# DBMS LAB REPORT

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| ***Lab Number : 06*** |
| ***Date : 17 March, 2022*** |
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| ***Branch : Computer Science and Engineering*** |
| ***Section : CSE -10*** |

## Part A (Last Class Table Questions):

## Employee Table :

```
SQL> SELECT * FROM EMPLOYEE;

    EMP_NO EMP_NAME        JOB             MANAGER_ID    DEPT_NO
---------- --------------- --------------- ---------- ----------
      1234 RAMESH          SALESMAN              1001         20
      1349 HARISH          SALESMAN              1001         20
      1738 RAHUL           OPERATOR              1001         20
      1625 RAMESH          SECURITY              1002         30
      1273 RAKESH          OPERATOR              1002         30
      1725 RAVI            SECURITY              1003         25
      1024 MANISH          SALESMAN              1003         25
      1579 KAPIL           CLEANER               1004
      1699 RAJ             CLEANER               1005

9 rows selected.
```

## Manager Table :

```
SQL> SELECT * FROM MANAGER;

    MAN_ID MAN_NAME   HIGHES INSTI    DEPT_ID
---------- ---------- ------ ----- ----------
      1001 NAVEEN     MBA    IITMA         20
      1002 KRISHNA    MBA    IITMK         25
      1003 KAMAL      MTECH  IITB          30
      1004 MAHESH     PHD    IISC          25
      1005 RAMESH     PHD    IISC          21
      1006 RAVI       PHD    IITK          21
      1007 RAHUL      MBA    IIMB          24

7 rows selected.
```

## Department Table :

```
SQL> SELECT * FROM DEPARTMENT;

       DID DNAME                STRENGTH AVG_SALARY C
---------- -------------------- ---------- ---------- -
        20 SALES                       100      12000 x
        21 SECURITY                     20      10000 y
        22 PRODUCTION                   25      15000 z
        23 MARKETING                    30      16000 x
        24 OPERATION                    15      15500 z
        25 STAGING                      10      20000 z
        26 HR                           10      15000 y
        27 ICT                           8      20000 y
        30 EXTERNAL AFFAIRS              5      30000 y

9 rows selected.
```

1. Find the manager name of dept 20.

```
SQL> select man_name from manager where dept_id=20;

MAN_NAME
----------
NAVEEN
```

2. Find the highest qualification of the manager of dept 25.

```
SQL> select highest_qualification from manager where dept_id=25;

HIGHES
------
MBA
PHD
```

3. What is the category of the department whose manager is Naveen.

```
SQL> SELECT DEPARTMENT.CATEGORY  FROM DEPARTMENT INNER JOIN MANAGER ON MANAGER.DEPT_ID=DEPARTMENT.DID WHERE MAN_NAME='NAVEEN';

C
-
X
```

4.What is the avg salary of the department where Ravi is working.

```
SQL> SELECT DEPARTMENT.AVG_SALARY FROM DEPARTMENT INNER JOIN MANAGER ON MANAGER.DEPT_ID=DEPARTMENT.DID WHERE MAN_NAME='RAVI';

AVG_SALARY
----------
     10000
```

5.List the employee details who are working under a manager passed out from IISC.

```
SQL> SELECT EMPLOYEE.EMP_NO,EMPLOYEE.EMP_NAME FROM EMPLOYEE INNER JOIN MANAGER ON MANAGER.MAN_ID=EMPLOYEE.MANAGER_ID WHERE MANAGER.INSTITUTION='IISC';

    EMP_NO EMP_NAME
---------- ---------------
      1579 KAPIL
      1699 RAJ
```

6.Name of the manager whose department strength is maximum.

```
SQL> SELECT MAN_NAME FROM MANAGER INNER JOIN DEPARTMENT ON MANAGER.DEPT_ID=DEPARTMENT.DID WHERE DEPARTMENT.STRENGTH = (SELECT MAX(STRENGTH) FROM DEPARTMENT);

MAN_NAME
----------
NAVEEN
```

7.List down the manager details who are managing category Y departmants.

```
SQL> SELECT MAN_ID,MAN_NAME FROM MANAGER INNER JOIN DEPARTMENT ON MANAGER.DEPT_ID = DEPARTMENT.DID WHERE DEPARTMENT.CATEGORY='Y';

    MAN_ID MAN_NAME
---------- ----------
      1003 KAMAL
      1005 RAMESH
      1006 RAVI
```

8.How many employees are working under Naveen.

```
SQL> SELECT EMP_NO,EMP_NAME FROM EMPLOYEE INNER JOIN MANAGER ON EMPLOYEE.MANAGER_ID=MANAGER.MAN_ID WHERE MANAGER.MAN_NAME='NAVEEN';

    EMP_NO EMP_NAME
---------- ---------------
      1234 RAMESH
      1349 HARISH
      1738 RAHUL
```

9.List down the employees who doesn't belong to any department as of now.

```
SQL> SELECT * FROM EMPLOYEE WHERE DEPT_NO IS NULL;

    EMP_NO EMP_NAME        JOB             MANAGER_ID    DEPT_NO
---------- --------------- --------------- ---------- ----------
      1579 KAPIL           CLEANER               1004
      1699 RAJ             CLEANER               1005
```

10.List down the employees who are working under production department.

```
SQL> SELECT * FROM EMPLOYEE INNER JOIN DEPARTMENT ON EMPLOYEE.DEPT_NO = DEPARTMENT.DID WHERE DEPARTMENT.DNAME='Production';

no rows selected

SQL>
```

## Part B (New Table Creation) :

1. Create and populate the following table ‘EMP06’. Make Emp_no the primary key and F_name not null.

| Emp_no | F_name | L_name | Salary | Dept_no |
|---|---|---|---|---|
| 101 | Jai | | 90000 | 1 |
| 102 | Viru | | 80000 | 1 |
| 103 | Gabbar | Singh | 70000 | 2 |
| 104 | Basanti | | 60000 | 3 |
| 105 | Ram | Lal | 50000 | 3 |
| 106 | Radha | Thakur | 30000 | 3 |

```
SQL> CREATE TABLE EMP06(EMP_NO NUMBER(3) CONSTRAINT EMP_06_EMP_NO_PK PRIMARY KEY, F_NAME VARCHAR2(25) CONSTRAINT EMP_06_F_NAME_NN NOT NULL, L_NAME VARCHAR2(20), SALARY NUMB
ER(6), DEPT_NO NUMBER(1));

Table created.

SQL> DESC EMP06;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMP_NO                                    NOT NULL NUMBER(3)
 F_NAME                                    NOT NULL VARCHAR2(25)
 L_NAME                                             VARCHAR2(20)
 SALARY                                             NUMBER(6)
 DEPT_NO                                            NUMBER(1)

SQL> INSERT INTO EMP06 VALUES(101, 'Jai', '', 90000, 1);

1 row created.

SQL> INSERT INTO EMP06 VALUES(102, 'Viru', '', 80000, 1);

1 row created.

SQL> INSERT INTO EMP06 VALUES(103, 'Gabbar', 'Singh', 70000, 2);

1 row created.

SQL> INSERT INTO EMP06 VALUES(104, 'Basanti', '', 60000, 3);

1 row created.

SQL> INSERT INTO EMP06 VALUES(105, 'Ram', 'Lal', 50000, 3);

1 row created.

SQL> INSERT INTO EMP06 VALUES(106, 'Radha', 'Thakur', 30000, 3);

1 row created.
```

```
SQL> SELECT * FROM EMP06;

    EMP_NO F_NAME                    L_NAME                    SALARY    DEPT_NO
---------- ------------------------- ------------------- ---------- ----------
       101 Jai                                              90000          1
       102 Viru                                             80000          1
       103 Gabbar                   Singh                   70000          2
       104 Basanti                                          60000          3
       105 Ram                      Lal                     50000          3
       106 Radha                    Thakur                  30000          3

6 rows selected.
```

2. Create and populate the following table ‘PROJECT’. Make P_no the primary key and put a default value constraint on P_Loc with value = ‘Mumbai’.

| P_no | P_name | P_Loc |
|---|---|---|
| 1 | XYZ | Pune |
| 2 | ABC | Pune |
| 3 | IJK | |

```
SQL> CREATE TABLE PROJECT(P_no NUMBER(1) CONSTRAINT PROJECT_P_NO_PK PRIMARY KEY, P_name VARCHAR2(15), P_Loc VARCHAR2(20) DEFAULT 'Mumbai');

Table created.

SQL> INSERT INTO PROJECT VALUES(1, 'XYZ', 'PUNE');

1 row created.

SQL> INSERT INTO PROJECT VALUES(2, 'ABC', 'PUNE');

1 row created.

SQL> INSERT INTO PROJECT VALUES(3, 'IJK', '');

1 row created.

SQL> SELECT * FROM PROJECT;

      P_NO P_NAME          P_LOC
---------- --------------- --------------------
         1 XYZ             PUNE
         2 ABC             PUNE
         3 IJK
```

3. Create and populate the following EMP_PROJ table. Make (Emp_no, P_no) the primary key.

| Emp_no | P_no |
|---|---|
| 101 | 1 |
| 102 | 1 |
| 103 | 2 |
| 104 | 2 |
| 101 | 2 |
| 105 | 2 |

```
SQL> CREATE TABLE EMP_PROJ( Emp_no NUMBER(3), P_no NUMBER(1), CONSTRAINT EMP_PROJ_PK PRIMARY KEY(Emp_no, P_no) );

Table created.

SQL> INSERT INTO EMP_PROJ VALUES( 101, 1);

1 row created.

SQL> INSERT INTO EMP_PROJ VALUES( 102, 1);

1 row created.

SQL> INSERT INTO EMP_PROJ VALUES( 103, 2);

1 row created.

SQL> INSERT INTO EMP_PROJ VALUES( 104, 2);

1 row created.

SQL> INSERT INTO EMP_PROJ VALUES( 101, 2);

1 row created.

SQL> INSERT INTO EMP_PROJ VALUES( 105, 2);

1 row created.

SQL> SELECT * FROM EMP_PROJ;

    EMP_NO       P_NO
---------- ----------
       101          1
       102          1
       103          2
       104          2
       101          2
       105          2

6 rows selected.
```

4. Display the employee's first names with the project name's they are working on.

```
SQL> select emp06.f_name,project.p_name from emp06 inner join project on emp06.dept_no=project.p_no;

F_NAME                    P_NAME
------------------------- ---------------
Jai                       XYZ
Viru                      XYZ
Gabbar                    ABC
Basanti                   IJK
Ram                       IJK
Radha                     IJK

6 rows selected.
```

5. In which city Gabbar Singh works.

```
SQL> select emp06.f_name,project.p_loc from emp06 inner join project on emp06.dept_no=project.p_no where emp06.f_name='Gabbar';

F_NAME                    P_LOC
------------------------- --------------------
Gabbar                    PUNE

SQL>
```

6. Find the employee names who are not yet assigned to any project (using minus).

```
SQL> select F_name, L_name from EMP06 where Emp_no in (select Emp_no from EMP06 minus select Emp_no from EMP_PROJ);

F_NAME                    L_NAME
------------------------- --------------------
Radha                     Thakur
```

7. Find the employee names who are not yet assigned to any project (using outer join).

```
SQL> select f_name,l_name from emp06 left outer join emp_proj on emp_proj.emp_no=emp06.emp_no where p_no is null;

F_NAME                    L_NAME
------------------------- --------------------
Radha                     Thakur
```

8. Find the project names where no employees are working (using outer join).

```
SQL> select p_name from project left outer join emp_proj on emp_proj.p_no=project.p_no where emp_proj.p_no is null;

P_NAME
---------------
IJK
```

9. Find all the employee names who are working in project number 1 and project 'ABC' (using union).

```
SQL> select f_name, l_name from EMP06 where Emp_no in (select Emp_no from EMP_PROJ where P_no=1) union select f_name, l_name from EMP06 where Emp_no in (select Emp_no from
EMP_PROJ where P_no=(select P_no from PROJECT where P_name='ABC'));

F_NAME                    L_NAME
------------------------- --------------------
Basanti
Gabbar                    Singh
Jai
Ram                       Lal
Viru
```

10. Find all the employee names who are working in both project number 1 and project number 2 (using intersect).

```
SQL> select f_name,l_name from emp06 where emp_no=(select emp_proj.emp_no from emp_proj,project where emp_proj.p_no=project.p_no and project.p_no=1 intersect select emp_pro
j.emp_no from emp_proj,project where emp_proj.p_no=project.p_no and project.p_no=2);

F_NAME                    L_NAME
------------------------- --------------------
Jai
```

11. Find the number of employees working in each project.

```
SQL>  SELECT P_NO,COUNT(*) FROM EMP_PROJ GROUP BY P_NO;

      P_NO   COUNT(*)
---------- ----------
         1          2
         2          4
```

12. Find the average salary of each department.

```
SQL> select dept_no,avg(salary) from emp06 group by dept_no;

   DEPT_NO AVG(SALARY)
---------- -----------
         1       85000
         2       70000
         3  46666.6667
```

13. Find the department number with the number of employees working in each department where the average salary is greater than 60000 and number of employees greater than 1.

```
SQL> select dept_no from emp06 having avg(salary)>60000 and count(emp_no)>1 group by dept_no;

   DEPT_NO
----------
         1
```

14. Find all the employees who earn more than Basanti.

```
SQL> select emp_no from emp06 where salary>(select salary from emp06 where f_name='Basanti');

    EMP_NO
----------
       101
       102
       103
```

15. Find all the employees who earn more than the average salary of all employees.

```
SQL> select * from EMP06 where Salary > (select avg(Salary) from EMP06);

    EMP_NO F_NAME                    L_NAME                    SALARY    DEPT_NO
---------- ------------------------- ------------------- ---------- ----------
       101 Jai                                                 90000          1
       102 Viru                                                80000          1
       103 Gabbar                    Singh                     70000          2
```

16. Find the employee who earns the highest salary.

```
SQL> select emp_no from emp06 where salary in (select max(salary) from emp06);

    EMP_NO
----------
       101
```

17. Find the employee who earns the highest salary in dept_no 3.

```
SQL> select emp_no from emp06 where salary in (select max(salary) from emp06 where dept_no=3);

    EMP_NO
----------
       104
```

18. Find the employee earning the second highest salary.

```
SQL> select max(Salary)  from EMP06 where Salary < (select max(Salary) from EMP06);

MAX(SALARY)
-----------
      80000
```

19. Find the dept_no having the highest average salary.

```
SQL> select dept_no,avg(salary) from emp06 group by dept_no having avg(salary)=(select max(avg(salary)) from emp06 group by dept_no);

   DEPT_NO AVG(SALARY)
---------- -----------
         1       85000
```

20. Find the employee with the third highest salary among all the employees.

```
SQL> select * from emp06 where salary=(select min(salary) from (select distinct salary from emp06 order by salary desc) where rownum<4);

    EMP_NO F_NAME                    L_NAME                    SALARY    DEPT_NO
---------- ------------------------- ------------------- ---------- ----------
       103 Gabbar                    Singh                    70000          2
```