,
7 S_ACCTBAL NUMBER(12,2) NOT NULL,
8 S_COMMENT VARCHAR(101) NOT NULL,
9 CONSTRAINT SUPPLIER_PKEY PRIMARY KEY (S_SUPPKEY),
10 CONSTRAINT SUPPLIER_FKEY1 FOREIGN kEY (S_NATIONKEY)
11 REFERENCES NATION(N_NATIONKEY),
12 CONSTRAINT SUPPLIER_CHECK1 CHECK(S_SUPPKEY >= 0));
Table created.
SQL>
Home
oracle@localhost:~/TPCHR14May20...


OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:18
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
SQL> CREATE TABLE PARTSUPP(
2 PS_PARTKEY NUMBER(12) NOT NULL,
3 PS_SUPPKEY NUMBER(12) NOT NULL,
4 PS_AVAILQTY NUMBER(12) NOT NULL,
5 PS_SUPPLYCOST NUMBER(12,2) NOT NULL,
6 PS_COMMENT VARCHAR(199) NOT NULL,
7 CONSTRAINT PARTSUPP_PKEY PRIMARY KEY (PS_PARTKEY, PS_SUPPKEY),
8 CONSTRAINT PARTSUPP_FKEY1 FOREIGN KEY (PS_PARTKEY)
9 REFERENCES PART(P_PARTKEY),
10 CONSTRAINT PARTSUPP_FKEY2 FOREIGN kEY (PS_SUPPKEY)
11 REFERENCES SUPPLIER(S_SUPPKEY),
12 CONSTRAINT PARTSUPP_CHECK1 CHECK(PS_PARTKEY >= 0),
13 CONSTRAINT PARTSUPP_CHECK2 CHECK(PS_AVAILQTY >= 0),
14 CONSTRAINT PARTSUPP_CHECK3 CHECK(PS_SUPPLYCOST >= 0));
Table created.
SQL>
SQL> CREATE TABLE CUSTOMER(
2 C_CUSTKEY NUMBER(12) NOT NULL,
3 C_NAME VARCHAR(25) NOT NULL,
4 C_ADDRESS VARCHAR(40) NOT NULL,
5 C_NATIONKEY NUMBER(12) NOT NULL,
6 C_PHONE CHAR(15) NOT NULL,
7 C_ACCTBAL NUMBER(12,2) NOT NULL,
8 C_MKTSEGMENT CHAR(10) NOT NULL,
9 C_COMMENT VARCHAR(117) NOT NULL,
10 CONSTRAINT CUSTOMER_PKEY PRIMARY KEY(C_CUSTKEY),
Home
oracle@localhost:~/TPCHR14May20...


OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:20
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
7 C_ACCTBAL NUMBER(12,2) NOT NULL,
8 C_MKTSEGMENT CHAR(10) NOT NULL,
9 C_COMMENT VARCHAR(117) NOT NULL,
10 CONSTRAINT CUSTOMER_PKEY PRIMARY KEY(C_CUSTKEY),
11 CONSTRAINT CUSTOMER_FKEY1 FOREIGN kEY (C_NATIONKEY)
12 REFERENCES NATION(N_NATIONKEY),
13 CONSTRAINT CUSTOMER_CHECK1 CHECK(C_CUSTKEY >= 0));
Table created.
SQL>
SQL> CREATE TABLE ORDERS(
2 O_ORDERKEY NUMBER(12) NOT NULL,
3 O_CUSTKEY NUMBER(12) NOT NULL,
4 O_ORDERSTATUS CHAR(1) NOT NULL,
5 O_TOTALPRICE NUMBER(12,2) NOT NULL,
6 O_ORDERDATE DATE NOT NULL,
7 O_ORDERPRIORITY CHAR(15) NOT NULL,
8 O_CLERK CHAR(15) NOT NULL,
9 O_SHIPPRIORITY NUMBER(12) NOT NULL,
10 O_COMMENT VARCHAR(79) NOT NULL,
11 CONSTRAINT ORDERS_PKEY PRIMARY KEY (O_ORDERKEY),
12 CONSTRAINT ORDERS_FKEY1 FOREIGN kEY (O_CUSTKEY)
13 REFERENCES CUSTOMER(C_CUSTKEY),
14 CONSTRAINT ORDER_CHECK1 CHECK(O_TOTALPRICE >= 0));
Table created.
Home
oracle@localhost:~/TPCHR14May20...


OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:21
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
SQL> CREATE TABLE LINEITEM(
2 L_ORDERKEY NUMBER(12) NOT NULL,
3 L_PARTKEY NUMBER(12) NOT NULL,
4 L_SUPPKEY NUMBER(12) NOT NULL,
5 L_LINENUMBER NUMBER(12) NOT NULL,
6 L_QUANTITY NUMBER(12,2) NOT NULL,
7 L_EXTENDEDPRICE NUMBER(12,2) NOT NULL,
8 L_DISCOUNT NUMBER(12,2) NOT NULL,
9 L_TAX NUMBER(12,2) NOT NULL,
10 L_RETURNFLAG CHAR(1) NOT NULL,
11 L_LINESTATUS CHAR(1) NOT NULL,
12 L_SHIPDATE DATE NOT NULL,
13 L_COMMITDATE DATE NOT NULL,
14 L_RECEIPTDATE DATE NOT NULL,
15 L_SHIPINSTRUCT CHAR(25) NOT NULL,
16 L_SHIPMODE CHAR(10) NOT NULL,
17 L_COMMENT VARCHAR(44) NOT NULL,
18 CONSTRAINT LINEITEM_PKEY PRIMARY KEY (L_ORDERKEY, L_LINENUMBER),
19 CONSTRAINT LINEITEM_FKEY1 FOREIGN kEY (L_ORDERKEY)
20 REFERENCES ORDERS(O_ORDERKEY),
21 CONSTRAINT LINEITEM_FKEY2 FOREIGN KEY (L_PARTKEY)
22 REFERENCES PART(P_PARTKEY),
23 CONSTRAINT LINEITEM_FKEY3 FOREIGN KEY (L_PARTKEY,L_SUPPKEY)
24 REFERENCES PARTSUPP(PS_PARTKEY, PS_SUPPKEY),
25 CONSTRAINT LINEITEM_FKEY4 FOREIGN kEY (L_SUPPKEY)
26 REFERENCES SUPPLIER(S_SUPPKEY),
27 CONSTRAINT LINEITEM_CHECK1 CHECK (L_QUANTITY >= 0),
28 CONSTRAINT LINEITEM_CHECK2 CHECK (L_EXTENDEDPRICE >= 0),
Home
oracle@localhost:~/TPCHR14May20...
Right Ctrl


OracleLinux7.4-64bits-Oracle19c-22-JAN-2020 1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Mon 07:23
oracle@localhost:~/TPCHR14May2022
File Edit View Search Terminal Help
28 CONSTRAINT LINEITEM_CHECK2 CHECK (L_EXTENDEDPRICE >= 0),
29 CONSTRAINT LINEITEM_CHECK3 CHECK (L_TAX >= 0),
30 CONSTRAINT LINEITEM_CHECK4 CHECK (L_DISCOUNT BETWEEN 0.00 AND 1.00));
Table created.
SQL>
SQL> /* ~~~~~~ */
SQL> /* Multitable constraints */
SQL> /* 1.L_SHIPDATE <= L_RECEIPTDATE */
SQL> /* 2.O_ORDERDATE <= L_SHIPDATE */
SQL> /* 3.O_ORDERDATE <= L_COMMITDATE */
SQL> /* ~~~~~~ */
SQL>
SQL> disconnect
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0
SQL>
SQL> SPOOL OFF
SQL>
SQL> /* ~~~~~~ */
SQL> /* End of script */
SQL> /* ~~~~~~ */
SQL>
SQL>
SQL>
SQL>
Home
oracle@localhost:~/TPCHR14May20...



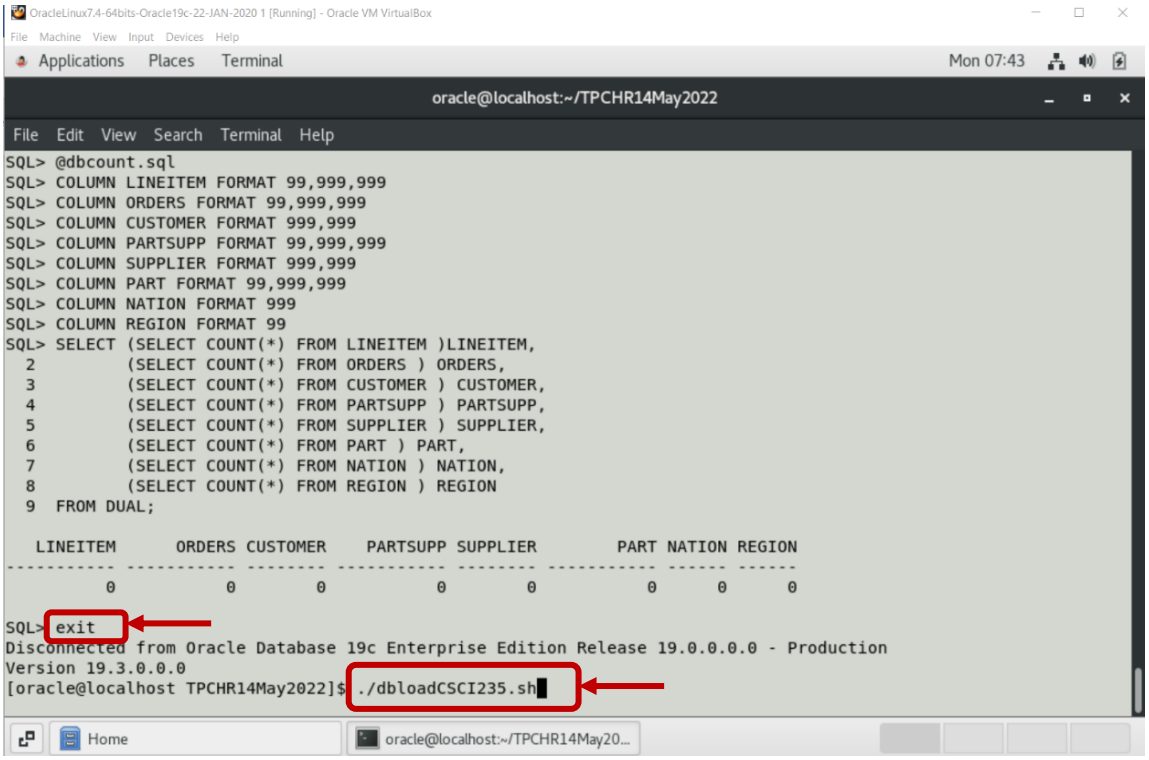
Finally, the scripts finish the processing.

The output has shown that there are eight tables created and currently all the tables are empty.

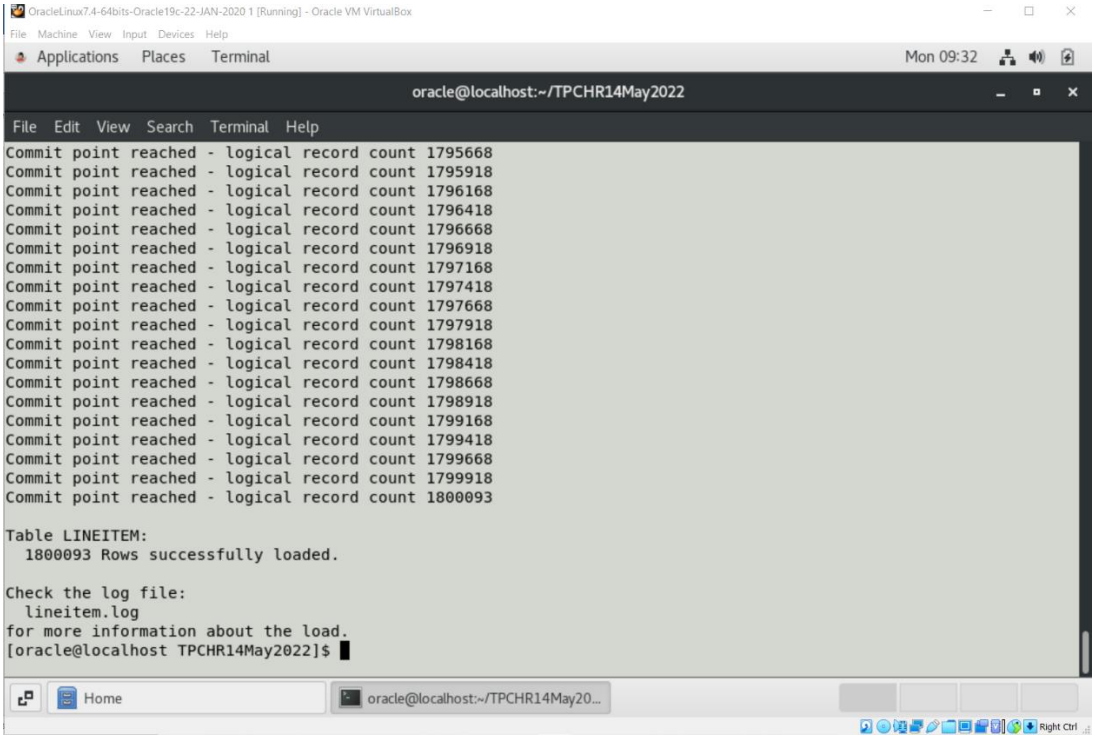
Populate the sample database TPCHR:

9. Next, we need to populate sample data to the sample database TPCHR. We need to execute the shell script 'dbloadCSCI235.sh'. (Note: Make sure you have changed the property of the shell script to executable. Step 6, page 7.)

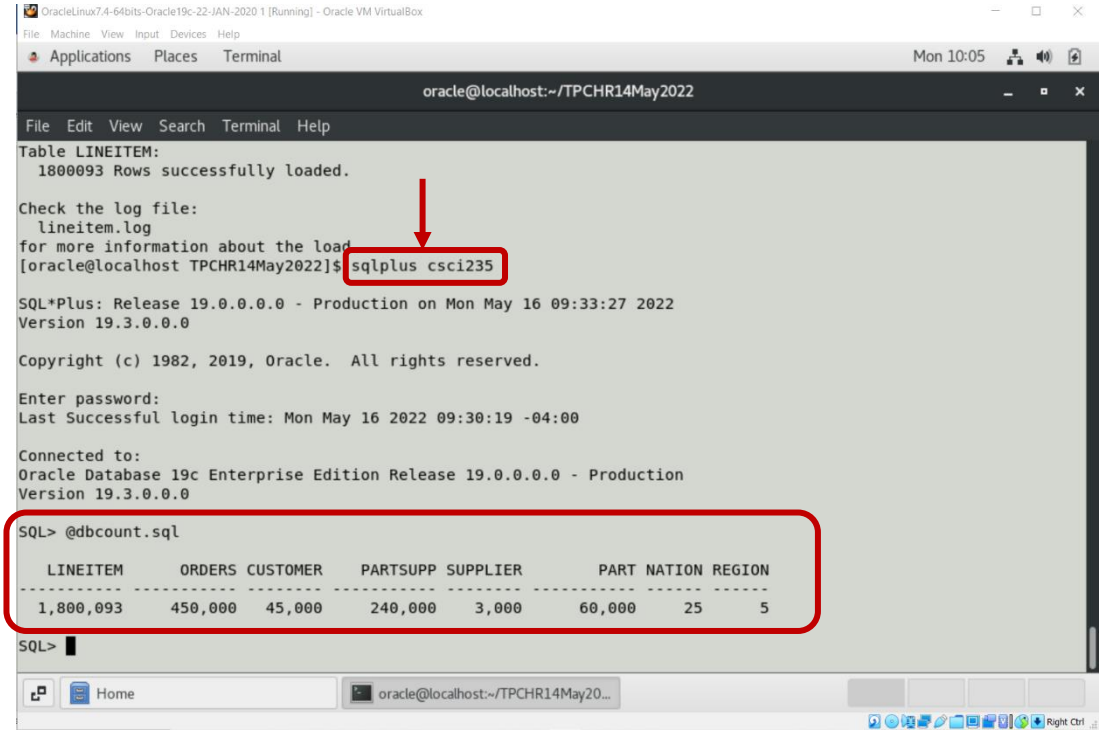
Exit the SQLPLUS client interface and at the terminal, execute the shell script 'dbloadTPCHR235.sh'.



After the completion of the loading process, …



Start SQLPlus, and log in using the userid csci235.



The tables are now loaded with sample data.

Congratulation! You have successfully setup the TPCHR sample database and loaded with data.