Exercise - 5

Tables Creation :

```
SQL> create table employee(empno number(5),ename varchar2(10),job varchar2(10),
  2  mgr number(5),hiredate date,sal number(5),comm number(4),deptno number(2));

Table created.

SQL> create table dept(deptno number(2),dname varchar2(15),loc varchar2(15));

Table created.

SQL> create table salgrade(grade number(1),losal number(5),hisal number(5));

Table created.

SQL> alter table employee add constraint pk_employee primary key(empno);

Table altered.

SQL> alter table dept add constraint pk_dept primary key(deptno);

Table altered.

SQL> alter table employee add constraint fk_employee foreign key(deptno) references dept(deptno);

Table altered.
```

Insertion :

```
SQL> insert into DEPT values(10,'ACCOUNTING','NEW YORK');

1 row created.

SQL> insert into dept values(20, 'RESEARCH', 'DALLAS');

1 row created.

SQL> insert into dept values(30, 'SALES', 'CHICAGO');

1 row created.

SQL> insert into dept values(40, 'OPERATIONS', 'BOSTON');

1 row created.
```

```
SQL> insert into employee
  2  values(
  3   7839, 'KING', 'PRESIDENT', null,
  4   to_date('17-11-1981','dd-mm-yyyy'),
  5   5000, null, 10
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7698, 'BLAKE', 'MANAGER', 7839,
  4   to_date('1-5-1981','dd-mm-yyyy'),
  5   2850, null, 30
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7782, 'CLARK', 'MANAGER', 7839,
  4   to_date('9-6-1981','dd-mm-yyyy'),
  5   2450, null, 10
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7566, 'JONES', 'MANAGER', 7839,
  4   to_date('2-4-1981','dd-mm-yyyy'),
  5   2975, null, 20
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7788, 'SCOTT', 'ANALYST', 7566,
  4   to_date('13-JUL-87','dd-mm-rr') - 85,
  5   3000, null, 20
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7902, 'FORD', 'ANALYST', 7566,
  4   to_date('3-12-1981','dd-mm-yyyy'),
  5   3000, null, 20
  6  );
1 row created.
```

```
SQL> insert into employee
  2  values(
  3   7369, 'SMITH', 'CLERK', 7902,
  4   to_date('17-12-1980','dd-mm-yyyy'),
  5   800, null, 20
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7499, 'ALLEN', 'SALESMAN', 7698,
  4   to_date('20-2-1981','dd-mm-yyyy'),
  5   1600, 300, 30
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7521, 'WARD', 'SALESMAN', 7698,
  4   to_date('22-2-1981','dd-mm-yyyy'),
  5   1250, 500, 30
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7654, 'MARTIN', 'SALESMAN', 7698,
  4   to_date('28-9-1981','dd-mm-yyyy'),
  5   1250, 1400, 30
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7844, 'TURNER', 'SALESMAN', 7698,
  4   to_date('8-9-1981','dd-mm-yyyy'),
  5   1500, 0, 30
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7876, 'ADAMS', 'CLERK', 7788,
  4   to_date('13-JUL-87', 'dd-mm-rr') - 51,
  5   1100, null, 20
  6  );
```

```
SQL> insert into employee
  2  values(
  3   7900, 'JAMES', 'CLERK', 7698,
  4   to_date('3-12-1981','dd-mm-yyyy'),
  5   950, null, 30
  6  );

1 row created.

SQL> insert into employee
  2  values(
  3   7934, 'MILLER', 'CLERK', 7782,
  4   to_date('23-1-1982','dd-mm-yyyy'),
  5   1300, null, 10
  6  );

1 row created.

SQL> commit;

Commit complete.

SQL> insert into salgrade values(1,700,1200);

1 row created.

SQL> insert into salgrade values(2,1201,1400);

1 row created.

SQL> insert into salgrade values(3,1401,2000);

1 row created.

SQL> insert into salgrade values(4,2001,3000);

1 row created.

SQL> insert into salgrade values(5,3001,9999);

1 row created.
```

1. Display all different job types

```
SQL> select distinct job from employee;

JOB
─ ─ ─ ─ ─
CLERK
SALESMAN
PRESIDENT
MANAGER
ANALYST
```

2. List the details of all employees in deptno 10 and 20 in alphabetical order.

```
SQL> select * from employee where (deptno=10 or deptno=20) order by ename asc;

    EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM     DEPTNO
---------- ---------- ---------- ---------- --------- ---------- ---------- ----------
     7876 ADAMS      CLERK           7788 23-MAY-87       1100                    20
     7782 CLARK      MANAGER         7839 09-JUN-81       2450                    10
     7902 FORD       ANALYST         7566 03-DEC-81       3000                    20
     7566 JONES      MANAGER         7839 02-APR-81       2975                    20
     7839 KING       PRESIDENT            17-NOV-81       5000                    10
     7934 MILLER     CLERK           7782 23-JAN-82       1300                    10
     7788 SCOTT      ANALYST         7566 19-APR-87       3000                    20
     7369 SMITH      CLERK           7902 17-DEC-80        800                    20

8 rows selected.
```

3. List the names of employees who have “th” or “ll” in their names

```
SQL> select ename from employee where ename like '%TH%' or ename like '%LL%';

ENAME
----------
SMITH
ALLEN
MILLER
```

4. List the names, jobs and salaries of all employees who have a manger.

```
SQL> select ename,job,sal from employee where mgr is not null;

ENAME      JOB              SAL
---------- ---------- ----------
BLAKE      MANAGER          2850
CLARK      MANAGER          2450
JONES      MANAGER          2975
SCOTT      ANALYST          3000
FORD       ANALYST          3000
SMITH      CLERK             800
ALLEN      SALESMAN         1600
WARD       SALESMAN         1250
MARTIN     SALESMAN         1250
TURNER     SALESMAN         1500
ADAMS      CLERK            1100

ENAME      JOB              SAL
---------- ---------- ----------
JAMES      CLERK             950
MILLER     CLERK            1300

13 rows selected.
```

5. Give name remuneration of all employees

```
SQL> select ename,sal+nvl(comm,0) as remuneration from employee;

ENAME      REMUNERATION
---------- ------------
KING               5000
BLAKE              2850
CLARK              2450
JONES              2975
SCOTT              3000
FORD               3000
SMITH               800
ALLEN              1900
WARD               1750
MARTIN             2650
TURNER             1500
ADAMS              1100
JAMES               950
MILLER             1300

14 rows selected.
```

6. List name and salary increased by 15% of all employees.

```
SQL> select ename, sal + (15*sal)/100 from employee;

ENAME      SAL+(15*SAL)/100
---------- ----------------
KING                 5750
BLAKE              3277.5
CLARK              2817.5
JONES             3421.25
SCOTT                3450
FORD                3450
SMITH                920
ALLEN               1840
WARD               1437.5
MARTIN             1437.5
TURNER               1725
ADAMS                1265
JAMES              1092.5
MILLER               1495

14 rows selected.
```

7. Find all the employees who were hired during 1982

```
SQL> select ename from employee where to_char(hiredate,'yyyy')=1982;

ENAME
----------
MILLER
```

8. Display name, annual salary, commission of all salesmen whose monthly salary is greater than commission.

```
SQL> select ename,12*sal as annual_salary,comm from employee where job='SALESMAN' and sal >
nvl(comm,0);

ENAME      ANNUAL_SALARY       COMM
---------- ------------- ----------
ALLEN              19200        300
WARD               15000        500
TURNER              18000          0
```

9. Produce the output as "smith has held the position of clerk in dept. 20 since 17-dec-80".

```
SQL> select ename || ' has held the position of ' || job || ' in dept.' || deptno || ' since ' || hiredate from
employee;

ENAME||'HASHELDTHEPOSITIONOF'||JOB||'INDEPT.'||DEPTNO||'SINCE'||HIREDATE
--------------------------------------------------------------------------------------------------------------
KING has held the position of PRESIDENT in dept.10 since 17-NOV-81
BLAKE has held the position of MANAGER in dept.30 since 01-MAY-81
CLARK has held the position of MANAGER in dept.10 since 09-JUN-81
JONES has held the position of MANAGER in dept.20 since 02-APR-81
SCOTT has held the position of ANALYST in dept.20 since 19-APR-87
FORD has held the position of ANALYST in dept.20 since 03-DEC-81
SMITH has held the position of CLERK in dept.20 since 17-DEC-80
ALLEN has held the position of SALESMAN in dept.30 since 20-FEB-81
WARD has held the position of SALESMAN in dept.30 since 22-FEB-81
MARTIN has held the position of SALESMAN in dept.30 since 28-SEP-81
TURNER has held the position of SALESMAN in dept.30 since 08-SEP-81
ADAMS has held the position of CLERK in dept.20 since 23-MAY-87
JAMES has held the position of CLERK in dept.30 since 03-DEC-81
MILLER has held the position of CLERK in dept.10 since 23-JAN-82

14 rows selected.
```

10. Find average salary and average total remuneration of all employees other than salesman

```
SQL> select avg(sal),avg(nvl(comm,0)+sal) from employee where job<>'SALESMAN';

  AVG(SAL) AVG(NVL(COMM,0)+SAL)
---------- --------------------
    2342.5               2342.5
```

11. Find maximum, minimum and average salaries in each department.

```
SQL> select deptno,max(sal),min(sal),avg(sal) from employee group by deptno;

    DEPTNO   MAX(SAL)   MIN(SAL)   AVG(SAL)
---------- ---------- ---------- ----------
        30       2850        950 1566.66667
        20       3000        800       2175
        10       5000       1300 2916.66667
```

12. Find the maximum, minimum and average salaries in each job.
SQL> select job,max(sal),min(sal),avg(sal) from employee group by job;

```
JOB         MAX(SAL)   MIN(SAL)   AVG(SAL)
---------- ---------- ---------- ----------
CLERK           1300        800     1037.5
SALESMAN        1600       1250       1400
PRESIDENT       5000       5000       5000
MANAGER         2975       2450 2758.33333
ANALYST         3000       3000       3000
```

13. Find the departments which have more than three employees.
SQL> select deptno from (select deptno,count(deptno) as emps from employee group by deptno) where emps>3;

```
   DEPTNO
----------
       30
       20
```

14. Display employee names and their respective department numbers.
SQL> select ename,deptno from employee;

```
ENAME         DEPTNO
---------- ----------
KING              10
BLAKE             30
CLARK             10
JONES             20
SCOTT             20
FORD              20
SMITH             20
ALLEN             30
WARD              30
MARTIN            30
TURNER            30

ENAME         DEPTNO
---------- ----------
ADAMS             20
JAMES             30
MILLER            10

14 rows selected.
```

15. Give the salary grades for all the employees.

```
SQL> select e.ename,s.grade from employee e,salgrade s where e.sal>=s.losal and e.sal<=s.hisal;

ENAME          GRADE
---------- ----------
SMITH               1
JAMES               1
ADAMS               1
MARTIN              2
WARD                2
MILLER              2
TURNER              3
ALLEN               3
CLARK               4
BLAKE               4
JONES               4

ENAME          GRADE
---------- ----------
FORD                4
SCOTT               4
KING                5

14 rows selected.
```

16. Display the employee names who earn highest salary in each job.

```
SQL> select ename,sal from employee where sal in (select salary from (select max(sal) as salary from
employee group by job));

ENAME           SAL
---------- ----------
KING           5000
JONES          2975
SCOTT          3000
FORD           3000
ALLEN          1600
MILLER         1300

6 rows selected.
```

17. Find the employee details whose salary is greater than blake's salary

```
SQL> select * from employee where sal > any (select sal from employee where ename='BLAKE');

    EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM DEPTNO
---------- ---------- ---------- ---------- --------- ---------- ---------- ----------
      7839 KING       PRESIDENT            17-NOV-81       5000                    10
      7788 SCOTT      ANALYST         7566 19-APR-87       3000                    20
      7902 FORD       ANALYST         7566 03-DEC-81       3000                    20
      7566 JONES      MANAGER         7839 02-APR-81       2975                    20
```

18. Find employee details of employees who have the same job and salary as that scott.

```
SQL> select * from employee where sal = any (select sal from employee where ename='SCOTT') and job =
any(select job from employee where ename='SCOTT') and ename<>'SCOTT';

    EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM DEPTNO
---------- ---------- ---------- ---------- --------- ---------- ---------- ------
     7902 FORD       ANALYST          7566 03-DEC-81       3000                20
```

19. Display the maximum salaries in accounting and research department.

```
SQL> select dname,max(sal) from dept natural join employee group by dname having
dname='ACCOUNTING' OR DNAME='RESEARCH';

DNAME          MAX(SAL)
-------------- ----------
ACCOUNTING           5000
RESEARCH             3000
```

20. Display salary grades of all employees except of those employees whose salary grade is 3 and 4.

```
SQL> select e.ename,s.grade from employee e,salgrade s where (s.grade not in(3,4)) and e.sal>=s.losal and
e.sal<=s.hisal;

ENAME          GRADE
---------- ----------
SMITH               1
JAMES               1
ADAMS               1
WARD                2
MARTIN              2
MILLER              2
KING                5

7 rows selected.
```

21. Give the names and salaries of the employees whose salary is maximum in their respective departments.

```
SQL> select ename,deptno,sal from employee where sal in (select max(sal) as salary from employee group
by deptno);

ENAME          DEPTNO       SAL
---------- ---------- ----------
BLAKE              30       2850
SCOTT              20       3000
KING               10       5000
FORD               20       3000
```

22. List the employees whose salary is greater than the salaries of all employees who are working as salesman

```
SQL> select ename,sal from employee where sal > all(select sal from employee where job='SALESMAN');

ENAME            SAL
---------- ----------
CLARK            2450
BLAKE            2850
JONES            2975
SCOTT            3000
FORD             3000
KING             5000

6 rows selected.
```

23. Write a query which will return the day of the week entered in the format of sysdate.

```
SQL> select to_char(to_date('&date'),'DAY') from dual;
Enter value for date: 23-feb-2019

TO_CHAR(T
---------
SATURDAY
```

24. Find the difference between highest and lowest salaries.

```
SQL> select max(sal)-min(sal) as difference from employee;

DIFFERENCE
----------
      4200
```

25. Generate the output as smith – clerk.

```
SQL> select ename || '-' || job from employee;

ENAME||'-'||JOB
--------------------
SMITH-CLERK
ALLEN-SALESMAN
WARD-SALESMAN
JONES-MANAGER
MARTIN-SALESMAN
BLAKE-MANAGER
CLARK-MANAGER
SCOTT-ANALYST
KING-PRESIDENT
TURNER-SALESMAN
ADAMS-CLERK
JAMES-CLERK
FORD-ANALYST
MILLER-CLERK

14 rows selected.
```

26. Generate the output as smith(Clerk).

```
SQL> select ename || '(' || job || ')' from employee;

ENAME||'('||JOB||')'
--------------------
SMITH(CLERK)
ALLEN(SALESMAN)
WARD(SALESMAN)
JONES(MANAGER)
MARTIN(SALESMAN)
BLAKE(MANAGER)
CLARK(MANAGER)
SCOTT(ANALYST)
KING(PRESIDENT)
TURNER(SALESMAN)
ADAMS(CLERK)
JAMES(CLERK)
FORD(ANALYST)
MILLER(CLERK)

14 rows selected.
```

27. Give the details of all employees those who r working as manager.

```
SQL> select * from employee where empno in (select mgr from employee);

    EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM     DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ----------
      7566 JONES      MANAGER         7839 02-APR-81       2975                    20
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850                    30
      7782 CLARK      MANAGER         7839 09-JUN-81       2450                    10
      7788 SCOTT      ANALYST         7566 19-APR-87       3000                    20
      7839 KING       PRESIDENT            17-NOV-81       5000                    10
      7902 FORD       ANALYST         7566 03-DEC-81       3000                    20

6 rows selected.
```

28. List the departments where there are no employees

```
SQL> select dname from dept where deptno not in (select deptno from employee group by deptno);

DNAME
--------------
OPERATIONS
```

29. Generate the following list: EMPLOYEE NAMME JOB SAL GRADE

```
SQL> select e.ename,e.job,e.sal,s.grade from employee e,salgrade s where e.sal>=s.losal and
e.sal<=s.hisal;

ENAME      JOB             SAL      GRADE
---------- --------- ---------- ----------
SMITH      CLERK            800          1
JAMES      CLERK            950          1
ADAMS      CLERK           1100          1
WARD       SALESMAN        1250          2
MARTIN     SALESMAN        1250          2
MILLER     CLERK           1300          2
TURNER     SALESMAN        1500          3
ALLEN      SALESMAN        1600          3
CLARK      MANAGER         2450          4
BLAKE      MANAGER         2850          4
JONES      MANAGER         2975          4

ENAME      JOB             SAL      GRADE
---------- --------- ---------- ----------
SCOTT      ANALYST         3000          4
FORD       ANALYST         3000          4
KING       PRESIDENT       5000          5

14 rows selected.
```

30. List the information of those employees in department number 10.

```
SQL> select * from employee where deptno=10;

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM     DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ----------
      7782 CLARK      MANAGER         7839 09-JUN-81       2450                    10
      7839 KING       PRESIDENT            17-NOV-81       5000                    10
      7934 MILLER     CLERK           7782 23-JAN-82       1300                    10
```

31. Find the department location of james.

```
SQL> select loc from employee natural join dept where ename='JONES';

LOC
-------------
DALLAS
```

32. Get the manager of jones

```
SQL> select ename from employee where empno in  (select mgr from employee where ename='JONES');

ENAME
----------
KING
```

33. Get the sub – ordinates of jones.

```
SQL> select ename from employee where mgr in ( select empno from employee where ename='JONES');

ENAME
----------
FORD
SCOTT
```

34. Write a query to calculate the length of time of all employees with the company

```
SQL> select ename,to_date(sysdate)-to_date(hiredate) as days from employee;

ENAME           DAYS
---------- ----------
SMITH          13948
ALLEN          13883
WARD           13881
JONES          13842
MARTIN          13663
BLAKE          13813
CLARK          13774
SCOTT          11634
KING           13613
TURNER          13683
ADAMS          11600

ENAME           DAYS
---------- ----------
JAMES          13597
FORD           13597
MILLER          13546

14 rows selected.
```

35. List out name, job, salary, grade, department name of all employees who are not clerks.

```
SQL> select e.ename,e.job,e.sal,s.grade from employee e,salgrade s where e.sal>=s.losal and
e.sal<=s.hisal and e.job<>'CLERK';

ENAME      JOB             SAL      GRADE
---------- --------- ---------- ----------
WARD       SALESMAN        1250          2
MARTIN     SALESMAN        1250          2
TURNER     SALESMAN        1500          3
ALLEN      SALESMAN        1600          3
CLARK      MANAGER         2450          4
BLAKE      MANAGER         2850          4
JONES      MANAGER         2975          4
SCOTT      ANALYST         3000          4
FORD       ANALYST         3000          4
KING       PRESIDENT       5000          5

10 rows selected.
```

36. List out name, job, salary, grade, department name of all employees who are clerks.

```
SQL> select e.ename,e.job,e.sal,s.grade from employee e,salgrade s where e.sal>=s.losal and
e.sal<=s.hisal and e.job='CLERK';

ENAME      JOB             SAL      GRADE
---------- --------- ---------- ----------
MILLER     CLERK           1300          2
ADAMS      CLERK           1100          1
JAMES      CLERK            950          1
SMITH      CLERK            800          1
```

37. Display the most recently employed employee in each department

```
SQL> select ename from employee where to_date(sysdate)-to_date(hiredate) in (select
min(to_date(sysdate)-to_date(hiredate)) as days from employee);

ENAME
----------
ADAMS
```