Assignment - 2(SP)

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Nov. 06, 2022

- Run the following SQL statements to create tables dept and emp and insert records into them:

```
create table dept(deptno number(2,0), dname varchar2(14), loc varchar2(13),
constraint pk_dept primary key (deptno));

create table emp(empno number(4,0), ename varchar2(10), job varchar2(9), mgr
number(4,0), hiredate date, sal number(7,2), comm number(7,2), deptno
number(2,0), constraint pk_emp primary key (empno), constraint fk_deptno foreign
key (deptno) references dept (deptno));

insert into DEPT (DEPTNO, DNAME, LOC) values(10, 'ACCOUNTING', 'NEW YORK');
insert into dept values(20, 'RESEARCH', 'DALLAS');
insert into dept values(30, 'SALES', 'CHICAGO');
insert into dept values(40, 'OPERATIONS', 'BOSTON');

insert into emp values(7839, 'KING', 'PRESIDENT', null, '17-NOV-1981', 5000,
null, 10);
insert into emp values(7698, 'BLAKE', 'MANAGER', 7839, '1-MAY-1981', 2850, null,
30);
insert into emp values(7782, 'CLARK', 'MANAGER', 7839, '09-JUN-1981', 2450,
null, 10);
insert into emp values(7566, 'JONES', 'MANAGER', 7839, '2-APR-1981', 2975, null,
20);
insert into emp values(7788, 'SCOTT', 'ANALYST', 7566, '13-JUL-1987', 3000,
null, 20);
insert into emp values(7902, 'FORD', 'ANALYST', 7566, '3-DEC-1981', 3000, null,
20);
insert into emp values(7369, 'SMITH', 'CLERK', 7902, '17-DEC-1980', 800, null,
20);
insert into emp values(7499, 'ALLEN', 'SALESMAN', 7698, '20-FEB-1981', 1600,
300, 30);
insert into emp values(7521, 'WARD', 'SALESMAN', 7698, '22-FEB-1981', 1250, 500,
30);
insert into emp values(7654, 'MARTIN', 'SALESMAN', 7698, '28-SEP-1981', 1250,
1400, 30);
insert into emp values(7844, 'TURNER', 'SALESMAN', 7698, '8-SEP-1981', 1500, 0,
30);
insert into emp values(7876, 'ADAMS', 'CLERK', 7788, '13-JUL-1987', 1100, null,
20);
```

```
insert into emp values(7900, 'JAMES', 'CLERK', 7698, '3-DEC-1981', 950, null,
30);
insert into emp values(7934, 'MILLER', 'CLERK', 7782, '23-JAN-1982', 1300, null,
10);
```

```
SQL> DESC dept;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPTNO                                    NOT NULL NUMBER(2)
 DNAME                                              VARCHAR2(14)
 LOC                                                VARCHAR2(13)

SQL> DESC emp;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPNO                                     NOT NULL NUMBER(4)
 ENAME                                              VARCHAR2(10)
 JOB                                                VARCHAR2(9)
 MGR                                                NUMBER(4)
 HIREDATE                                           DATE
 SAL                                                NUMBER(7,2)
 COMM                                               NUMBER(7,2)
 DEPTNO                                             NUMBER(2)
```

- Write SQL statements to resolve the following queries:

1. List the names and code of all employees.

```
SELECT ename, empno FROM emp;
```

```
SQL> SELECT ename, empno FROM emp;

ENAME           EMPNO
---------- ----------
KING             7839
BLAKE            7698
CLARK            7782
JONES            7566
SCOTT            7788
FORD             7902
SMITH            7369
ALLEN            7499
WARD             7521
MARTIN           7654
TURNER           7844

ENAME           EMPNO
---------- ----------
ADAMS            7876
JAMES            7900
MILLER           7934

14 rows selected.

SQL>
```

02) List the names, employee code and department code of all clerks.

```
SELECT emp.ename, emp.empno, emp.deptno, dept.dname FROM emp, dept WHERE
emp.deptno = dept.deptno AND job = 'CLERK';
```

```
SQL> SELECT emp.ename, emp.empno, emp.deptno, dept.dname FROM emp, dept WHERE emp.d
eptno = dept.deptno AND job = 'CLERK';

ENAME           EMPNO     DEPTNO DNAME
---------- ---------- ---------- --------------
SMITH            7369         20 RESEARCH
ADAMS            7876         20 RESEARCH
JAMES            7900         30 SALES
MILLER           7934         10 ACCOUNTING

SQL>
```

03) List the names, employee code and salary of all managers.

```
SELECT ename, empno, sal FROM emp WHERE job = 'MANAGER';
```

```
SQL> SELECT ename, empno, sal FROM emp WHERE job = 'MANAGER';

ENAME           EMPNO        SAL
---------- ---------- ----------
BLAKE            7698       2850
CLARK            7782       2450
JONES            7566       2975
```

04) List the names, employee code and hire date of all analysts.

```
SELECT ename, empno, hiredate FROM emp WHERE job = 'ANALYST';
```

```
SQL> SELECT ename, empno, hiredate FROM emp WHERE job = 'ANALYST';

ENAME           EMPNO HIREDATE
---------- ---------- ---------
SCOTT            7788 13-JUL-87
FORD             7902 03-DEC-81

SQL>
```

05) List the employees whose salary lies between 2000 and 3000.

```
SELECT ename FROM emp WHERE sal BETWEEN 2000 AND 3000;
```

```
SQL> SELECT ename FROM emp WHERE sal BETWEEN 2000 AND 3000;

ENAME
----------
BLAKE
CLARK
JONES
SCOTT
FORD
```

06) List the employees whose salary less than 1000.

```
SELECT ename, sal FROM emp WHERE sal < 1000;
```

```
SQL> SELECT ename, sal FROM emp WHERE sal < 1000;

ENAME             SAL
---------- ----------
SMITH             800
JAMES             950
```

07) List the employees whose salary greater than 4000.

```
SELECT ename, sal FROM emp WHERE sal > 4000;
```

```
SQL> SELECT ename, sal FROM emp WHERE sal > 4000;

ENAME             SAL
---------- ----------
KING             5000
```

08) List the names of all employees who are either clerks or salesman or analysts.

```
SELECT ename, job FROM emp WHERE job IN ('CLERK', 'ANALYST', 'SALESMAN');
```

```
SQL> SELECT ename, job FROM emp WHERE job  IN ('CLERK', 'ANALYST', 'SALESMAN');

ENAME      JOB
---------- ---------
SCOTT      ANALYST
FORD       ANALYST
SMITH      CLERK
ALLEN      SALESMAN
WARD       SALESMAN
MARTIN     SALESMAN
TURNER     SALESMAN
ADAMS      CLERK
JAMES      CLERK
MILLER     CLERK

10 rows selected.
```

09) List the employees those who are not getting commission.

```
SELECT ename, empno FROM emp WHERE comm IS NULL;
```

```
SQL> SELECT ename, empno FROM emp WHERE comm IS NULL;

ENAME           EMPNO
---------- ----------
KING             7839
BLAKE            7698
CLARK            7782
JONES            7566
SCOTT            7788
FORD             7902
SMITH            7369
ADAMS            7876
JAMES            7900
MILLER           7934

10 rows selected.

SQL>
```

10) List the employees those who are getting commission.

```
SELECT ename, empno FROM emp WHERE comm IS NOT NULL;
```

```
SQL> SELECT ename, empno FROM emp WHERE comm IS NOT NULL;

ENAME           EMPNO
---------- ----------
ALLEN            7499
WARD             7521
MARTIN           7654
TURNER           7844
```

11) List all employees whose names start with 'G'.

```
SELECT ename, empno FROM emp WHERE ename LIKE 'G%';
```

```
SQL> SELECT ename, empno FROM emp WHERE ename LIKE 'G%';

no rows selected

SQL>
```

12) List all managers who earn more than Rs. 4000.

```
SELECT ename, sal FROM emp WHERE sal > 4000 AND job = 'MANAGER';
```

```
SQL> SELECT ename, sal FROM emp WHERE sal > 4000 AND job = 'MANAGER';

no rows selected
```

13) List all clerks and managers who earn more than Rs. 1600.

```
SELECT ename, sal, job FROM emp WHERE sal > 1600 AND job IN ('CLERK',
'MANAGER');
```

```
SQL> SELECT ename, sal, job FROM emp WHERE sal > 1600 AND job IN ('CLERK', 'MANAG
R');

ENAME             SAL JOB
---------- ---------- ---------
BLAKE            2850 MANAGER
CLARK            2450 MANAGER
JONES            2975 MANAGER
```

14) List the names and salaries of all employees who were joined as manager during 1981.

```
SELECT ename, sal FROM emp WHERE job = 'MANAGER' AND hiredate LIKE '%81';
```

```
SQL> SELECT ename, sal FROM emp WHERE job = 'MANAGER' AND hiredate LIKE '%81';

ENAME             SAL
---------- ----------
BLAKE            2850
CLARK            2450
JONES            2975
```

15) Calculate the average salary of all managers.

```
SELECT AVG(sal) AS "AVG SALARY OF MANAGERS" FROM emp WHERE job = 'MANAGER';
```

```
SQL> SELECT AVG(sal) AS "AVG SALARY OF MANAGERS" FROM emp WHERE job = 'MANAGER';

AVG SALARY OF MANAGERS
----------------------
           2758.33333
```

16) Calcutate the total salary of all employees.

```
SELECT SUM(sal) AS "TOTAL SALARY OF EMPLOYEES" FROM emp;
```

```
SQL> SELECT SUM(sal) AS "TOTAL SALARY OF EMPLOYEES" FROM emp;

TOTAL SALARY OF EMPLOYEES
-------------------------
                    29025
```

17) Find the minimum salaries earned by the clerks.

```
SELECT MIN(sal) AS "MINIMUM SALARY OF CLERK" FROM emp WHERE job = 'CLERK';
```

```
SQL> SELECT MIN(sal) AS "MINIMUM SALARY OF CLERK" FROM emp WHERE job = 'CLERK';

MINIMUM SALARY OF CLERK
-----------------------
                    800
```

18) Find the maximum salaries earned by a salesman.

```
SELECT MAX(sal) AS "MAXIMUM SALARY OF SALESMAN" FROM emp WHERE job = 'SALESMAN';
```

```
SQL> SELECT MAX(sal) AS "MAXIMUM SALARY OF SALESMAN" FROM emp WHERE job = 'SALESM
N';

MAXIMUM SALARY OF SALESMAN
--------------------------
                      1600
```

19) Find the minimum and maximum and average salaries earned by a clerks.

```
SELECT job, MIN(sal) AS "MINIMUM SALARY", MAX(sal) AS "MAXIMUM SALARY", AVG(sal)
AS "AVERAGE SALARY" FROM emp WHERE job = 'CLERK' GROUP BY job;
```

```
SQL> SELECT job, MIN(sal) AS "MINIMUM SALARY", MAX(sal) AS "MAXIMUM SALARY", AVG(
al) AS "AVERAGE SALARY" FROM emp WHERE job = 'CLERK' GROUP BY job;

JOB       MINIMUM SALARY MAXIMUM SALARY AVERAGE SALARY
--------- -------------- -------------- --------------
CLERK                800           1300         1037.5
```

or,

```
SELECT MIN(sal) AS "MINIMUM SALARY OF CLERK", MAX(sal) AS "MAXIMUM SALARY OF
CLERK", AVG(sal) AS "AVERAGE SALARY OF CLERK" FROM emp WHERE job = 'CLERK';
```

```
SQL> SELECT MIN(sal) AS "MINIMUM SALARY OF CLERK", MAX(sal) AS "MAXIMUM SALARY OF
CLERK", AVG(sal) AS "AVERAGE SALARY OF CLERK" FROM emp WHERE job = 'CLERK';

MINIMUM SALARY OF CLERK MAXIMUM SALARY OF CLERK AVERAGE SALARY OF CLERK
----------------------- ----------------------- -----------------------
                    800                    1300                  1037.5
```

20) Calculate total number of employees.

```
SELECT COUNT(*) AS "TOTAL NUMBER OF EMPLOYEES" FROM emp;
```

```
SQL> SELECT COUNT(*) AS "TOTAL NUMBER OF EMPLOYEES" FROM emp;

TOTAL NUMBER OF EMPLOYEES
-------------------------
                       14
```

21) Display the minimum, maximum and average salaries for each job group.

```
SELECT job, MIN(sal) AS "MINIMUM SALARY", MAX(sal) AS "MAXIMUM SALARY", AVG(sal)
AS "AVERAGE SALARY" FROM emp GROUP BY job;
```

```
SQL> SELECT job, MIN(sal) AS "MINIMUM SALARY", MAX(sal) AS "MAXIMUM SALARY", AVG(
al) AS "AVERAGE SALARY" FROM emp GROUP BY job;

JOB       MINIMUM SALARY MAXIMUM SALARY AVERAGE SALARY
--------- -------------- -------------- --------------
CLERK                800           1300         1037.5
SALESMAN            1250           1600           1400
PRESIDENT           5000           5000           5000
MANAGER             2450           2975     2758.33333
ANALYST             3000           3000           3000
```

22) Display the name, departno and annual salary of each employee in order of salary and deptno.

```
SELECT ename AS "NAME", deptno, sal*12 AS "ANNUAL SALARY" FROM emp ORDER BY sal,
deptno;
```

```
SQL> SELECT ename AS "NAME", deptno, sal*12 AS "ANNUAL SALARY" FROM emp ORDER BY
al, deptno;

NAME           DEPTNO ANNUAL SALARY
---------- ---------- -------------
SMITH              20          9600
JAMES              30         11400
ADAMS              20         13200
MARTIN             30         15000
WARD               30         15000
MILLER             10         15600
TURNER             30         18000
ALLEN              30         19200
CLARK              10         29400
BLAKE              30         34200
JONES              20         35700

NAME           DEPTNO ANNUAL SALARY
---------- ---------- -------------
FORD               20         36000
SCOTT              20         36000
KING               10         60000

14 rows selected.
```

23) Display the name of employee who earns minimum salary.

```
SELECT ename AS "NAME", sal AS "SALARY" FROM emp WHERE sal IN(SELECT MIN(sal)
FROM EMP);
```

```
SQL> SELECT ename AS "NAME", sal AS "SALARY" FROM emp WHERE sal IN(SELECT MIN(sal
 FROM EMP);

NAME           SALARY
---------- ----------
SMITH             800

SQL>
```

24) Display the name of employee who earns minimum salary whose job is a clerk.

```
SELECT ename AS "NAME", job, sal AS "SALARY" FROM emp WHERE sal IN(SELECT
MIN(sal) FROM emp WHERE job = 'CLERK');
```

```
SQL> SELECT ename AS "NAME", job, sal AS "SALARY" FROM emp WHERE sal IN(SELECT MI
(sal) FROM emp WHERE job = 'CLERK');

NAME       JOB           SALARY
---------- --------- ----------
SMITH      CLERK            800

SQL>
```

25) List all employee name,dept number,dept name and salary, in order of salary.

```
SELECT emp.ename AS "NAME", emp.deptno AS "DEPT NO", dept.dname AS "DEPT NAME",
emp.sal AS "SALARY" FROM emp, dept WHERE emp.deptno = dept.deptno ORDER BY sal;
```

```
SQL> SELECT emp.ename AS "NAME", emp.deptno AS "DEPT NO", dept.dname AS "DEPT NAM
", emp.sal AS "SALARY" FROM emp, dept WHERE emp.deptno = dept.deptno ORDER BY sal


NAME          DEPT NO DEPT NAME          SALARY
---------- ---------- -------------- ----------
SMITH              20 RESEARCH              800
JAMES              30 SALES                 950
ADAMS              20 RESEARCH             1100
MARTIN             30 SALES                1250
WARD               30 SALES                1250
MILLER             10 ACCOUNTING           1300
TURNER             30 SALES                1500
ALLEN              30 SALES                1600
CLARK              10 ACCOUNTING           2450
BLAKE              30 SALES                2850
JONES              20 RESEARCH             2975

NAME          DEPT NO DEPT NAME          SALARY
---------- ---------- -------------- ----------
FORD               20 RESEARCH             3000
SCOTT              20 RESEARCH             3000
KING               10 ACCOUNTING           5000

14 rows selected.
```

26) List all employees working in Dallas in descending order of salary.

```
SELECT ename, emp.deptno, sal FROM emp, dept WHERE emp.deptno = dept.deptno AND
dept.loc = 'DALLAS' ORDER BY emp.sal DESC;
```

```
SQL> SELECT ename, emp.deptno, sal FROM emp, dept WHERE emp.deptno = dept.deptno
ND dept.loc = 'DALLAS' ORDER BY emp.sal DESC;

ENAME          DEPTNO        SAL
---------- ---------- ----------
FORD               20       3000
SCOTT              20       3000
JONES              20       2975
ADAMS              20       1100
SMITH              20        800
```