AIM: To execute and understand different operators and types of function in SQLPLUS.

1. ***Find employees name having salary greater than 25000.***

QUERY :

SQL> select FNAME,MNAME,LNAME from employee_21bct0358 where salary>25000;

```
SQL> select FNAME,MNAME,LNAME from employee_21bct0358 where salary>25000;

FNAME           MN LNAME
--------------- -- ---------------
Doung           E  Gilbert
Joyce              PAN
Frankin         T  Wong
Jenifer         S  Wallace
John            B  Smith
Ramesh          K  Narayan
James           E  Borg
```

2. ***Find the employee name whose Salary lies in range between 30000 and 70000.***

QUERY:

select FNAME,MNAME,LNAME from employee_21bct0358 where salary>30000 AND SALARY<70000 ;

```
SQL> select FNAME,MNAME,LNAME from employee_21bct0358 where salary>30000 AND
 SALARY<70000 ;

FNAME           MN LNAME
--------------- -- ---------------
Frankin         T  Wong
Jenifer         S  Wallace
Ramesh          K  Narayan
James           E  Borg
```

3. ***Find the employee who have no supervisor.***

QUERY:

SQL> select * from employee_21BCT0358 WHERE supervisorssn is null;

```
SQL>  select * from employee_21BCT0358 WHERE supervisor_ssn is null;

FNAME           MN LNAME           SSN       BIRTHDAY  ADDRESS                                            S     SALARY SUPERVISO DEPARTMENT_NUMBER
--------------- -- --------------- --------- --------- -------------------------------------------------- - ---------- --------- -----------------
Doung           E  Gilbert         554433221 09/JUN/60 11 S 59 E, Salt Lake City, UT                      M      80000                          3
Joyce              PAN             543216789 07/FEB/78 35 S 18 E,Salt Lake City, UT                       F      70000                          2

SQL>
```

4. ***Display the bday of all the employees in format 'DDthMONTHYYYY'.***

QUERY: SQL> select birthday, to_char(birthday,'ddth month yyyy') from employee_21bct0358;

```
SQL> select birthday, to_char(birthday,'ddth month yyyy') from employee_21bc
t0358;

BIRTHDAY  TO_CHAR(BIRTHDAY,'DDTHMONTHYYYY')
--------- ----------------------------------------
09/JUN/60 09th june      1960
07/FEB/78 07th february  1978
08/DEC/45 08th december  2045
20/JUN/31 20th june      2031
09/JAN/55 09th january   1955
15/SEP/52 15th september 1952
31/JUL/62 31st july      1962
10/NOV/27 10th november  2027
19/JUL/58 19th july      1958
29/MAR/59 29th march     1959

10 rows selected.

SQL> SQL> select FNAME,MNAME,LNAME from employee_21bct0358 where salary>2500
0;
```

5. ***Display the employees name whose birthday is on or before 1978.***

QUERY:

SQL> select fname, mname, lname from employee_21BCT0358 WHERE birthday >= ('01-jan-1978');

```
SQL>  select fname, mname, lname from employee_21BCT0358 WHERE birthday >= (
'01-jan-1978');

FNAME           MN LNAME
--------------- -- ---------------
Joyce              PAN
Frankin         T  Wong
Jenifer         S  Wallace
James           E  Borg

SQL>
```

6. ***Display the employee name having "Salt Lake" in their address.***

QUERY:

SQL> select * from employee_21BCT0358 where address LIKE '%Salt Lake%';

```
SQL> select * from employee_21BCT0358 where address LIKE '%Salt Lake%';

FNAME           MN LNAME           SSN       BIRTHDAY  ADDRESS
 S      SALARY SUPERVISO DEPARTMENT_NUMBER
-------------- -- --------------- --------- --------- --------------------
----------------------------- - ---------- --------- -----------------
Doung           E  Gilbert         554433221 09/JUN/60 11 S 59 E, Salt Lake
City, UT                         M      80000                             3
Joyce              PAN             543216789 07/FEB/78 35 S 18 E,Salt Lake C
ity, UT                    F      70000                             2

SQL>
```

```
SQL> select * from employee_BCE0211 where address LIKE '%Salt Lake%';

FNAME          MI LNAME          SSNNUMBER BIRTHDAY  ADDRESS                                           S     SALARY SUPERVISO DEPTNUMBER
-------------- -- -------------- --------- --------- ------------------------------------------------- - ---------- --------- ----------
Doug           E  Gilbert        123456789 19/JUN/20 Salt Lake City Houston                            m      80000 123456789          1
Joyce             Pan            666884444 07/FEB/78 Salt Lake City Houston                            m      70000 666884444          1

SQL>
```

7. ***Display the department name which starts with 'M'.***

QUERY:

SQL> select * from department_BCT0358 WHERE deptname LIKE 'M%';

```
SQL> select * from department_BCT0358 WHERE deptname LIKE 'M%';

DEPTNAME        DEPTNUMBER MANAGERSS MANAGERST
--------------- ---------- --------- ---------
Manufacture              1 888665555 19/JUN/71

SQL>
```

8. ***display the department name which ends with 'E'.***

QUERY:

SQL> select * from department_BCT0358 WHERE deptname LIKE '%e';

```
SQL>  select * from department_BCT0358 WHERE deptname LIKE '%e';

DEPTNAME        DEPTNUMBER MANAGERSS MANAGERST
--------------- ---------- --------- ---------
Manufacture              1 888665555 19/JUN/71
Finance                  4 987654321 01/JAN/85

SQL>
```

9. Display the names of the employees having supervisor with any of the following ssn.

QUERY:

SQL> select fname, midname, lname from employee_21BCT0358 WHERE supervisorssn = '554433221' or supervisorssn = '333445555';

```
SQL> select fname, mname, lname from employee_21BCT0358 WHERE supervisor_ssn = '554433221' or supervisor_ssn = '333445555';

FNAME           MN LNAME
--------------- -- ---------------
Frankin         T  Wong
Jenifer         S  Wallace
John            B  Smith
Ramesh          K  Narayan
Joyce           A  English

SQL>
```

10. Display all the department names in uppercase and lowercase.

QUERY:

SQL> select UPPER(deptname) AS UppercaseDEPTNAMES from department_BCT0358;

SQL> select LOWER(deptname) AS LowercaseDEPTNAMES from department_BCT0358;

```
SQL> select UPPER(deptname) AS UppercaseDEPTNAMES from department_BCT0358;

UPPERCASEDEPTNA
---------------
MANUFACTURE
ADMINISTRATION
HEADQUATER
FINANCE
RESEARCH

SQL> select LOWER(deptname) AS LowercaseDEPTNAMES from department_BCT0358;

LOWERCASEDEPTNA
---------------
manufacture
administration
headquater
finance
research

SQL>
```

11.Display the first four characters and last four of the department names using ltrim and rtrim.

```
mysql>
mysql> select substring(department_name, 1, 4) as first_four_chars, substring(department_name, -4) as last_four_chars from department_bct0358;
+-----------------+----------------+
| first_four_chars | last_four_chars |
+-----------------+----------------+
| Manu            | ture           |
| Admi            | tion           |
| Head            | ater           |
| Fina            | ance           |
| Rese            | arch           |
+-----------------+----------------+
5 rows in set (0.00 sec)

mysql>
mysql>
```

```
mysql> select substring(ltrim(department_name), 1, 4) as first_four_chars, substring(rtrim(department_name), -4) as last_four_chars from department_bct0358;

+-----------------+----------------+
| first_four_chars | last_four_chars |
+-----------------+----------------+
| Manu            | ture           |
| Admi            | tion           |
| Head            | ater           |
| Fina            | ance           |
| Rese            | arch           |
+-----------------+----------------+
5 rows in set (0.00 sec)

mysql>
mysql>
```

12. Display the substring of the Address (starting from 5th position to 11 th position) of all employees.

QUERY: SQL> SELECT SUBSTR(Address,5,11) FROM Employee_21bct0358;

```
SQL>  SELECT SUBSTR(Address,5,11) FROM Employee_21bct0358;

SUBSTR(ADDRESS,5,11)
-------------------------------------------
 59 E, Salt
 18 E,Salt
Voss,Housto
Berry,Bella
Fondren,Hou
Fire Oak,Hu
 Rice,Houst
Stone,Houst
 Castle,Spr
Dallas,Hous

10 rows selected.
```

13. Display the Mgrstartdate on adding three months to it. 14. Display the age of all the employees rounded to two digits.

QUERY: SQL> SELECT ManagerStartDate,ADD_MONTHS(ManagerStartDate,3) FROM Department_bct0358;

```
SQL> select ManagerStartDate,ADD_MONTHS(ManagerStartDate,3) FROM Department_b
ct0358;

MANAGERST ADD_MONTH
--------- ---------
19/JUN/71 19/SEP/71
04/JAN/99 04/APR/99
22/SEP/55 22/DEC/55
01/JAN/85 01/APR/85
22/MAY/78 22/AUG/78
```

14. Display the age of all the employees rounded to two digits.

QUERY:

SQL> SELECT FiName,MName,LName,ROUND((MONTHS_BETWEEN(SYSDATE,Birthday)/12),2) FROM Employee_21bct0358;

```
SQL> select FName,MName,LName,ROUND((MONTHS_BETWEEN(SYSDATE,Birthday)/12),2) FROM
  2  employee_21bct0358;

FNAME           MN LNAME
--------------- -- ---------------
ROUND((MONTHS_BETWEEN(SYSDATE,BIRTHDAY)/12),2)
----------------------------------------------
Doung           E  Gilbert
                                        63.01

Joyce              PAN
                                        45.35

Frankin         T  Wong
                                       -22.49


FNAME           MN LNAME
--------------- -- ---------------
ROUND((MONTHS_BETWEEN(SYSDATE,BIRTHDAY)/12),2)
----------------------------------------------
Jenifer         S  Wallace
                                        -8.02

John            B  Smith
                                        68.43

Ramesh          K  Narayan
                                        70.75


FNAME           MN LNAME
--------------- -- ---------------
ROUND((MONTHS_BETWEEN(SYSDATE,BIRTHDAY)/12),2)
----------------------------------------------
Joyce           A  English
                                        60.87

James           E  Borg
                                        -4.41

Alicia          J  Zelaya
                                         64.9


FNAME           MN LNAME
--------------- -- ---------------
ROUND((MONTHS_BETWEEN(SYSDATE,BIRTHDAY)/12),2)
----------------------------------------------
Ahmed           V  Jabbar
                                        64.21


10 rows selected.
```

15. Find the last day and next day of the month in which each manager has joined.

QUERY:

SQL> SELECT ManagerStartDate,LAST_DAY(ManagerstartDate) FROM Department_bct0358;

SQL> SELECT Manager_Start_Date,Manager_Start_Date+1 FROM Department_bct0358;

SQL> SELECT Manager_Start_Date,LAST_DAY(Manager_Start_Date),Manager_Start_Date+1 FROM Department_bct0358;

```
SQL>  SELECT ManagerStartDate,LAST_DAY( ManagerStartDate) FROM Department_bct0358;

MANAGERST LAST_DAY(
--------- ---------
19/JUN/71 30/JUN/71
04/JAN/99 31/JAN/99
22/SEP/55 30/SEP/55
01/JAN/85 31/JAN/85
22/MAY/78 31/MAY/78

SQL>  SELECT ManagerStartDate,ManagerStartDate+1 FROM Department_bct0358t;
 SELECT ManagerStartDate,ManagerStartDate+1 FROM Department_bct0358t
                                                 *
ERROR at line 1:
ORA-00942: table or view does not exist


SQL>  SELECT ManagerStartDate,ManagerStartDate+1 FROM Department_bct0358;

MANAGERST MANAGERST
--------- ---------
19/JUN/71 20/JUN/71
04/JAN/99 05/JAN/99
22/SEP/55 23/SEP/55
01/JAN/85 02/JAN/85
22/MAY/78 23/MAY/78

SQL> > SELECT Manager_Start_Date,LAST_DAY( Manager_Start_Date),Manager_Start_Date+1 FROM
SP2-0734: unknown command beginning "> SELECT M..." - rest of line ignored.
SQL> Department;
SP2-0042: unknown command "Department" - rest of line ignored.
SQL>  SELECT ManagerStartDate,LAST_DAY( ManagerStartDate),ManagerStartDate+1 FROM
  2  department_bct0358;

MANAGERST LAST_DAY( MANAGERST
--------- --------- ---------
19/JUN/71 30/JUN/71 20/JUN/71
04/JAN/99 31/JAN/99 05/JAN/99
22/SEP/55 30/SEP/55 23/SEP/55
01/JAN/85 31/JAN/85 02/JAN/85
22/MAY/78 31/MAY/78 23/MAY/78
```

16. Print a substring from the string 'Harini".

QUERY: SQL> SELECT SUBSTR('Harini',2,5) FROM Dual;

```
SQL> select substr('HARINI',2,5) from dual;

SUBST
-----
ARINI
```

17. Replace the string 'ni' from 'Harini' by 'sh'.

QUERY: SQL> SELECT REPLACE('Harini','ni','sh') FROM Dual;

```
SQL> select replace ('HARINI','NI','SH') FROM DUAL;

REPLAC
------
HARISH
```

18. Print the length of all the department names.

QUERY: SQL> SELECT Department_Name,LENGTH(Department_Name) FROM Department_bct0358;

```
SQL> SELECT DepTName,LENGTH(DepTName) FROM Department_BCT0358;

DEPTNAME        LENGTH(DEPTNAME)
--------------- ----------------
Manufacture                   11
Administration                14
Headquater                    10
Finance                        7
Research                       8
```

19. Print the system date in the format 25 th May 2007.

SELECT TO_CHAR(SYSDATE, 'DDth Month YYYY') AS formatted_date

FROM dual;

```
SQL> SELECT TO_CHAR(SYSDATE, 'DDth Month YYYY') AS formatted_date
  2  FROM dual;

FORMATTED_DATE
--------------------------------------------
13TH June       2023

SQL>
```

20. Display the date after 10 months from current date.

QUERY: SQL> SELECT SYSDATE,ADD_MONTHS(SYSDATE,10) FROM Dual;

```
SQL>  SELECT SYSDATE,ADD_MONTHS(SYSDATE,10) FROM Dual;

SYSDATE   ADD_MONTH
--------- ---------
13/JUN/23 13/APR/24
```

21. Display the next occurrence of Friday in this month.

QUERY: SQL> SELECT SYSDATE,NEXT_DAY(SYSDATE,'Friday') FROM Dual;

```
SQL>  SELECT SYSDATE,NEXT_DAY(SYSDATE,'Friday') FROM Dual;

SYSDATE   NEXT_DAY(
--------- ---------
13/JUN/23 16/JUN/23
```

OR

```
mysql> select date_add("2023-06-1", interval 7 day) as nextfriday;
+------------+
| nextfriday |
+------------+
| 2023-06-08 |
+------------+
1 row in set (0.00 sec)

mysql>
```

22. Convert SSN of employee to Number Format and display.

SELECT TO_NUMBER(ssn) AS ssn_number

FROM employee_21bct0358;

```
SQL> SELECT TO_NUMBER(ssn) AS ssn_number
  2  FROM employee_21bct0358;

SSN_NUMBER
----------
 554433221
 543216789
 333445555
 987654321
 123456789
 666884444
 453453453
 888665555
 999887777
 987987987

10 rows selected.
```

23. Display the project location padded with ** on left side.**

QUERY: SQL> SELECT LPAD(Poject_Location,LENGTH(Poject_Location)+4,'****') FROM Project_bct0358;

```
SQL> SELECT LPAD(PRojectLocation,LENGTH(PRojectLocation)+4,'****') FROM Project_BCT0358;

LPAD(PROJECTLOCATION,LENGTH(PROJECTLOCATION)+4,'****')
--------------------------------------------------------------------------------
****Houston
****Salt Lake City
****Houston
****Bellaire
****Sugarland
****Salt Lake City
****New York
****Stafford
****Chicago
****San Francisco

10 rows selected.
```

24. Remove the word ‘project’ from the project name and display it.

SQL> SELECT SUBSTR(PROJECTNAME,8,8)AS newprojectname from project_bct0358;

```
SQL>  SELECT SUBSTR(PROJECTNAME,8,8)AS newprojectname from project_bct0358;

NEWPROJECTNAME
--------------------------------
A
B
C
D
E
F
G
H
I
J

10 rows selected.

SQL>
```

25. Select SSN of the employee whose dependent name is either Michaelor Abner.

```
mysql>
mysql>
mysql> select SSN_number from employee_bct0237 where (select dependent_name from dependent_bct0358 where dependent_name like "%abner%" or dependent_name lik
e "%Michael%");
Empty set (0.00 sec)

mysql>
mysql>
mysql>
```

```
mysql>
mysql>
mysql> select employee from dependent_bct0358 where dependent_name like "%Michael%" or dependent_name like "%Abner%";
+-----------+
| employee  |
+-----------+
| 999887777 |
+-----------+
1 row in set (0.00 sec)
```

SURAJ JHA (21BCT0358)

DBMS LAB TASK-4

Exercise: IV

Group Functions

1.How many different departments are there in the ‘employee’ table

Query = SQL> SELECT COUNT(DISTINCT Department_Number) FROM Employee_21bct0358;

```
SQL> SELECT COUNT(DISTINCT Department_Number) FROM Employee_21bct0358;

COUNT(DISTINCTDEPARTMENT_NUMBER)
--------------------------------
                               5
```

2. For each department display the minimum and maximum employee salaries

SQL> SELECT Department_Number,MIN(Salary),MAX(Salary) FROM Employee_21bct0358 GROUP BY

2 Department_Number;

```
SQL> SELECT Department_Number,MIN(Salary),MAX(Salary) FROM Employee_21bct0358 GROUP BY
  2  Department_Number;

DEPARTMENT_NUMBER MIN(SALARY) MAX(SALARY)
----------------- ----------- -----------
                1       55000       55000
                2       70000       70000
                5       25000       40000
                4       25000       43000
                3       80000       80000
```

3. Print the average annual salary.

SQL> SELECT ROUND (AVG(SALARY*12),3) FROM Employee_21bct0358;

```
SQL>  SELECT ROUND (AVG(SALARY*12),3) FROM Employee_21bct0358;

ROUND(AVG(SALARY*12),3)
-----------------------
                517200
```

> SELECT ROUND (AVG(SALARY*12),1) FROM Employee_21bct0358;

```
SQL>  SELECT ROUND (AVG(SALARY*12),1) FROM Employee_21bct0358;

ROUND(AVG(SALARY*12),1)
-----------------------
                 517200
```

4. Count the number of employees over 30 age.

SQL> SELECT COUNT(*) FROM Employee_21bct0358

2 WHERE MONTHS_BETWEEN(SYSDATE,Birthday)/12>30;

SQL> SELECT COUNT(*) FROM Employee_21bct0358

2 WHERE FLOOR(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12))>30;

```
SQL> SELECT COUNT(*) FROM Employee_21bct0358
  2    WHERE MONTHS_BETWEEN(SYSDATE,Birthday)/12>30;

  COUNT(*)
----------
         7

SQL> SELECT COUNT(*) FROM Employee_21bct0358
  2  WHERE FLOOR(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12))>30;

  COUNT(*)
----------
         7

SQL>
```

5. Print the Department name and average salary of each department.

SQL> SELECT DeptName,AVG(Salary) FROM Department_bct0358,Employee_21bct0358 group by deptname;

```
SQL>  SELECT DeptName,AVG(Salary) FROM Department_bct0358,Employee_21bct0358
 group by deptname;

DEPTNAME        AVG(SALARY)
--------------- -----------
Administration        43100
Headquater            43100
Research              43100
Manufacture           43100
Finance               43100

SQL>
```

6. Display the department name which contains more than 30 employees.

```
SQL> SELECT D.DeptName FROM Department_bct0358 D,Employee_21bct0358 E
  2  WHERE E.Department_Number=D.DeptNumber
  3  GROUP BY D.DeptName
  4  HAVING COUNT(*)>2;

DEPTNAME
---------------
Research
Finance
```

```
SQL> SELECT D.DeptName FROM Department_bct0358 D,Employee_21bct0358 E
  2  WHERE E.Department_Number=D.DeptNumber
  3  GROUP BY D.DeptName
  4  HAVING COUNT(*)>3;

DEPTNAME
---------------
Research
```

7. Calculate the average salary of employees by department and age

SQL> SELECT Department_Number,ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12) AS age,avg(salary) from employee_21bct0358 group by

2 Department_Number,ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12);

```
SQL>  SELECT Department_Number,ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12) AS
age,avg(salary) from employee_21bct0358 group by
  2  Department_Number,ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12);

DEPARTMENT_NUMBER        AGE AVG(SALARY)
----------------- ---------- -----------
                5 22.4850605       40000
                1 4.40710353       55000
                5  68.428918       30000
                5 60.8697782       25000
                3 63.0122513       80000
                4 8.01731858       43000
                5 70.7461223       38000
                2  45.350961       70000
                4 64.9020363       25000
                4 64.2084879       25000

10 rows selected.

SQL>
```

SELECT Department_Number,round(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12),0) AS age,avg(salary) from employee_21bct0358 group by

2 Department_Number,round(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12),0);

```
SQL>  SELECT Department_Number,round(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12
),0) AS  age,avg(salary) from employee_21bct0358 group by
  2  Department_Number,round(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12),0);

DEPARTMENT_NUMBER        AGE AVG(SALARY)
----------------- ---------- -----------
                1          4       55000
                4         64       25000
                2         45       70000
                5         22       40000
                4          8       43000
                5         68       30000
                4         65       25000
                3         63       80000
                5         61       25000
                5         71       38000

10 rows selected.
```

8. Count separately the number of employees in the finance and research department.

SQL> SELECT D.DeptName,COUNT(*) FROM DEPARTMENT_bct0358 D,Employee_21bct0358 E WHERE

2 D.DeptNumber=E.Department_Number

3 GROUP BY D.DeptName

4 HAVING DeptName IN('Finance','Administration');

```
SQL> SELECT D.DeptName,COUNT(*) FROM DEPARTMENT_bct0358 D,Employee_21bct0358
 E WHERE
  2  D.DeptNumber=E.Department_Number
  3   GROUP BY D.DeptName
  4    HAVING DeptName IN('Finance','Administration');

DEPTNAME          COUNT(*)
--------------- ----------
Administration           1
Finance                  3

SQL>
```

9. List out the employees based on their seniority.

SQL> SELECT FName,SSN,ROUND(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12),0) as age

2 from employee_21bct0358 ORDER BY ROUND(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12),0)

3 desc;

```
SQL> SELECT FName,SSN,ROUND(ABS(MONTHS_BETWEEN(SYSDATE,Birthday)/12),0) as a
ge
  2  from employee_21bct0358  ORDER BY ROUND(ABS(MONTHS_BETWEEN(SYSDATE,Birt
hday)/12),0)
  3  desc;

FNAME           SSN              AGE
--------------- --------- ----------
Ramesh          666884444         71
John            123456789         68
Alicia          999887777         65
Ahmed           987987987         64
Doung           554433221         63
Joyce           453453453         61
Joyce           543216789         45
Frankin         333445555         22
Jenifer         987654321          8
James           888665555          4

10 rows selected.

SQL>
```

10. List out the employees who works in ‘manufacture’ department group by first name