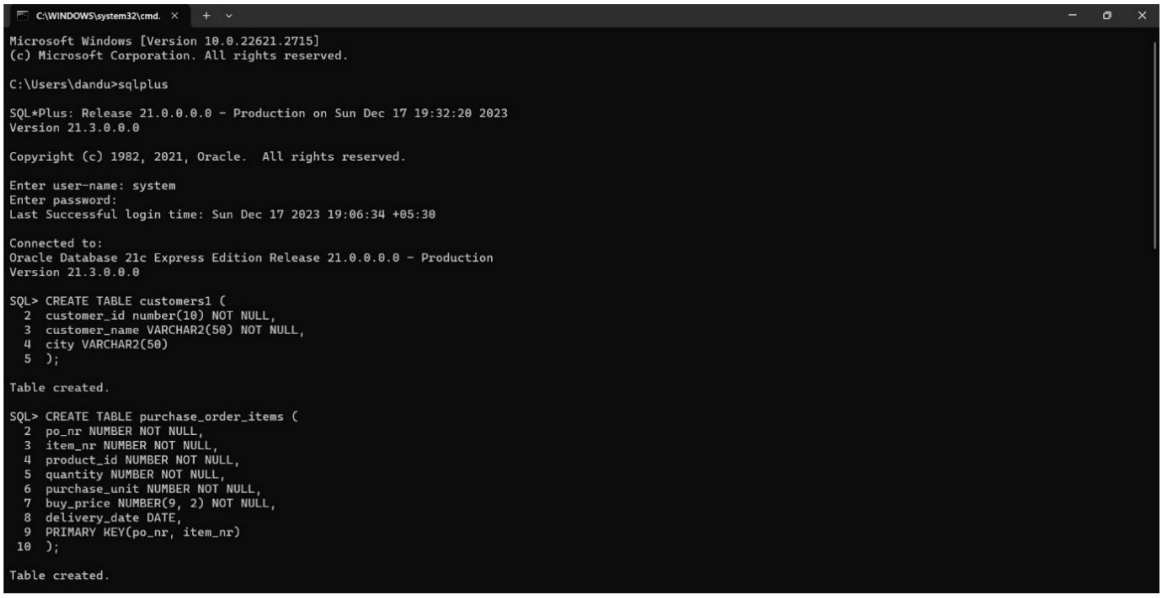
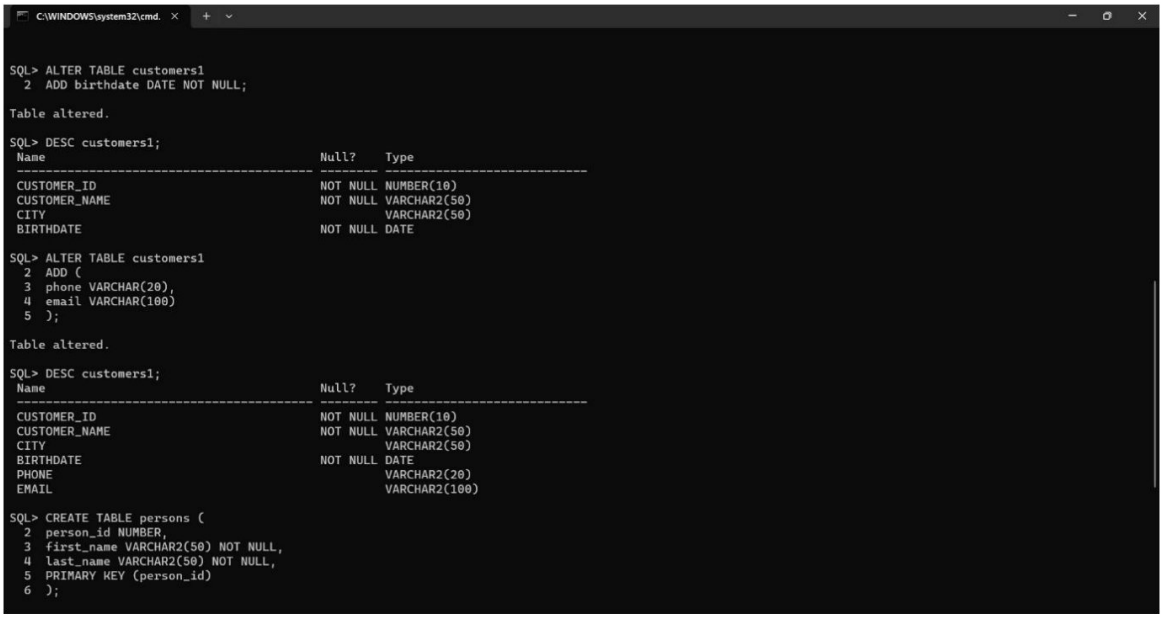
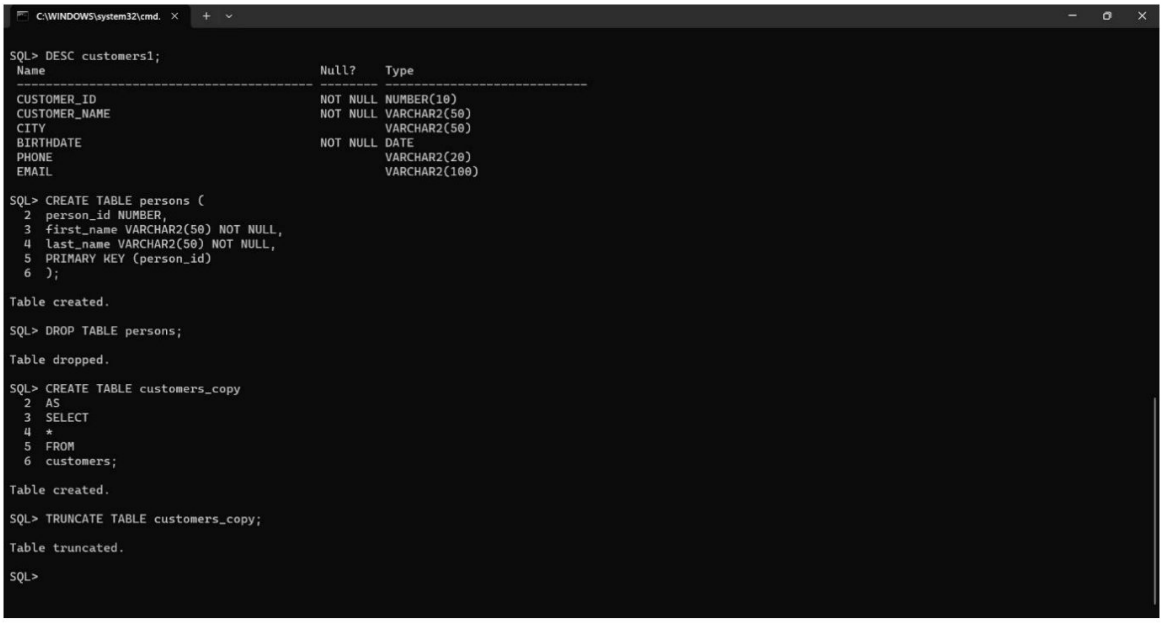
EXPERIMENT – 1



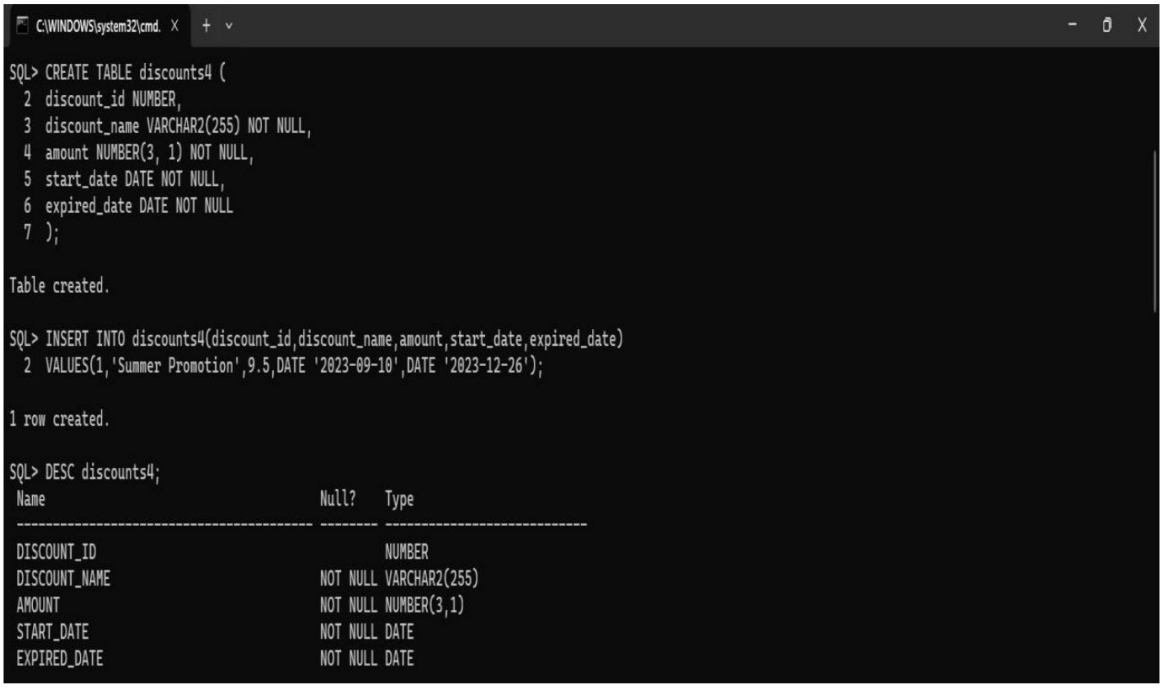
```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2715]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Sun Dec 17 19:32:20 2023
Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle.  All rights reserved.

Enter user-name: system
Enter password:
Last Successful login time: Sun Dec 17 2023 19:06:34 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE customers1 (
  2  customer_id number(10) NOT NULL,
  3  customer_name VARCHAR2(50) NOT NULL,
  4  city VARCHAR2(50)
  5  );

Table created.

SQL> CREATE TABLE purchase_order_items (
  2  po_nr NUMBER NOT NULL,
  3  item_nr NUMBER NOT NULL,
  4  product_id NUMBER NOT NULL,
  5  quantity NUMBER NOT NULL,
  6  purchase_unit NUMBER NOT NULL,
  7  buy_price NUMBER(9, 2) NOT NULL,
  8  delivery_date DATE,
  9  PRIMARY KEY(po_nr, item_nr)
 10  );

Table created.
```



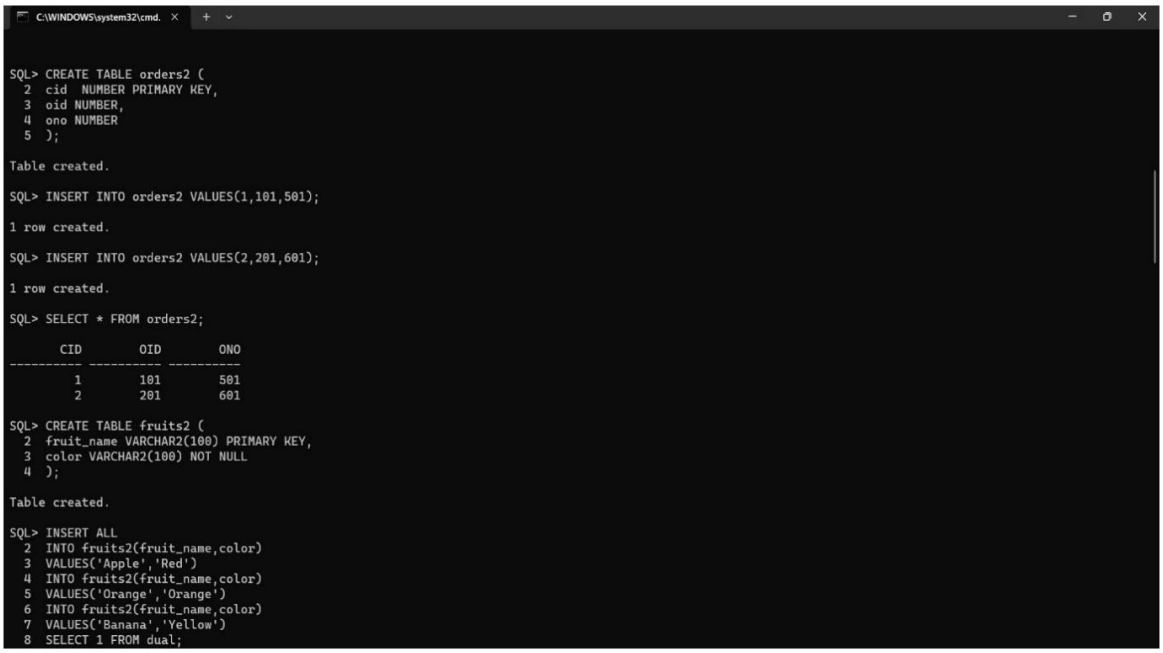
```
C:\WINDOWS\system32\cmd.


SQL> ALTER TABLE customers1
  2  ADD birthdate DATE NOT NULL;

Table altered.

SQL> DESC customers1;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_ID                               NOT NULL NUMBER(10)
 CUSTOMER_NAME                             NOT NULL VARCHAR2(50)
 CITY                                               VARCHAR2(50)
 BIRTHDATE                                 NOT NULL DATE

SQL> ALTER TABLE customers1
  2  ADD (
  3  phone VARCHAR(20),
  4  email VARCHAR(100)
  5  );

Table altered.

SQL> DESC customers1;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_ID                               NOT NULL NUMBER(10)
 CUSTOMER_NAME                             NOT NULL VARCHAR2(50)
 CITY                                               VARCHAR2(50)
 BIRTHDATE                                 NOT NULL DATE
 PHONE                                              VARCHAR2(20)
 EMAIL                                              VARCHAR2(100)

SQL> CREATE TABLE persons (
  2  person_id NUMBER,
  3  first_name VARCHAR2(50) NOT NULL,
  4  last_name VARCHAR2(50) NOT NULL,
  5  PRIMARY KEY (person_id)
  6  );
```



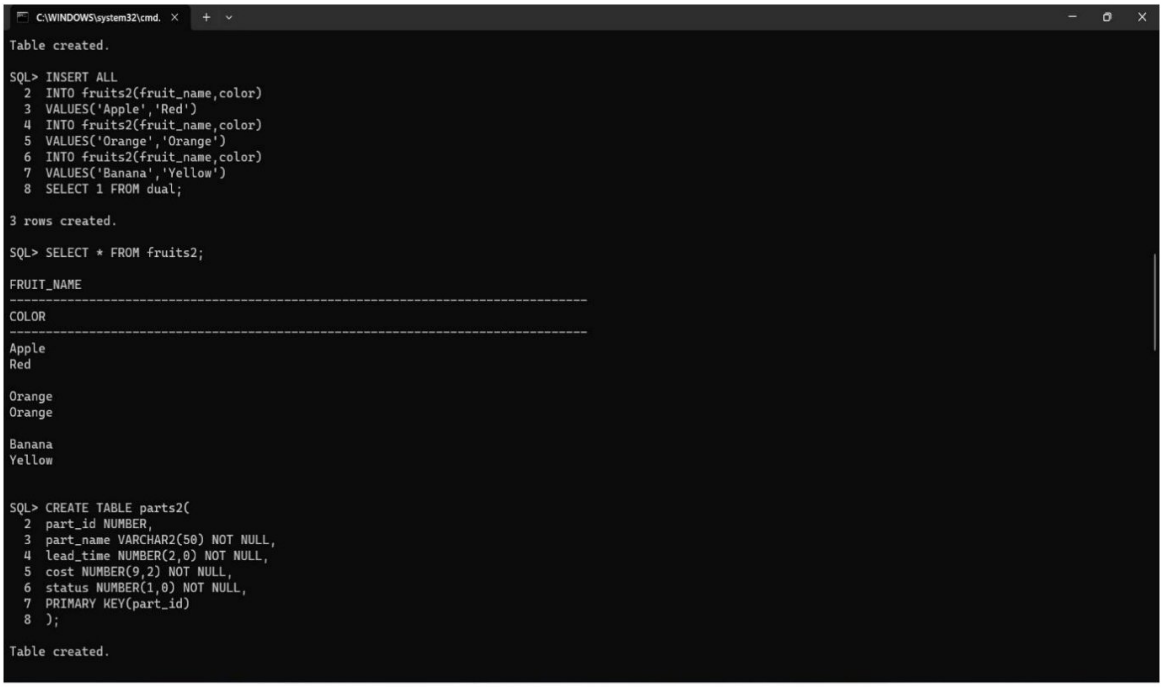
EXPERIMENT-2



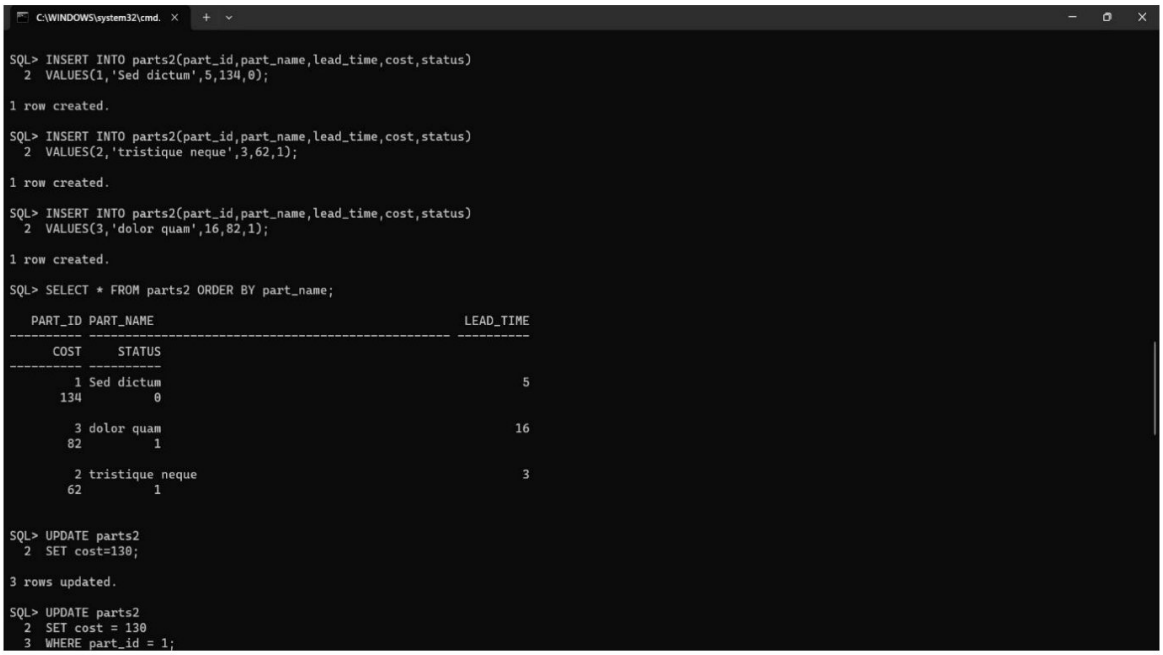
```
C:\WINDOWS\system32\cmd.

SQL> CREATE TABLE discounts4 (
  2  discount_id NUMBER,
  3  discount_name VARCHAR2(255) NOT NULL,
  4  amount NUMBER(3, 1) NOT NULL,
  5  start_date DATE NOT NULL,
  6  expired_date DATE NOT NULL
  7  );

Table created.

SQL> INSERT INTO discounts4(discount_id,discount_name,amount,start_date,expired_date)
  2  VALUES(1,'Summer Promotion',9.5,DATE '2023-09-10',DATE '2023-12-26');

1 row created.

SQL> DESC discounts4;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------

 DISCOUNT_ID                                        NUMBER
 DISCOUNT_NAME                             NOT NULL VARCHAR2(255)
 AMOUNT                                    NOT NULL NUMBER(3,1)
 START_DATE                                NOT NULL DATE
 EXPIRED_DATE                              NOT NULL DATE
```



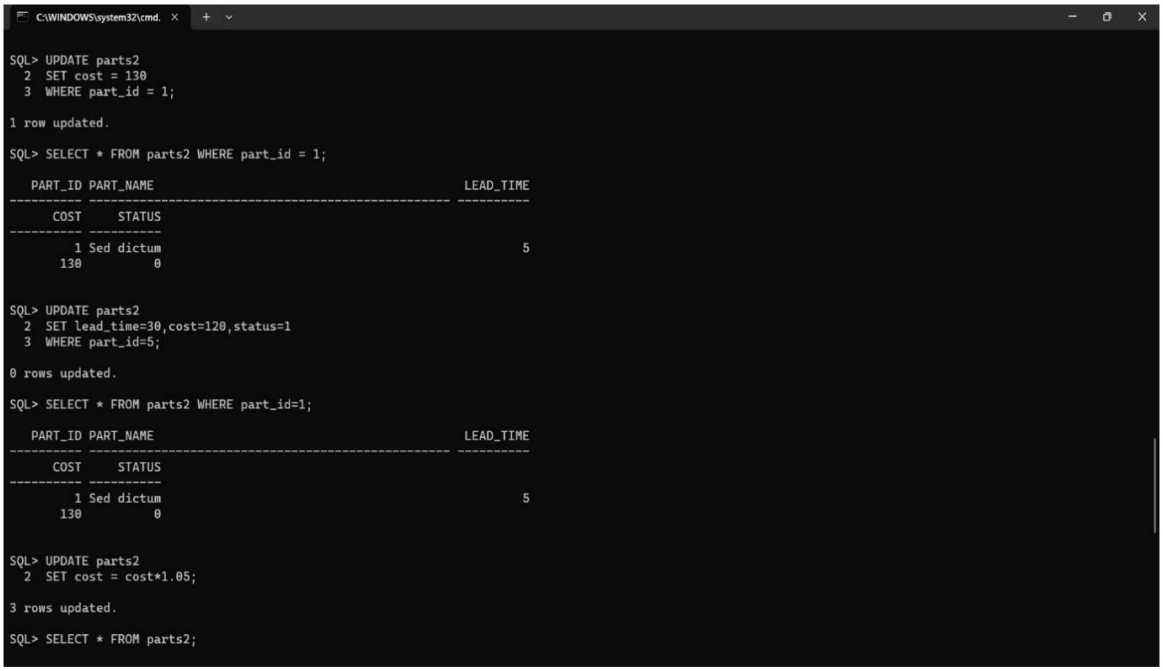
```
C:\WINDOWS\system32\cmd.

SQL> CREATE TABLE orders2 (
  2  cid  NUMBER PRIMARY KEY,
  3  oid NUMBER,
  4  ono NUMBER
  5  );

Table created.

SQL> INSERT INTO orders2 VALUES(1,101,501);

1 row created.

SQL> INSERT INTO orders2 VALUES(2,201,601);

1 row created.

SQL> SELECT * FROM orders2;

       CID        OID        ONO
---------- ---------- ----------
         1        101        501
         2        201        601

SQL> CREATE TABLE fruits2 (
  2  fruit_name VARCHAR2(100) PRIMARY KEY,
  3  color VARCHAR2(100) NOT NULL
  4  );

Table created.

SQL> INSERT ALL
  2  INTO fruits2(fruit_name,color)
  3  VALUES('Apple','Red')
  4  INTO fruits2(fruit_name,color)
  5  VALUES('Orange','Orange')
  6  INTO fruits2(fruit_name,color)
  7  VALUES('Banana','Yellow')
  8  SELECT 1 FROM dual;
```



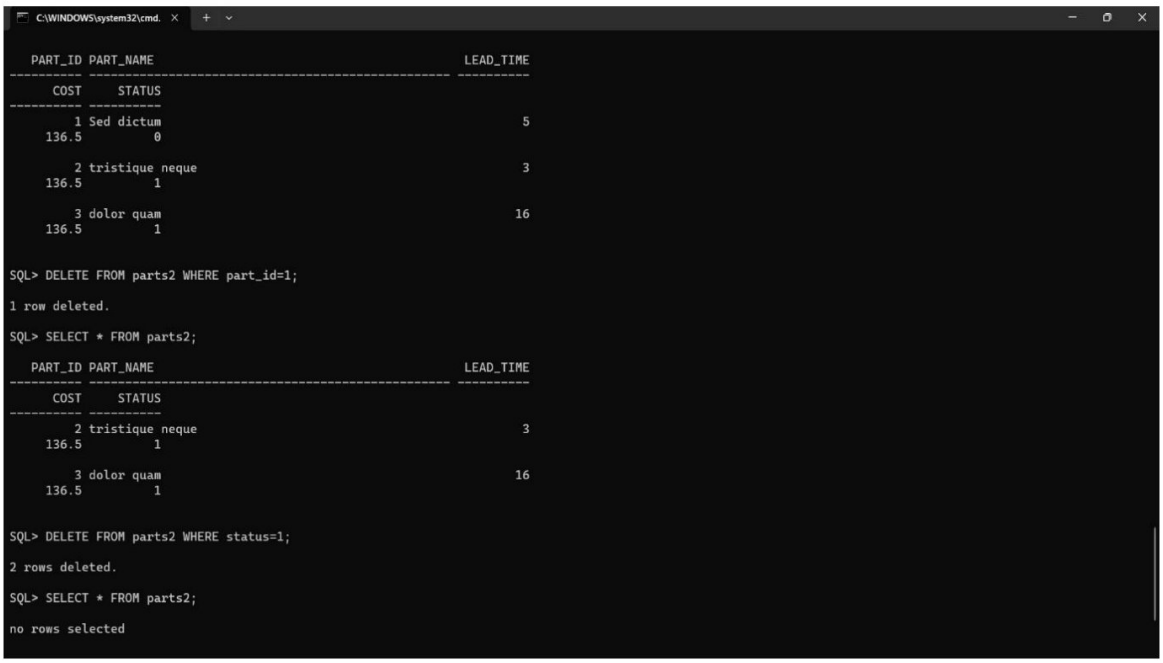
```
C:\WINDOWS\system32\cmd.

Table created.

SQL> INSERT ALL
  2  INTO fruits2(fruit_name,color)
  3  VALUES('Apple','Red')
  4  INTO fruits2(fruit_name,color)
  5  VALUES('Orange','Orange')
  6  INTO fruits2(fruit_name,color)
  7  VALUES('Banana','Yellow')
  8  SELECT 1 FROM dual;

3 rows created.

SQL> SELECT * FROM fruits2;

FRUIT_NAME
--------------------------------------------------------------------------------
COLOR
--------------------------------------------------------------------------------
Apple
Red

Orange
Orange

Banana
Yellow


SQL> CREATE TABLE parts2(
  2  part_id NUMBER,
  3  part_name VARCHAR2(50) NOT NULL,
  4  lead_time NUMBER(2,0) NOT NULL,
  5  cost NUMBER(9,2) NOT NULL,
  6  status NUMBER(1,0) NOT NULL,
  7  PRIMARY KEY(part_id)
  8  );

Table created.
```



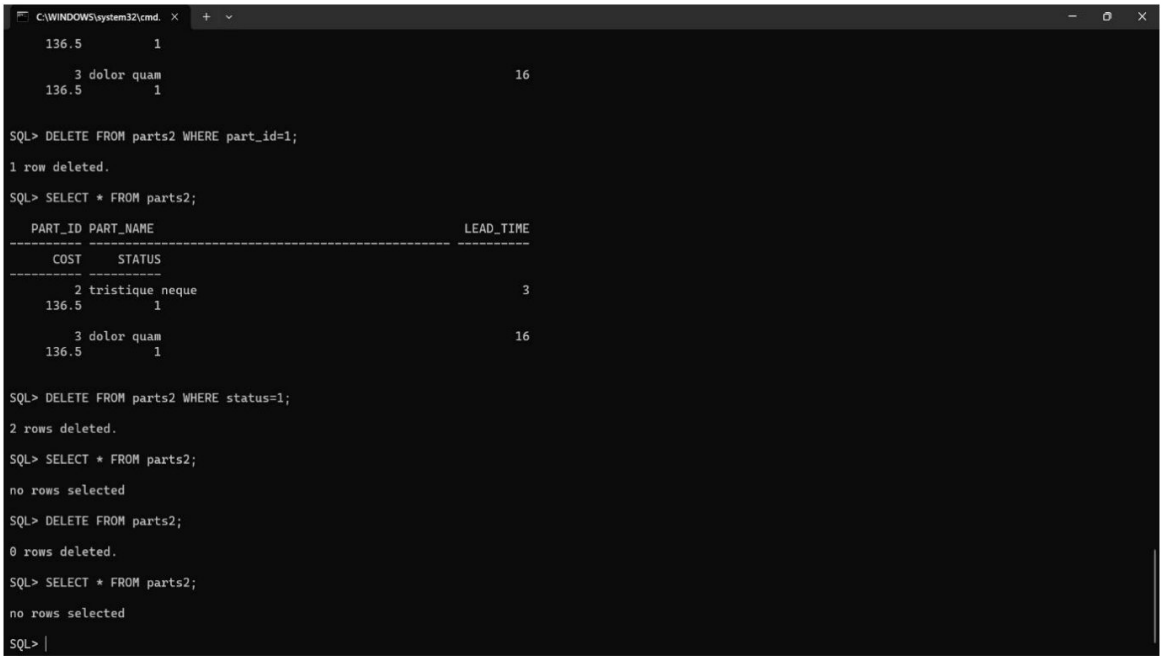
```
C:\WINDOWS\system32\cmd.

SQL> INSERT INTO parts2(part_id,part_name,lead_time,cost,status)
  2  VALUES(1,'Sed dictum',5,134,0);

1 row created.

SQL> INSERT INTO parts2(part_id,part_name,lead_time,cost,status)
  2  VALUES(2,'tristique neque',3,62,1);

1 row created.

SQL> INSERT INTO parts2(part_id,part_name,lead_time,cost,status)
  2  VALUES(3,'dolor quam',16,82,1);

1 row created.

SQL> SELECT * FROM parts2 ORDER BY part_name;

   PART_ID PART_NAME                                          LEAD_TIME
---------- -------------------------------------------------- ----------
      COST     STATUS
---------- ----------
         1 Sed dictum                                                  5
       134          0

         3 dolor quam                                                 16
        82          1

         2 tristique neque                                             3
        62          1


SQL> UPDATE parts2
  2  SET cost=130;

3 rows updated.

SQL> UPDATE parts2
  2  SET cost = 130
  3  WHERE part_id = 1;
```



```
C:\WINDOWS\system32\cmd.

SQL> UPDATE parts2
  2  SET cost = 130
  3  WHERE part_id = 1;

1 row updated.

SQL> SELECT * FROM parts2 WHERE part_id = 1;

   PART_ID PART_NAME                                          LEAD_TIME
---------- -------------------------------------------------- ----------
      COST     STATUS
---------- ----------
         1 Sed dictum                                                  5
       130          0


SQL> UPDATE parts2
  2  SET lead_time=30,cost=120,status=1
  3  WHERE part_id=5;

0 rows updated.

SQL> SELECT * FROM parts2 WHERE part_id=1;

   PART_ID PART_NAME                                          LEAD_TIME
---------- -------------------------------------------------- ----------
      COST     STATUS
---------- ----------
         1 Sed dictum                                                  5
       130          0


SQL> UPDATE parts2
  2  SET cost = cost*1.05;

3 rows updated.

SQL> SELECT * FROM parts2;
```

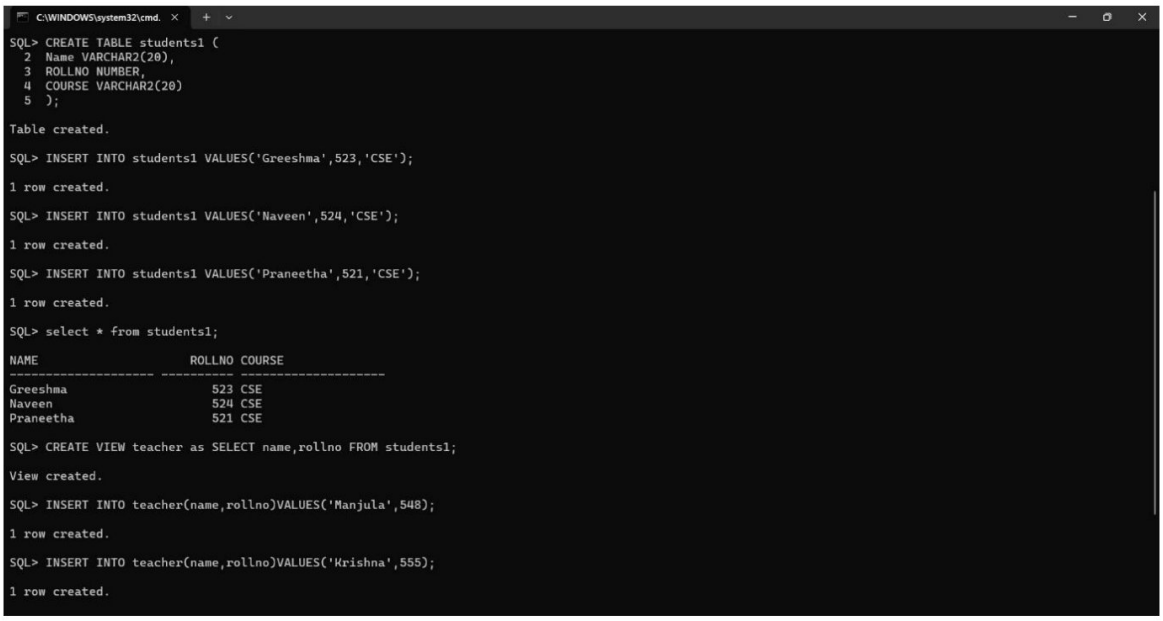


```
C:\WINDOWS\system32\cmd.

   PART_ID PART_NAME                                          LEAD_TIME
---------- -------------------------------------------------- ----------
      COST     STATUS
---------- ----------
         1 Sed dictum                                                  5
     136.5          0

         2 tristique neque                                             3
     136.5          1

         3 dolor quam                                                 16
     136.5          1


SQL> DELETE FROM parts2 WHERE part_id=1;

1 row deleted.

SQL> SELECT * FROM parts2;

   PART_ID PART_NAME                                          LEAD_TIME
---------- -------------------------------------------------- ----------
      COST     STATUS
---------- ----------
         2 tristique neque                                             3
     136.5          1

         3 dolor quam                                                 16
     136.5          1


SQL> DELETE FROM parts2 WHERE status=1;

2 rows deleted.

SQL> SELECT * FROM parts2;

no rows selected
```



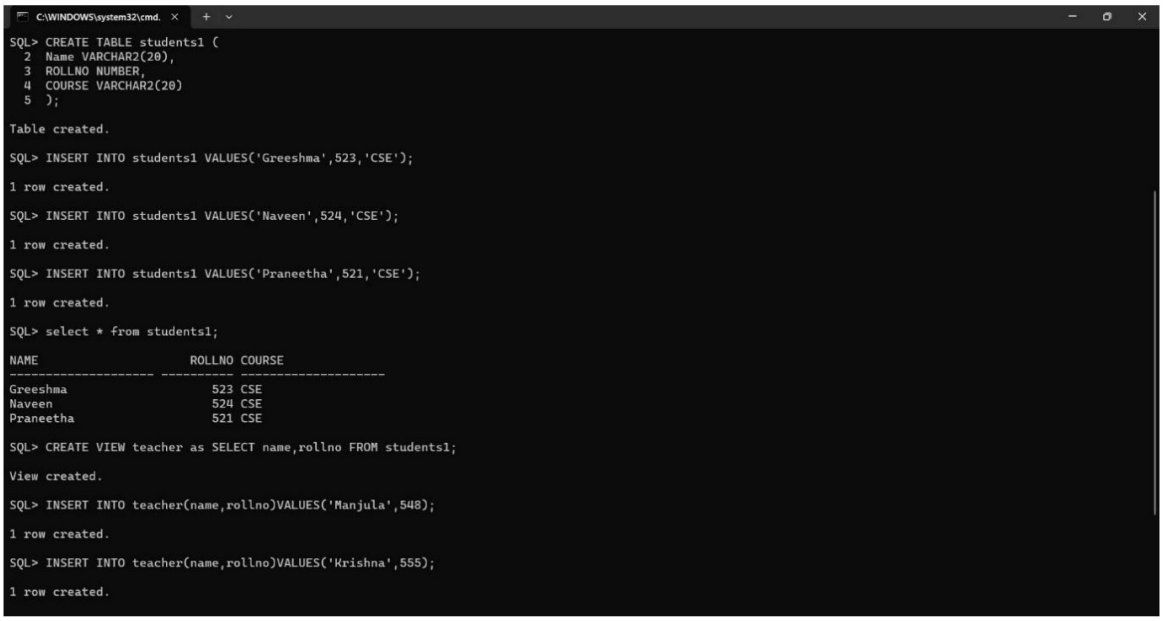
EXPERIMENT-3

Step – 1: create student table



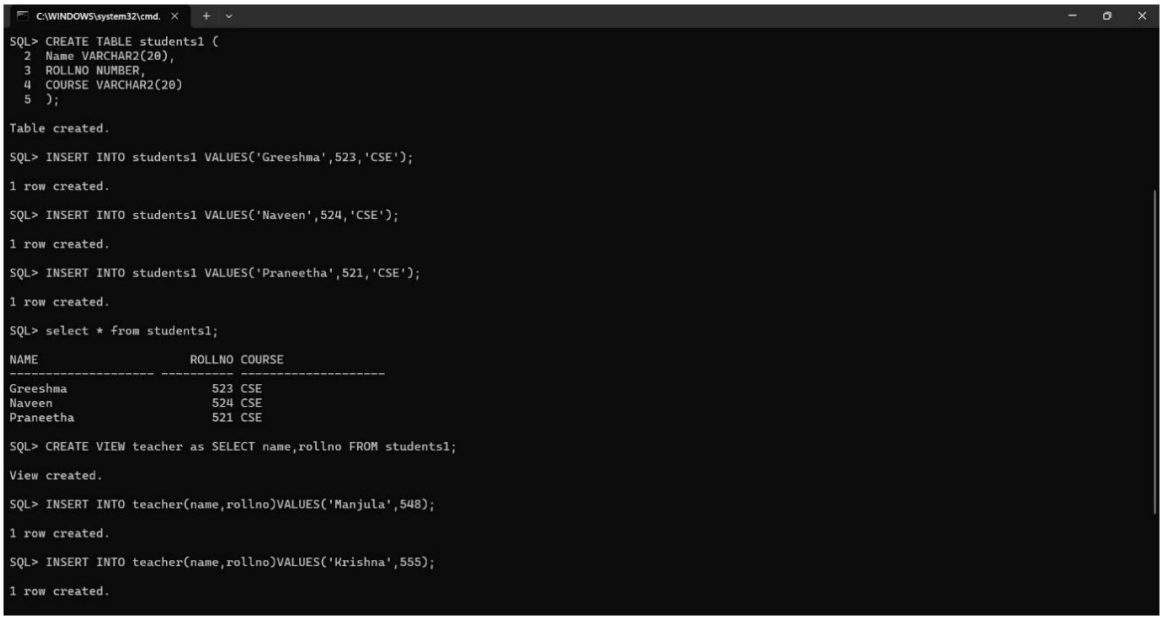
```
C:\WINDOWS\system32\cmd.

SQL> CREATE TABLE students1 (
  2  Name VARCHAR2(20),
  3  ROLLNO NUMBER,
  4  COURSE VARCHAR2(20)
  5  );

Table created.

SQL> INSERT INTO students1 VALUES('Greeshma',523,'CSE');

1 row created.

SQL> INSERT INTO students1 VALUES('Naveen',524,'CSE');

1 row created.

SQL> INSERT INTO students1 VALUES('Praneetha',521,'CSE');

1 row created.

SQL> select * from students1;

NAME                 ROLLNO COURSE
-------------------- ---------- --------------------
Greeshma                  523 CSE
Naveen                    524 CSE
Praneetha                 521 CSE

SQL> CREATE VIEW teacher as SELECT name,rollno FROM students1;

View created.

SQL> INSERT INTO teacher(name,rollno)VALUES('Manjula',548);

1 row created.

SQL> INSERT INTO teacher(name,rollno)VALUES('Krishna',555);

1 row created.
```

Step – 2 : Insert few rows into student table

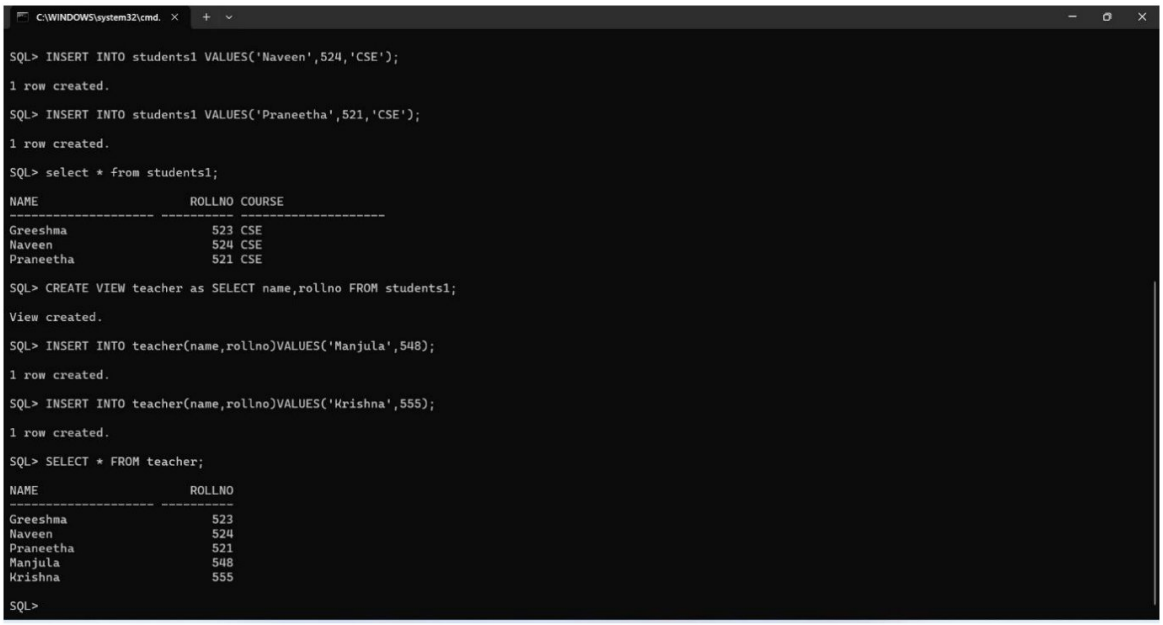


```
C:\WINDOWS\system32\cmd.

SQL> CREATE TABLE students1 (
  2  Name VARCHAR2(20),
  3  ROLLNO NUMBER,
  4  COURSE VARCHAR2(20)
  5  );

Table created.

SQL> INSERT INTO students1 VALUES('Greeshma',523,'CSE');

1 row created.

SQL> INSERT INTO students1 VALUES('Naveen',524,'CSE');

1 row created.

SQL> INSERT INTO students1 VALUES('Praneetha',521,'CSE');

1 row created.

SQL> select * from students1;

NAME                 ROLLNO COURSE
-------------------- ---------- --------------------
Greeshma                  523 CSE
Naveen                    524 CSE
Praneetha                 521 CSE

SQL> CREATE VIEW teacher as SELECT name,rollno FROM students1;

View created.

SQL> INSERT INTO teacher(name,rollno)VALUES('Manjula',548);

1 row created.

SQL> INSERT INTO teacher(name,rollno)VALUES('Krishna',555);

1 row created.
```

Step-3: Check whether rows are inserted or not



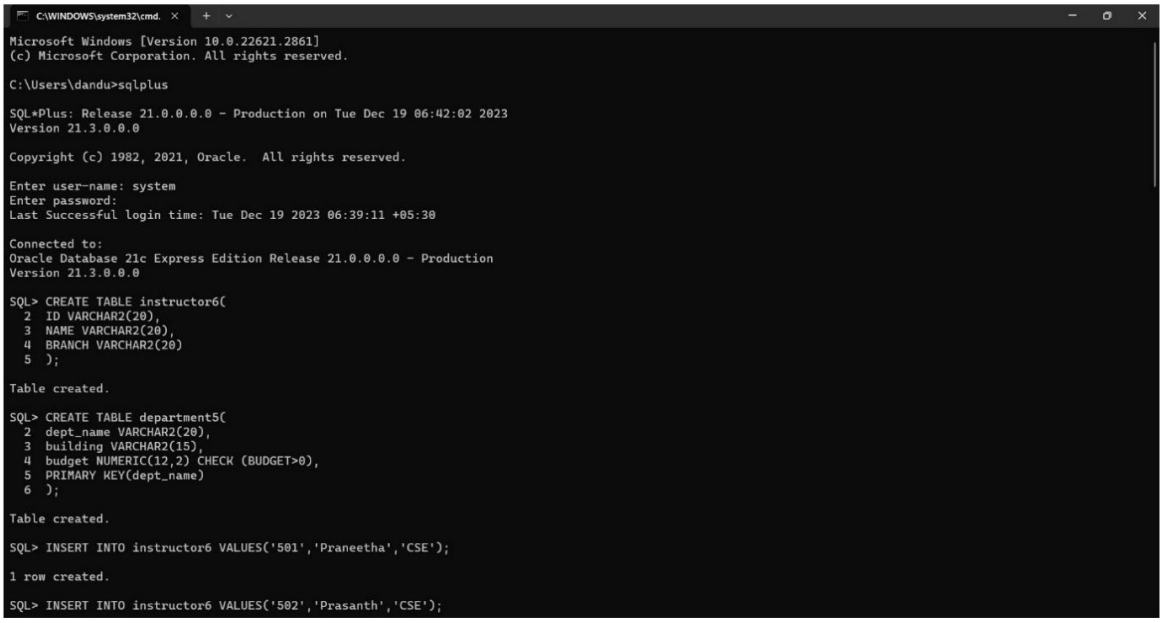
Step-4 : Create view of name teacher with name, roll number constraints and check whether rows are inserted or not



END

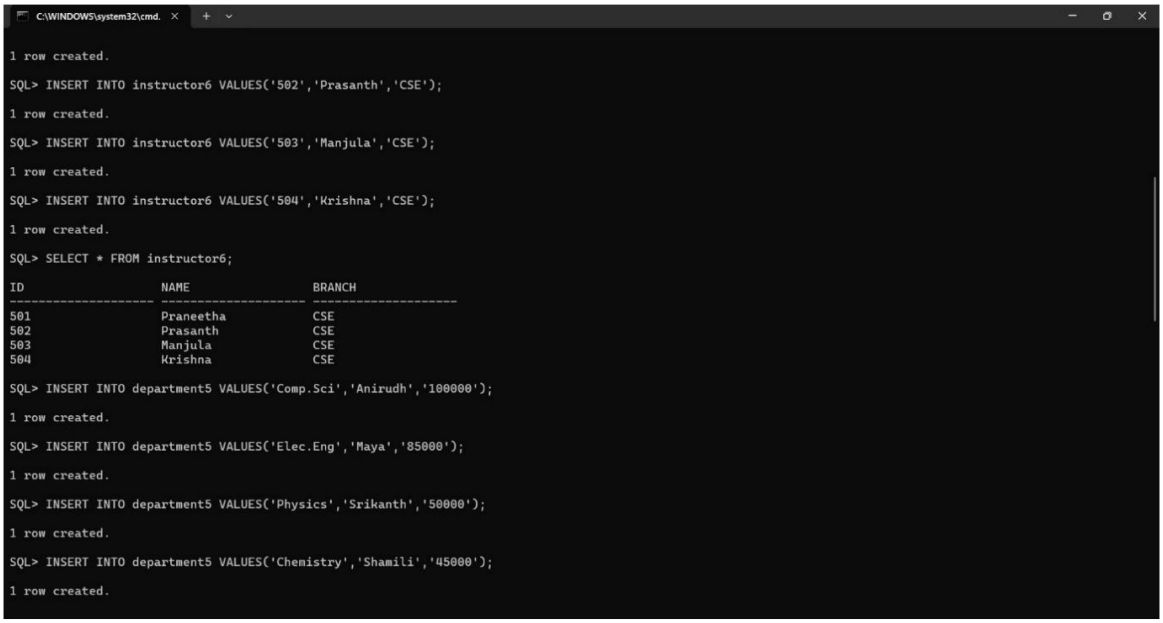
EXPERIMENT-4

STEP-1: *Create Instructor table and department table*



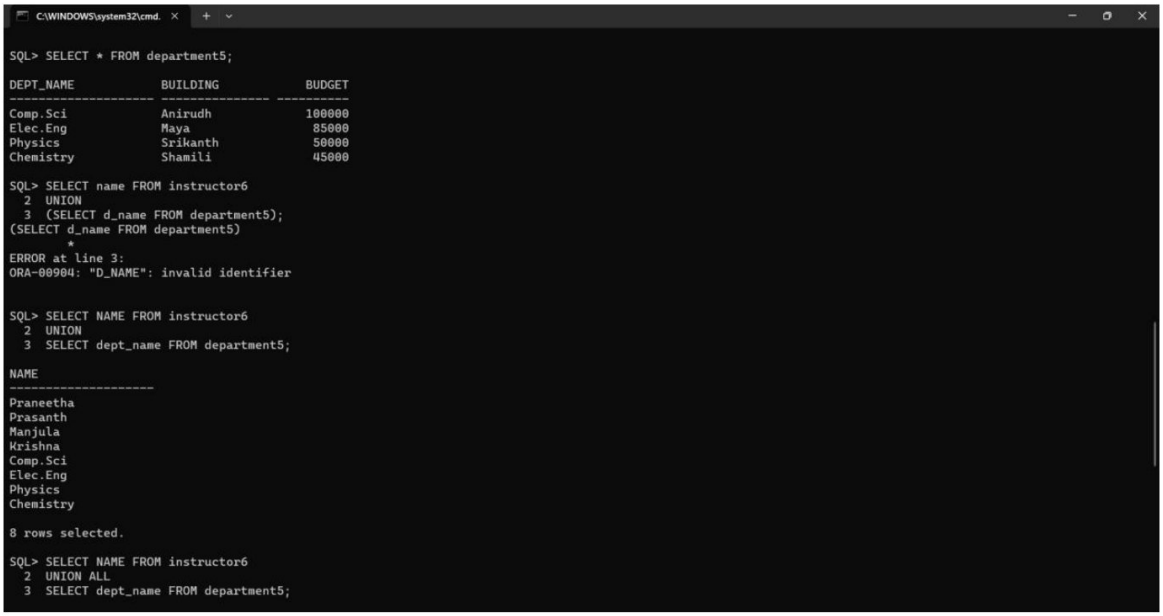
```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 06:42:02 2023
Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle.  All rights reserved.

Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 06:39:11 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE instructor6(
  2  ID VARCHAR2(20),
  3  NAME VARCHAR2(20),
  4  BRANCH VARCHAR2(20)
  5  );

Table created.

SQL> CREATE TABLE department5(
  2  dept_name VARCHAR2(20),
  3  building VARCHAR2(15),
  4  budget NUMERIC(12,2) CHECK (BUDGET>0),
  5  PRIMARY KEY(dept_name)
  6  );

Table created.

SQL> INSERT INTO instructor6 VALUES('501','Praneetha','CSE');

1 row created.

SQL> INSERT INTO instructor6 VALUES('502','Prasanth','CSE');
```

STEP-2: Insert values into instructor table and department table

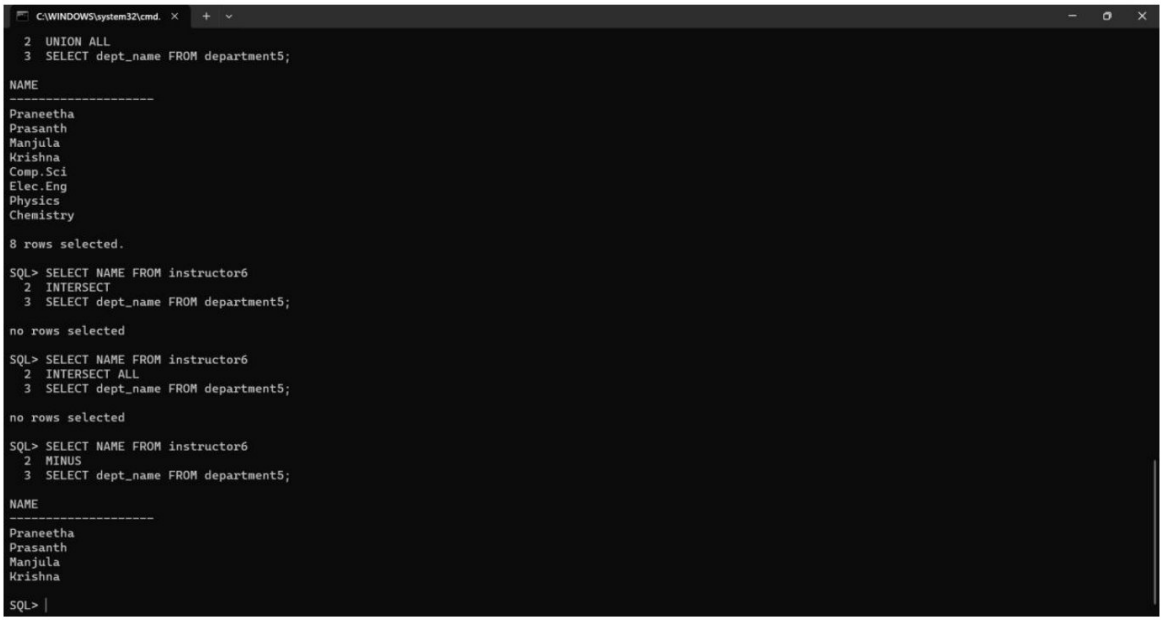


```
C:\WINDOWS\system32\cmd.

1 row created.

SQL> INSERT INTO instructor6 VALUES('502','Prasanth','CSE');

1 row created.

SQL> INSERT INTO instructor6 VALUES('503','Manjula','CSE');

1 row created.

SQL> INSERT INTO instructor6 VALUES('504','Krishna','CSE');

1 row created.

SQL> SELECT * FROM instructor6;

ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
501                  Praneetha            CSE
502                  Prasanth             CSE
503                  Manjula              CSE
504                  Krishna              CSE

SQL> INSERT INTO department5 VALUES('Comp.Sci','Anirudh','100000');

1 row created.

SQL> INSERT INTO department5 VALUES('Elec.Eng','Maya','85000');

1 row created.

SQL> INSERT INTO department5 VALUES('Physics','Srikanth','50000');

1 row created.

SQL> INSERT INTO department5 VALUES('Chemistry','Shamili','45000');

1 row created.
```

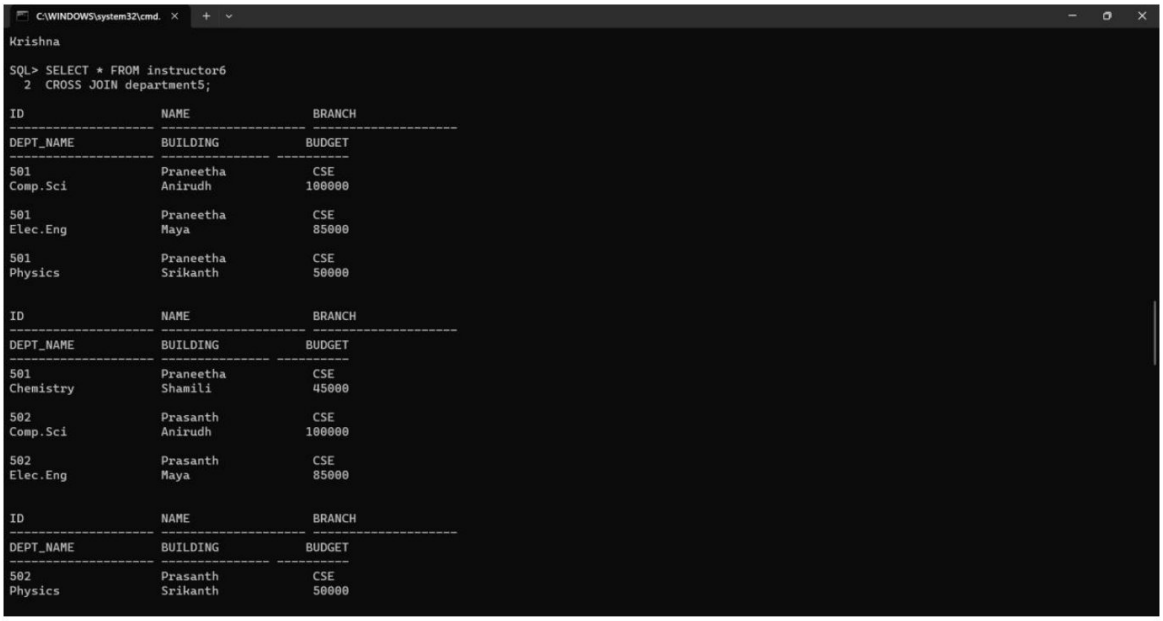
STEP-3: Perform RELATIONAL SET Operations



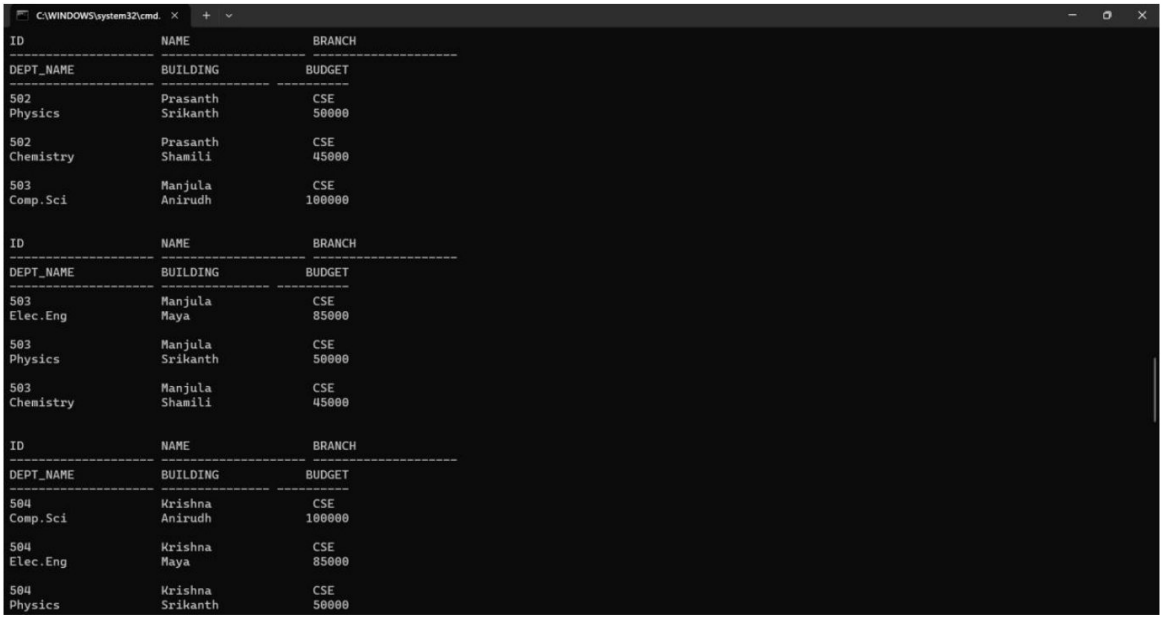
```
C:\WINDOWS\system32\cmd.

SQL> SELECT * FROM department5;

DEPT_NAME            BUILDING           BUDGET
-------------------- --------------- ----------
Comp.Sci             Anirudh             100000
Elec.Eng             Maya                 85000
Physics              Srikanth             50000
Chemistry            Shamili              45000

SQL> SELECT name FROM instructor6
  2  UNION
  3  (SELECT d_name FROM department5);
(SELECT d_name FROM department5)
        *
ERROR at line 3:
ORA-00904: "D_NAME": invalid identifier


SQL> SELECT NAME FROM instructor6
  2  UNION
  3  SELECT dept_name FROM department5;

NAME
--------------------
Praneetha
Prasanth
Manjula
Krishna
Comp.Sci
Elec.Eng
Physics
Chemistry

8 rows selected.

SQL> SELECT NAME FROM instructor6
  2  UNION ALL
  3  SELECT dept_name FROM department5;
```



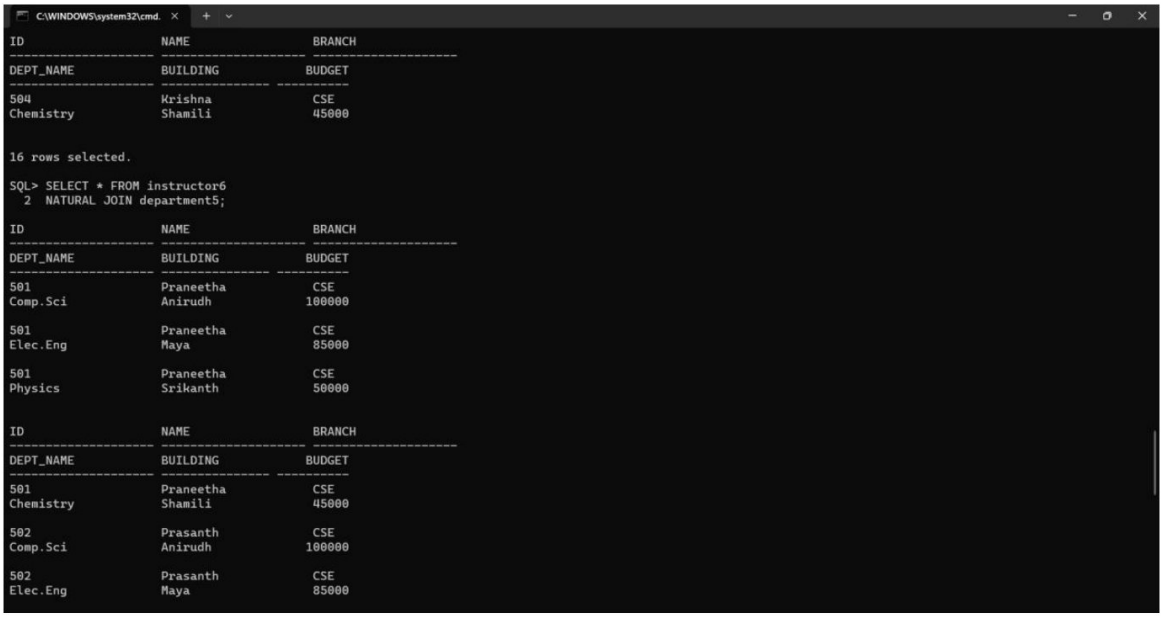
```
C:\WINDOWS\system32\cmd.

  2  UNION ALL
  3  SELECT dept_name FROM department5;

NAME
--------------------
Praneetha
Prasanth
Manjula
Krishna
Comp.Sci
Elec.Eng
Physics
Chemistry

8 rows selected.

SQL> SELECT NAME FROM instructor6
  2  INTERSECT
  3  SELECT dept_name FROM department5;

no rows selected

SQL> SELECT NAME FROM instructor6
  2  INTERSECT ALL
  3  SELECT dept_name FROM department5;

no rows selected

SQL> SELECT NAME FROM instructor6
  2  MINUS
  3  SELECT dept_name FROM department5;

NAME
--------------------
Praneetha
Prasanth
Manjula
Krishna

SQL>
```



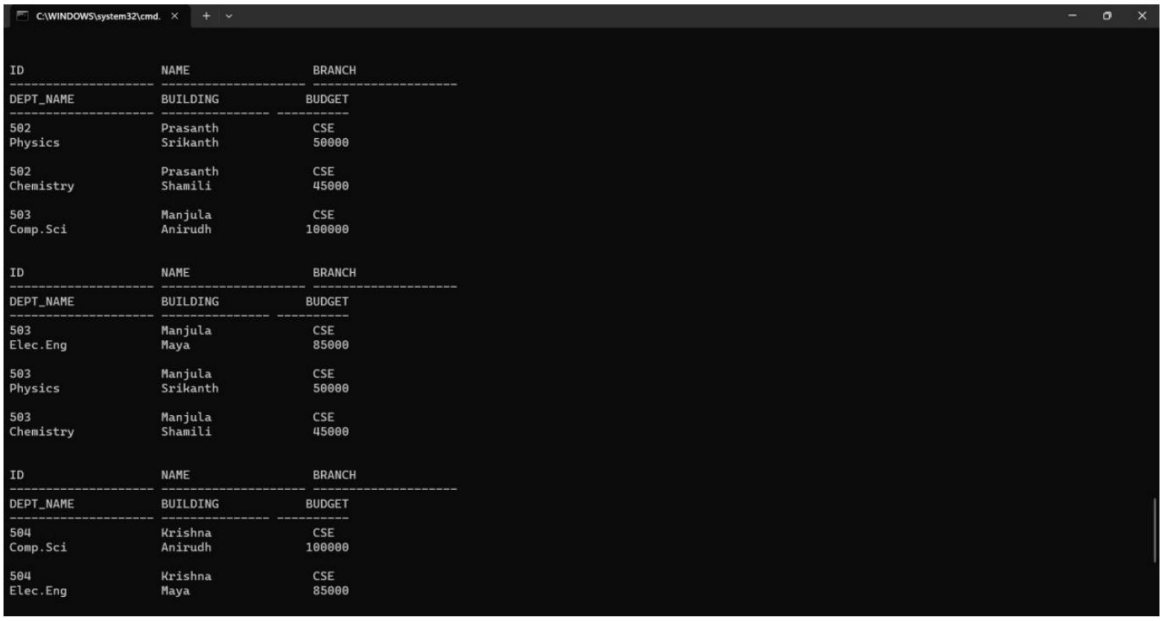
```
C:\WINDOWS\system32\cmd.
Krishna

SQL> SELECT * FROM instructor6
  2  CROSS JOIN department5;

ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- --------------- ----------
501                  Praneetha            CSE
Comp.Sci             Anirudh              100000

501                  Praneetha            CSE
Elec.Eng             Maya                 85000

501                  Praneetha            CSE
Physics              Srikanth             50000


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- --------------- ----------
501                  Praneetha            CSE
Chemistry            Shamili              45000

502                  Prasanth             CSE
Comp.Sci             Anirudh              100000

502                  Prasanth             CSE
Elec.Eng             Maya                 85000


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- --------------- ----------
502                  Prasanth             CSE
Physics              Srikanth             50000
```



```
C:\WINDOWS\system32\cmd.
ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- --------------- ----------
502                  Prasanth             CSE
Physics              Srikanth             50000

502                  Prasanth             CSE
Chemistry            Shamili              45000

503                  Manjula              CSE
Comp.Sci             Anirudh              100000


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- --------------- ----------
503                  Manjula              CSE
Elec.Eng             Maya                 85000

503                  Manjula              CSE
Physics              Srikanth             50000

503                  Manjula              CSE
Chemistry            Shamili              45000


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- --------------- ----------
504                  Krishna              CSE
Comp.Sci             Anirudh              100000

504                  Krishna              CSE
Elec.Eng             Maya                 85000

504                  Krishna              CSE
Physics              Srikanth             50000
```



```
C:\WINDOWS\system32\cmd.

ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- -------------------- ----------
504                  Krishna              CSE
Chemistry            Shamili              45000


16 rows selected.

SQL> SELECT * FROM instructor6
  2  NATURAL JOIN department5;

ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- -------------------- ----------
501                  Praneetha            CSE
Comp.Sci             Anirudh              100000

501                  Praneetha            CSE
Elec.Eng             Maya                 85000

501                  Praneetha            CSE
Physics              Srikanth             50000


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- -------------------- ----------
501                  Praneetha            CSE
Chemistry            Shamili              45000

502                  Prasanth             CSE
Comp.Sci             Anirudh              100000

502                  Prasanth             CSE
Elec.Eng             Maya                 85000
```



```
C:\WINDOWS\system32\cmd.


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- -------------------- ----------
502                  Prasanth             CSE
Physics              Srikanth             50000

502                  Prasanth             CSE
Chemistry            Shamili              45000

503                  Manjula              CSE
Comp.Sci             Anirudh              100000


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- -------------------- ----------
503                  Manjula              CSE
Elec.Eng             Maya                 85000

503                  Manjula              CSE
Physics              Srikanth             50000

503                  Manjula              CSE
Chemistry            Shamili              45000


ID                   NAME                 BRANCH
-------------------- -------------------- --------------------
DEPT_NAME            BUILDING             BUDGET
-------------------- -------------------- ----------
504                  Krishna              CSE
Comp.Sci             Anirudh              100000

504                  Krishna              CSE
Elec.Eng             Maya                 85000
```

END

EXPERIMENT-5

Step-1: *Create employee table*

```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2715]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Mon Dec 18 19:12:50 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Mon Dec 18 2023 18:49:56 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE Emp1(
  2  emp_id int,
  3  emp_name VARCHAR(20),
  4  emp_salary int
  5  );

Table created.

SQL> DESC Emp1;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMP_ID                                             NUMBER(38)
 EMP_NAME                                           VARCHAR2(20)
 EMP_SALARY                                         NUMBER(38)

SQL> INSERT INTO Emp1 VALUES('1','Anil kumar','100000');

1 row created.

SQL> INSERT INTO Emp1 VALUES('2','Vijaya Lakshmi','98000');

1 row created.
```
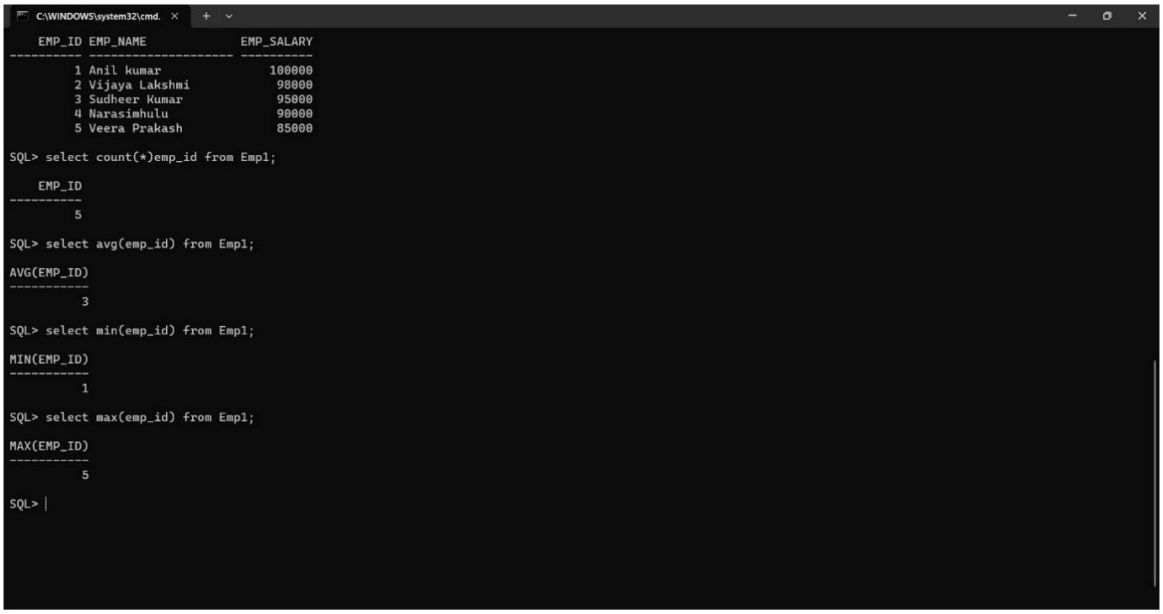

Step-2: Insert few rows into the Employee table and check whether rows are selected or not

```
C:\WINDOWS\system32\cmd.
 EMP_SALARY                                         NUMBER(38)

SQL> INSERT INTO Emp1 VALUES('1','Anil kumar','100000');

1 row created.

SQL> INSERT INTO Emp1 VALUES('2','Vijaya Lakshmi','98000');

1 row created.

SQL> INSERT INTO Emp1 VALUES('3','Sudheer Kumar','95000');

1 row created.

SQL> INSERT INTO Emp1 VALUES('4','Narasimhulu','90000');

1 row created.

SQL> INSERT INTO Emp1 VALUES('5','Veera Prakash','85000');

1 row created.

SQL> SELECT * FROM Emp1;

    EMP_ID EMP_NAME             EMP_SALARY
---------- -------------------- ----------
         1 Anil kumar               100000
         2 Vijaya Lakshmi            98000
         3 Sudheer Kumar             95000
         4 Narasimhulu               90000
         5 Veera Prakash             85000

SQL> select count(*)emp_id from Emp1;

    EMP_ID
----------
         5

SQL> select avg(emp_id) from Emp1;
```

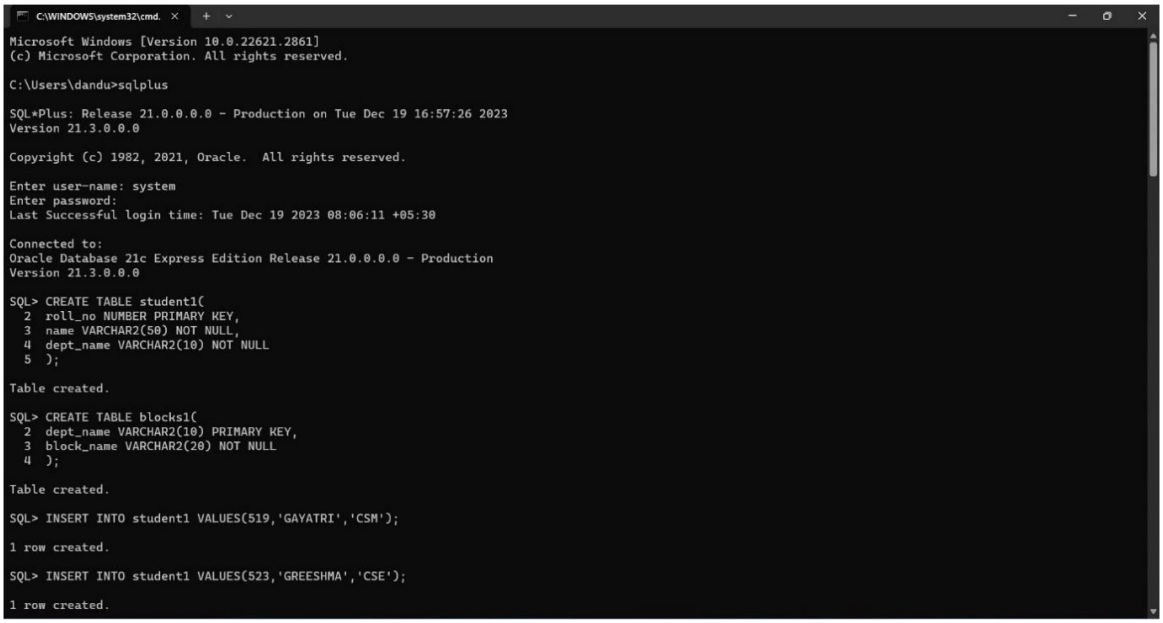
Step-3: Implement 5 aggregate operations



END

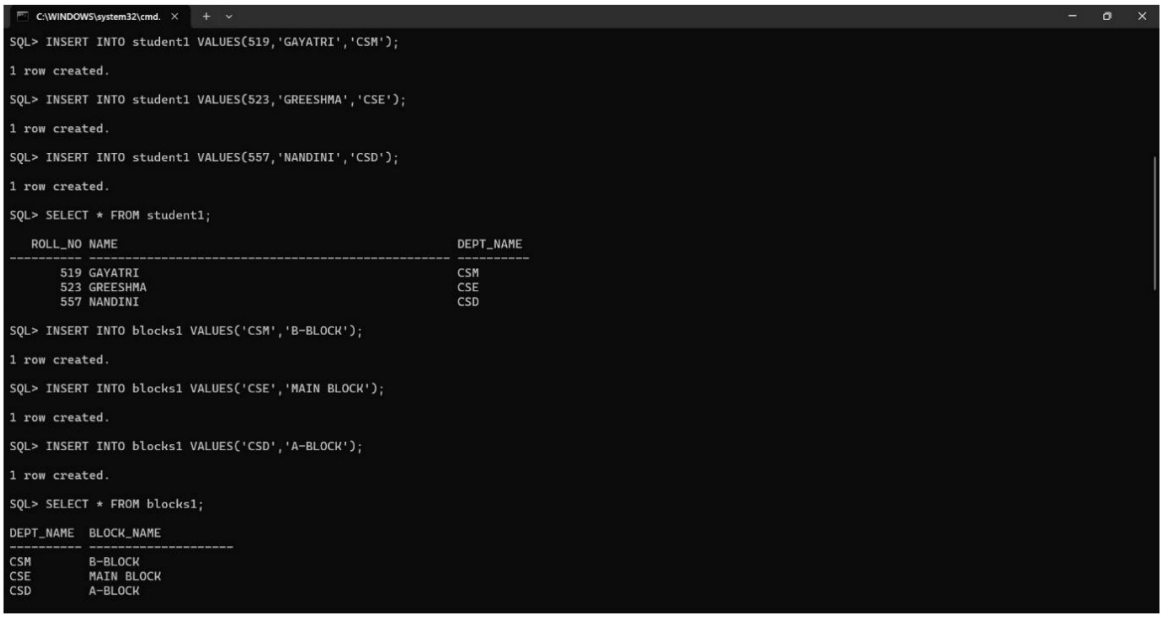
EXPERIMENT-6

Step-1: Create student table and blocks table



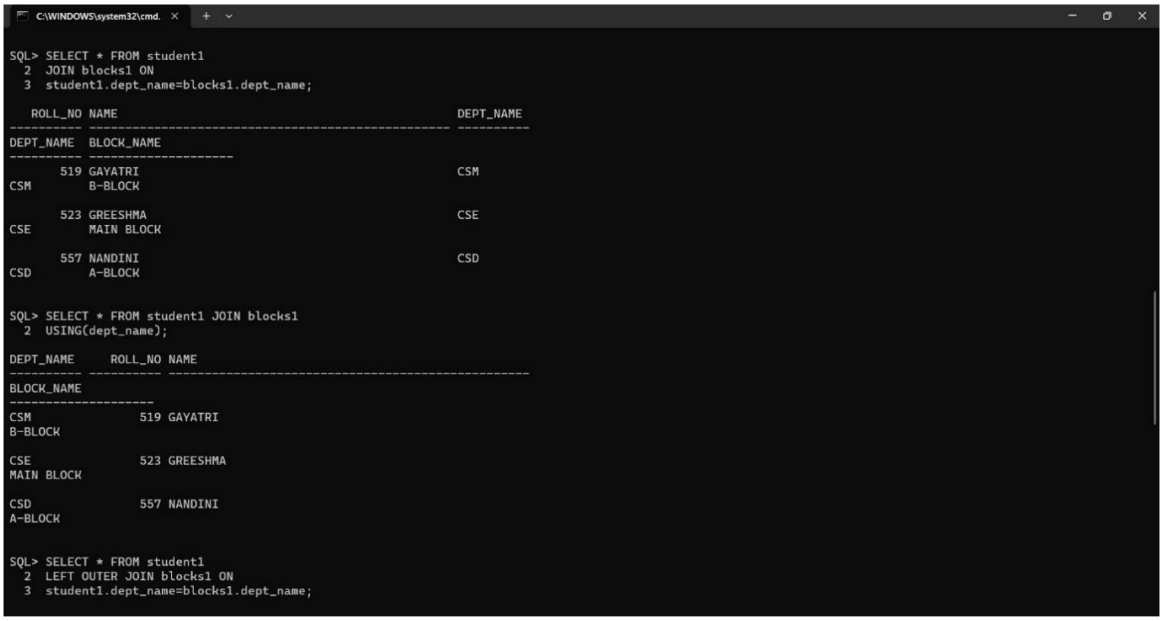
```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 16:57:26 2023
Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle.  All rights reserved.

Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 08:06:11 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE student1(
  2  roll_no NUMBER PRIMARY KEY,
  3  name VARCHAR2(50) NOT NULL,
  4  dept_name VARCHAR2(10) NOT NULL
  5  );

Table created.

SQL> CREATE TABLE blocks1(
  2  dept_name VARCHAR2(10) PRIMARY KEY,
  3  block_name VARCHAR2(20) NOT NULL
  4  );

Table created.

SQL> INSERT INTO student1 VALUES(519,'GAYATRI','CSM');

1 row created.

SQL> INSERT INTO student1 VALUES(523,'GREESHMA','CSE');

1 row created.
```

Step-2: Insert values into student and blocks table and check whether rows are inserted or not

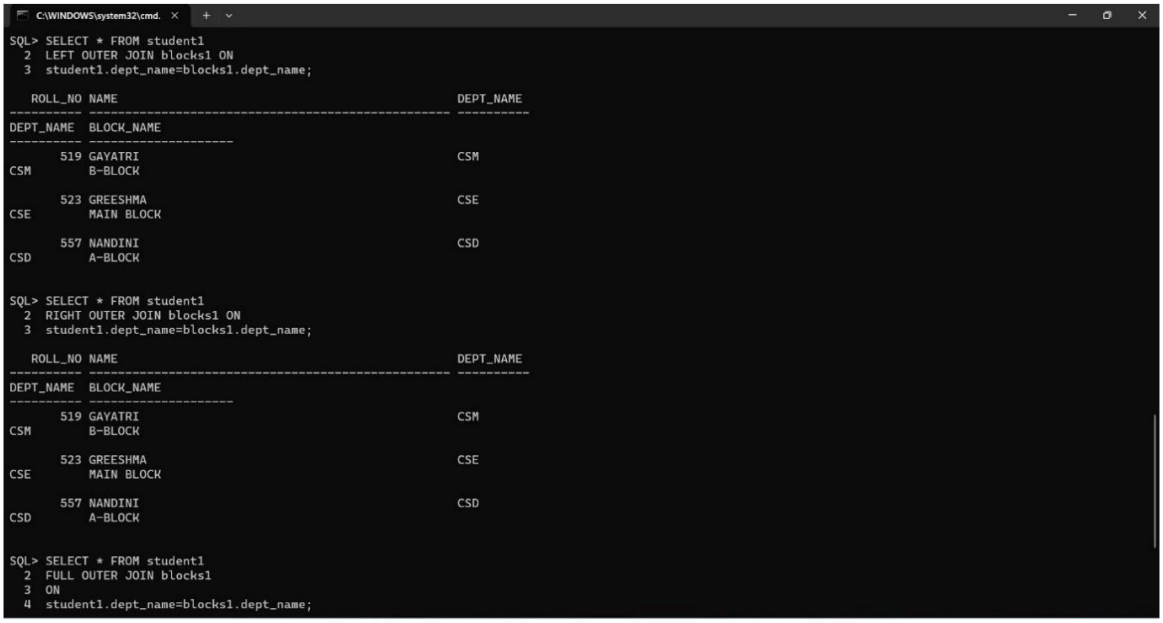


```
C:\WINDOWS\system32\cmd.
SQL> INSERT INTO student1 VALUES(519,'GAYATRI','CSM');

1 row created.

SQL> INSERT INTO student1 VALUES(523,'GREESHMA','CSE');

1 row created.

SQL> INSERT INTO student1 VALUES(557,'NANDINI','CSD');

1 row created.

SQL> SELECT * FROM student1;

   ROLL_NO NAME                                               DEPT_NAME
---------- -------------------------------------------------- ----------
       519 GAYATRI                                            CSM
       523 GREESHMA                                           CSE
       557 NANDINI                                            CSD

SQL> INSERT INTO blocks1 VALUES('CSM','B-BLOCK');

1 row created.

SQL> INSERT INTO blocks1 VALUES('CSE','MAIN BLOCK');

1 row created.

SQL> INSERT INTO blocks1 VALUES('CSD','A-BLOCK');

1 row created.

SQL> SELECT * FROM blocks1;

DEPT_NAME  BLOCK_NAME
---------- --------------------
CSM        B-BLOCK
CSE        MAIN BLOCK
CSD        A-BLOCK
```

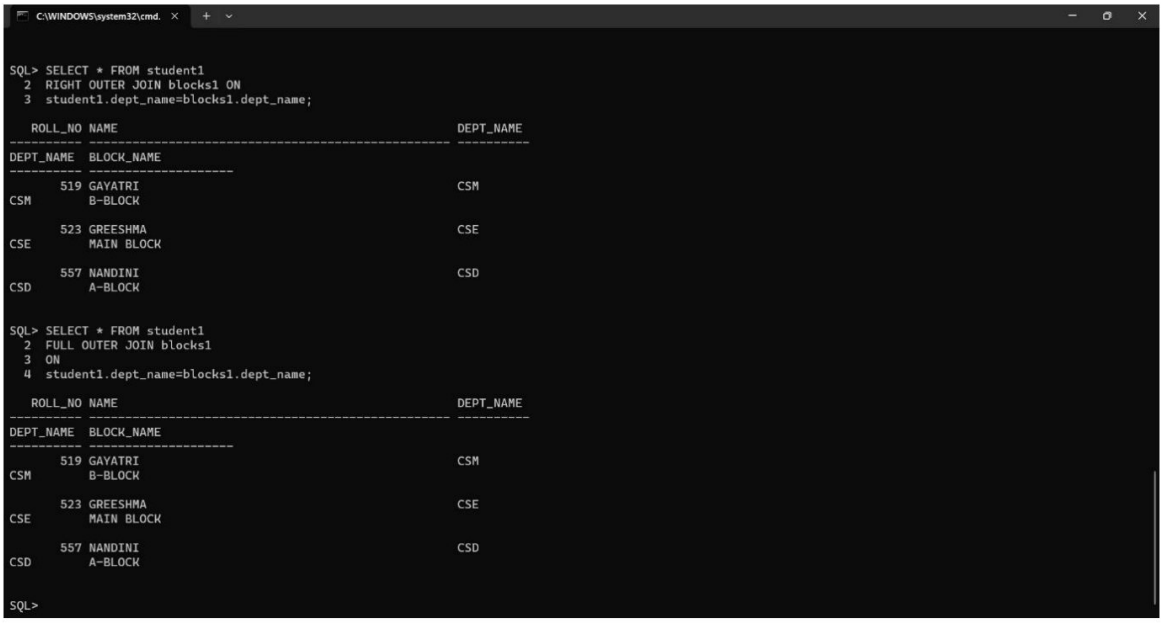
Step-3: Perform JOIN OPERATIONS



```
C:\WINDOWS\system32\cmd.

SQL> SELECT * FROM student1
  2  JOIN blocks1 ON
  3  student1.dept_name=blocks1.dept_name;

   ROLL_NO NAME                                               DEPT_NAME
---------- -------------------------------------------------- ----------
DEPT_NAME  BLOCK_NAME
---------- --------------------
       519 GAYATRI                                            CSM
CSM        B-BLOCK

       523 GREESHMA                                           CSE
CSE        MAIN BLOCK

       557 NANDINI                                            CSD
CSD        A-BLOCK


SQL> SELECT * FROM student1 JOIN blocks1
  2  USING(dept_name);

DEPT_NAME     ROLL_NO NAME
---------- ---------- --------------------------------------------------
BLOCK_NAME
--------------------
CSM               519 GAYATRI
B-BLOCK

CSE               523 GREESHMA
MAIN BLOCK

CSD               557 NANDINI
A-BLOCK


SQL> SELECT * FROM student1
  2  LEFT OUTER JOIN blocks1 ON
  3  student1.dept_name=blocks1.dept_name;
```



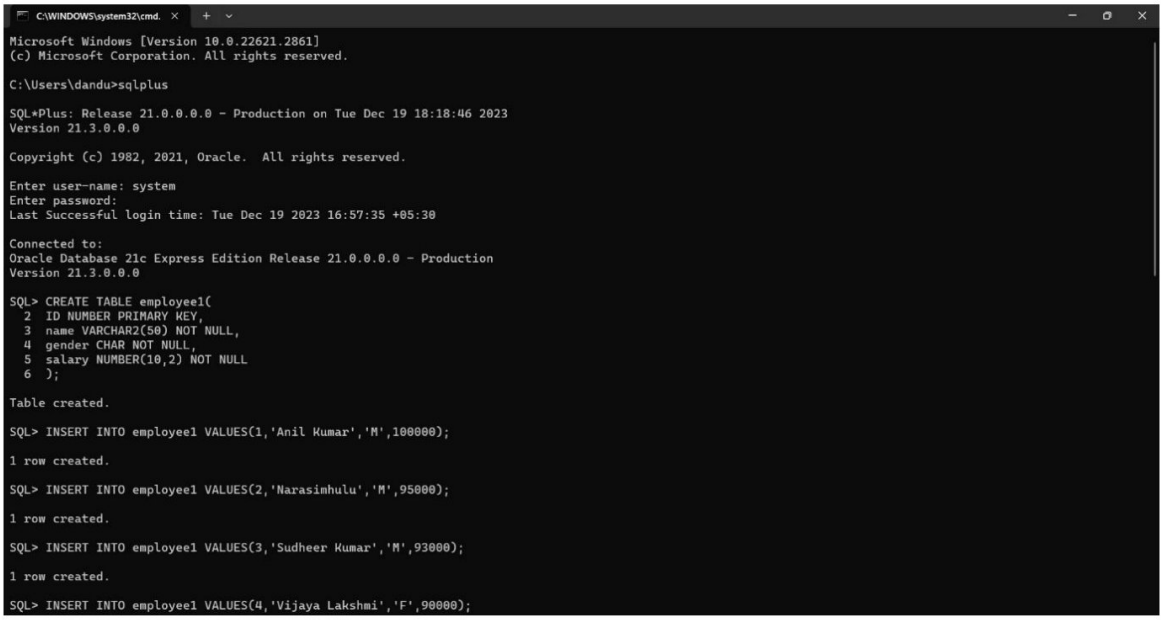
```
C:\WINDOWS\system32\cmd.

SQL> SELECT * FROM student1
  2  LEFT OUTER JOIN blocks1 ON
  3  student1.dept_name=blocks1.dept_name;

   ROLL_NO NAME                                               DEPT_NAME
---------- -------------------------------------------------- ----------
DEPT_NAME  BLOCK_NAME
---------- --------------------
       519 GAYATRI                                            CSM
CSM        B-BLOCK

       523 GREESHMA                                           CSE
CSE        MAIN BLOCK

       557 NANDINI                                            CSD
CSD        A-BLOCK


SQL> SELECT * FROM student1
  2  RIGHT OUTER JOIN blocks1 ON
  3  student1.dept_name=blocks1.dept_name;

   ROLL_NO NAME                                               DEPT_NAME
---------- -------------------------------------------------- ----------
DEPT_NAME  BLOCK_NAME
---------- --------------------
       519 GAYATRI                                            CSM
CSM        B-BLOCK

       523 GREESHMA                                           CSE
CSE        MAIN BLOCK

       557 NANDINI                                            CSD
CSD        A-BLOCK


SQL> SELECT * FROM student1
  2  FULL OUTER JOIN blocks1
  3  ON
  4  student1.dept_name=blocks1.dept_name;
```



END

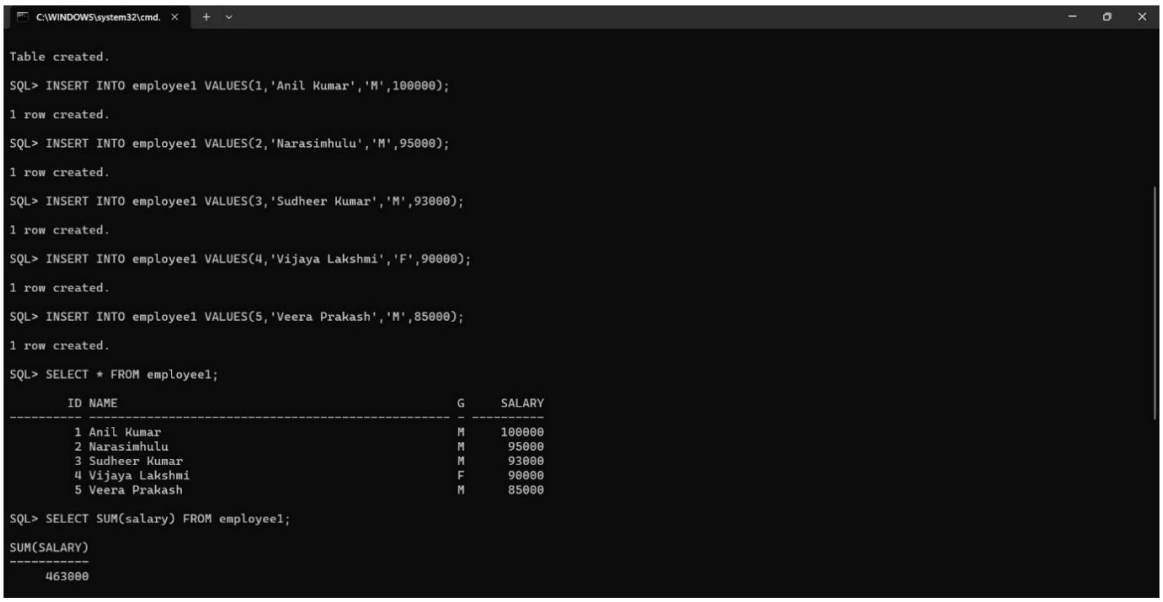
EXPERIMENT-7

Step-1:Create Employee Table



```
C:\WINDOWS\system32\cmd.

Microsoft Windows [Version 10.0.22621.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 18:18:46 2023
Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle.  All rights reserved.

Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 16:57:35 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE employee1(
  2  ID NUMBER PRIMARY KEY,
  3  name VARCHAR2(50) NOT NULL,
  4  gender CHAR NOT NULL,
  5  salary NUMBER(10,2) NOT NULL
  6  );

Table created.

SQL> INSERT INTO employee1 VALUES(1,'Anil Kumar','M',100000);

1 row created.

SQL> INSERT INTO employee1 VALUES(2,'Narasimhulu','M',95000);

1 row created.

SQL> INSERT INTO employee1 VALUES(3,'Sudheer Kumar','M',93000);

1 row created.

SQL> INSERT INTO employee1 VALUES(4,'Vijaya Lakshmi','F',90000);
```

Step-2: Insert values into Employee table and check whether rows are inserted or not



```
C:\WINDOWS\system32\cmd.

Table created.

SQL> INSERT INTO employee1 VALUES(1,'Anil Kumar','M',100000);

1 row created.

SQL> INSERT INTO employee1 VALUES(2,'Narasimhulu','M',95000);

1 row created.

SQL> INSERT INTO employee1 VALUES(3,'Sudheer Kumar','M',93000);

1 row created.

SQL> INSERT INTO employee1 VALUES(4,'Vijaya Lakshmi','F',90000);

1 row created.

SQL> INSERT INTO employee1 VALUES(5,'Veera Prakash','M',85000);

1 row created.

SQL> SELECT * FROM employee1;

        ID NAME                                               G     SALARY
---------- -------------------------------------------------- - ----------
         1 Anil Kumar                                         M     100000
         2 Narasimhulu                                        M      95000
         3 Sudheer Kumar                                      M      93000
         4 Vijaya Lakshmi                                     F      90000
         5 Veera Prakash                                      M      85000

SQL> SELECT SUM(salary) FROM employee1;

SUM(SALARY)
-----------
     463000
```

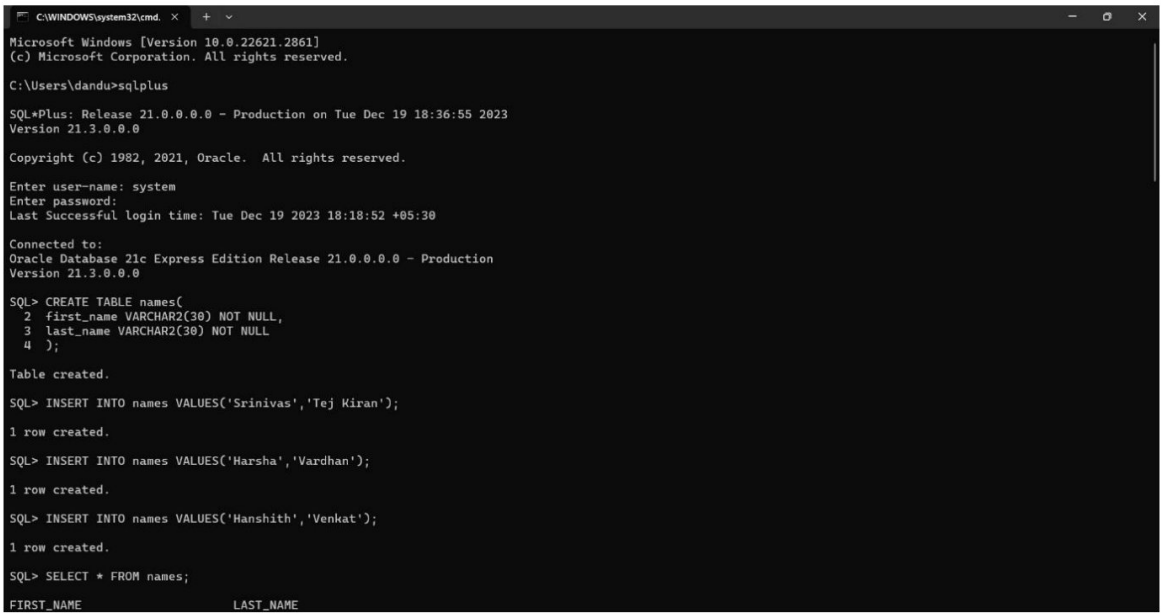
Step-3: Perform AGGREGATE OPERATIONS

```
SQL> SELECT AVG(salary) FROM employee1;

AVG(SALARY)
-----------
      92600

SQL> SELECT COUNT(salary) FROM employee1;

COUNT(SALARY)
-------------
            5

SQL> SELECT MIN(salary) FROM employee1;

MIN(SALARY)
-----------
      85000

SQL> SELECT MAX(salary) FROM employee1;

MAX(SALARY)
-----------
     100000

SQL>
```

END

EXPERIMENT-8

Step-1: Create names table and insert values into names table



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
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C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 18:36:55 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 18:18:52 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE names(
  2  first_name VARCHAR2(30) NOT NULL,
  3  last_name VARCHAR2(30) NOT NULL
  4  );

Table created.

SQL> INSERT INTO names VALUES('Srinivas','Tej Kiran');

1 row created.

SQL> INSERT INTO names VALUES('Harsha','Vardhan');

1 row created.

SQL> INSERT INTO names VALUES('Hanshith','Venkat');

1 row created.

SQL> SELECT * FROM names;

FIRST_NAME                     LAST_NAME
```
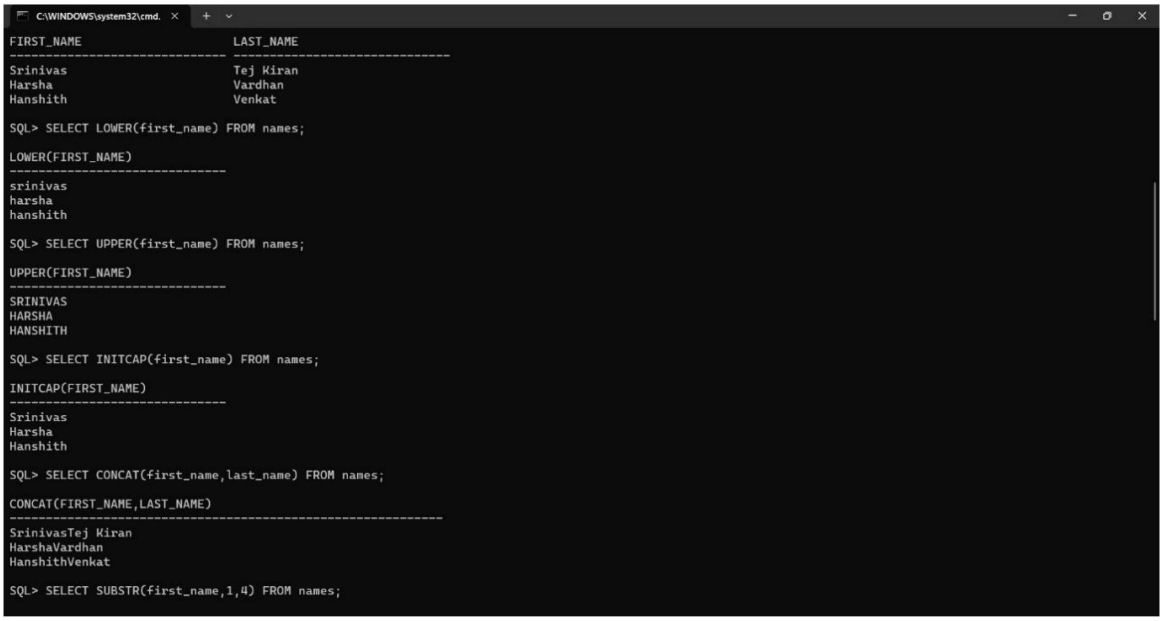
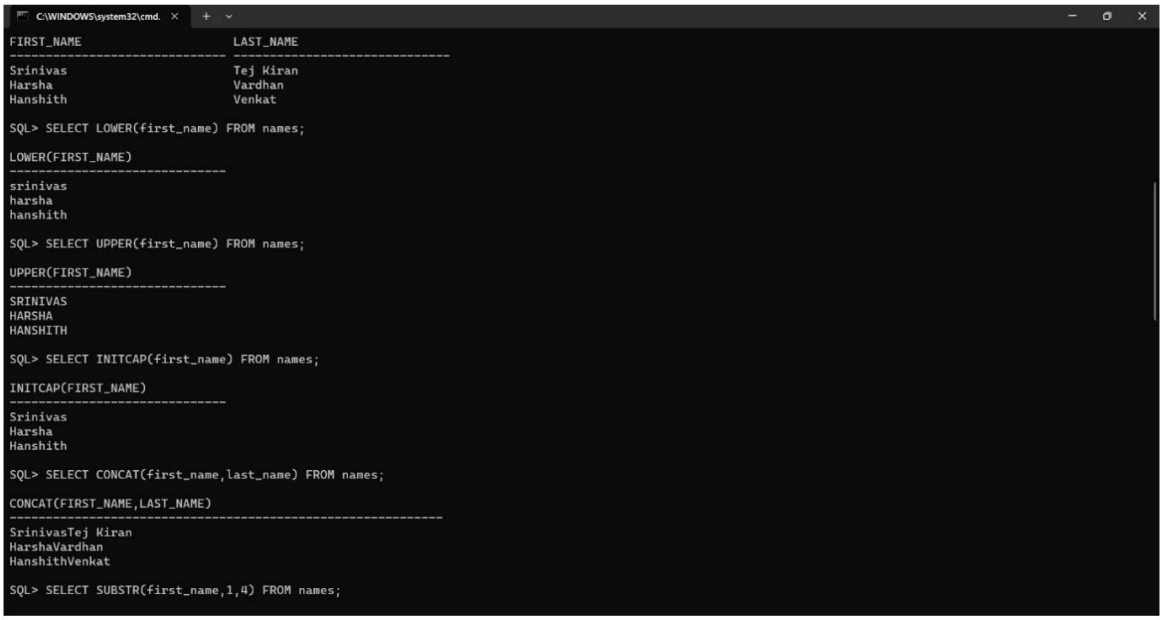

Step-2: Check whether rows are inserted or not

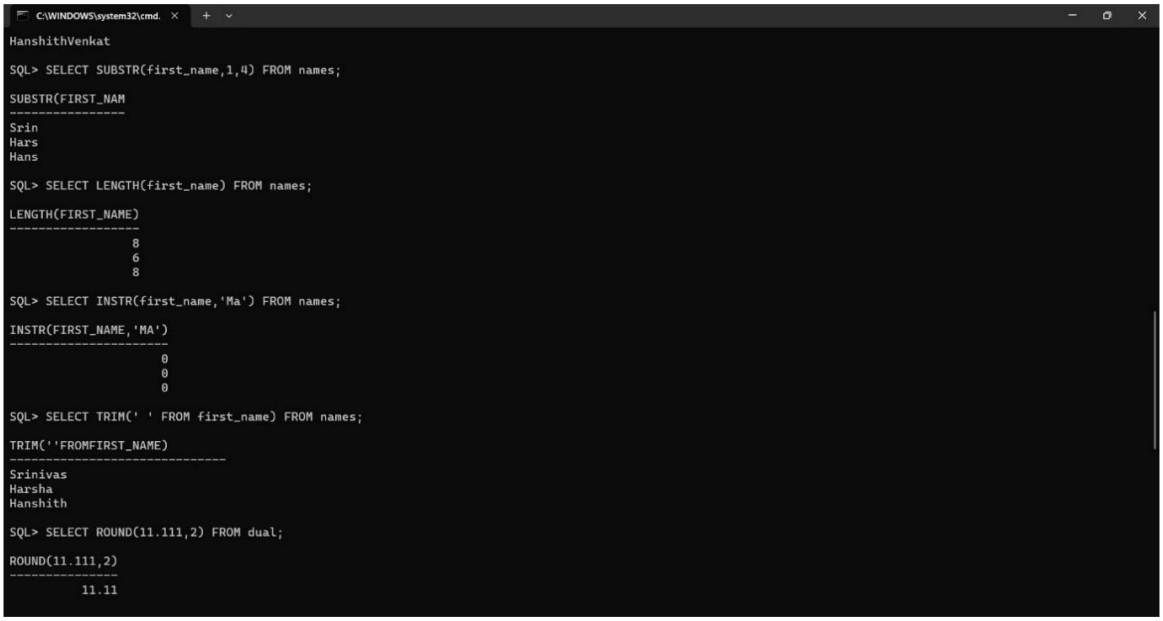


```
C:\WINDOWS\system32\cmd.
FIRST_NAME                     LAST_NAME
------------------------------ ------------------------------
Srinivas                       Tej Kiran
Harsha                         Vardhan
Hanshith                       Venkat

SQL> SELECT LOWER(first_name) FROM names;

LOWER(FIRST_NAME)
------------------------------
srinivas
harsha
hanshith

SQL> SELECT UPPER(first_name) FROM names;

UPPER(FIRST_NAME)
------------------------------
SRINIVAS
HARSHA
HANSHITH

SQL> SELECT INITCAP(first_name) FROM names;

INITCAP(FIRST_NAME)
------------------------------
Srinivas
Harsha
Hanshith

SQL> SELECT CONCAT(first_name,last_name) FROM names;

CONCAT(FIRST_NAME,LAST_NAME)
------------------------------------------------------------
SrinivasTej Kiran
HarshaVardhan
HanshithVenkat

SQL> SELECT SUBSTR(first_name,1,4) FROM names;
```

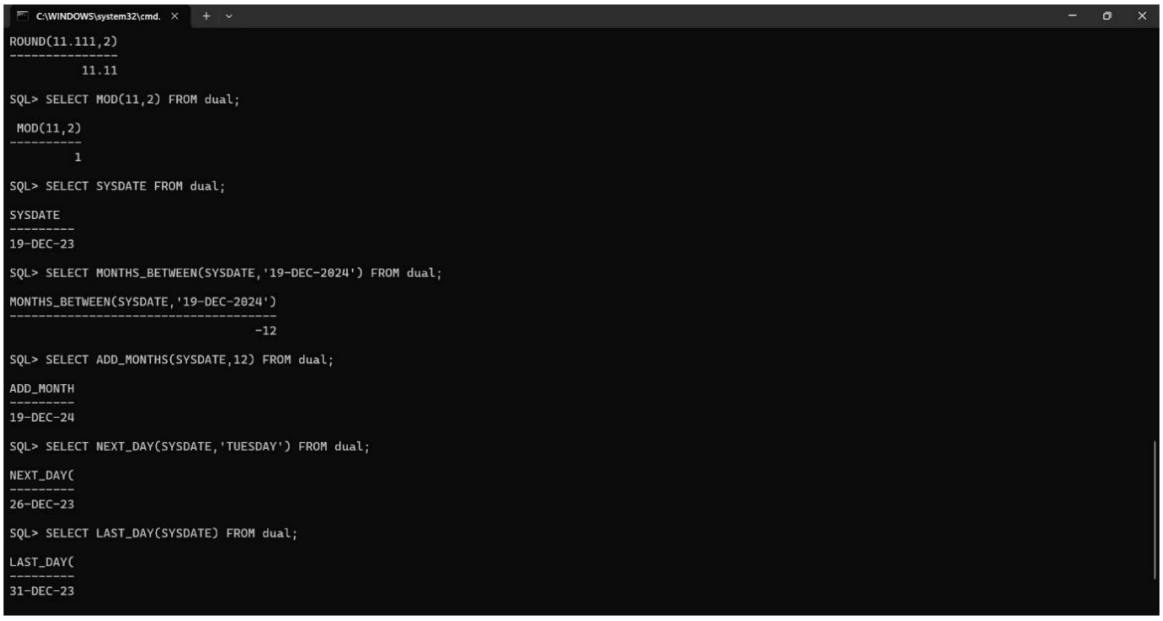
Step-3: Perform ORACLE BUILT-IN FUNCTIONS (i.e. DATE, TIME)

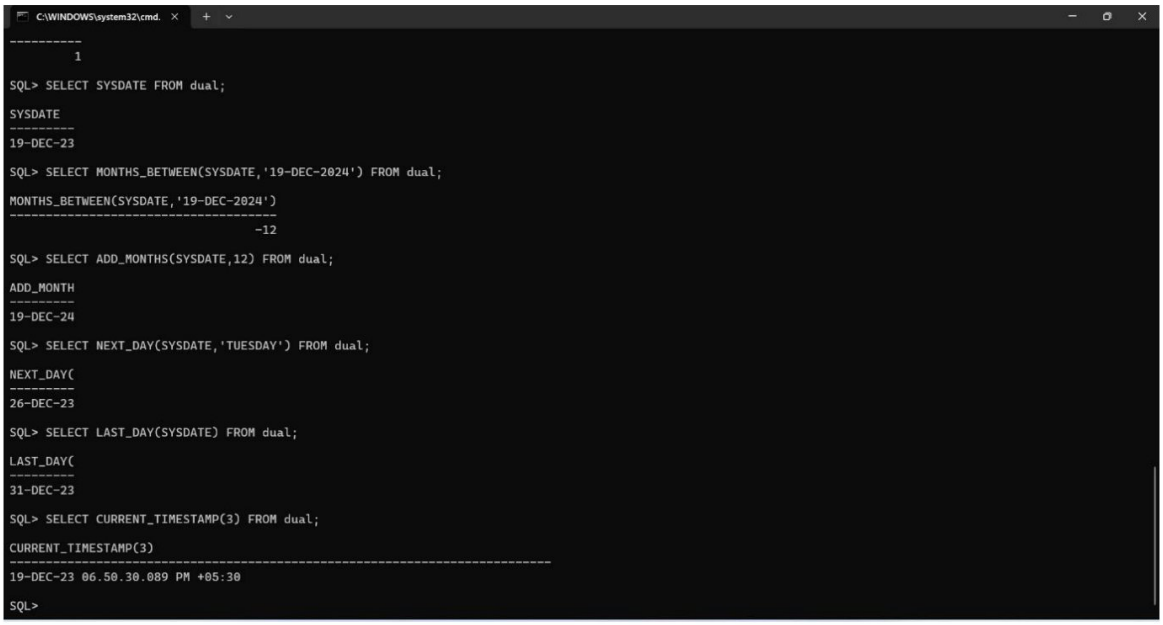


```
C:\WINDOWS\system32\cmd.

FIRST_NAME                     LAST_NAME
------------------------------ ------------------------------
Srinivas                       Tej Kiran
Harsha                         Vardhan
Hanshith                       Venkat

SQL> SELECT LOWER(first_name) FROM names;

LOWER(FIRST_NAME)
------------------------------
srinivas
harsha
hanshith

SQL> SELECT UPPER(first_name) FROM names;

UPPER(FIRST_NAME)
------------------------------
SRINIVAS
HARSHA
HANSHITH

SQL> SELECT INITCAP(first_name) FROM names;

INITCAP(FIRST_NAME)
------------------------------
Srinivas
Harsha
Hanshith

SQL> SELECT CONCAT(first_name,last_name) FROM names;

CONCAT(FIRST_NAME,LAST_NAME)
------------------------------------------------------------
SrinivasTej Kiran
HarshaVardhan
HanshithVenkat

SQL> SELECT SUBSTR(first_name,1,4) FROM names;
```



```
C:\WINDOWS\system32\cmd.

HanshithVenkat

SQL> SELECT SUBSTR(first_name,1,4) FROM names;

SUBSTR(FIRST_NAM
----------------
Srin
Hars
Hans

SQL> SELECT LENGTH(first_name) FROM names;

LENGTH(FIRST_NAME)
------------------
                 8
                 6
                 8

SQL> SELECT INSTR(first_name,'Ma') FROM names;

INSTR(FIRST_NAME,'MA')
----------------------
                     0
                     0
                     0

SQL> SELECT TRIM(' ' FROM first_name) FROM names;

TRIM(''FROMFIRST_NAME)
------------------------------
Srinivas
Harsha
Hanshith

SQL> SELECT ROUND(11.111,2) FROM dual;

ROUND(11.111,2)
---------------
          11.11
```

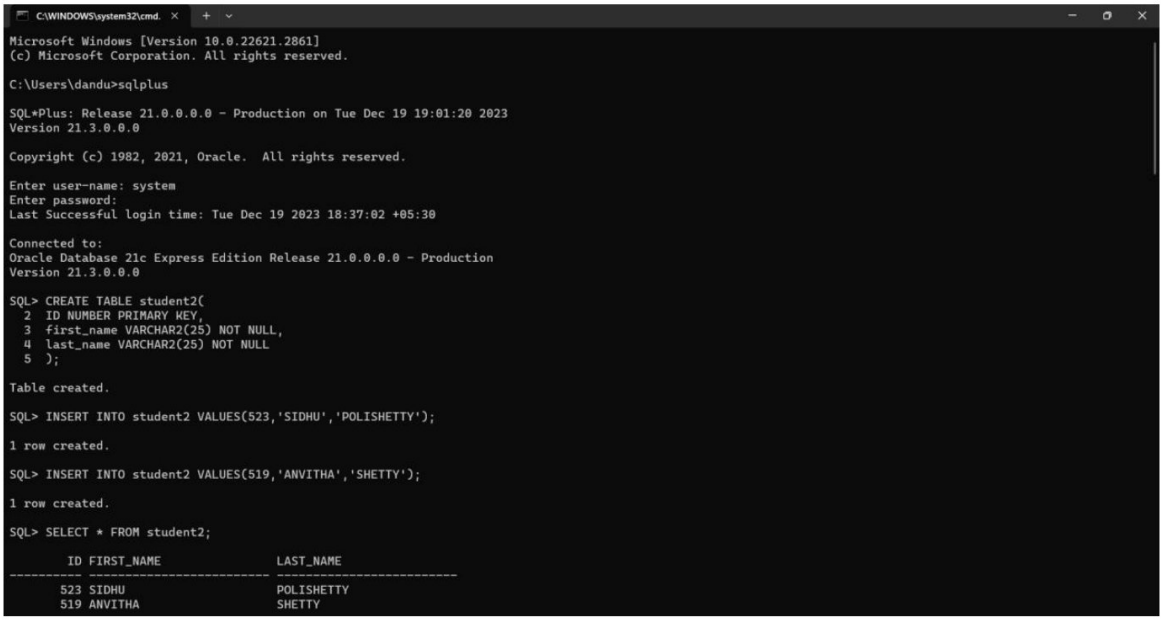




END

EXPERIMENT-9

Create some tables and perform KEY CONSTRAINTS (i.e. PRIMARY KEY, FOREIGN KEY, UNIQUE, NOT NULL, CHECK, DEFAULT)



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 19:01:20 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 18:37:02 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE student2(
  2  ID NUMBER PRIMARY KEY,
  3  first_name VARCHAR2(25) NOT NULL,
  4  last_name VARCHAR2(25) NOT NULL
  5  );

Table created.

SQL> INSERT INTO student2 VALUES(523,'SIDHU','POLISHETTY');

1 row created.

SQL> INSERT INTO student2 VALUES(519,'ANVITHA','SHETTY');

1 row created.

SQL> SELECT * FROM student2;

        ID FIRST_NAME               LAST_NAME
---------- ------------------------ ------------------------
       523 SIDHU                    POLISHETTY
       519 ANVITHA                  SHETTY
```
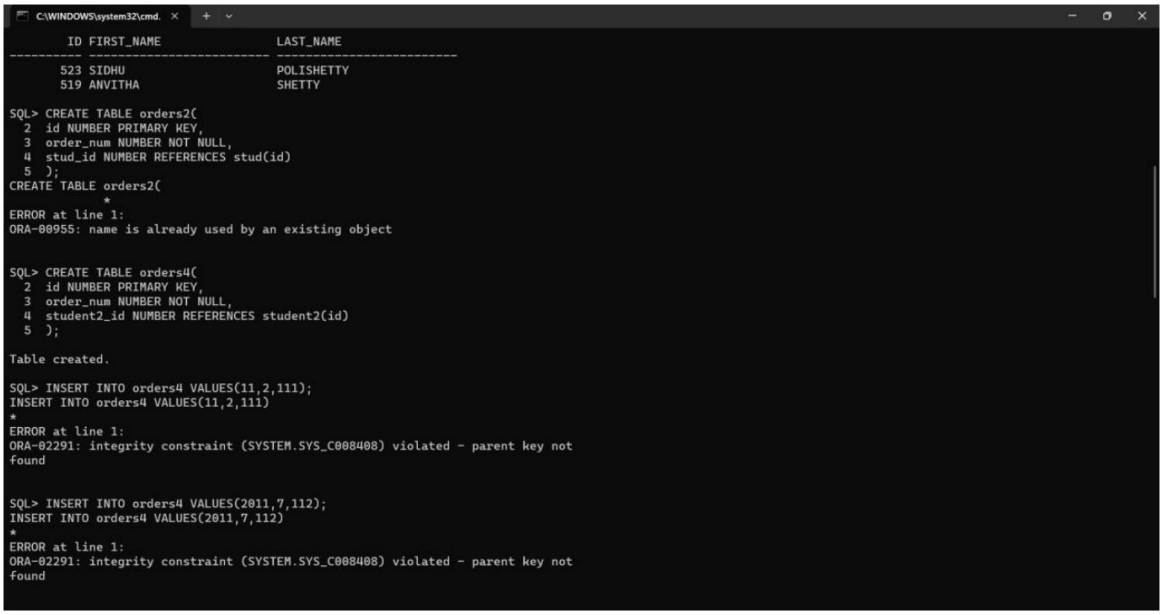
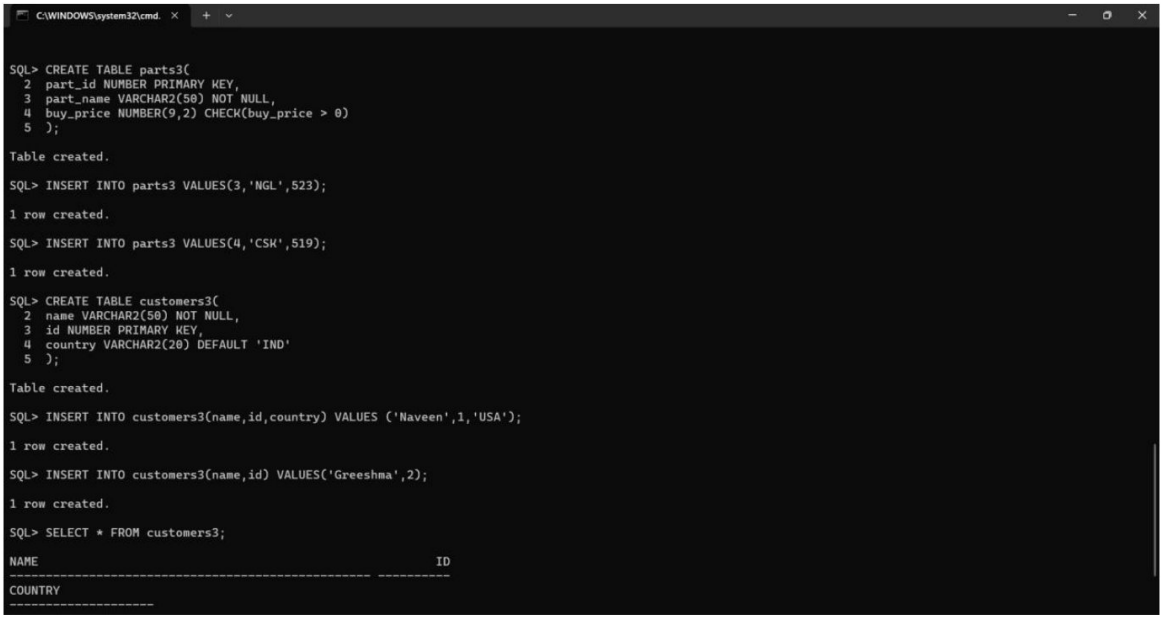
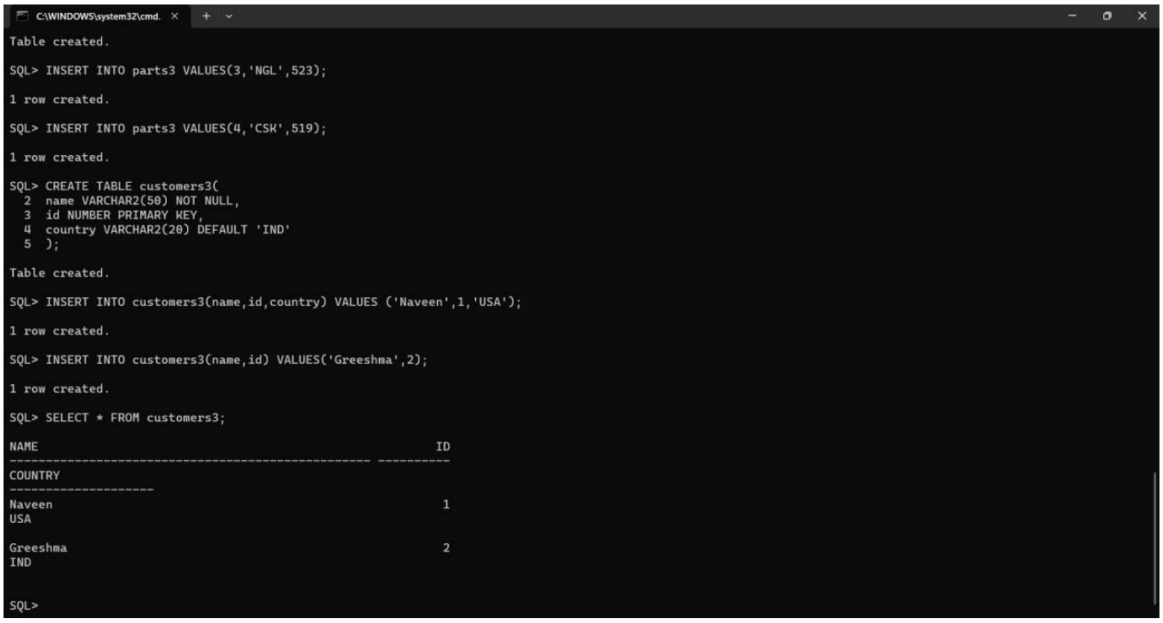



```
C:\WINDOWS\system32\cmd.
        ID FIRST_NAME               LAST_NAME
---------- ------------------------ ------------------------
       523 SIDHU                    POLISHETTY
       519 ANVITHA                  SHETTY

SQL> CREATE TABLE orders2(
  2  id NUMBER PRIMARY KEY,
  3  order_num NUMBER NOT NULL,
  4  stud_id NUMBER REFERENCES stud(id)
  5  );
CREATE TABLE orders2(
             *
ERROR at line 1:
ORA-00955: name is already used by an existing object


SQL> CREATE TABLE orders4(
  2  id NUMBER PRIMARY KEY,
  3  order_num NUMBER NOT NULL,
  4  student2_id NUMBER REFERENCES student2(id)
  5  );

Table created.

SQL> INSERT INTO orders4 VALUES(11,2,111);
INSERT INTO orders4 VALUES(11,2,111)
*
ERROR at line 1:
ORA-02291: integrity constraint (SYSTEM.SYS_C008408) violated - parent key not
found


SQL> INSERT INTO orders4 VALUES(2011,7,112);
INSERT INTO orders4 VALUES(2011,7,112)
*
ERROR at line 1:
ORA-02291: integrity constraint (SYSTEM.SYS_C008408) violated - parent key not
found
```

```
C:\WINDOWS\system32\cmd.

SQL> CREATE TABLE employees3(
  2  id NUMBER PRIMARY KEY,
  3  name VARCHAR2(50) NOT NULL,
  4  email VARCHAR2(50) UNIQUE
  5  );

Table created.

SQL> INSERT INTO employees3 VALUES(123,'Suresh','suresh123@gmail.com');

1 row created.

SQL> INSERT INTO employees3 VALUES(456,'Sunil','sunil456@gmail.com');

1 row created.

SQL> CREATE TABLE orders5(
  2  id NUMBER PRIMARY KEY,
  3  product_name VARCHAR2(50) NOT NULL,
  4  quantity NUMBER
  5  );

Table created.

SQL> INSERT INTO orders5 VALUES(1,'ABCD',98);

1 row created.

SQL> INSERT INTO orders5 VALUES(2,'UVWX',89);

1 row created.

SQL> CREATE TABLE parts2(
  2  part_id NUMBER PRIMARY KEY,
  3  part_name VARCHAR2(50) NOT NULL,
  4  buy_price NUMBER(9,2) CHECK(buy_price>0)
  5  );
CREATE TABLE parts2(
            *
```



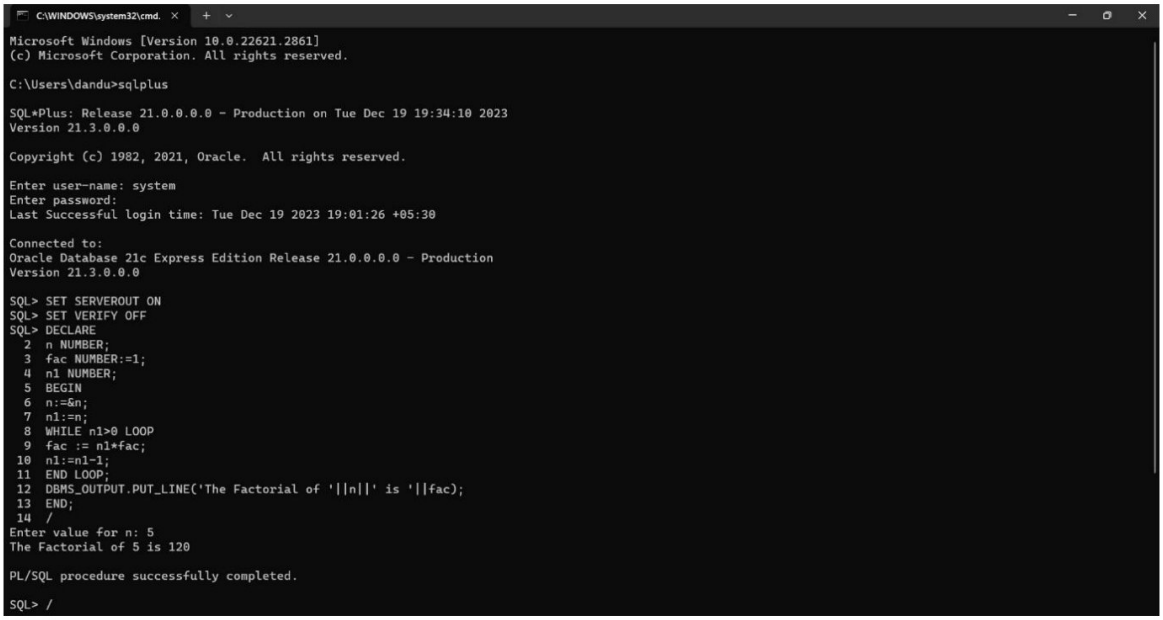
```
C:\WINDOWS\system32\cmd.

SQL> CREATE TABLE parts3(
  2  part_id NUMBER PRIMARY KEY,
  3  part_name VARCHAR2(50) NOT NULL,
  4  buy_price NUMBER(9,2) CHECK(buy_price > 0)
  5  );

Table created.

SQL> INSERT INTO parts3 VALUES(3,'NGL',523);

1 row created.

SQL> INSERT INTO parts3 VALUES(4,'CSK',519);

1 row created.

SQL> CREATE TABLE customers3(
  2  name VARCHAR2(50) NOT NULL,
  3  id NUMBER PRIMARY KEY,
  4  country VARCHAR2(20) DEFAULT 'IND'
  5  );

Table created.

SQL> INSERT INTO customers3(name,id,country) VALUES ('Naveen',1,'USA');

1 row created.

SQL> INSERT INTO customers3(name,id) VALUES('Greeshma',2);

1 row created.

SQL> SELECT * FROM customers3;

NAME                                               ID
-------------------------------------------------- ----------
COUNTRY
--------------------
```



END

EXPERIMENT-10

PL/SQL Program for calculating the factorial of given number



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
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C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 19:34:10 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 19:01:26 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> SET SERVEROUT ON
SQL> SET VERIFY OFF
SQL> DECLARE
  2  n NUMBER;
  3  fac NUMBER:=1;
  4  n1 NUMBER;
  5  BEGIN
  6  n:=&n;
  7  n1:=n;
  8  WHILE n1>0 LOOP
  9  fac := n1*fac;
 10  n1:=n1-1;
 11  END LOOP;
 12  DBMS_OUTPUT.PUT_LINE('The Factorial of '||n||' is '||fac);
 13  END;
 14  /
Enter value for n: 5
The Factorial of 5 is 120

PL/SQL procedure successfully completed.

SQL> /
```
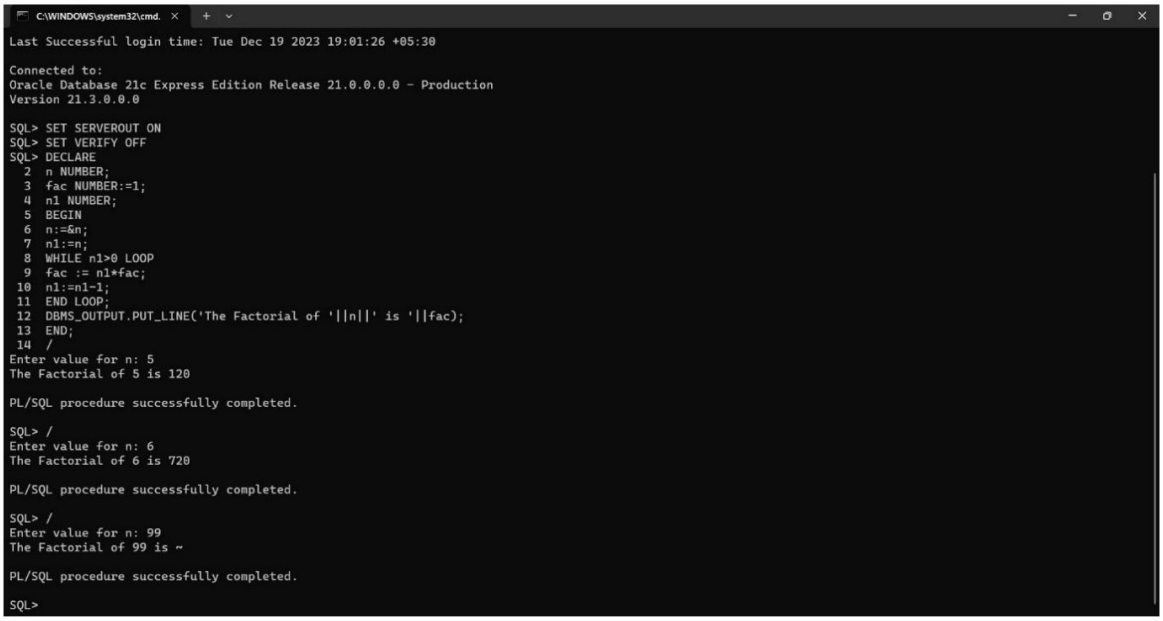
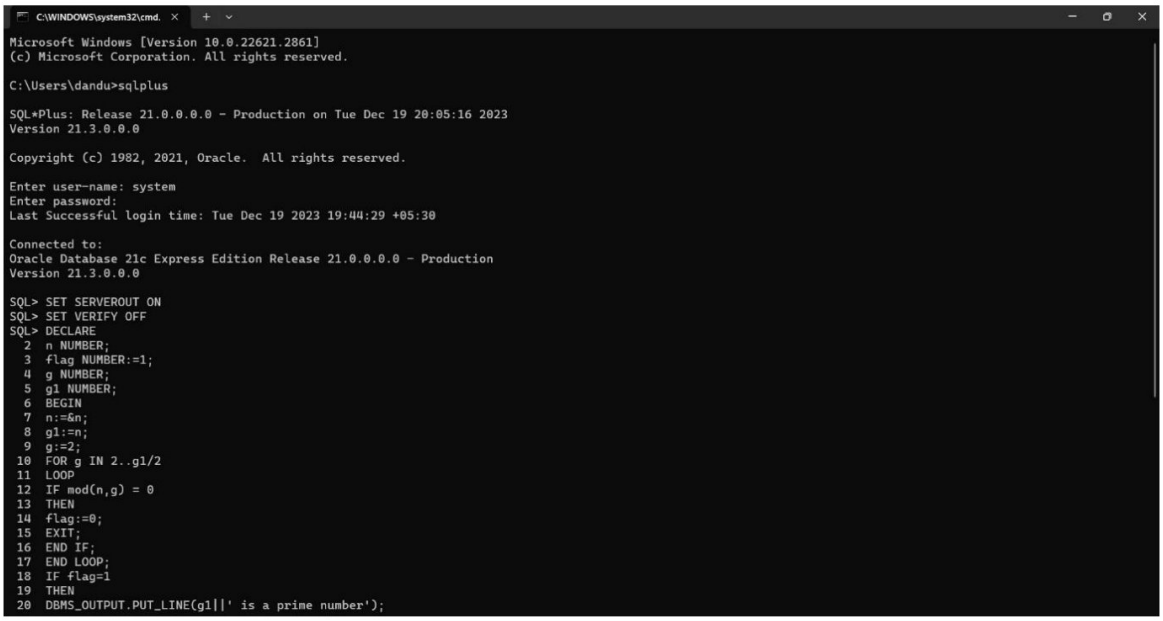



```
C:\WINDOWS\system32\cmd.
Last Successful login time: Tue Dec 19 2023 19:01:26 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> SET SERVEROUT ON
SQL> SET VERIFY OFF
SQL> DECLARE
  2  n NUMBER;
  3  fac NUMBER:=1;
  4  n1 NUMBER;
  5  BEGIN
  6  n:=&n;
  7  n1:=n;
  8  WHILE n1>0 LOOP
  9  fac := n1*fac;
 10  n1:=n1-1;
 11  END LOOP;
 12  DBMS_OUTPUT.PUT_LINE('The Factorial of '||n||' is '||fac);
 13  END;
 14  /
Enter value for n: 5
The Factorial of 5 is 120

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 6
The Factorial of 6 is 720

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 99
The Factorial of 99 is ~

PL/SQL procedure successfully completed.

SQL>
```

END

EXPERIMENT-11

PL/SQL Program for finding whether the given number is prime or not



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 20:05:16 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 19:44:29 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> SET SERVEROUT ON
SQL> SET VERIFY OFF
SQL> DECLARE
  2  n NUMBER;
  3  flag NUMBER:=1;
  4  g NUMBER;
  5  g1 NUMBER;
  6  BEGIN
  7  n:=&n;
  8  g1:=n;
  9  g:=2;
 10  FOR g IN 2..g1/2
 11  LOOP
 12  IF mod(n,g) = 0
 13  THEN
 14  flag:=0;
 15  EXIT;
 16  END IF;
 17  END LOOP;
 18  IF flag=1
 19  THEN
 20  DBMS_OUTPUT.PUT_LINE(g1||' is a prime number');
```
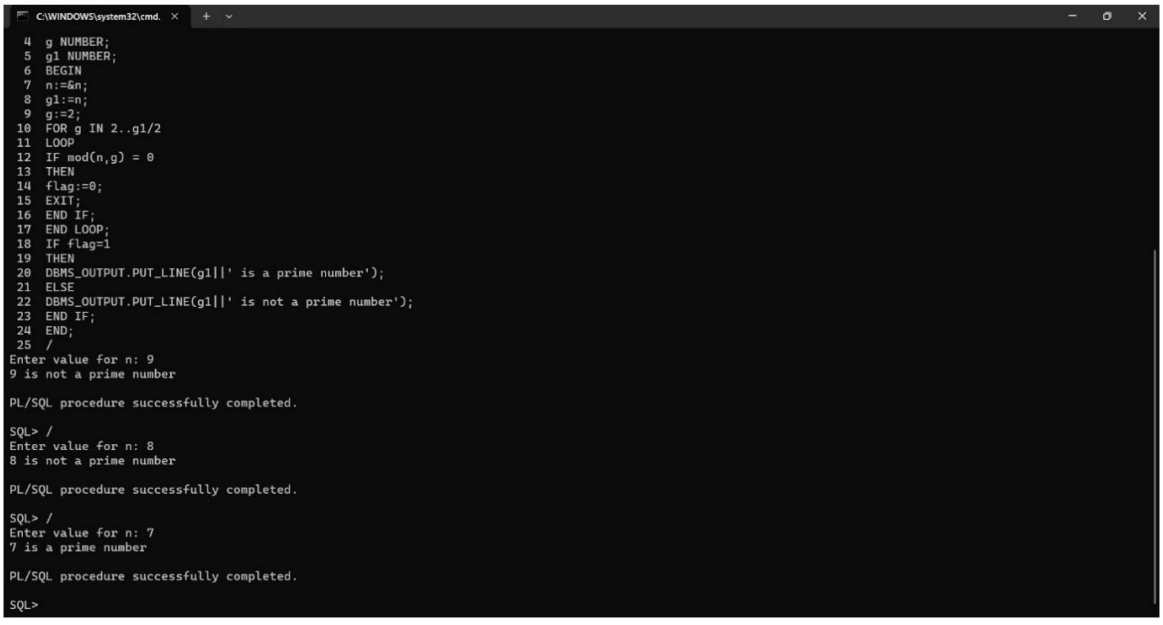
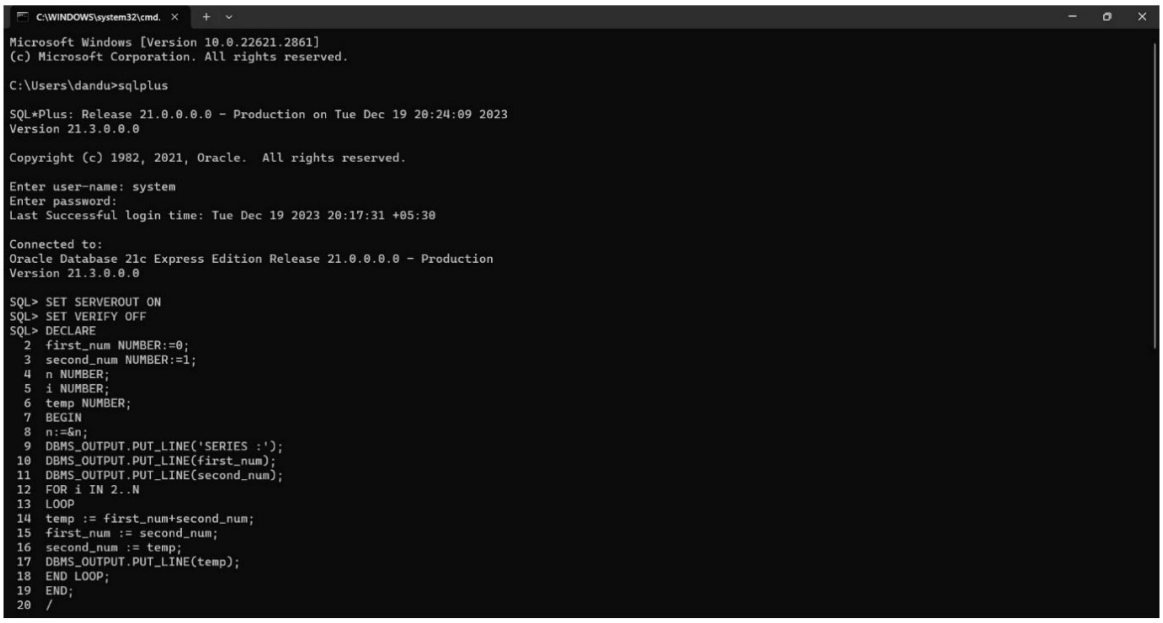



```
C:\WINDOWS\system32\cmd.
  4  g NUMBER;
  5  g1 NUMBER;
  6  BEGIN
  7  n:=&n;
  8  g1:=n;
  9  g:=2;
 10  FOR g IN 2..g1/2
 11  LOOP
 12  IF mod(n,g) = 0
 13  THEN
 14  flag:=0;
 15  EXIT;
 16  END IF;
 17  END LOOP;
 18  IF flag=1
 19  THEN
 20  DBMS_OUTPUT.PUT_LINE(g1||' is a prime number');
 21  ELSE
 22  DBMS_OUTPUT.PUT_LINE(g1||' is not a prime number');
 23  END IF;
 24  END;
 25  /
Enter value for n: 9
9 is not a prime number

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 8
8 is not a prime number

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 7
7 is a prime number

PL/SQL procedure successfully completed.

SQL>
```

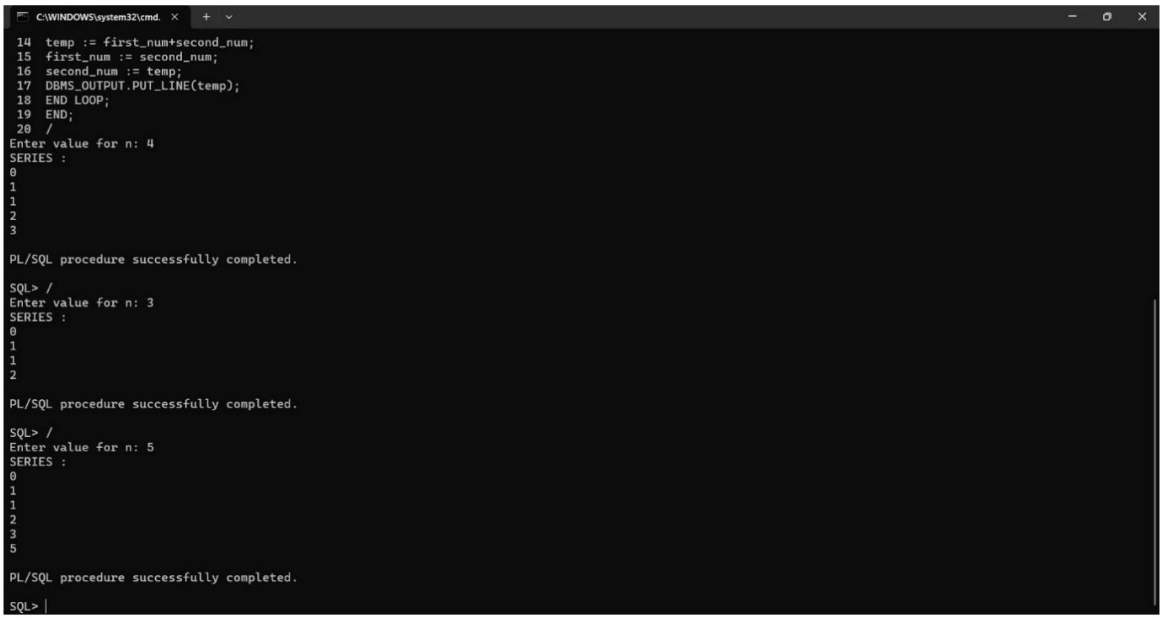
END

EXPERIMENT-12

PL/SQL Program for displaying the Fibonacci series up to an integer



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 20:24:09 2023
Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle.  All rights reserved.

Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 20:17:31 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> SET SERVEROUT ON
SQL> SET VERIFY OFF
SQL> DECLARE
  2  first_num NUMBER:=0;
  3  second_num NUMBER:=1;
  4  n NUMBER;
  5  i NUMBER;
  6  temp NUMBER;
  7  BEGIN
  8  n:=&n;
  9  DBMS_OUTPUT.PUT_LINE('SERIES :');
 10  DBMS_OUTPUT.PUT_LINE(first_num);
 11  DBMS_OUTPUT.PUT_LINE(second_num);
 12  FOR i IN 2..N
 13  LOOP
 14  temp := first_num+second_num;
 15  first_num := second_num;
 16  second_num := temp;
 17  DBMS_OUTPUT.PUT_LINE(temp);
 18  END LOOP;
 19  END;
 20  /
```

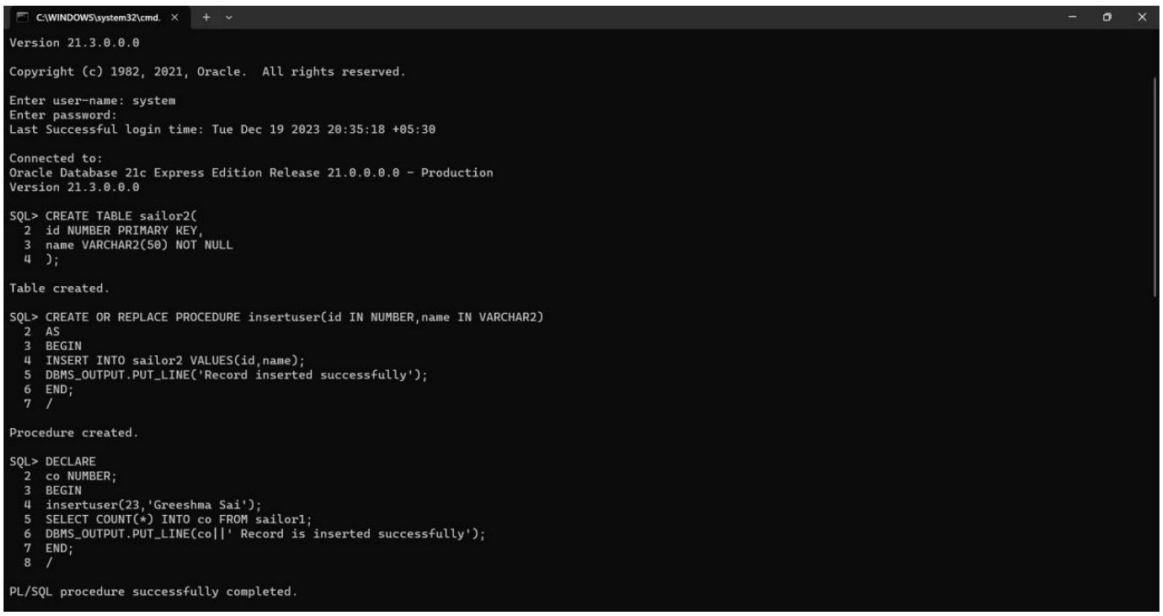


```
C:\WINDOWS\system32\cmd.
 14  temp := first_num+second_num;
 15  first_num := second_num;
 16  second_num := temp;
 17  DBMS_OUTPUT.PUT_LINE(temp);
 18  END LOOP;
 19  END;
 20  /
Enter value for n: 4
SERIES :
0
1
1
2
3

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 3
SERIES :
0
1
1
2

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 5
SERIES :
0
1
1
2
3
5

PL/SQL procedure successfully completed.

SQL>
```

END

EXPERIMENT-13

PL/SQL Program to implement Stored Procedure on table.



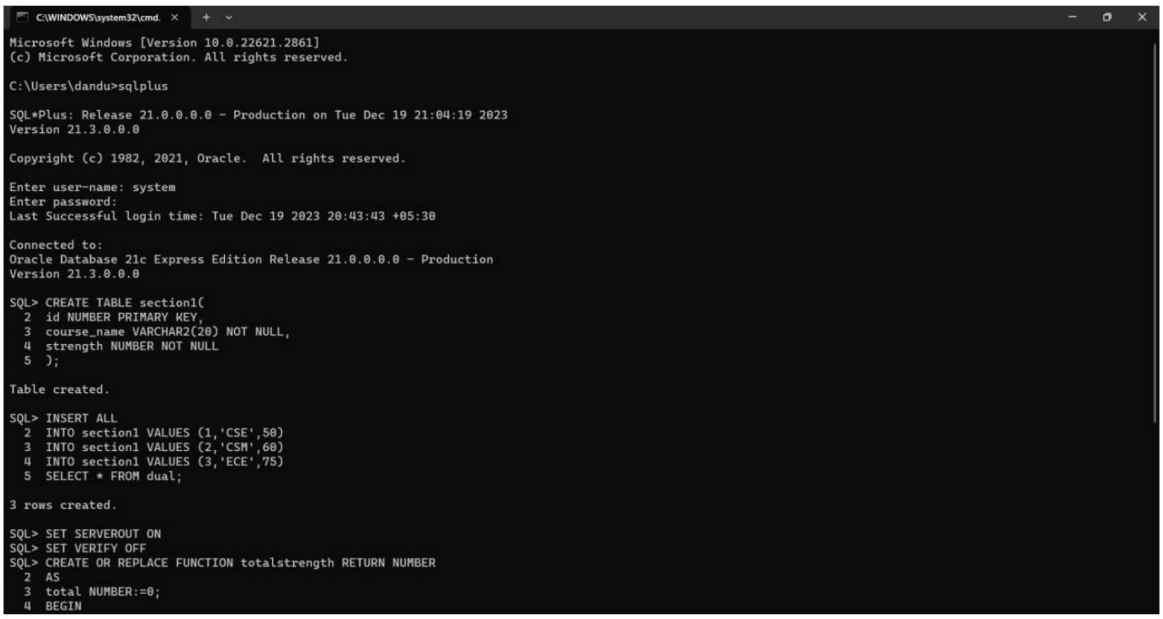
```
C:\WINDOWS\system32\cmd.

Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle.  All rights reserved.

Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 20:35:18 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE sailor2(
  2  id NUMBER PRIMARY KEY,
  3  name VARCHAR2(50) NOT NULL
  4  );

Table created.

SQL> CREATE OR REPLACE PROCEDURE insertuser(id IN NUMBER,name IN VARCHAR2)
  2  AS
  3  BEGIN
  4  INSERT INTO sailor2 VALUES(id,name);
  5  DBMS_OUTPUT.PUT_LINE('Record inserted successfully');
  6  END;
  7  /

Procedure created.

SQL> DECLARE
  2  co NUMBER;
  3  BEGIN
  4  insertuser(23,'Greeshma Sai');
  5  SELECT COUNT(*) INTO co FROM sailor1;
  6  DBMS_OUTPUT.PUT_LINE(co||' Record is inserted successfully');
  7  END;
  8  /

PL/SQL procedure successfully completed.
```

```
SQL> DECLARE
  2  co NUMBER;
  3  BEGIN
  4  insertuser(12,'Anvitha');
  5  SELECT COUNT(*) INTO co FROM sailor2;
  6  DBMS_OUTPUT.PUT_LINE(co||' Record is inserted successfully');
  7  END;
  8  /
Record inserted successfully
2 Record is inserted successfully

PL/SQL procedure successfully completed.

SQL>
```

END

EXPERIMENT-14

PL/SQL Program to implement Stored Function on table



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
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C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 21:04:19 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 20:43:43 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE section1(
  2  id NUMBER PRIMARY KEY,
  3  course_name VARCHAR2(20) NOT NULL,
  4  strength NUMBER NOT NULL
  5  );

Table created.

SQL> INSERT ALL
  2  INTO section1 VALUES (1,'CSE',50)
  3  INTO section1 VALUES (2,'CSM',60)
  4  INTO section1 VALUES (3,'ECE',75)
  5  SELECT * FROM dual;

3 rows created.

SQL> SET SERVEROUT ON
SQL> SET VERIFY OFF
SQL> CREATE OR REPLACE FUNCTION totalstrength RETURN NUMBER
  2  AS
  3  total NUMBER:=0;
  4  BEGIN
```
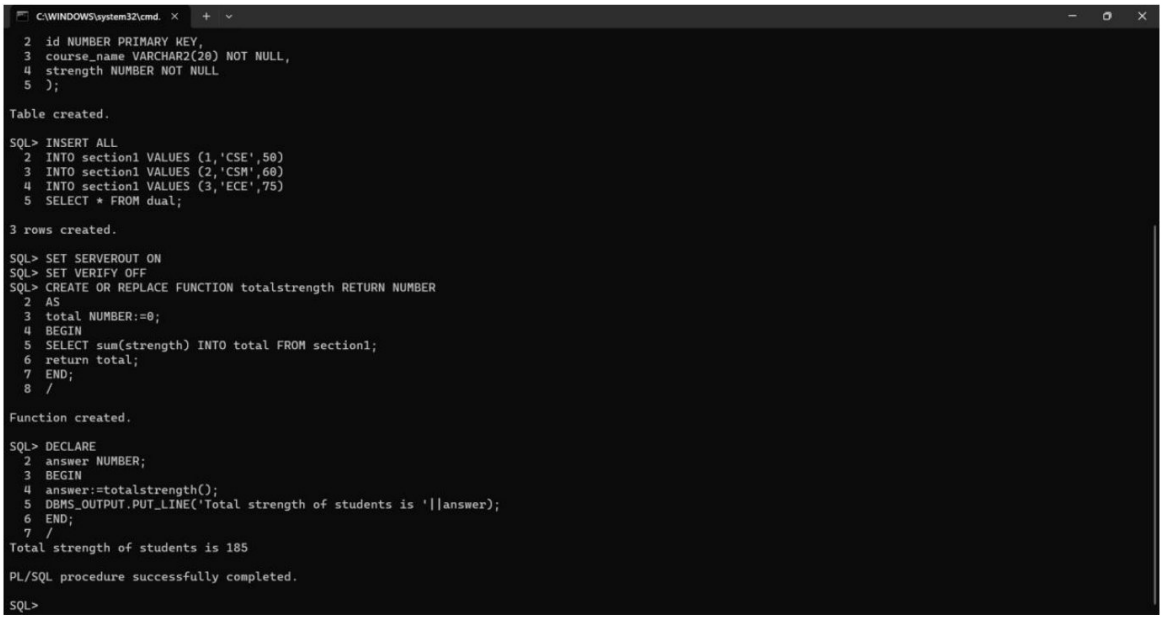
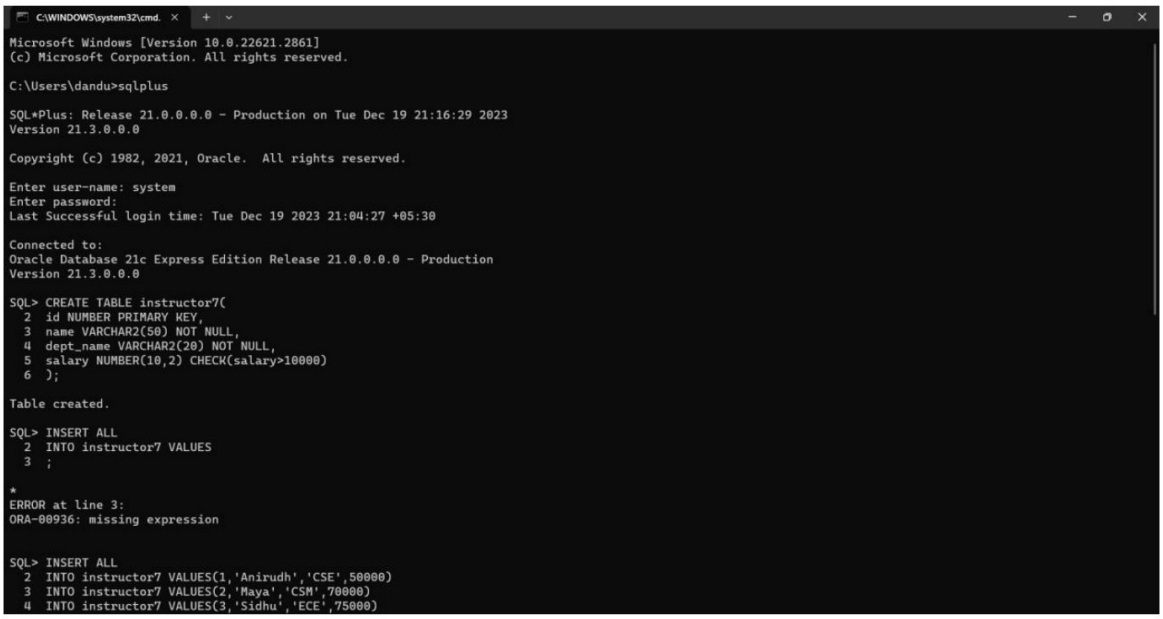



```
C:\WINDOWS\system32\cmd.
  2  id NUMBER PRIMARY KEY,
  3  course_name VARCHAR2(20) NOT NULL,
  4  strength NUMBER NOT NULL
  5  );

Table created.

SQL> INSERT ALL
  2  INTO section1 VALUES (1,'CSE',50)
  3  INTO section1 VALUES (2,'CSM',60)
  4  INTO section1 VALUES (3,'ECE',75)
  5  SELECT * FROM dual;

3 rows created.

SQL> SET SERVEROUT ON
SQL> SET VERIFY OFF
SQL> CREATE OR REPLACE FUNCTION totalstrength RETURN NUMBER
  2  AS
  3  total NUMBER:=0;
  4  BEGIN
  5  SELECT sum(strength) INTO total FROM section1;
  6  return total;
  7  END;
  8  /

Function created.

SQL> DECLARE
  2  answer NUMBER;
  3  BEGIN
  4  answer:=totalstrength();
  5  DBMS_OUTPUT.PUT_LINE('Total strength of students is '||answer);
  6  END;
  7  /
Total strength of students is 185

PL/SQL procedure successfully completed.

SQL>
```

END

EXPERIMENT-15

PL/SQL Program to implement Trigger on table



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
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C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 21:16:29 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 21:04:27 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE instructor7(
  2  id NUMBER PRIMARY KEY,
  3  name VARCHAR2(50) NOT NULL,
  4  dept_name VARCHAR2(20) NOT NULL,
  5  salary NUMBER(10,2) CHECK(salary>10000)
  6  );

Table created.

SQL> INSERT ALL
  2  INTO instructor7 VALUES
  3  ;

*
ERROR at line 3:
ORA-00936: missing expression


SQL> INSERT ALL
  2  INTO instructor7 VALUES(1,'Anirudh','CSE',50000)
  3  INTO instructor7 VALUES(2,'Maya','CSM',70000)
  4  INTO instructor7 VALUES(3,'Sidhu','ECE',75000)
```
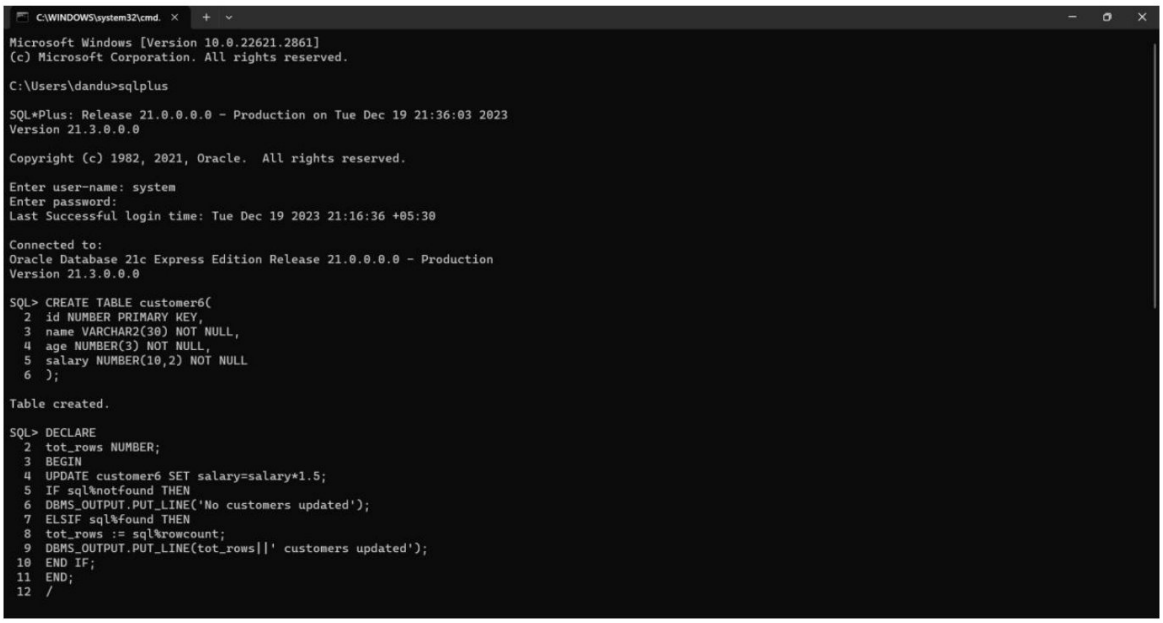

```
C:\WINDOWS\system32\cmd.
SQL> INSERT ALL
  2  INTO instructor7 VALUES(1,'Anirudh','CSE',50000)
  3  INTO instructor7 VALUES(2,'Maya','CSM',70000)
  4  INTO instructor7 VALUES(3,'Sidhu','ECE',75000)
  5  INTO instructor7 VALUES(4,'Anvitha','EEE',80000)
  6  SELECT * FROM dual;

4 rows created.

SQL> CREATE OR REPLACE TRIGGER display_changes
  2  BEFORE UPDATE ON instructor7
  3  FOR EACH ROW
  4  WHEN (NEW.ID = OLD.ID)
  5  DECLARE
  6  sal_diff number;
  7  BEGIN
  8  sal_diff := :NEW.salary - :OLD.salary;
  9  dbms_output.put_line('Old salary: ' || :OLD.salary);
 10  dbms_output.put_line('New salary: ' || :NEW.salary);
 11  dbms_output.put_line('Salary difference: ' || sal_diff);
 12  END;
 13  /

Trigger created.

SQL> DECLARE
  2  tot_rows NUMBER;
  3  BEGIN
  4  UPDATE instructor7
  5  SET salary=salary*1.5;
  6  IF sql%notfound THEN
  7  DBMS_OUTPUT.PUT_LINE('no instructors updated');
  8  ELSIF sql%found THEN
  9  tot_rows:=sql%rowcount;
 10  DBMS_OUTPUT.PUT_LINE(tot_rows||' instructors updated');
 11  END IF;
 12  END;
 13  /

PL/SQL procedure successfully completed.
```

END

EXPERIMENT-16

PL/SQL Program to implement Cursor on table



```
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.22621.2861]
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C:\Users\dandu>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 21:36:03 2023
Version 21.3.0.0.0

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Enter user-name: system
Enter password:
Last Successful login time: Tue Dec 19 2023 21:16:36 +05:30

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> CREATE TABLE customer6(
  2  id NUMBER PRIMARY KEY,
  3  name VARCHAR2(30) NOT NULL,
  4  age NUMBER(3) NOT NULL,
  5  salary NUMBER(10,2) NOT NULL
  6  );

Table created.

SQL> DECLARE
  2  tot_rows NUMBER;
  3  BEGIN
  4  UPDATE customer6 SET salary=salary*1.5;
  5  IF sql%notfound THEN
  6  DBMS_OUTPUT.PUT_LINE('No customers updated');
  7  ELSIF sql%found THEN
  8  tot_rows := sql%rowcount;
  9  DBMS_OUTPUT.PUT_LINE(tot_rows||' customers updated');
 10  END IF;
 11  END;
 12  /
```

```
C:\WINDOWS\system32\cmd.
  4  UPDATE customer6 SET salary=salary*1.5;
  5  IF sql%notfound THEN
  6  DBMS_OUTPUT.PUT_LINE('No customers updated');
  7  ELSIF sql%found THEN
  8  tot_rows := sql%rowcount;
  9  DBMS_OUTPUT.PUT_LINE(tot_rows||' customers updated');
 10  END IF;
 11  END;
 12  /

PL/SQL procedure successfully completed.

SQL> INSERT ALL
  2  INTO customer6 VALUES(1,'Arun Neelakandan',22,60000)
  3  INTO customer6 VALUES(2,'Darshana',33,70000)
  4  INTO customer6 VALUES(3,'Nithya',23,65000)
  5  INTO customer6 VALUES(4,'Maya',25,60000)
  6  SELECT * FROM dual;

4 rows created.

SQL> DECLARE
  2  c_id customer6.id%type;
  3  c_name customer6.name%type;
  4  c_age customer6.age%type;
  5  CURSOR c_customers IS
  6  SELECT id,name,age FROM customer6;
  7  BEGIN
  8  OPEN c_customers;
  9  LOOP
 10  FETCH c_customers INTO c_id,c_name,c_age;
 11  EXIT WHEN c_customers%notfound;
 12  DBMS_OUTPUT.PUT_LINE(c_id||' '||c_name||' '||c_age);
 13  END LOOP;
 14  CLOSE c_customers;
 15  END;
 16  /

PL/SQL procedure successfully completed.
```

END