Assignment-4

Following SQL (DML) queries are based on Emp and Dept table:
[Use GROUP BY, HAVING, ORDER BY and different inbuilt functions]

1. Display empno, ename, sal in ascending order of salary from emp table.

select empno,ename,sal from emp order by sal;

```
     EMPNO ENAME                SAL
---------- ---------- ----------
      7369 SMITH                800
      7900 JAMES                950
      7876 ADAMS               1100
      7521 WARD                1250
      7654 MARTIN              1250
      7934 MILLER              1300
      7844 TURNER              1500
      7499 ALLEN               1600
      7782 CLARK               2450
      7698 BLAKE               2850
      7566 JONES               2975

     EMPNO ENAME                SAL
---------- ---------- ----------
      7788 SCOTT               3000
      7902 FORD                3000
      7839 KING                5000

14 rows selected.
```

2. List ename, sal, job and deptno in descending order of deptno and salary.

select ename,sal,job,deptno from emp order by deptno desc,sal desc;

```
ENAME             SAL JOB           DEPTNO
---------- ---------- --------- ----------
BLAKE            2850 MANAGER           30
ALLEN            1600 SALESMAN          30
TURNER           1500 SALESMAN          30
WARD             1250 SALESMAN          30
MARTIN           1250 SALESMAN          30
JAMES             950 CLERK             30
FORD             3000 ANALYST           20
SCOTT            3000 ANALYST           20
JONES            2975 MANAGER           20
ADAMS            1100 CLERK             20
SMITH             800 CLERK             20

ENAME             SAL JOB           DEPTNO
---------- ---------- --------- ----------
KING             5000 PRESIDENT         10
CLARK            2450 MANAGER           10
MILLER           1300 CLERK             10

14 rows selected.
```

3. List ename, sal, PF, HRA, DA and GROSS in ascending order of Gross. [Here PF is 12% of sal, HRA is 15% of sal, DA is 90% of sal and GROSS is sum of sal, PF, HRA, DA]

   select ename,sal,pf,hra,da,sal+pf+da+hra GROSS from (select ename,sal,0.12*sal pf,0.15*sal hra,0.9*sal da from emp) order by GROSS;

ENAME	SAL	PF	HRA	DA	GROSS
SMITH	800	96	120	720	1736
JAMES	950	114	142.5	855	2061.5
ADAMS	1100	132	165	990	2387
WARD	1250	150	187.5	1125	2712.5
MARTIN	1250	150	187.5	1125	2712.5
MILLER	1300	156	195	1170	2821
TURNER	1500	180	225	1350	3255
ALLEN	1600	192	240	1440	3472
CLARK	2450	294	367.5	2205	5316.5
BLAKE	2850	342	427.5	2565	6184.5
JONES	2975	357	446.25	2677.5	6455.75

ENAME	SAL	PF	HRA	DA	GROSS
SCOTT	3000	360	450	2700	6510
FORD	3000	360	450	2700	6510
KING	5000	600	750	4500	10850

14 rows selected.

4. List the maximum salary of employee working as a salesman.

   select max(sal) "maximum salary" from emp where job='SALESMAN';

maximum salary
1600

5. List the average salary and no of employees working in dept 20.

   select avg(sal) "average sal",count(empno) "empno" from emp where deptno=20;

average sal	empno
2175	5

6. Display deptno, no. of employees in each department.

   select deptno,count(empno) from emp group by deptno;

DEPTNO	COUNT(EMPNO)
30	6
20	5
10	3

7. List deptno, total salary payable in each department.

   select deptno,sum(sal) from emp group by deptno;

DEPTNO	SUM(SAL)
30	9400
20	10875
10	8750

8. List jobs and the no of employees in each job in descending order of no. of employees.
   select job,count(empno) from emp group by job order by count(empno) desc;

JOB	COUNT(EMPNO)
CLERK	4
SALESMAN	4
MANAGER	3
ANALYST	2
PRESIDENT	1

9. List total, maximum, minimum and average salary of employee's job wise.
   select job,sum(sal) "total sal",max(sal) "max sal",min(sal) "min sal",avg(sal) "avg sal" from emp group by job;

JOB	total sal	max sal	min sal	avg sal
CLERK	4150	1300	800	1037.5
SALESMAN	5600	1600	1250	1400
PRESIDENT	5000	5000	5000	5000
MANAGER	8275	2975	2450	2758.33333
ANALYST	6000	3000	3000	3000

10. List the average salary for each job excluding manager.
    select job,avg(sal) from emp where job!='MANAGER' group by job ;

JOB	AVG(SAL)
CLERK	1037.5
SALESMAN	1400
PRESIDENT	5000
ANALYST	3000

11. List total, maximum, minimum and average salary of employee's job-wise for dept no. 20 only.
    SELECT sum(sal) sum_sal,max(sal) max_sal,min(sal) min_sal,avg(sal) avg_sal from emp where deptno=20 group by job;

SUM_SAL	MAX_SAL	MIN_SAL	AVG_SAL
1900	1100	800	950
2975	2975	2975	2975
6000	3000	3000	3000

12. List average monthly salary for each job within department.

select job,deptno,avg(sal) from emp group by deptno,job;

JOB	DEPTNO	AVG(SAL)
CLERK	20	950
SALESMAN	30	1400
MANAGER	20	2975
CLERK	30	950
PRESIDENT	10	5000
MANAGER	30	2850
CLERK	10	1300
MANAGER	10	2450
ANALYST	20	3000

9 rows selected.

13. List average salary for all departments where more than 5 people are working.

select deptno,count(empno) "no of employees",avg(sal) from emp group by deptno having count(empno)>5;

DEPTNO	no of employees	AVG(SAL)
30	6	1566.66667

14. List jobs of all employees where maximum salary is greater than or equal to 5000.

select job,max(sal) from emp group by job having max(sal)>=5000;

```
JOB         MAX(SAL)
--------- ----------
PRESIDENT       5000
```

15. Display total, maximum, minimum and average salaries of employee's job-wise for department 20 and list only those rows having average salary greater than 1000.

    SELECT job, sum(sal) sum_sal,max(sal) max_sal,min(sal) min_sal,avg(sal) avg_sal from emp where deptno=20 group by job having avg(sal)>1000 ;

```
JOB         SUM_SAL    MAX_SAL    MIN_SAL    AVG_SAL
--------- ---------- ---------- ---------- ----------
MANAGER        2975       2975       2975       2975
ANALYST        6000       3000       3000       3000
```

16. Display total, maximum, minimum and average salaries of employee's job-wise for department 20 and list only those rows having average salary greater than 1000 and arrange the above output in descending order of total salary.

    SELECT job, sum(sal) sum_sal,max(sal) max_sal,min(sal) min_sal,avg(sal) avg_sal from emp where deptno=20 group by job having avg(sal)>1000 order by sum(sal) desc;

```
JOB         SUM_SAL    MAX_SAL    MIN_SAL    AVG_SAL
--------- ---------- ---------- ---------- ----------
ANALYST        6000       3000       3000       3000
MANAGER        2975       2975       2975       2975
```

17. Calculates the average of the maximum salaries of all the departments from emp table.

    select avg(max_sal) from (select max(sal) max_sal from emp group by deptno);

```
AVG(MAX_SAL)
------------
  3616.66667
```

18. Display the standard deviation (sd) of salary for each job type having sd >0 from emp table.

    select job,stddev(sal) from emp group by job having stddev(sal)>0;

```
JOB       STDDEV(SAL)
--------- -----------
CLERK      213.600094
SALESMAN   177.951304
MANAGER    274.241378
```

19. Count no. of employees whose commission is greater than 300.

select count(empno) from emp where comm>300;

```
COUNT(EMPNO)
------------
           2
```

20. Display sum of commission for each department after substituting 100 in commission if it is NULL and order the result in descending order of department.

    select sum(nvl(comm,100)) from emp group by deptno order by deptno desc;

```
SUM(NVL(COMM,100))
------------------
              2400
               500
               300
```

21. Display no. of manager present in employee table.

    select count(job) from emp where job='MANAGER';

```
COUNT(JOB)
----------
         3
```

22. List of employee names and commissions, substituting "Not Applicable" if the employee receives no commission for those whose name has contained a “M” and order this result as descending order of name.

    SELECT ename,nvl(to_char(comm),'Not Applicable') from emp where ename like '%M%' order by ename desc;

```
ENAME      NVL(TO_CHAR(COMM),'NOTAPPLICABLE')
---------- ------------------------------------
SMITH      Not Applicable
MILLER     Not Applicable
MARTIN     1400
JAMES      Not Applicable
ADAMS      Not Applicable
```

23. List names, salary and commission of employees whose name has contained a “M” when the income of some employees is made up of salary plus commission, or just salary, depending on whether the comm column of employees is null or not and order the result as ascending order of name.

    select ename,sal,nvl2(comm,comm+sal,sal) from emp where ename like '%M%' order by ename;

```
ENAME             SAL NVL2(COMM,COMM+SAL,SAL)
---------- ---------- ---------------------
ADAMS            1100                  1100
JAMES             950                   950
MARTIN           1250                  2650
MILLER           1300                  1300
SMITH             800                   800
```

24. Display the name of the employee where first character of each name is capital one.

select ename from emp where substr(ename,1,1) like upper(substr(ename,1,1));

```
ENAME
----------
SMITH
ALLEN
WARD
JONES
MARTIN
BLAKE
CLARK
SCOTT
KING
TURNER
ADAMS

ENAME
----------
JAMES
FORD
MILLER

14 rows selected.
```

25. Select the substring of 3 characters long starting form 2nd character of job type from emp table when job is 'SALESMAN'.

select distinct(substr(job,2,4)) FROM emp where job like 'SALESMAN';

```
(SUBSTR(JOB,2,4)
---------------
ALES
```