

## DBMS LAB

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**Q1.A relational database contains two tables EMP & DEPT .**

**i) Create the above 2 tables with the following structure:**

**EMP Table**

Name	Type	Description
EMPNO	NUMERIC(4) Primary key	Employee no
ENAME	VARCHAR(20) NOT NULL	Employee name
JOB	CHAR(10)	Designation
MGR	NUMERIC(4)	Respective manager's empno
HIREDATE	DATETIME	Date of Joining
SAL	NUMERIC(9,2)	Salary
COMM	NUMERIC(7,2)	Commission
DEPTNO	NUMERIC(2)	Department

**DEPT Table**

Name	Type	Description
DEPTNO	NUMERIC(2) Primary key	Dept no
DNAME	VARCHAR(20) NOT NULL	Department name
LOC	VARCHAR(10)	Department location

**ii) Insert the following records into EMP Table:**

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
<b>7369</b>	<b>SMITH</b>	<b>CLERK</b>	<b>7902</b>	<b>1980-12-17</b>	<b>800</b>		<b>20</b>
<b>7499</b>	<b>ALLEN</b>	<b>SALESMAN</b>	<b>7698</b>	<b>1981-02-20</b>	<b>1600</b>	<b>300</b>	<b>30</b>
7521	WARD	SALESMAN	7698	<b>1981-02-22</b>	1250	500	30
7566	JONES	MANAGER	7839	<b>1981-04-02</b>	2975		20
7654	MARTIN	SALESMAN	7698	<b>1981-09-28</b>	1250	1400	30
7698	BLAKE	MANAGER	7839	<b>1981-05-01</b>	2850		30
7782	CLARK	MANAGER	7839	<b>1981-06-09</b>	2450		10
7788	SCOTT	ANALYST	7566	<b>1987-04-19</b>	3000		20
7839	KING	PRESIDENT		<b>1981-11-17</b>	5000		10
7844	TURNER	SALESMAN	7698	<b>1981-09-08</b>	1500	0	30
7876	ADAMS	CLERK	7788	<b>1987-05-23</b>	1100		20
7900	JAMES	CLERK	7698	<b>1981-12-03</b>	950		30
7902	FORD	ANALYST	7566	<b>1981-12-03</b>	3000		20
<b>7934</b>	<b>MILLER</b>	<b>CLERK</b>	<b>7782</b>	<b>1982-01-23</b>	<b>1300</b>		<b>10</b>

**iii)Insert the following records into DEPT Table:**

DEPTNO	DNAME	LOC
<b>10</b>	<b>ACCOUNTING</b>	<b>NEW YORK</b>
<b>20</b>	<b>RESEARCH</b>	<b>DALLAS</b>
<b>30</b>	<b>SALES</b>	<b>CHICAGO</b>
<b>40</b>	<b>OPERATIONS</b>	<b>BOSTON</b>

iv) Perform the following queries :

1. SELECT ALL THE RECORDS FROM EMP TABLE

OUTPUT:-

```
mysql> SELECT * FROM EMP;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980-12-17 00:00:00	800.00	NULL	20
7499	ALLEN	SALESMAN	7698	1981-02-20 00:00:00	1600.00	300.00	30
7521	WARD	SALESMAN	7698	1981-02-22 00:00:00	1250.00	500.00	30
7566	JONES	MANAGER	7839	1981-04-02 00:00:00	2975.00	NULL	20
7654	MARTIN	SALESMAN	7698	1981-09-28 00:00:00	1250.00	1400.00	30
7698	BLAKE	MANAGER	7839	1981-05-01 00:00:00	2850.00	NULL	30
7782	CLARK	MANAGER	7839	1981-06-09 00:00:00	2450.00	NULL	10
7788	SCOTT	ANALYST	7566	1987-04-19 00:00:00	3000.00	NULL	20
7839	KING	PRESIDENT	NULL	1981-11-17 00:00:00	5000.00	NULL	10
7844	TURNER	SALESMAN	7698	1981-09-08 00:00:00	1500.00	0.00	30
7876	ADAMS	CLERK	7788	1987-05-23 00:00:00	1100.00	NULL	20
7900	JAMES	CLERK	7698	1981-12-03 00:00:00	950.00	NULL	30
7902	FORD	ANALYST	7566	1981-12-03 00:00:00	3000.00	NULL	20
7934	MILLER	CLERK	7782	1982-01-23 00:00:00	1300.00	NULL	10

14 rows in set (0.00 sec)

2. SELECT ALL THE RECORDS FROM DEPT TABLE

OUTPUT:-

```
mysql> SELECT * FROM DEPT;
```

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEWYORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

4 rows in set (0.00 sec)

3. FIND THE EMPLOYEE NAME,SALARY WHO IS WORKING IN DEPT  
NO 20

**OUTPUT:-**

```
mysql> SELECT ENAME,SAL FROM EMP WHERE DEPTNO=20;
+-----+-----+
| ENAME | SAL      |
+-----+-----+
| SMITH | 800.00   |
| JONES | 2975.00  |
| SCOTT | 3000.00  |
| ADAMS | 1100.00  |
| FORD  | 3000.00  |
+-----+-----+
5 rows in set (0.00 sec)
```

4.FIND THE NAME ,JOB,SALARY OF THE EMPLOYEE WHO IS  
MANAGER

**OUTPUT:-**

```
mysql> SELECT ENAME,JOB,SAL FROM EMP WHERE JOB='MANAGER';
+-----+-----+-----+
| ENAME | JOB      | SAL      |
+-----+-----+-----+
| JONES | MANAGER  | 2975.00  |
| BLAKE | MANAGER  | 2850.00  |
| CLARK | MANAGER  | 2450.00  |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

5. FIND THE NAME ,JOB,SALARY OF THE EMPLOYEE WHO IS NOT A MANAGER

**OUTPUT:-**

```
mysql> SELECT ENAME,JOB,SAL FROM EMP WHERE JOB<>'MANAGER';
```

ENAME	JOB	SAL
SMITH	CLERK	800.00
ALLEN	SALESMAN	1600.00
WARD	SALESMAN	1250.00
MARTIN	SALESMAN	1250.00
SCOTT	ANALYST	3000.00
KING	PRESIDENT	5000.00
TURNER	SALESMAN	1500.00
ADAMS	CLERK	1100.00
JAMES	CLERK	950.00
FORD	ANALYST	3000.00
MILLER	CLERK	1300.00

11 rows in set (0.00 sec)

6. FIND THOSE EMPLOYEES WHO WERE HIRED BETWEEN 1 MAR 1981 AND 1 JUN 1983

**OUTPUT:-**

```
mysql> SELECT * FROM EMP WHERE HIREDATE BETWEEN '1981-03-01' AND '1982-06-01';
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7566	JONES	MANAGER	7839	1981-04-02 00:00:00	2975.00	NULL	20
7654	MARTIN	SALESMAN	7698	1981-09-28 00:00:00	1250.00	1400.00	30
7698	BLAKE	MANAGER	7839	1981-05-01 00:00:00	2850.00	NULL	30
7782	CLARK	MANAGER	7839	1981-06-09 00:00:00	2450.00	NULL	10
7839	KING	PRESIDENT	NULL	1981-11-17 00:00:00	5000.00	NULL	10
7844	TURNER	SALESMAN	7698	1981-09-08 00:00:00	1500.00	0.00	30
7900	JAMES	CLERK	7698	1981-12-03 00:00:00	950.00	NULL	30
7902	FORD	ANALYST	7566	1981-12-03 00:00:00	3000.00	NULL	20
7934	MILLER	CLERK	7782	1982-01-23 00:00:00	1300.00	NULL	10

9 rows in set (0.00 sec)

7. FIND EMPLOYEE NAME WHO WERE HIRED IN 1981

**OUTPUT:-**

```
mysql> SELECT ENAME FROM EMP WHERE EXTRACT(YEAR FROM HIREDATE)=1981;
+-----+
| ENAME |
+-----+
| ALLEN |
| WARD  |
| JONES |
| MARTIN|
| BLAKE |
| CLARK |
| KING  |
| TURNER|
| JAMES |
| FORD  |
+-----+
10 rows in set (0.00 sec)
```

8. FIND EMPLOYEE NAME WHOSE NAME STARS WITH 'S'

**OUTPUT:-**

```
mysql> SELECT ENAME FROM EMP WHERE ENAME LIKE 's%';
+-----+
| ENAME |
+-----+
| SMITH |
| SCOTT |
+-----+
2 rows in set (0.00 sec)
```

9. FIND EMPLOYEE NAME WHOSE NAME ENDS WITH 'S'

**OUTPUT:-**

```
mysql> SELECT ENAME FROM EMP WHERE ENAME LIKE '%s';
+-----+
| ENAME |
+-----+
| JONES |
| ADAMS |
| JAMES |
+-----+
3 rows in set (0.00 sec)
```

10. FIND EMPLOYEE NAME WHO ARE WORKING IN DEPT NO 20 & 40.

**OUTPUT:-**

```
mysql> SELECT ENAME FROM EMP WHERE DEPTNO=20 AND 40;
+-----+
| ENAME |
+-----+
| SMITH |
| JONES |
| SCOTT |
| ADAMS |
| FORD  |
+-----+
5 rows in set (0.00 sec)
```

11. FIND ENAME,JOB AND DEPTNO WHO ARE CLERK & SALESMAN.

**OUTPUT:-**

```
mysql> SELECT ENAME,JOB,DEPTNO FROM EMP WHERE JOB IN ('CLERK','SALESMAN');
+-----+-----+-----+
| ENAME | JOB   | DEPTNO |
+-----+-----+-----+
| SMITH | CLERK | 20     |
| ALLEN | SALESMAN | 30     |
| WARD  | SALESMAN | 30     |
| MARTIN | SALESMAN | 30     |
| TURNER | SALESMAN | 30     |
| ADAMS | CLERK | 20     |
| JAMES | CLERK | 30     |
| MILLER | CLERK | 10     |
+-----+-----+-----+
8 rows in set (0.00 sec)
```

12. FIND ENAME WHO ARE MANAGER AND GETTING SALARY MORE THAN 2000

**OUTPUT:-**

```
mysql> SELECT ENAME FROM EMP WHERE JOB='MANAGER' AND SAL > 2000;
+-----+
| ENAME |
+-----+
| JONES |
| BLAKE |
| CLARK |
+-----+
3 rows in set (0.00 sec)
```



13. FIND ENAME WHO ARE WORKING IN DEPTNO 30 ORDER BY SALARY IN DESC. ORDER

**OUTPUT:-**

```
mysql> SELECT ENAME FROM EMP WHERE DEPTNO=30 ORDER BY SAL DESC;
+-----+
| ENAME |
+-----+
| BLAKE |
| ALLEN |
| TURNER |
| WARD |
| MARTIN |
| JAMES |
+-----+
6 rows in set (0.00 sec)
```

14. FIND OUT THE TOTAL SALARY OF ALL THE EMPLOYEES.

**OUTPUT:-**

```
mysql> SELECT SUM(SAL) FROM EMP;
+-----+
| SUM(SAL) |
+-----+
| 29025.00 |
+-----+
1 row in set (0.00 sec)
```

15. FIND OUT AVGERAGE SALARY OF ALL THE EMPLOYEES WHO ARE WORKING IN DEPTNO 30

**OUTPUT:-**

```
mysql> SELECT AVG(SAL) FROM EMP WHERE DEPTNO=30;
+-----+
| AVG(SAL) |
+-----+
| 1566.666667 |
+-----+
1 row in set (0.00 sec)
```

16. FIND OUT THE MINIMUM SALARY OF DEPT NO 20

**OUTPUT:-**

```
mysql> SELECT MIN(SAL) FROM EMP WHERE DEPTNO=20;
+-----+
| MIN(SAL) |
+-----+
| 800.00 |
+-----+
1 row in set (0.00 sec)
```

17. FIND OUT THE MAXIMUM HIREDATE

**OUTPUT:-**

```
mysql> SELECT MAX(HIREDATE) FROM EMP;
+-----+
| MAX(HIREDATE) |
+-----+
| 1987-05-23 00:00:00 |
+-----+
1 row in set (0.00 sec)
```

18. FIND OUT THE TOTAL NUMBER OF EMPLOYEES WHO ARE WORKING IN DEPT NO 10

**OUTPUT:-**

```
mysql> SELECT COUNT(ENAME) FROM EMP WHERE DEPTNO=10;
+-----+
| COUNT(ENAME) |
+-----+
|           3 |
+-----+
1 row in set (0.00 sec)
```

19. FIND OUT DEPTNO,TOTAL SALARY OF THOSE DEPT WHERE THERE IS NO SALESMAN AND TOTAL SALARY OF DEPT IS MORE THAN 8500

**OUTPUT:-**

```
mysql> SELECT DEPTNO, SUM(SAL) AS TOTAL_SALARY
-> FROM EMP
-> WHERE JOB <> 'SALESMAN'
-> GROUP BY DEPTNO
-> HAVING SUM(SAL) > 8500;
+-----+-----+
| DEPTNO | TOTAL_SALARY |
+-----+-----+
|      20 |      10875.00 |
|      10 |       8750.00 |
+-----+-----+
2 rows in set (0.00 sec)
```

20. FIND ENAME WHO WAS HIRED FIRST

**OUTPUT:-**

```
mysql> SELECT ENAME FROM EMP ORDER BY HIREDATE ASC LIMIT 1;
+-----+
| ENAME |
+-----+
| SMITH |
+-----+
1 row in set (0.00 sec)
```

21. FIND TOTAL SALARY FOR THOSE WHO ARE NOT MANAGER

**OUTPUT:-**

```
mysql> SELECT SUM(SAL) AS TOTAL_SALARY FROM EMP WHERE JOB <> 'MANAGER';
+-----+
| TOTAL_SALARY |
+-----+
|      20750.00 |
+-----+
1 row in set (0.00 sec)
```

22. FIND OUT JOB AND AVERAGE SALARY FOR ALL THE JOB TYPES  
WITH MORE THAN 2 EMPLOYEES

**OUTPUT:-**

```
mysql> SELECT JOB, AVG(SAL) AS AVG_SALARY
-> FROM EMP
-> GROUP BY JOB
-> HAVING COUNT(*) > 2;
+-----+-----+
| JOB      | AVG_SALARY |
+-----+-----+
| CLERK     | 1037.500000 |
| SALESMAN  | 1400.000000 |
| MANAGER   | 2758.333333 |
+-----+-----+
3 rows in set (0.00 sec)
```

23. FIND OUT THE ENAME HAVING MAXIMUM SALARY IN EACH DEPT

**OUTPUT:-**

```
mysql> SELECT DEPTNO, ENAME, SAL AS MAX_SALARY
-> FROM EMP
-> WHERE (DEPTNO, SAL) IN (
->     SELECT DEPTNO, MAX(SAL) AS MAX_SALARY
->     FROM EMP
->     GROUP BY DEPTNO
-> );
```

DEPTNO	ENAME	MAX_SALARY
30	BLAKE	2850.00
20	SCOTT	3000.00
10	KING	5000.00
20	FORD	3000.00

4 rows in set (0.00 sec)

24. FIND THE SQUARE ROOT OF THE SALARY IN EMP TABLE

**OUTPUT:-**

```
mysql> SELECT ENAME, SQRT(SAL) AS SALARY_SQRT FROM EMP;
```

ENAME	SALARY_SQRT
SMITH	28.284271247461902
ALLEN	40
WARD	35.35533905932738
JONES	54.543560573178574
MARTIN	35.35533905932738
BLAKE	53.38539126015655
CLARK	49.49747468305833
SCOTT	54.772255750516614
KING	70.71067811865476
TURNER	38.72983346207417
ADAMS	33.166247903554
JAMES	30.822070014844883
FORD	54.772255750516614
MILLER	36.05551275463989

14 rows in set (0.00 sec)

25. FIND AVG SALARY FOR THOSE EMPLOYEES WHOSE JOB='CLERK'

**OUTPUT:-**

```
mysql> SELECT AVG(SAL) AS AVG_CLERK_SALARY FROM EMP WHERE JOB = 'CLERK';
+-----+
| AVG_CLERK_SALARY |
+-----+
|          1037.500000 |
+-----+
1 row in set (0.00 sec)
```

26. FIND TOTAL SALARY FOR THOSE EMPLOYEES WHO WERE HIRED  
IN 1981

**OUTPUT:-**

```
mysql> SELECT SUM(SAL) AS TOTAL_SALARY_1981 FROM EMP WHERE YEAR(HIREDATE) = 1981;
+-----+
| TOTAL_SALARY_1981 |
+-----+
|           22825.00 |
+-----+
1 row in set (0.00 sec)
```

27. CHANGE THE JOB,DEPTNO,SALARY WHOSE EMPNO=7788

**OUTPUT:-**

```
mysql> UPDATE EMP SET JOB = 'SALES', DEPTNO = 40, SAL = 2500 WHERE EMPNO = 7788;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

28. CREATE TABLE NEW USING ALL RECORDS FROM EMP

OUTPUT:-

```
mysql> CREATE TABLE NEW AS SELECT * FROM EMP;
Query OK, 14 rows affected (0.04 sec)
Records: 14  Duplicates: 0  Warnings: 0
```

29. CHANGE THE JOB OF TABLE NEW TO 'SALES'

OUTPUT:-

```
mysql> UPDATE NEW SET JOB = 'SALES';
Query OK, 13 rows affected (0.01 sec)
Rows matched: 14  Changed: 13  Warnings: 0
```

30. SELECT ALL RECORDS FROM NEW

OUTPUT:-

```
mysql> SELECT * FROM NEW;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	SALES	7902	1980-12-17 00:00:00	800.00	NULL	20
7499	ALLEN	SALES	7698	1981-02-20 00:00:00	1600.00	300.00	30
7521	WARD	SALES	7698	1981-02-22 00:00:00	1250.00	500.00	30
7566	JONES	SALES	7839	1981-04-02 00:00:00	2975.00	NULL	20
7654	MARTIN	SALES	7698	1981-09-28 00:00:00	1250.00	1400.00	30
7698	BLAKE	SALES	7839	1981-05-01 00:00:00	2850.00	NULL	30
7782	CLARK	SALES	7839	1981-06-09 00:00:00	2450.00	NULL	10
7788	SCOTT	SALES	7566	1987-04-19 00:00:00	2500.00	NULL	40
7839	KING	SALES	NULL	1981-11-17 00:00:00	5000.00	NULL	10
7844	TURNER	SALES	7698	1981-09-08 00:00:00	1500.00	0.00	30
7876	ADAMS	SALES	7788	1987-05-23 00:00:00	1100.00	NULL	20
7900	JAMES	SALES	7698	1981-12-03 00:00:00	950.00	NULL	30
7902	FORD	SALES	7566	1981-12-03 00:00:00	3000.00	NULL	20
7934	MILLER	SALES	7782	1982-01-23 00:00:00	1300.00	NULL	10

```
14 rows in set (0.00 sec)
```

31. ADD A NEW COLUMN ADDRESS VARCHAR(10) TO TABLE NEW

OUTPUT:-

```
mysql> ALTER TABLE NEW ADD COLUMN ADDRESS VARCHAR(10);
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

32. INSERT THE VALUE TO ADDRESS COLUMN IN TABLE NEW

OUTPUT:-

```
mysql> UPDATE NEW SET ADDRESS = 'NA';
Query OK, 14 rows affected (0.01 sec)
Rows matched: 14 Changed: 14 Warnings: 0
```

33. SELECT ALL RECORDS FROM NEW

OUTPUT:-

```
mysql> SELECT * FROM NEW;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	ADDRESS
7369	SMITH	SALES	7902	1980-12-17 00:00:00	800.00	NULL	20	NA
7499	ALLEN	SALES	7698	1981-02-20 00:00:00	1600.00	300.00	30	NA
7521	WARD	SALES	7698	1981-02-22 00:00:00	1250.00	500.00	30	NA
7566	JONES	SALES	7839	1981-04-02 00:00:00	2975.00	NULL	20	NA
7654	MARTIN	SALES	7698	1981-09-28 00:00:00	1250.00	1400.00	30	NA
7698	BLAKE	SALES	7839	1981-05-01 00:00:00	2850.00	NULL	30	NA
7782	CLARK	SALES	7839	1981-06-09 00:00:00	2450.00	NULL	10	NA
7788	SCOTT	SALES	7566	1987-04-19 00:00:00	2500.00	NULL	40	NA
7839	KING	SALES	NULL	1981-11-17 00:00:00	5000.00	NULL	10	NA
7844	TURNER	SALES	7698	1981-09-08 00:00:00	1500.00	0.00	30	NA
7876	ADAMS	SALES	7788	1987-05-23 00:00:00	1100.00	NULL	20	NA
7900	JAMES	SALES	7698	1981-12-03 00:00:00	950.00	NULL	30	NA
7902	FORD	SALES	7566	1981-12-03 00:00:00	3000.00	NULL	20	NA
7934	MILLER	SALES	7782	1982-01-23 00:00:00	1300.00	NULL	10	NA

```
14 rows in set (0.00 sec)
```



34. UPDATE THE SIZE OF ADDRESS COLUMN FROM 10 TO 4

**OUTPUT:-**

```
mysql> ALTER TABLE NEW MODIFY COLUMN ADDRESS VARCHAR(4);  
Query OK, 14 rows affected (0.09 sec)  
Records: 14 Duplicates: 0 Warnings: 0
```

35. DELETE TABLE NEW

**OUTPUT:-**

```
mysql> DROP TABLE NEW;  
Query OK, 0 rows affected (0.04 sec)
```