

EXPERIMENT – 1

```

C:\WINDOWS\system32\cmd. x + v
Microsoft Windows [Version 10.0.22621.2715]
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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

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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. x + v

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 );

```

```
C:\WINDOWS\system32\cmd. x + v
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 );

Table created.

SQL> DROP TABLE persons;

Table dropped.

SQL> CREATE TABLE customers_copy
2  AS
3  SELECT
4  *
5  FROM
6  customers;

Table created.

SQL> TRUNCATE TABLE customers_copy;

Table truncated.

SQL>
```

EXPERIMENT-2

```

C:\WINDOWS\system32\cmd. X + v
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. X + v
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. x + v
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. x + v

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. x + v

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. x + v

  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

```

```
C:\WINDOWS\system32\cmd. X + v
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

SQL> DELETE FROM parts2;
0 rows deleted.

SQL> SELECT * FROM parts2;
no rows selected

SQL> |
```

EXPERIMENT-3

Step – 1: create student table

```

C:\WINDOWS\system32\cmd. x + v
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. x + v
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

```

C:\WINDOWS\system32\cmd. x + v
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-4 : Create view of name teacher with name, roll number constraints and check whether rows are inserted or not

```

C:\WINDOWS\system32\cmd. x + v
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.
SQL> SELECT * FROM teacher;
NAME                ROLLNO
-----
Greeshma            523
Naveen              524
Praneetha           521
Manjula             548
Krishna             555
SQL>

```

END

EXPERIMENT-4

STEP-1: Create Instructor table and department table

```

C:\WINDOWS\system32\cmd. X + v
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 06:42:02 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 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. X + v

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. x + v

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);
(SQL> 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. x + v

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. x + v
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. x + v

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

```

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

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. x + v
Microsoft Windows [Version 10.0.22621.2715]
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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. x + v
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

```

C:\WINDOWS\system32\cmd. x + v
EMP_ID EMP_NAME EMP_SALARY
-----
1 Anil kumar 100000
2 Vijaya Lakshmi 90000
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;

AVG(EMP_ID)
-----
3

SQL> select min(emp_id) from Emp1;

MIN(EMP_ID)
-----
1

SQL> select max(emp_id) from Emp1;

MAX(EMP_ID)
-----
5

SQL> |

```

END

EXPERIMENT-6

Step-1: Create student table and blocks table

```

C:\WINDOWS\system32\cmd. x + v
Microsoft Windows [Version 10.0.22621.2861]
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C:\Users\dandus>sqlplus

SQL*Plus: Release 21.0.0.0.0 - Production on Tue Dec 19 16:57:26 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 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. x + v
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. x + v
SQL> SELECT * FROM student1
2 JOIN blocks1 ON
3 student1.dept_name=blocks1.dept_name;

ROLL_NO NAME                                DEPT_NAME
-----
DEPT_NAME BLOCK_NAME
-----
CSM      519 GAYATRI                          CSM
         B-BLOCK
CSE      523 GREESHMA                         CSE
         MAIN BLOCK
CSD      557 NANDINI                          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. x + v
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
-----
CSM      519 GAYATRI                          CSM
         B-BLOCK
CSE      523 GREESHMA                         CSE
         MAIN BLOCK
CSD      557 NANDINI                          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
-----
CSM      519 GAYATRI                          CSM
         B-BLOCK
CSE      523 GREESHMA                         CSE
         MAIN BLOCK
CSD      557 NANDINI                          CSD
         A-BLOCK

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

```



```
C:\WINDOWS\system32\cmd. x + v

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
-----
CSM 519 GAYATRI B-BLOCK CSM
CSE 523 GREESHMA MAIN_BLOCK CSE
CSD 557 NANDINI A-BLOCK CSD

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

ROLL_NO NAME DEPT_NAME
-----
DEPT_NAME BLOCK_NAME
-----
CSM 519 GAYATRI B-BLOCK CSM
CSE 523 GREESHMA MAIN_BLOCK CSE
CSD 557 NANDINI A-BLOCK CSD

SQL>
```

END

EXPERIMENT-7

Step-1: Create Employee Table

```

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

C:\Users\dandau>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. X + v

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. x + v
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 18:36:55 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 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
-----
Srinivas            Tej Kiran
Harsha              Vardhan
Hanshith            Venkat

```

Step-2: Check whether rows are inserted or not

```

C:\WINDOWS\system32\cmd. x + v

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. x + v
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. x + v
HanshithVenkat

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

SUBSTR(FIRST_NAME)
-----
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(' ' FROM FIRST_NAME)
-----
Srinivas
Harsha
Hanshith

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

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

```

```

C:\WINDOWS\system32/cmd. x + v
ROUND(11.111,2)
-----
11.11

SQL> SELECT MOD(11,2) FROM dual;

MOD(11,2)
-----
1

SQL> SELECT SYSDATE FROM dual;

SYSDATE
-----
19-DEC-23

SQL> SELECT MONTHS_BETWEEN(SYSDATE,'19-DEC-2024') FROM dual;

MONTHS_BETWEEN(SYSDATE,'19-DEC-2024')
-----
-12

SQL> SELECT ADD_MONTHS(SYSDATE,12) FROM dual;

ADD_MONTH
-----
19-DEC-24

SQL> SELECT NEXT_DAY(SYSDATE,'TUESDAY') FROM dual;

NEXT_DAY(
-----
26-DEC-23

SQL> SELECT LAST_DAY(SYSDATE) FROM dual;

LAST_DAY(
-----
31-DEC-23

```

```

C:\WINDOWS\system32/cmd. x + v
-----
1

SQL> SELECT SYSDATE FROM dual;

SYSDATE
-----
19-DEC-23

SQL> SELECT MONTHS_BETWEEN(SYSDATE,'19-DEC-2024') FROM dual;

MONTHS_BETWEEN(SYSDATE,'19-DEC-2024')
-----
-12

SQL> SELECT ADD_MONTHS(SYSDATE,12) FROM dual;

ADD_MONTH
-----
19-DEC-24

SQL> SELECT NEXT_DAY(SYSDATE,'TUESDAY') FROM dual;

NEXT_DAY(
-----
26-DEC-23

SQL> SELECT LAST_DAY(SYSDATE) FROM dual;

LAST_DAY(
-----
31-DEC-23

SQL> SELECT CURRENT_TIMESTAMP(3) FROM dual;

CURRENT_TIMESTAMP(3)
-----
19-DEC-23 06.50.30.089 PM +05:30

SQL>

```

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. x + v
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

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

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. x + v

   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. x + v

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. x + v

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
-----
```



```
C:\WINDOWS\system32\cmd. x + v
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
-----
Naveen                             1
USA
Greeshma                           2
IND
SQL>
```

END

EXPERIMENT-10

PL/SQL Program for calculating the factorial of given number

```
C:\WINDOWS\system32\cmd. x + v
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 19:34:10 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 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. x + v
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. x + v
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

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

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. x + v
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. x + v
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. x + v

 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

PL/SQL Program to implement Stored Procedure on table.

EXPERIMENT-13

```
C:\WINDOWS\system32\cmd. X + v
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. x + v
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 21:04:19 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 20:43:43 +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. x + v

  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. x + v
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 21:16:29 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 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. x + v

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. X + v
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 21:36:03 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 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. X + v

  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,'Mithya',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