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BTECCE21405: Database Management Systems Lab

Assignment 1

A relational database contains 2 tables: EMP & DEPT

- I. Create two tables: EMP & DEPT

```
mysql> desc EMP;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| EMPNO | decimal(4,0)  | NO   | PRI | NULL    |       |
| ENAME | varchar(20)   | NO   |     | NULL    |       |
| JOB   | char(10)      | YES  |     | NULL    |       |
| MGR   | decimal(4,0)  | YES  |     | NULL    |       |
| HIREDATE | datetime    | YES  |     | NULL    |       |
| SAL   | decimal(9,2)  | YES  |     | NULL    |       |
| COMM  | decimal(7,2)  | YES  |     | NULL    |       |
| DEPTNO | decimal(2,0)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.02 sec)

mysql> 
mysql> desc DEPT;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| DEPTNO | decimal(2,0)  | NO   | PRI | NULL    |       |
| DNAME  | varchar(20)   | NO   |     | NULL    |       |
| LOC    | varchar(10)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

- II. Insert following records into EMP table:

- III. Insert following records into DEPT table:

- IV. Perform following queries:

1. SELECT ALL THE RECORDS FROM EMP TABLE

```
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
7769	Smith	Clerk	7902	1980-12-17 00:00:00	800.00	NULL	20
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

```
15 rows in set (0.00 sec)

mysql>
```

2. SELECT ALL THE RECORDS FROM DEPT TABLE

```
mysql> select * from DEPT;
```

DEPTNO	DNAME	LOC
10	Accounting	New York
20	Research	Dallas
30	Sales	Chicago
40	Operations	Boston

```
4 rows in set (0.00 sec)

mysql>
```

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

```
mysql> select ENAME, SAL from emp where DEPTNO=20;
```

ENAME	SAL
Smith	800.00
Jones	2975.00
Smith	800.00
Scott	3000.00
Adams	1100.00
Ford	3000.00

```
6 rows in set (0.02 sec)
```

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

```
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

```
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
Smith	Clerk	800.00
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

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

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

```
mysql> select * from emp where hiredate between '1981-03-01' and '1983-06-01';
```

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

```
mysql> select * from emp where hiredate like '1981%';
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
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
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

10 rows in set (0.02 sec)

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

```
mysql> select ENAME from emp where ename like 'S%';
```

ENAME
Smith
Smith
Scott

3 rows in set (0.00 sec)

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

```
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

```
mysql> select * from emp where deptno=20 union select * from emp where deptno=40;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	Smith	Clerk	7902	1980-12-17 00:00:00	800.00	NULL	20
7566	Jones	Manager	7839	1981-04-02 00:00:00	2975.00	NULL	20
7769	Smith	Clerk	7902	1980-12-17 00:00:00	800.00	NULL	20
7788	Scott	Analyst	7566	1987-04-19 00:00:00	3000.00	NULL	20
7876	Adams	Clerk	7788	1987-05-23 00:00:00	1100.00	NULL	20
7902	Ford	Analyst	7566	1981-12-03 00:00:00	3000.00	NULL	20

6 rows in set (0.00 sec)

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

```
mysql> select ename from emp where job='clerk' union select ename from emp where job='salesman';
+-----+
| ename |
+-----+
| Smith |
| Adams |
| James |
| Miller |
| Allen |
| Ward  |
| Martin |
| Turner |
+-----+
8 rows in set (0.00 sec)
```

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

```
mysql> select ename from emp where job='manager' union select ename from emp where sal>2000;
+-----+
| ename |
+-----+
| Jones |
| Blake |
| Clark |
| Scott |
| King  |
| Ford  |
+-----+
6 rows in set (0.00 sec)
```

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

```
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

```
mysql> select sum(sal) from emp;
+-----+
| sum(sal) |
+-----+
| 29825.00 |
+-----+
1 row in set (0.02 sec)
```

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

```
mysql> select avg(sal) from emp where deptno=30;
+-----+
| avg(sal) |
+-----+
| 1566.66667 |
+-----+
1 row in set (0.00 sec)
```

16. FIND OUT THE MINIMUM SALARY OF DEPT NO 20

```
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

```
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

```
mysql> select deptno,count(*) from emp where deptno=10;
+-----+-----+
| deptno | count(*) |
+-----+-----+
| 10 | 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

```
mysql> select sum(sal) from emp where job!='salesman' union select deptno from emp where sal>8500;
+-----+
| sum(sal) |
+-----+
| 24225.00 |
+-----+
1 row in set (0.00 sec)
```

20. FIND ENAME WHO WAS HIRED FIRST

```
mysql> select ename from emp where hiredate<'1981-01-01';
+-----+
| ename |
+-----+
| Smith |
| Smith |
+-----+
2 rows in set (0.00 sec)
```

21. FIND TOTAL SALARY FOR THOSE WHO ARE NOT MANAGER

```
mysql> select sum(sal) from emp where job!='manager';
+-----+
| sum(sal) |
+-----+
| 21550.00 |
+-----+
1 row in set (0.00 sec)
```

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

```
mysql> select job,avg(sal) from emp group by job having count(ename)>=2;
+-----+-----+
| job      | avg(sal) |
+-----+-----+
| Clerk     | 990.000000 |
| Salesman  | 1400.000000 |
| Manager   | 2758.333333 |
| Analyst   | 3000.000000 |
+-----+-----+
4 rows in set (0.02 sec)
```

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

```
mysql> select ename,deptno from emp where sal in (select max(sal) from emp group by deptno);
+-----+-----+
| ename | deptno |
+-----+-----+
| Blake | 30     |
| Scott | 20     |
| King  | 10     |
| Ford  | 20     |
+-----+-----+
4 rows in set (0.02 sec)
```

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

```
mysql> select sqrt(sal) from emp;
+-----+
| sqrt(sal) |
+-----+
| 28.284271247461902 |
| 35.35533905932738 |
| 54.543560573178574 |
| 35.35533905932738 |
| 53.38539126015655 |
| 28.284271247461902 |
| 49.49747468305833 |
| 54.772255750516614 |
| 70.71067811865476 |
| 38.72983346207417 |
| 33.166247903554 |
| 30.822070014844883 |
| 54.772255750516614 |
| 36.05551275463989 |
+-----+
15 rows in set (0.02 sec)
```

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

```
mysql> select job,avg(sal) from emp where job='clerk';
+-----+-----+
| job   | avg(sal) |
+-----+-----+
| Clerk | 990.000000 |
+-----+-----+
1 row in set (0.01 sec)
```

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

```
mysql> select sum(sal) from emp where hiredate>='1981-01-01' and hiredate<='1981-12-31';
+-----+
| sum(sal) |
+-----+
| 22825.00 |
+-----+
1 row in set (0.02 sec)
```

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


```
mysql> update emp set job='teacher',sal=1000,deptno=50 where empno=7788;
Query OK, 1 row affected (0.04 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
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
7769	Smith	Clerk	7902	1980-12-17 00:00:00	800.00	NULL	20
7782	Clark	Manager	7839	1981-06-09 00:00:00	2450.00	NULL	10
7788	Scott	teacher	7566	1987-04-19 00:00:00	1000.00	NULL	50
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

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

28. CREATE TABLE NEW USING ALL RECORDS FROM EMP

```
mysql> create table new_emp as select*from emp;
Query OK, 15 rows affected (0.06 sec)
Records: 15 Duplicates: 0 Warnings: 0
```

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

```
mysql> alter table new_emp rename column job to sales;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

30. SELECT ALL RECORDS FROM NEW

```
mysql> select* from new_emp;
```

EMPNO	ENAME	sales	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
7769	Smith	Clerk	7902	1980-12-17 00:00:00	800.00	NULL	20
7782	Clark	Manager	7839	1981-06-09 00:00:00	2450.00	NULL	10
7788	Scott	teacher	7566	1987-04-19 00:00:00	1000.00	NULL	50
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

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

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

```
mysql> alter table new_emp add column address varchar(10) after deptno;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

32. INSERT THE VALUE TO ADDRESS COLUMN IN TABLE NEW

```
mysql> update new_emp set address='pune' where empno=7369;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

33. SELECT ALL RECORDS FROM NEW

```
mysql> select*from new_emp;
```

EMPNO	ENAME	sales	MGR	HIREDATE	SAL	COMM	DEPTNO	address
7369	Smith	Clerk	7902	1980-12-17 00:00:00	800.00	NULL	20	pune
7499	Allen	Salesman	7698	1981-02-20 00:00:00	1600.00	300.00	30	NULL
7521	Ward	Salesman	7698	1981-02-22 00:00:00	1250.00	500.00	30	NULL
7566	Jones	Manager	7839	1981-04-02 00:00:00	2975.00	NULL	20	NULL
7654	Martin	Salesman	7698	1981-09-28 00:00:00	1250.00	1400.00	30	NULL
7698	Blake	Manager	7839	1981-05-01 00:00:00	2850.00	NULL	30	NULL
7769	Smith	Clerk	7902	1980-12-17 00:00:00	800.00	NULL	20	NULL
7782	Clark	Manager	7839	1981-06-09 00:00:00	2450.00	NULL	10	NULL
7788	Scott	teacher	7566	1987-04-19 00:00:00	1000.00	NULL	50	NULL
7839	King	President	NULL	1981-11-17 00:00:00	5000.00	NULL	10	NULL
7844	Turner	Salesman	7698	1981-09-08 00:00:00	1500.00	0.00	30	NULL
7876	Adams	Clerk	7788	1987-05-23 00:00:00	1100.00	NULL	20	NULL
7900	James	Clerk	7698	1981-12-03 00:00:00	950.00	NULL	30	NULL
7902	Ford	Analyst	7566	1981-12-03 00:00:00	3000.00	NULL	20	NULL
7934	Miller	Clerk	7782	1982-01-23 00:00:00	1300.00	NULL	10	NULL

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

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

```
mysql> alter table new_emp modify address varchar(4);
Query OK, 15 rows affected (0.06 sec)
Records: 15 Duplicates: 0 Warnings: 0
```

35. DELETE TABLE NEW

```
mysql> drop table new_emp;
Query OK, 0 rows affected (0.03 sec)
```