Bharathidasan University
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Tiruchirappalli - 620024

Programme Name	Bachelor of Computer Applications
Course Code	20UCA4CP5
Course Title	Database Systems Lab
Semester	IV
Unit	I
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Ex.1:

CREATION OF TABLE AND SOME BASIC OPERATIONS

Table Creation

mysql> create database employee;
Query OK, 1 row affected (0.00 sec)

mysql> use employee;
Database changed

mysql> create table emp(id int(5) primary key,name varchar(20),age int(3),adr varchar(25));
Query OK, 0 rows affected (0.01 sec)

mysql> desc emp;

Field	Type	Null	Key	Default	Extra
id	int(5)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
age	int(3)	YES		NULL	
adr	varchar(25)	YES		NULL	

4 rows in set (0.03 sec)

Table Alteration

mysql> alter table emp add sal int;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc emp;

Field	Type	Null	Key	Default	Extra
id	int(5)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
age	int(3)	YES		NULL	
adr	varchar(25)	YES		NULL	
sal	int(11)	YES		NULL	

5 rows in set (0.03 sec)

Table Deletion

mysql> truncate table emp;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from emp;
Query OK, 0 rows affeced (0.00 sec)
mysql> desc emp;

Field	Type	Null	Key	Default	Extra
id	int(5)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
age	int(3)	YES		NULL	
adr	varchar(25)	YES		NULL	
sal	int(11)	YES		NULL	

5 rows in set (0.03 sec)

mysql> drop table emp;
Query OK, 0 rows affected (0.01 sec)

mysql> desc emp;
ERROR 1146 (42S02): Table 'employee.emp' doesn't exist

Ex.2:

INSERT UPDATE & DELETE OPERATIONS

AIM:

To perform the operations like to insert values in the table, update the existing records and also delete the unwanted records on the table.

Table Creation

mysql> use employee;
Database changed

mysql> create table emp(id int(5) primary key,name varchar(20),age int(3),adr varchar(25));
Query OK, 0 rows affected (0.01 sec)

mysql> desc emp;

```
+------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+------+------------+------+-----+---------+-------+
| id    | int(5)     | NO   | PRI | NULL    |       |
| name  | varchar(20)| YES  |     | NULL    |       |
| age   | int(3)     | YES  |     | NULL    |       |
| adr   | varchar(25)| YES  |     | NULL    |       |
+------+------------+------+-----+---------+-------+
4 rows in set (0.03 sec)
```

Insert the Records

mysql> insert into emp values (1, 'arun', 24, 'indore', 10000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into emp values (2, 'kamal', 23, 'Bhopal', 20000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into emp values (3, 'rajesh', 25, 'Tamilnadu', 25000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into emp values (4, 'ajmal', 27, 'Gujrath', 20000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into emp values (5, 'meera', 23, 'Tamilnadu', 23000);
Query OK, 1 row affected (0.00 sec)

Select the Records

```
mysql> select * from emp;
+----+--------+------+-----------+-------+
| id | name   | age  | adr       | sal   |
+----+--------+------+-----------+-------+
|  1 | arun   |   24 | indore    | 10000 |
|  2 | kamal  |   23 | Bhopal    | 20000 |
|  3 | rajesh |   25 | Tamilnadu | 25000 |
|  4 | ajmal  |   27 | Gujrath   | 20000 |
|  5 | meera  |   23 | Tamilnadu | 23000 |
+----+--------+------+-----------+-------+
5 rows in set (0.00 sec)
```

```
mysql> select name,sal from emp;
+--------+-------+
| name   | sal   |
+--------+-------+
| arun   | 10000 |
| kamal  | 20000 |
| rajesh | 25000 |
| ajmal  | 20000 |
| meera  | 23000 |
+--------+-------+
5 rows in set (0.00 sec)
mysql> select * from emp where age=23;
```

```
+__-+_____+___-+-_____+_____+
| id | name  | age | adr      | sal  |
+__-+_____+___-+-_____+_____+
|  2 | kamal |  23 | Bhopal   | 20000 |
|  5 | meera |  23 | Tamilnadu | 23000 |
+__-+_____+___-+-_____+_____+
2 rows in set (0.00 sec)
```

mysql> select * from emp where adr='Tamilnadu' and sal>23000;

```
+__-+_____-+-___+_____-+-___-+
| id | name   | age | adr      | sal  |
+__-+_____-+-___+_____-+-___-+
|  3 | rajesh |  25 | Tamilnadu | 25000 |
+__-+_____-+-___+_____-+-___-+
1 row in set (0.02 sec)
```

Update the Records

mysql> update emp set name='sunil' where id=3;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from emp;

```
+__-+_____-+-___+_____-+-___-+
| id | name  | age | adr      | sal  |
+__-+_____-+-___+_____-+-___-+
|  1 | arun  |  24 | indore   | 10000 |
|  2 | kamal |  23 | Bhopal   | 20000 |
|  3 | sunil |  25 | Tamilnadu | 25000 |
|  4 | ajmal |  27 | Gujrath  | 20000 |
|  5 | meera |  23 | Tamilnadu | 23000 |
+__-+_____-+-___+_____-+-___-+
5 rows in set (0.00 sec)
```

mysql> update emp set sal=30000 where name='meera';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from emp;

```
+----+-------+-----+----------+-------+
| id | name  | age | adr      | sal   |
+----+-------+-----+----------+-------+
| 1  | arun  | 24  | indore   | 10000 |
| 2  | kamal | 23  | Bhopal   | 20000 |
| 3  | sunil | 25  | Tamilnadu| 25000 |
| 4  | ajmal | 27  | Gujrath  | 20000 |
| 5  | meera | 23  | Tamilnadu| 30000 |
+----+-------+-----+----------+-------+
5 rows in set (0.00 sec)
```

Delete the Records

mysql> delete from emp where age=24;
Query OK, 1 row affected (0.05 sec)

mysql> select * from emp;
```
+----+--------+-----+----------+-------+
| id | name   | age | adr      | sal   |
+----+--------+-----+----------+-------+
| 2  | kamal  | 23  | Bhopal   | 20000 |
| 3  | rajesh | 25  | Tamilnadu| 25000 |
| 4  | ajmal  | 27  | Gujrath  | 20000 |
| 5  | meera  | 23  | Tamilnadu| 23000 |
+----+--------+-----+----------+-------+
4 rows in set (0.00 sec)
```

mysql> delete from emp where sal>15000 and sal<=20000;
Query OK, 2 rows affected (0.01 sec)

mysql> select * from emp;
```
+----+--------+-----+----------+-------+
| id | name   | age | adr      | sal   |
+----+--------+-----+----------+-------+
| 3  | rajesh | 25  | Tamilnadu| 25000 |
| 5  | meera  | 23  | Tamilnadu| 23000 |
+----+--------+-----+----------+-------+
2 rows in set (0.00 sec)
```

Ex.3:

STRING OPERATIONS & SET OPERATIONS

mysql> use employee;
Database changed

mysql> create table customers(id int(5) primary key,name varchar(20),age
int(3), addr varchar(25),sal int);
Query OK, 0 rows affected (0.03 sec)

mysql> desc customers;

Field	Type	Null	Key	Default	Extra
id	int(5)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
age	int(3)	YES		NULL	
addr	varchar(25)	YES		NULL	
sal	int(11)	YES		NULL	

5 rows in set (0.02 sec)

mysql> insert into customers values (11, 'Muffy', 24, 'Indore', 10000);
Query OK, 1 row affected (0.05 sec)

mysql> insert into customers values (22, 'Ramesh', 32, 'Ahmedabad', 20000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into customers values (33, 'Khilan', 25, 'Delhi', 15000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into customers values (44, 'kaushik', 23, 'Kota', 20000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into customers values (55, 'Chaitali', 25, 'Mumbai', 65000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into customers values (66, 'Hardik', 27, 'Bhopal', 85000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into customers values (77, 'Komal', 22, 'MP', 45000);
Query OK, 1 row affected (0.00 sec)
mysql> insert into customers values (88, 'Ramesh', 40, 'Ahmedabad',32000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into customers values (99, 'kaushik', 37, 'Kota', 15000);
Query OK, 1 row affected (0.00 sec)

```
mysql> select * from customers;
+----+----------+-----+-----------+-------+
| id | name     | age | addr      | sal   |
+----+----------+-----+-----------+-------+
| 11 | Muffy    |  24 | Indore    | 10000 |
| 22 | Ramesh   |  32 | Ahmedabad | 20000 |
| 33 | Khilan   |  25 | Delhi     | 15000 |
| 44 | kaushik  |  23 | Kota      | 20000 |
| 55 | Chaitali |  25 | Mumbai    | 65000 |
| 66 | Hardik   |  27 | Bhopal    | 85000 |
| 77 | Komal    |  22 | MP        | 45000 |
| 88 | Ramesh   |  40 | Ahmedabad | 32000 |
| 99 | kaushik  |  37 | Kota      | 15000 |
+----+----------+-----+-----------+-------+
9 rows in set (0.00 sec)
```

String Operations
'%' Operation

mysql> select * from customers where name like '%h';

id	name	age	addr	sal
22	Ramesh	32	Ahmedabad	20000
88	Ramesh	40	Ahmedabad	32000

2 rows in set (0.00 sec)

mysql> select * from customers where name like 'K%';

id	name	age	addr	sal
33	Khilan	25	Delhi	15000
44	kaushik	23	Kota	20000
77	Komal	24	MP	45000
99	kaushik	32	Kota	15000

4 rows in set (0.00 sec)

mysql> select * from customers where name like '%K%';

id	name	age	addr	sal
33	Khilan	25	Delhi	15000
44	kaushik	23	Kota	20000
66	Hardik	24	Bhopal	85000
77	Komal	24	MP	45000
99	kaushik	32	Kota	15000

5 rows in set (0.00 sec)

'_' Operation

mysql> select * from customers where addr like 'M_';

id	name	age	addr	sal
77	Komal	24	MP	45000

1 row in set (0.00 sec)

Set Operations

mysql> create table orders(oid int(5) primary key,prod varchar(20),cid int(5),amt int);
Query OK, 0 rows affected (3.21 sec)

mysql> desc orders;
```
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| oid   | int(5)      | NO   | PRI | NULL    |       |
| prod  | varchar(20) | YES  |     | NULL    |       |
| cid   | int(5)      | YES  |     | NULL    |       |
| amt   | int(11)     | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
```
4 rows in set (0.28 sec)

mysql> insert into orders values(101,'soap',33,5000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into orders values(102,'choclate',33,15000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into orders values(103,'biscuit',22,1700);
Query OK, 1 row affected (0.00 sec)

mysql> insert into orders values(104,'powder',44,3200);
Query OK, 1 row affected (0.02 sec)

mysql> insert into orders values (105, 'choclate', 11, 7000);
Query OK, 1 row affected (0.00 sec)

mysql> select * from orders;
```
+-----+----------+-----+-------+
| oid | prod     | cid | amt   |
+-----+----------+-----+-------+
| 101 | soap     |  33 |  5000 |
| 102 | choclate |  33 | 15000 |
| 103 | biscuit  |  22 |  1700 |
| 104 | powder   |  44 |  3200 |
| 105 | choclate |  11 |  7000 |
+-----+----------+-----+-------+
```
5 rows in set (0.00 sec)

Union

mysql> select name,addr from customers union select prod,amt from orders;

```
+_____+-_____-+
| name    | addr     |
+_____+-_____-+
| Muffy   | Indore   |
| Ramesh  | Ahmedabad |
| Khilan  | Delhi    |
| kaushik | Kota     |
| Chaitali| Mumbai   |
| Hardik  | Bhopal   |
| Komal   | MP       |
| soap    | 5000     |
| choclate| 15000    |
| biscuit | 1700     |
| powder  | 3200     |
| choclate| 7000     |
+_____+-_____-+
12 rows in set (0.02 sec)
```

Union All

mysql> select name, addr from customers union all select prod, amt from orders;

```
+_____+-_____-+
| name    | addr     |
+_____+-_____-+
| Muffy   | Indore   |
| Ramesh  | Ahmedabad |
| Khilan  | Delhi    |
| kaushik | Kota     |
| Chaitali| Mumbai   |
| Hardik  | Bhopal   |
| Komal   | MP       |
| Ramesh  | Ahmedabad |
| kaushik | Kota     |
| soap    | 5000     |
| choclate| 15000    |
| biscuit | 1700     |
| powder  | 3200     |
| choclate| 7000     |
+_____+-_____-+
14 rows in set (0.00 sec)
```

Ex.4:

AGGREGATE FUNCTIONS

mysql> use employee;
Database changed

mysql> select * from customers;

id	name	age	addr	sal
11	Muffy	24	Indore	10000
22	Ramesh	32	Ahmedabad	20000
33	Khilan	25	Delhi	15000
44	kaushik	23	Kota	20000
55	Chaitali	25	Mumbai	65000
66	Hardik	27	Bhopal	85000
77	Komal	22	MP	45000
88	Ramesh	40	Ahmedabad	32000
99	kaushik	37	Kota	15000

9 rows in set (0.00 sec)

Sum

mysql> select sum(age) as Total_Age,sum(sal) as Total_Salary from customers;

Total_Age	Total_Salary
255	307000

1 row in set (0.00 sec)

Avg

mysql> select avg(age) as Average_Age,avg(sal) as Average_Salary from customers;

Average_Age	Average_Salary
28.3333	34111.1111

1 row in set (0.00 sec)

12

Max

mysql> select max(age) as Highest_Age,max(sal) as Highest_Salary from customers;

```
+-------------+----------------+
| Highest_Age | Highest_Salary |
+-------------+----------------+
|          40 |          85000 |
+-------------+----------------+
1 row in set (0.00 sec)
```

Min

mysql> select min(age) as Lowest_Age,min(sal) as Lowest_Salary from customers;
```
+------------+---------------+
| Lowest_Age | Lowest_Salary |
+------------+---------------+
|         22 |         10000 |
+------------+---------------+
1 row in set (0.00 sec)
```

Count

mysql> select count(id) as Number_of_Records from customers;
```
+-------------------+
| Number_of_Records |
+-------------------+
|                 9 |
+-------------------+
1 row in set (0.00 sec)
```

Group by

mysql> select * from customers;
```
+----+----------+-----+-----------+-------+
| id | name     | age | addr      | sal   |
+----+----------+-----+-----------+-------+
| 11 | Muffy    |  24 | Indore    | 10000 |
| 22 | Ramesh   |  32 | Ahmedabad | 20000 |
| 33 | Khilan   |  25 | Delhi     | 15000 |
| 44 | kaushik  |  23 | Kota      | 20000 |
| 55 | Chaitali |  25 | Mumbai    | 65000 |
```

```
| 66 | Hardik   |   24 | Bhopal    | 85000 |
| 77 | Komal    |   24 | MP        | 45000 |
| 88 | Ramesh   |   40 | Ahmedabad | 32000 |
| 99 | kaushik  |   32 | Kota      | 15000 |
+__-+_____-+____+-_____-+____-+
9 rows in set (0.00 sec)
```

mysql> select age,sum(sal) as Total_Salary from customers group by age;

```
+____+_____+
| age  | Total_Salary |
+____+_____+
|  23 |      20000 |
|  24 |     140000 |
|  25 |      80000 |
|  32 |      35000 |
|  40 |      32000 |
+____+_____+
5 rows in set (0.00 sec)
```

Having Clause

mysql> select * from customers group by age having count(age) >= 2;

```
+__-+____-+-___+_____-+-___-+
| id | name   | age | addr      | sal   |
+__-+____-+-___+_____-+-___-+
| 11 | Muffy  |   24 | Indore    | 10000 |
| 33 | Khilan |   25 | Delhi     | 15000 |
| 22 | Ramesh |   32 | Ahmedabad | 20000 |
+__-+____-+-___+_____-+-___-+
3 rows in set (0.00 sec)
```

mysql> select * from customers group by age having count(age) >= 3;

```
+__-+____+___-+_____+-____+
| id | name  | age | addr   | sal   |
+__-+____+___-+_____+-____+
| 11 | Muffy |   24 | Indore | 10000 |
+__-+____+___-+_____+-____+
1 row in set (0.00 sec)
```

Ex.5:

ORDERING TUPLES

mysql> use employee;
Database changed

mysql> select * from customers;
```
+----+----------+------+-----------+-------+
| id | name     | age  | addr      | sal   |
+----+----------+------+-----------+-------+
| 11 | Muffy    |   24 | Indore    | 10000 |
| 22 | Ramesh   |   32 | Ahmedabad | 20000 |
| 33 | Khilan   |   25 | Delhi     | 15000 |
| 44 | kaushik  |   23 | Kota      | 20000 |
| 55 | Chaitali |   25 | Mumbai    | 65000 |
| 66 | Hardik   |   24 | Bhopal    | 85000 |
| 77 | Komal    |   24 | MP        | 45000 |
| 88 | Ramesh   |   40 | Ahmedabad | 32000 |
| 99 | kaushik  |   32 | Kota      | 15000 |
+----+----------+------+-----------+-------+
```
9 rows in set (0.00 sec)

Asc Operation

mysql> select * from customers order by name asc;
```
+----+----------+------+-----------+-------+
| id | name     | age  | addr      | sal   |
+----+----------+------+-----------+-------+
| 55 | Chaitali |   25 | Mumbai    | 65000 |
| 66 | Hardik   |   24 | Bhopal    | 85000 |
| 44 | kaushik  |   23 | Kota      | 20000 |
| 99 | kaushik  |   32 | Kota      | 15000 |
| 33 | Khilan   |   25 | Delhi     | 15000 |
| 77 | Komal    |   24 | MP        | 45000 |
| 11 | Muffy    |   24 | Indore    | 10000 |
| 22 | Ramesh   |   32 | Ahmedabad | 20000 |
| 88 | Ramesh   |   40 | Ahmedabad | 32000 |
+----+----------+------+-----------+-------+
```
9 rows in set (0.00 sec)

Desc Operation

mysql> select * from customers order by age desc;

```
+--+-------+----+--------+-----+
| id | name    | age | addr     | sal  |
+--+-------+----+--------+-----+
| 88 | Ramesh  |  40 | Ahmedabad | 32000 |
| 22 | Ramesh  |  32 | Ahmedabad | 20000 |
| 99 | kaushik  |  32 | Kota     | 15000 |
| 33 | Khilan   |  25 | Delhi    | 15000 |
| 55 | Chaitali |  25 | Mumbai   | 65000 |
| 11 | Muffy   |  24 | Indore   | 10000 |
| 66 | Hardik   |  24 | Bhopal   | 85000 |
| 77 | Komal   |  24 | MP      | 45000 |
| 44 | kaushik  |  23 | Kota     | 20000 |
+--+-------+----+--------+-----+
```
9 rows in set (0.00 sec)

Ex.6:

NESTED SUBQUERIES - SET MEMBERSHIP (IN , NOTIN)

mysql> use employee;
Database changed

mysql> select * from customers;

id	name	age	addr	sal
11	Muffy	24	Indore	10000
22	Ramesh	32	Ahmedabad	20000
33	Khilan	25	Delhi	15000
44	kaushik	23	Kota	20000
55	Chaitali	25	Mumbai	65000
66	Hardik	27	Bhopal	85000
77	Komal	22	MP	45000
88	Ramesh	40	Ahmedabad	32000
99	kaushik	37	Kota	15000

9 rows in set (0.00 sec)

Set Membership (IN / NOT IN)

mysql> select * from customers where name in (select name from customers where id=22);

id	name	age	addr	sal
22	Ramesh	32	Ahmedabad	20000

1 row in set (0.05 sec)

mysql> select * from customers where name not in (select name from customers where id=22);

id	name	age	addr	sal
11	Muffy	24	Indore	28000

```
|  33 | Khilan   |  25 | Delhi     | 15000 |
|  44 | kaushik  |  23 | Kota      | 20000 |
|  55 | Chaitali |  25 | Mumbai    | 65000 |
|  66 | Hardik   |  24 | Bhopal    | 85000 |
|  77 | Komal    |  24 | MP        | 45000 |
|  88 | rakesh   |  40 | Ahmedabad | 32000 |
|  99 | kaushik  |  37 | Kota      | 15000 |
+_____+_____-+_____+-_____-+_____+
8 rows in set (0.00 sec)
```

Ex.7:

NESTED SUBQUERIES - SET COMPARISON (SOME, ALL)

mysql> use employee;
Database changed

mysql> select * from customers;

id	name	age	addr	sal
11	Muffy	24	Indore	10000
22	Ramesh	32	Ahmedabad	20000
33	Khilan	25	Delhi	15000
44	kaushik	23	Kota	20000
55	Chaitali	25	Mumbai	65000
66	Hardik	27	Bhopal	85000
77	Komal	22	MP	45000
88	Ramesh	40	Ahmedabad	32000
99	kaushik	37	Kota	15000

9 rows in set (0.00 sec)

Set Comparison (SOME / ALL)

mysql> select * from customers where age> some (select age from customers where
sal<30000);

id	name	age	addr	sal
11	Muffy	24	Indore	28000
22	Ramesh	32	Ahmedabad	20000
33	Khilan	25	Delhi	15000
55	Chaitali	25	Mumbai	65000
66	Hardik	24	Bhopal	85000
77	Komal	24	MP	45000
88	Ramesh	40	Ahmedabad	32000

7 rows in set (0.00 sec)

mysql> select * from customers where age> all (select age from customers

where sal<30000);

```
+----+--------+-----+-----------+-------+
| id | name   | age | addr      | sal   |
+----+--------+-----+-----------+-------+
| 88 | Ramesh |  40 | Ahmedabad | 32000 |
+----+--------+-----+-----------+-------+
```

Ex.8:

JOIN OPERATIONS

mysql> use employee;
Database changed

mysql> select * from customers;
```
+----+---------+------+-----------+-------+
| id | name    | age  | addr      | sal   |
+----+---------+------+-----------+-------+
| 11 | Muffy   |   24 | Indore    | 10000 |
| 22 | Ramesh  |   32 | Ahmedabad | 20000 |
| 33 | Khilan  |   25 | Delhi     | 15000 |
| 44 | kaushik |   23 | Kota      | 20000 |
| 55 | Chaitali|   25 | Mumbai    | 65000 |
| 66 | Hardik  |   27 | Bhopal    | 85000 |
| 77 | Komal   |   22 | MP        | 45000 |
| 88 | Ramesh  |   40 | Ahmedabad | 32000 |
| 99 | kaushik |   37 | Kota      | 15000 |
+----+---------+------+-----------+-------+
```
9 rows in set (0.00 sec)

mysql> create table orders(oid int(5) primary key,prod varchar(20),cid int(5),amt int);
Query OK, 0 rows affected (3.21 sec)

mysql> desc orders;
```
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| oid   | int(5)      | NO   | PRI | NULL    |       |
| prod  | varchar(20) | YES  |     | NULL    |       |
| cid   | int(5)      | YES  |     | NULL    |       |
| amt   | int(11)     | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
```
4 rows in set (0.28 sec)

mysql> insert into orders values(101,'soap',33,5000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into orders values(102,'choclate',33,15000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into orders values(103,'biscuit',22,1700);
Query OK, 1 row affected (0.00 sec)

mysql> insert into orders values(104,'powder',44,3200);
Query OK, 1 row affected (0.02 sec)

mysql> insert into orders values (105, 'choclate', 11, 7000);
Query OK, 1 row affected (0.00 sec)

mysql> select * from orders;

```
+-----+----------+-----+-------+
| oid | prod     | cid | amt   |
+-----+----------+-----+-------+
| 101 | soap     |  33 |  5000 |
| 102 | choclate |  33 | 15000 |
| 103 | biscuit  |  22 |  1700 |
| 104 | powder   |  44 |  3200 |
| 105 | choclate |  11 |  7000 |
+-----+----------+-----+-------+
5 rows in set (0.00 sec)
```

Natural Join

mysql> select * from customers, orders;

```
+----+----------+-----+-----------+-------+-----+----------+-----+-------+
| id | name     | age | addr      | sal   | oid | prod     | cid | amt   |
+----+----------+-----+-----------+-------+-----+----------+-----+-------+
| 11 | Muffy    |  24 | Indore    | 10000 | 101 | soap     |  33 |  5000 |
| 11 | Muffy    |  24 | Indore    | 10000 | 102 | choclate |  33 | 15000 |
| 11 | Muffy    |  24 | Indore    | 10000 | 103 | biscuit  |  22 |  1700 |
| 11 | Muffy    |  24 | Indore    | 10000 | 104 | powder   |  44 |  3200 |
| 22 | Ramesh   |  32 | Ahmedabad | 20000 | 101 | soap     |  33 |  5000 |
| 22 | Ramesh   |  32 | Ahmedabad | 20000 | 102 | choclate |  33 | 15000 |
| 22 | Ramesh   |  32 | Ahmedabad | 20000 | 103 | biscuit  |  22 |  1700 |
| 22 | Ramesh   |  32 | Ahmedabad | 20000 | 104 | powder   |  44 |  3200 |
| 33 | Khilan   |  25 | Delhi     | 15000 | 101 | soap     |  33 |  5000 |
| 33 | Khilan   |  25 | Delhi     | 15000 | 102 | choclate |  33 | 15000 |
| 33 | Khilan   |  25 | Delhi     | 15000 | 103 | biscuit  |  22 |  1700 |
| 33 | Khilan   |  25 | Delhi     | 15000 | 104 | powder   |  44 |  3200 |
| 44 | kaushik  |  23 | Kota      | 20000 | 101 | soap     |  33 |  5000 |
| 44 | kaushik  |  23 | Kota      | 20000 | 102 | choclate |  33 | 15000 |
| 44 | kaushik  |  23 | Kota      | 20000 | 103 | biscuit  |  22 |  1700 |
| 44 | kaushik  |  23 | Kota      | 20000 | 104 | powder   |  44 |  3200 |
| 55 | Chaitali |  25 | Mumbai    | 65000 | 101 | soap     |  33 |  5000 |
```

```
| 55 | Chaitali |  25 | Mumbai   | 65000 | 102 | choclate |  33 | 15000 |
| 55 | Chaitali |  25 | Mumbai   | 65000 | 103 | biscuit  |  22 |  1700 |
| 55 | Chaitali |  25 | Mumbai   | 65000 | 104 | powder   |  44 |  3200 |
| 66 | Hardik   |  27 | Bhopal   | 85000 | 101 | soap     |  33 |  5000 |
| 66 | Hardik   |  27 | Bhopal   | 85000 | 102 | choclate |  33 | 15000 |
| 66 | Hardik   |  27 | Bhopal   | 85000 | 103 | biscuit  |  22 |  1700 |
| 77 | Komal    |  22 | MP       | 45000 | 101 | soap     |  33 |  5000 |
| 77 | Komal    |  22 | MP       | 45000 | 102 | choclate |  33 | 15000 |
| 77 | Komal    |  22 | MP       | 45000 | 103 | biscuit  |  22 |  1700 |
| 77 | Komal    |  22 | MP       | 45000 | 104 | powder   |  44 |  3200 |
+----+----------+-----+----------+-------+-----+----------+-----+-------+
27 rows in set (0.00 sec)
```

Inner Join

```
mysql> select * from customers  inner join orders;
+----+--------+-----+--------+-------+-----+----------+-----+-------+
| id | name   | age | addr   | sal   | oid | prod     | cid | amt   |
+----+--------+-----+--------+-------+-----+----------+-----+-------+
| 11 | Muffy  |  24 | Indore | 10000 | 101 | soap     |  33 |  5000 |
| 11 | Muffy  |  24 | Indore | 10000 | 102 | choclate |  33 | 15000 |
| 11 | Muffy  |  24 | Indore | 10000 | 103 | biscuit  |  22 |  1700 |
```

```
| 11 | Muffy   |  24 | Indore    | 10000 | 104 | powder  |  44 | 3200 |
| 11 | Muffy   |  24 | Indore    | 10000 | 105 | choclate |  11 | 7000 |
| 22 | Ramesh  |  32 | Ahmedabad | 20000 | 101 | soap    |  33 | 5000 |
| 22 | Ramesh  |  32 | Ahmedabad | 20000 | 102 | choclate |  33 | 15000 |
| 22 | Ramesh  |  32 | Ahmedabad | 20000 | 103 | biscuit  |  22 | 1700 |
| 22 | Ramesh  |  32 | Ahmedabad | 20000 | 104 | powder  |  44 | 3200 |
| 22 | Ramesh  |  32 | Ahmedabad | 20000 | 105 | choclate |  11 | 7000 |
| 33 | Khilan  |  25 | Delhi     | 15000 | 101 | soap    |  33 | 5000 |
| 33 | Khilan  |  25 | Delhi     | 15000 | 102 | choclate |  33 | 15000 |
| 33 | Khilan  |  25 | Delhi     | 15000 | 103 | biscuit  |  22 | 1700 |
| 33 | Khilan  |  25 | Delhi     | 15000 | 104 | powder  |  44 | 3200 |
| 33 | Khilan  |  25 | Delhi     | 15000 | 105 | choclate |  11 | 7000 |
| 44 | kaushik |  23 | Kota      | 20000 | 101 | soap    |  33 | 5000 |
| 44 | kaushik |  23 | Kota      | 20000 | 102 | choclate |  33 | 15000 |
| 44 | kaushik |  23 | Kota      | 20000 | 103 | biscuit  |  22 | 1700 |
| 44 | kaushik |  23 | Kota      | 20000 | 104 | powder  |  44 | 3200 |
| 44 | kaushik |  23 | Kota      | 20000 | 105 | choclate |  11 | 7000 |
| 55 | Chaitali |  25 | Mumbai   | 65000 | 101 | soap    |  33 | 5000 |
| 55 | Chaitali |  25 | Mumbai   | 65000 | 102 | choclate |  33 | 15000 |
| 55 | Chaitali |  25 | Mumbai   | 65000 | 103 | biscuit  |  22 | 1700 |
| 55 | Chaitali |  25 | Mumbai   | 65000 | 104 | powder  |  44 | 3200 |
| 55 | Chaitali |  25 | Mumbai   | 65000 | 105 | choclate |  11 | 7000 |
| 66 | Hardik  |  27 | Bhopal    | 85000 | 101 | soap    |  33 | 5000 |
| 66 | Hardik  |  27 | Bhopal    | 85000 | 102 | choclate |  33 | 15000 |
| 66 | Hardik  |  27 | Bhopal    | 85000 | 103 | biscuit  |  22 | 1700 |
| 66 | Hardik  |  27 | Bhopal    | 85000 | 105 | choclate |  11 | 7000 |
| 77 | Komal   |  22 | MP        | 45000 | 101 | soap    |  33 | 5000 |
| 77 | Komal   |  22 | MP        | 45000 | 102 | choclate |  33 | 15000 |
| 77 | Komal   |  22 | MP        | 45000 | 103 | biscuit  |  22 | 1700 |
| 77 | Komal   |  22 | MP        | 45000 | 104 | powder  |  44 | 3200 |
| 77 | Komal   |  22 | MP        | 45000 | 105 | choclate |  11 | 7000 |
| 88 | Ramesh  |  40 | Ahmedabad | 32000 | 101 | soap    |  33 | 5000 |
| 88 | Ramesh  |  40 | Ahmedabad | 32000 | 102 | choclate |  33 | 15000 |
| 88 | Ramesh  |  40 | Ahmedabad | 32000 | 103 | biscuit  |  22 | 1700 |
| 88 | Ramesh  |  40 | Ahmedabad | 32000 | 104 | powder  |  44 | 3200 |
| 88 | Ramesh  |  40 | Ahmedabad | 32000 | 105 | choclate |  11 | 7000 |
| 99 | kaushik |  37 | Kota      | 15000 | 101 | soap    |  33 | 5000 |
| 99 | kaushik |  37 | Kota      | 15000 | 102 | choclate |  33 | 15000 |
| 99 | kaushik |  37 | Kota      | 15000 | 103 | biscuit  |  22 | 1700 |
| 99 | kaushik |  37 | Kota      | 15000 | 104 | powder  |  44 | 3200 |
| 99 | kaushik |  37 | Kota      | 15000 | 105 | choclate |  11 | 7000 |
+----+---------+-----+-----------+-------+-----+---------+-----+------+
44 rows in set (0.00 sec)
```

Left Outer Join

mysql> select id, name, prod, amt from customers left join orders on customers.id = orders.cid;

```
+----+----------+---------+-------+
| id | name     | prod    | amt   |
+----+----------+---------+-------+
| 11 | Muffy    | NULL    | NULL  |
| 22 | Ramesh   | biscuit | 1700  |
| 33 | Khilan   | soap    | 5000  |
| 33 | Khilan   | choclate| 15000 |
| 44 | kaushik  | powder  | 3200  |
| 55 | Chaitali | NULL    | NULL  |
| 66 | Hardik   | NULL    | NULL  |
| 77 | Komal    | NULL    | NULL  |
+----+----------+---------+-------+
```
8 rows in set (0.00 sec)

Right Outer Join

mysql> select oid, prod, name, sal from orders right join customers on orders.cid = customers.id;

```
+------+---------+----------+-------+
| oid  | prod    | name     | sal   |
+------+---------+----------+-------+
| NULL | NULL    | Muffy    | 10000 |
| 103  | biscuit | Ramesh   | 20000 |
| 101  | soap    | Khilan   | 15000 |
| 102  | choclate| Khilan   | 15000 |
| 104  | powder  | kaushik  | 20000 |
| NULL | NULL    | Chaitali | 65000 |
| NULL | NULL    | Hardik   | 85000 |
| NULL | NULL    | Komal    | 45000 |
+------+---------+----------+-------+
```
8 rows in set (0.00 sec)

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Ex.8:

VIEW AND ITS OPERATION

mysql> use employee;
Database changed

mysql> select * from customers;

id	name	age	addr	sal
11	Muffy	24	Indore	10000
22	Ramesh	32	Ahmedabad	20000
33	Khilan	25	Delhi	15000
44	kaushik	23	Kota	20000
55	Chaitali	25	Mumbai	65000
66	Hardik	27	Bhopal	85000
77	Komal	22	MP	45000
88	Ramesh	40	Ahmedabad	32000
99	kaushik	37	Kota	15000

9 rows in set (0.00 sec)

Creation of View

mysql> create view emp as select id,name,sal from customers;
Query OK, 0 rows affected (0.05 sec)

mysql> desc emp;

Field	Type	Null	Key	Default	Extra
id	int(5)	NO		NULL	
name	varchar(20)	YES		NULL	
sal	int(11)	YES		NULL	

3 rows in set (0.28 sec)

Insertion in View

mysql> insert into emp values(1001,'naresh',24000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into emp values(1002,'padma',45000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into emp values(1003,'akash',65000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into emp values(1004,'shruthi',57000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into emp values(1005,'nandha',32000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into emp values(1006,'vishaka',50000);
Query OK, 1 row affected (0.00 sec)

mysql> insert into emp values(1007,'pranesh',43000);
Query OK, 1 row affected (0.00 sec)

Selection in View

mysql> select * from emp;
```
+_____+_____-+_____+
| id   | name    | sal  |
+_____+_____-+_____+
|   11 | Muffy   | 10000 |
|   22 | Ramesh  | 20000 |
|   33 | Khilan  | 15000 |
|   44 | kaushik | 20000 |
|   55 | Chaitali | 65000 |
|   66 | Hardik  | 85000 |
|   77 | Komal   | 45000 |
|   88 | Ramesh  | 32000 |
|   99 | kaushik | 15000 |
| 1001 | naresh  | 24000 |
| 1002 | padma   | 45000 |
| 1003 | akash   | 65000 |
| 1004 | shruthi | 57000 |
| 1005 | nandha  | 32000 |
| 1006 | vishaka | 50000 |
| 1007 | pranesh | 43000 |
+_____+_____-+_____+
16 rows in set (0.00 sec)
```

Updation In View

mysql> update emp set name='rakesh' where id=88;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from emp;
```
+_____+_____-+_____+
| id   | name    | sal  |
+_____+_____-+_____+
|   11 | Muffy   | 10000 |
|   22 | Ramesh  | 20000 |
|   33 | Khilan  | 15000 |
|   44 | kaushik | 20000 |
|   55 | Chaitali | 65000 |
|   66 | Hardik  | 85000 |
|   77 | Komal   | 45000 |
```

```
|   88 | rakesh  | 32000 |
|   99 | kaushik | 15000 |
| 1001 | naresh  | 24000 |
| 1002 | padma   | 45000 |
| 1003 | akash   | 65000 |
| 1004 | shruthi | 57000 |
| 1005 | nandha  | 32000 |
| 1006 | vishaka | 50000 |
| 1007 | pranesh | 43000 |
+_____+_____-+_____+
16 rows in set (0.00 sec)


mysql> update emp set sal=28000 where name='Muffy';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0


mysql> select * from emp;
+_____+_____-+_____+
| id   | name    | sal   |
+_____+_____-+_____+
|   11 | Muffy    | 28000 |
|   22 | Ramesh   | 20000 |
|   33 | Khilan   | 15000 |
|   44 | kaushik  | 20000 |
|   55 | Chaitali | 65000 |
|   66 | Hardik   | 85000 |
|   77 | Komal    | 45000 |
|   88 | rakesh   | 32000 |
|   99 | kaushik  | 15000 |
| 1001 | naresh   | 24000 |
| 1002 | padma    | 45000 |
| 1003 | akash    | 65000 |
| 1004 | shruthi  | 57000 |
| 1005 | nandha   | 32000 |
| 1006 | vishaka  | 50000 |
| 1007 | pranesh  | 43000 |
+_____+_____-+_____+
16 rows in set (0.00 sec)
```

Deletion in View

mysql> delete from emp where id=99;
Query OK, 1 row affected (0.01 sec)

mysql> select * from emp;

id	name	sal
11	Muffy	28000
22	Ramesh	20000
33	Khilan	15000
44	kaushik	20000
55	Chaitali	65000
66	Hardik	85000
77	Komal	45000
88	rakesh	32000
1001	naresh	24000
1002	padma	45000
1003	akash	65000
1004	shruthi	57000
1005	nandha	32000
1006	vishaka	50000
1007	pranesh	43000

15 rows in set (0.00 sec)