

SQL Mastery Series – 110 Question using 4 table – Set 1

Emp Table:

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	7369	SMITH	CLERK	7902	1980-12-17	800.00	NULL	20
2	7499	ALLEN	SALESMAN	7698	1981-02-20	1600.00	300.00	30
3	7521	WARD	SALESMAN	7698	1981-02-22	1250.00	500.00	30
4	7566	JONES	MANAGER	7839	1981-04-02	2975.00	NULL	20
5	7698	BLAKE	MANAGER	7839	1981-05-01	2850.00	NULL	30
6	7782	CLARK	MANAGER	7839	1981-06-09	2450.00	NULL	10
7	7839	KING	PRESIDENT	NULL	1981-11-17	5000.00	NULL	10
8	7902	FORD	ANALYST	7566	1981-12-03	3000.00	NULL	20
9	7934	MILLER	CLERK	7782	1982-01-23	1300.00	NULL	10

DEPT

	DEPTNO	DNAME	LOC
1	10	ACCOUNTING	NEW YORK
2	20	RESEARCH	DALLAS
3	30	SALES	CHICAGO
4	40	OPERATIONS	BOSTON

Salgrade

	GRADE	LOSAL	HISAL
1	1	700.00	1200.00
2	2	1201.00	1400.00
3	3	1401.00	2000.00
4	4	2001.00	3000.00
5	5	3001.00	9999.00

JobHistory

	EMPNO	JOB	STARTDATE	ENDDATE	DEPTNO
1	7369	INTERN	2019-01-01	2020-12-31	20
2	7369	ASSISTANT CLERK	2021-01-01	2022-12-31	20
3	7499	JUNIOR SALESMAN	2018-03-01	2019-12-31	30
4	7499	SALESMAN	2020-01-01	2021-12-31	30
5	7521	TRAINEE	2017-05-15	2019-05-15	30
6	7521	SALESMAN	2019-05-16	2020-12-31	30
7	7566	ASSISTANT MANAGER	2015-04-02	2018-12-31	20
8	7566	MANAGER	2019-01-01	2021-12-31	20
9	7698	ASSISTANT MANAGER	2016-05-01	2019-04-30	30
10	7698	MANAGER	2019-05-01	2022-12-31	30
11	7782	SUPERVISOR	2016-06-09	2018-06-08	10
12	7782	MANAGER	2018-06-09	2021-06-08	10
13	7839	VICE PRESIDENT	2010-11-17	2015-11-16	10
14	7839	PRESIDENT	2015-11-17	2023-12-31	10
15	7902	SENIOR ANALYST	2017-12-03	2019-12-02	20
16	7902	ANALYST	2019-12-03	2022-12-02	20
17	7934	JUNIOR CLERK	2016-01-23	2018-01-22	10
18	7934	CLERK	2018-01-23	2020-01-22	10

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-- 1) Display all employees with their department names.

```
SELECT E.ENAME, D.DNAME  
FROM EMP E  
JOIN DEPT D ON E.DEPTNO = D.DEPTNO;
```

	ENAME	DNAME
1	SMITH	RESEARCH
2	ALLEN	SALES
3	WARD	SALES
4	JONES	RESEARCH
5	BLAKE	SALES
6	CLARK	ACCOUNTING
7	KING	ACCOUNTING
8	FORD	RESEARCH
9	MILLER	ACCOUNTING

-- 2) Display employees along with their manager names.

```
SELECT E.ENAME AS EMPLOYEE_NAME, M.ENAME AS MANAGER_NAME  
FROM EMP E  
LEFT JOIN EMP M ON E.MGR = M.EMPNO;
```

	EMPLOYEE_NAME	MANAGER_NAME
1	SMITH	FORD
2	ALLEN	BLAKE
3	WARD	BLAKE
4	JONES	KING
5	BLAKE	KING
6	CLARK	KING
7	KING	NULL
8	FORD	JONES
9	MILLER	CLARK

-- 3) Display employee names, salaries, and total salaries for each department.

```
SELECT E.ENAME, E.SAL, SUM(E.SAL) OVER (PARTITION BY E.DEPTNO) AS  
TOTAL_DEPT_SALARY  
FROM EMP E;
```

	ENAME	SAL	TOTAL_DEPT_SALARY
1	CLARK	2450.00	8750.00
2	KING	5000.00	8750.00
3	MILLER	1300.00	8750.00
4	FORD	3000.00	6775.00
5	SMITH	800.00	6775.00
6	JONES	2975.00	6775.00
7	BLAKE	2850.00	5700.00
8	ALLEN	1600.00	5700.00
9	WARD	1250.00	5700.00

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-- 4) Display employee names and their annual salary (SAL * 12).

```
SELECT ENAME, SAL * 12 AS ANNUAL_SALARY  
FROM EMP;
```

	ENAME	ANNUAL_SALARY
1	SMITH	9600.00
2	ALLEN	19200.00
3	WARD	15000.00
4	JONES	35700.00
5	BLAKE	34200.00
6	CLARK	29400.00
7	KING	60000.00
8	FORD	36000.00
9	MILLER	15600.00

-- 5) Display the total salary for each department.

```
SELECT DEPTNO, SUM(SAL) AS TOTAL_SALARY  
FROM EMP  
GROUP BY DEPTNO;
```

	DEPTNO	TOTAL_SALARY
1	10	8750.00
2	20	6775.00
3	30	5700.00

-- 6) Find the highest salary in each department.

```
SELECT DEPTNO, MAX(SAL) AS HIGHEST_SALARY  
FROM EMP  
GROUP BY DEPTNO;
```

	DEPTNO	HIGHEST_SALARY
1	10	5000.00
2	20	3000.00
3	30	2850.00

-- 7) Display department-wise employee count.

```
SELECT DEPTNO, COUNT(*) AS EMPLOYEE_COUNT  
FROM EMP  
GROUP BY DEPTNO;
```

	DEPTNO	EMPLOYEE_COUNT
1	10	3
2	20	3
3	30	3

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-- 8) Display the names of employees who earn more than the average salary of their department.

```
SELECT ENAME FROM EMP E  
WHERE SAL > (  
    SELECT AVG(SAL)  
    FROM EMP  
    WHERE DEPTNO = E.DEPTNO
```

);

	ENAME
1	KING
2	FORD
3	JONES
4	BLAKE

-- 9) Display the names of employees who have the highest salary in their department.

```
SELECT ENAME  
FROM EMP E  
WHERE SAL = (  
    SELECT MAX(SAL)  
    FROM EMP  
    WHERE DEPTNO = E.DEPTNO
```

);

	ENAME
1	BLAKE
2	FORD
3	KING

-- 10) Display the department name and total salary for each department.

```
SELECT D.DNAME, SUM(E.SAL) AS TOTAL_SALARY  
FROM EMP E  
JOIN DEPT D ON E.DEPTNO = D.DEPTNO  
GROUP BY D.DNAME;
```

	DNAME	TOTAL_SALARY
1	ACCOUNTING	8750.00
2	RESEARCH	6775.00
3	SALES	5700.00



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--Table 1 Employee Table

```
CREATE TABLE EMP (
    EMPNO INT PRIMARY KEY,          -- Employee Number
    ENAME VARCHAR(50),              -- Employee Name
    JOB VARCHAR(50),                -- Job Title
    MGR INT,                       -- Manager's Employee Number
    HIREDATE DATE,                 -- Hire Date
    SAL DECIMAL(10, 2),             -- Salary
    COMM DECIMAL(10, 2),            -- Commission
    DEPTNO INT,                     -- Department Number
    CONSTRAINT FK_MGR FOREIGN KEY (MGR) REFERENCES EMP(EMPNO)
);
```

--department Table

```
CREATE TABLE DEPT (
    DEPTNO INT PRIMARY KEY,         -- Department Number
    DNAME VARCHAR(50),              -- Department Name
    LOC VARCHAR(50)                 -- Location
);
```

-- Salary Grade

```
CREATE TABLE SALGRADE (
    GRADE INT,                      -- Salary Grade
    LOSAL DECIMAL(10, 2),             -- Lowest Salary for Grade
    HISAL DECIMAL(10, 2)              -- Highest Salary for Grade
);
```

-- Job History

```
CREATE TABLE JOBHISTORY (
    EMPNO INT,                      -- Employee Number
    JOB VARCHAR(50),                 -- Job Title
    STARTDATE DATE,                  -- Start Date of Job
    ENDDATE DATE,                    -- End Date of Job
    DEPTNO INT,                      -- Department Number
    CONSTRAINT FK_EMPNO FOREIGN KEY (EMPNO) REFERENCES EMP(EMPNO),
    CONSTRAINT FK_DEPTNO FOREIGN KEY (DEPTNO) REFERENCES DEPT(DEPTNO)
);
```



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```
INSERT INTO DEPT (DEPTNO, DNAME, LOC) VALUES  
(10, 'ACCOUNTING', 'NEW YORK'),  
(20, 'RESEARCH', 'DALLAS'),  
(30, 'SALES', 'CHICAGO'),  
(40, 'OPERATIONS', 'BOSTON');
```

```
INSERT INTO SALGRADE (GRADE, LOSAL, HISAL) VALUES  
(1, 700, 1200),  
(2, 1201, 1400),  
(3, 1401, 2000),  
(4, 2001, 3000),  
(5, 3001, 9999);
```

```
INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO) VALUES  
(7369, 'SMITH', 'CLERK', 7902, '1980-12-17', 800, NULL, 20),  
(7499, 'ALLEN', 'SALESMAN', 7698, '1981-02-20', 1600, 300, 30),  
(7521, 'WARD', 'SALESMAN', 7698, '1981-02-22', 1250, 500, 30),  
(7566, 'JONES', 'MANAGER', 7839, '1981-04-02', 2975, NULL, 20),  
(7698, 'BLAKE', 'MANAGER', 7839, '1981-05-01', 2850, NULL, 30),  
(7782, 'CLARK', 'MANAGER', 7839, '1981-06-09', 2450, NULL, 10),  
(7839, 'KING', 'PRESIDENT', NULL, '1981-11-17', 5000, NULL, 10),  
(7902, 'FORD', 'ANALYST', 7566, '1981-12-03', 3000, NULL, 20),  
(7934, 'MILLER', 'CLERK', 7782, '1982-01-23', 1300, NULL, 10);
```

```
CREATE TABLE JOB_HISTORY (  
    EMPNO INT,  
    START_DATE DATE,  
    END_DATE DATE,  
    JOB VARCHAR(50),  
    DEPTNO INT,  
    PRIMARY KEY (EMPNO, START_DATE)  
);
```

```
INSERT INTO JOB_HISTORY (EMPNO, STARTDATE, ENDDATE, JOB, DEPTNO) VALUES  
(7369, '2019-01-01', '2020-12-31', 'INTERN', 20),  
(7369, '2021-01-01', '2022-12-31', 'ASSISTANT CLERK', 20),
```



(7499, '2018-03-01', '2019-12-31', 'JUNIOR SALESMAN', 30),
(7499, '2020-01-01', '2021-12-31', 'SALESMAN', 30),
(7521, '2017-05-15', '2019-05-15', 'TRAINEE', 30),
(7521, '2019-05-16', '2020-12-31', 'SALESMAN', 30),
(7566, '2015-04-02', '2018-12-31', 'ASSISTANT MANAGER', 20),
(7566, '2019-01-01', '2021-12-31', 'MANAGER', 20),
(7698, '2016-05-01', '2019-04-30', 'ASSISTANT MANAGER', 30),
(7698, '2019-05-01', '2022-12-31', 'MANAGER', 30),
(7782, '2016-06-09', '2018-06-08', 'SUPERVISOR', 10),
(7782, '2018-06-09', '2021-06-08', 'MANAGER', 10),
(7839, '2010-11-17', '2015-11-16', 'VICE PRESIDENT', 10),
(7839, '2015-11-17', '2023-12-31', 'PRESIDENT', 10),
(7902, '2017-12-03', '2019-12-02', 'SENIOR ANALYST', 20),
(7902, '2019-12-03', '2022-12-02', 'ANALYST', 20),
(7934, '2016-01-23', '2018-01-22', 'JUNIOR CLERK', 10),
(7934, '2018-01-23', '2020-01-22', 'CLERK', 10);

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