



DATABASE MANAGEMENT SYSTEM(CBS-1007)

SLOT: L33+34

LAB ASSESSMENT -2

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Q1 -**Query:** Create table Product(marker varchar(10),model int PRIMARY KEY, type varchar(20));

```
mysql> Create table Product(marker varchar(10),model int PRIMARY KEY,type varchar(20));
Query OK, 0 rows affected (0.60 sec)

mysql> desc Product;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| marker | varchar(10)   | YES  |     | NULL    |       |
| model  | int           | NO   | PRI | NULL    |       |
| type   | varchar(20)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.16 sec)
```

Query: Create table Laptop(code int PRIMARY KEY, model int, speed float,ram int,hd int,screen float, price int, foreign key(model) references Product(model))

```
mysql> Create table Laptop(code int PRIMARY KEY,model int, speed float,ram int,hd int,screen float, price int, foreign key(model) references Product(model))
-> ;
Query OK, 0 rows affected (0.32 sec)

mysql> desc Laptop
-> ;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| code  | int  | NO   | PRI | NULL    |       |
| model | int  | YES  | MUL | NULL    |       |
| speed | float | YES  |     | NULL    |       |
| ram   | int  | YES  |     | NULL    |       |
| hd    | int  | YES  |     | NULL    |       |
| screen | float | YES  |     | NULL    |       |
| price | int  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.04 sec)

mysql>
```

Query: Create table PC(code int PRIMARY KEY, model int,speed float,ram int,hd int,cd int, price int,foreign key(model) references Product(model));

```
mysql> Create table PC(code int PRIMARY KEY, model int,speed float,ram int,hd int,cd int, price int,foreign key(model) references Product(model));
Query OK, 0 rows affected (0.20 sec)

mysql> desc PC;
+-----+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| code  | int   | NO   | PRI  | NULL    |       |
| model | int   | YES  | MUL  | NULL    |       |
| speed | float | YES  |      | NULL    |       |
| ram   | int   | YES  |      | NULL    |       |
| hd    | int   | YES  |      | NULL    |       |
| cd    | int   | YES  |      | NULL    |       |
| price | int   | YES  |      | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql>
```

Query: Create table Printer(code int PRIMARY KEY, model int, ,color varchar(10),type varchar(20), price int, foreign key(model) references Product(model))

```
mysql> Create table Printer(code int PRIMARY KEY, model int,color varchar(10),type varchar(20), price int, foreign key(model) references Product(model));
Query OK, 0 rows affected (0.10 sec)

mysql> desc Printer;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| code  | int           | NO   | PRI  | NULL    |       |
| model | int           | YES  | MUL  | NULL    |       |
| color | varchar(10)   | YES  |      | NULL    |       |
| type  | varchar(20)   | YES  |      | NULL    |       |
| price | int           | YES  |      | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql>
```

Query: INSERT INTO Product VALUES ('L', 5101, 'pc');

INSERT INTO Product VALUES ('L', 5102, 'pc');

INSERT INTO Product VALUES ('L', 5103, 'pc');

INSERT INTO Product VALUES ('M', 5104, 'pc');

INSERT INTO Product VALUES ('M', 5105, 'pc');

INSERT INTO Product VALUES ('M', 5106, 'pc');

INSERT INTO Product VALUES ('Q', 5107, 'pc');

INSERT INTO Product VALUES ('Q', 5108, 'pc');

INSERT INTO Product VALUES ('O',5 109, 'pc');

```
mysql> INSERT INTO Product VALUES ('L', 5101, 'pc');
Query OK, 1 row affected (0.13 sec)

mysql> INSERT INTO Product VALUES ('L', 5102, 'pc');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('L', 5103, 'pc');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('M', 5104, 'pc');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Product VALUES ('M', 5105, 'pc');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Product VALUES ('M', 5106, 'pc');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Product VALUES ('Q', 5107, 'pc');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Product VALUES ('Q', 5108, 'pc');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Product VALUES ('O', 5109, 'pc');
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '109, 'pc')' at line 1
mysql> INSERT INTO Product VALUES ('O', 5109, 'pc');
Query OK, 1 row affected (0.04 sec)

mysql>
```

Query: INSERT INTO Product VALUES ('O', 6101, 'laptop');

INSERT INTO Product VALUES ('O', 6102, 'laptop');

INSERT INTO Product VALUES ('Q', 6103, 'laptop');

INSERT INTO Product VALUES ('Q', 6204, 'laptop');

INSERT INTO Product VALUES ('N', 6205, 'laptop');

INSERT INTO Product VALUES ('N', 6206, 'laptop');

INSERT INTO Product VALUES ('L', 6107, 'laptop');

INSERT INTO Product VALUES ('L', 6108, 'laptop');

```
mysql> INSERT INTO Product VALUES ('O', 6101, 'laptop');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Product VALUES ('O', 6102, 'laptop');
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Product VALUES ('Q', 6103, 'laptop');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('Q', 6204, 'laptop');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('N', 6205, 'laptop');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('N', 6206, 'laptop');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('L', 6107, 'laptop');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('L', 6107, 'laptop');
ERROR 1062 (23000): Duplicate entry '6107' for key 'product.PRIMARY'
mysql> INSERT INTO Product VALUES ('L', 6108, 'laptop');
Query OK, 1 row affected (0.04 sec)

mysql>
```

Query: INSERT INTO Product VALUES ('P', 7101, 'printer');

INSERT INTO Product VALUES ('P', 7102, 'printer');

INSERT INTO Product VALUES ('M', 7103, 'printer');

INSERT INTO Product VALUES ('M', 7104, 'printer');

INSERT INTO Product VALUES ('N', 7105, 'printer');

INSERT INTO Product VALUES ('N', 7106, 'printer');

```
mysql> INSERT INTO Product VALUES ('P', 7101, 'printer');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('P', 7102, 'printer');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('M', 7103, 'printer');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('M', 7104, 'printer');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('N', 7105, 'printer');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Product VALUES ('N', 7106, 'printer');
Query OK, 1 row affected (0.01 sec)

mysql>
```

Query: Select * from Product;

```
mysql> select * from Product;
```

marker	model	type
L	5101	pc
L	5102	pc
L	5103	pc
M	5104	pc
M	5105	pc
M	5106	pc
Q	5107	pc
Q	5108	pc
O	5109	pc
O	6101	laptop
O	6102	laptop
Q	6103	laptop
L	6107	laptop
L	6108	laptop
Q	6204	laptop
N	6205	laptop
N	6206	laptop
P	7101	printer
P	7102	printer
M	7103	printer
M	7104	printer
N	7105	printer
N	7106	printer
Q	7107	printer

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

For Pc

Query(code, model, speed, ram, hd, cd, price)-

INSERT INTO PC VALUES (1001, 5101,2.36, 512,60, 80, 650);

INSERT INTO PC VALUES (1002, 5102, 1.20, 2048, 120,80, 770);

INSERT INTO PC VALUES (1003, 5103,4.42, 2048, 240,250, 478);

INSERT INTO PC VALUES (1004, 5104, 3.20, 512, 80,320, 1049);

INSERT INTO PC VALUES (1005, 5105,2.20, 2048, 250,320, 490);

INSERT INTO PC VALUES (1006, 5106, 2.00, 512, 320,80, 550);

INSERT INTO PC VALUES (1007, 5107, 3.20, 512, 200,250, 630);

INSERT INTO PC VALUES (1008, 5108, 3.40, 1024,120, 320, 770);

INSERT INTO PC VALUES (1009, 5109,1.25, 512,100, 200, 2114);

```
mysql> INSERT INTO PC VALUES (1001, 5101,2.36, 512,60, 80, 650);
Query OK, 1 row affected (0.11 sec)

mysql> INSERT INTO PC VALUES (1002, 5102, 1.20, 2048, 120,80, 770);
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO PC VALUES (1003, 5103,4.42, 2048, 240,250, 478);
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO PC VALUES (1004, 5104, 3.20, 512, 80,320, 1049);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO PC VALUES (1005, 5105,2.20, 2048, 250,320, 490);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO PC VALUES (1006, 5106, 2.00, 512, 320,80, 550);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO PC VALUES (1007, 5107, 3.20, 512, 200,250, 630);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO PC VALUES (1008, 5108, 3.40, 1024,120, 320, 770);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO PC VALUES (1009, 5109,1.25, 512,100, 200, 2114);
Query OK, 1 row affected (0.00 sec)

mysql>
```

Query: Select * from PC

```
mysql> select * from PC;
+-----+-----+-----+-----+-----+-----+-----+
| code | model | speed | ram  | hd   | cd   | price |
+-----+-----+-----+-----+-----+-----+-----+
| 1001 | 5101 | 2.36  | 512  | 60   | 80   | 650   |
| 1002 | 5102 | 1.2   | 2048 | 120  | 80   | 770   |
| 1003 | 5103 | 4.42  | 2048 | 240  | 250  | 478   |
| 1004 | 5104 | 3.2   | 512  | 80   | 320  | 1049  |
| 1005 | 5105 | 2.2   | 2048 | 250  | 320  | 490   |
| 1006 | 5106 | 2     | 512  | 320  | 80   | 550   |
| 1007 | 5107 | 3.2   | 512  | 200  | 250  | 630   |
| 1008 | 5108 | 3.4   | 1024 | 120  | 320  | 770   |
| 1009 | 5109 | 1.25  | 512  | 100  | 200  | 2114  |
+-----+-----+-----+-----+-----+-----+-----+
9 rows in set (0.03 sec)

mysql>
```

for Laptop

Query: Laptop(code, model, speed, ram, hd, screen, price)-

INSERT INTO Laptop VALUES (2001, 6101, 1.60, 512, 60,17.1, 949);

INSERT INTO Laptop VALUES (2002, 6102, 1.83, 2048, 240, 15.0, 3749);

INSERT INTO Laptop VALUES (2003, 6103,2.00, 1024, 80, 13.4, 1150);

INSERT INTO Laptop VALUES (2004, 6104, 1.92, 1024, 80, 17.3, 2250);

INSERT INTO Laptop VALUES (2005, 6105, 2.00, 2048, 240, 15.0, 1700);

INSERT INTO Laptop VALUES (2006, 6106, 2.16, 512, 120, 13.4, 1429);

INSERT INTO Laptop VALUES (2007, 6107, 1.78, 2048, 100, 17.1, 900);

INSERT INTO Laptop VALUES (2008, 6108,1.45, 2048, 120, 15.4, 949);

```
mysql> select * from Laptop;
```

code	model	speed	ram	hd	screen	price
2001	6101	1.6	512	60	17.1	949
2002	6102	1.83	2048	240	15	3749
2003	6103	2	1024	80	13.4	1150
2007	6107	1.78	2048	100	17.1	900
2008	6108	1.45	2048	120	15.4	949

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

Query: INSERT INTO Printer VALUES (3001, 7101, 'false', 'laser', 139);

INSERT INTO Printer VALUES (3002, 7102,'false', 'ink-jet', 899);

INSERT INTO Printer VALUES (3003, 7103,'true', 'laser', 139);

INSERT INTO Printer VALUES (3004, 7104,'true', 'ink-jet', 99);

INSERT INTO Printer VALUES (3005, 7105,'true', 'laser', 120);

INSERT INTO Printer VALUES (3006, 7106,'false', 'ink-jet', 100);

INSERT INTO Printer VALUES (3007, 7107, 'true', 'laser', 99);

```
mysql> select * from Printer;
+-----+-----+-----+-----+-----+
| code | model | color | type  | price |
+-----+-----+-----+-----+-----+
| 3001 | 7101 | false | laser | 139   |
| 3002 | 7102 | false | ink-jet | 899   |
| 3003 | 7103 | true  | laser | 139   |
| 3004 | 7104 | true  | ink-jet | 99    |
| 3005 | 7105 | true  | laser | 120   |
| 3006 | 7106 | false | ink-jet | 100   |
| 3007 | 7107 | true  | laser | 99    |
+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

1. Find the model number, speed and hard drive capacity for all the PCs with prices below \$500. Result set: model, speed, hd.

Query: select price,model,speed,hd from PC where price<500 group by model,speed,hd;

```
mysql> select price,model,speed,hd from PC where price<500 group by model,speed,hd;
+-----+-----+-----+-----+
| price | model | speed | hd  |
+-----+-----+-----+-----+
| 478   | 5103 | 4.42  | 240 |
| 490   | 5105 | 2.2   | 250 |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

2. Find printer makers. Result set: maker

Query: Select distinct maker from Product where model in (select model from Printer);

```
mysql> Select distinct maker from Product where model in (select model from Printer);
+-----+
| maker |
+-----+
| P     |
| M     |
| N     |
| Q     |
+-----+
4 rows in set (0.04 sec)
```

3. Find the model number, RAM and screen size of the laptops with prices over \$1000

Query: Select model,ram,screen,price from Laptop where price > 1000;

```
mysql> Select model,ram,screen,price from Laptop where price > 1000;
+-----+-----+-----+-----+
| model | ram  | screen | price |
+-----+-----+-----+-----+
| 6102  | 2048 | 15     | 3749  |
| 6103  | 1024 | 13.4   | 1150  |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

4. Find the model number, speed and hard drive capacity of the PCs having 12x CD and prices less than \$600 or having 24x CD and prices less than \$600.

Query: Select model,speed,hd from PC where PC.cd IN (12,24) and price<600;

```
mysql> Select model,speed,hd from PC where PC.cd IN (12,24) and price<600;  
Empty set (0.03 sec)
```

5. For each maker producing laptops with a hard drive capacity of 10 Gb or higher, find the speed of such laptops. Result set: maker, speed.

Query: Select distinct maker,speed from Product,Laptop where Laptop.hd>=10 and type in (select type from Product where type='laptop');

```
mysql> Select distinct maker,speed,hd from Product,Laptop where Laptop.hd>=10 and type in (select type from Product where type='laptop');  
+-----+-----+-----+  
| maker | speed | hd |  
+-----+-----+-----+  
| O     | 1.6   | 60 |  
| O     | 1.83  | 240 |  
| O     | 2     | 80 |  
| O     | 1.78  | 100 |  
| O     | 1.45  | 120 |  
| Ø     | 1.6   | 60 |  
| Ø     | 1.83  | 240 |  
| Ø     | 2     | 80 |  
| Ø     | 1.78  | 100 |  
| Ø     | 1.45  | 120 |  
| Q     | 1.6   | 60 |  
| Q     | 1.83  | 240 |  
| Q     | 2     | 80 |  
| Q     | 1.78  | 100 |  
| Q     | 1.45  | 120 |  
| L     | 1.6   | 60 |  
| L     | 1.83  | 240 |  
| L     | 2     | 80 |  
| L     | 1.78  | 100 |  
| L     | 1.45  | 120 |  
| N     | 1.6   | 60 |  
| N     | 1.83  | 240 |  
| N     | 2     | 80 |  
| N     | 1.78  | 100 |  
| N     | 1.45  | 120 |  
+-----+-----+-----+  
25 rows in set (0.00 sec)
```

6. Find out the models and prices for all the products (of any type) produced by maker B.

Query: Select model,price from PC where model in (Select model from Product where maker ='M' and type='pc') union select model,price from Laptop where model in (select model from Product where maker='M' and

type='laptop') union select model,price from printer where model in (select model from Product where maker='M' and type='printer');

```
mysql> select model,price from PC where model in(select model from Product where maker='M' and type='pc')
-> union select model,price from Laptop where model in (select model from Product where maker='M' and type='laptop')
-> union select model,price from printer where model in (select model from Product where maker='M' and type='printer');
```

model	price
5104	1049
5105	490
5106	550
7103	139
7104	99

5 rows in set (0.00 sec)

7. Find out the makers that sale PCs but not laptops.

Query: select distinct maker from Product where type ='pc' and not (type='laptop');

```
mysql> select distinct maker from Product where type ='pc' and not (type='laptop');
```

maker
L
M
Q
O

4 rows in set (0.00 sec)

8. Find the printers having the highest price. Result set: model, price.

Query: Select model,max(price) from Printer;

```
mysql> Select model,max(price) from Printer;
+-----+-----+
| model | max(price) |
+-----+-----+
| 7101  | 899        |
+-----+-----+
1 row in set (0.03 sec)
```

9. Find all the makers who have all their models of PC type in the PC table

Query: Select distinct maker from Product where model in (select model from Product where type='pc');

```
mysql> Select distinct maker from Product where model in (select model from Product where type='pc');
+-----+
| maker |
+-----+
| L      |
| M      |
| Q      |
| O      |
+-----+
4 rows in set (0.00 sec)
```

10. Find out the average speed of the PCs produced by maker A.

Query: Select model,avg(speed) from PC where model in (select model from Product where maker='L' and type='pc');

```
mysql> Select model,avg(speed) from PC where model in (select model from Product where maker='L' and type='pc');
+-----+-----+
| model | avg(speed) |
+-----+-----+
| 5101  | 2.660000063578286 |
+-----+-----+
1 row in set (0.02 sec)

mysql>
```

Q2-

Query- create table books(isbn int, title varchar(50), price float,qty int);

desc books;

```
mysql> create table books(isbn int,  
-> title varchar(50),  
-> price float,  
-> qty int);  
Query OK, 0 rows affected (1.28 sec)  
  
mysql> desc books  
-> desc books;  
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'desc books' at line 2  
mysql> desc books;  
+-----+-----+-----+-----+-----+-----+  
| Field | Type   | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| isbn  | int    | YES  |     | NULL    |       |  
| title | varchar(50) | YES  |     | NULL    |       |  
| price | float   | YES  |     | NULL    |       |  
| qty   | int     | YES  |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
4 rows in set (0.32 sec)
```

Query- create table books_authors(authorid int, isbn int);

desc books_authors;

```
mysql> create table books_authors( authorid int,  
-> isbn int);  
Query OK, 0 rows affected (0.45 sec)  
  
mysql> desc books_authors;  
+-----+-----+-----+-----+-----+-----+  
| Field      | Type | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| authorid   | int  | YES  |     | NULL    |       |  
| isbn       | int  | YES  |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
2 rows in set (0.12 sec)
```

Query- create table authors(authorid int,name varchar(30),email
varchar(50));
desc authors;

```
mysql> create table authors( authorid int,  
-> name varchar(30),  
-> email varchar(50));  
Query OK, 0 rows affected (0.54 sec)  
  
mysql> desc authors;  
+-----+-----+-----+-----+-----+-----+  
| Field | Type | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| authorid | int | YES | | NULL | |  
| name | varchar(30) | YES | | NULL | |  
| email | varchar(50) | YES | | NULL | |  
+-----+-----+-----+-----+-----+-----+  
3 rows in set (0.08 sec)
```

Query: INSERT INTO books VALUES(1000,'JAVA',15.21,2);
INSERT INTO books VALUES(1005,'PYTHON',22.21,2);
INSERT INTO books VALUES(1234,'CPP',19.21,5);
INSERT INTO books VALUES(1034,'C',22.21,2);
INSERT INTO books VALUES(1022,'HTML',15.31,7);
INSERT INTO books VALUES(1003,'CSS',34.21,5);
select *from books;

```
mysql> INSERT INTO books VALUES(1000,'JAVA',15.21,2);
Query OK, 1 row affected (0.30 sec)

mysql> INSERT INTO books VALUES(1005,'PYTHON',22.21,2);
Query OK, 1 row affected (0.14 sec)

mysql> INSERT INTO books VALUES(1234,'CPP',19.21,5);
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO books VALUES(1034,'C',22.21,2);
Query OK, 1 row affected (0.28 sec)

mysql> INSERT INTO books VALUES(1022,'HTML',15.31,7);
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO books VALUES(1003,'CSS',34.21,5);
Query OK, 1 row affected (0.10 sec)

mysql> select *from books;
+-----+-----+-----+-----+
| isbn | title | price | qty |
+-----+-----+-----+-----+
| 1000 | JAVA  | 15.21 | 2   |
| 1005 | PYTHON | 22.21 | 2   |
| 1234 | CPP   | 19.21 | 5   |
| 1034 | C     | 22.21 | 2   |
| 1022 | HTML  | 15.31 | 7   |
| 1003 | CSS   | 34.21 | 5   |
+-----+-----+-----+-----+
6 rows in set (0.06 sec)
```

Query:

```
INSERT INTO books_authors VALUES(11,1000);
INSERT INTO books_authors VALUES(21,1005);
INSERT INTO books_authors VALUES(15,1234);
INSERT INTO books_authors VALUES(25,1034);
INSERT INTO books_authors VALUES(19,1022);
INSERT INTO books_authors VALUES(30,1003);
select *from books_authors;
```



```
mysql> INSERT INTO books_authors VALUES(11,1000);
Query OK, 1 row affected (0.23 sec)

mysql> INSERT INTO books_authors VALUES(21,1005);
Query OK, 1 row affected (0.10 sec)

mysql> INSERT INTO books_authors VALUES(15,1234);
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO books_authors VALUES(25,1034);
Query OK, 1 row affected (0.12 sec)

mysql> INSERT INTO books_authors VALUES(19,1022);
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO books_authors VALUES(30,1003);
Query OK, 1 row affected (0.13 sec)

mysql> select *from books_authors;
+-----+-----+
| authorid | isbn |
+-----+-----+
|      11 | 1000 |
|      21 | 1005 |
|      15 | 1234 |
|      25 | 1034 |
|      19 | 1022 |
|      30 | 1003 |
+-----+-----+
6 rows in set (0.00 sec)
```

Query:

```
INSERT INTO authors VALUES(11,'GAURAV','xyx@gmail.com');
INSERT INTO authors VALUES(21,'SAURABH','xwx@gmail.com');
INSERT INTO authors VALUES(15,'KARAN','xax@gmail.com');
INSERT INTO authors VALUES(25,'UTSAV','xvx@gmail.com');
INSERT INTO authors VALUES(19,'VISHAL','xfyx@gmail.com');
INSERT INTO authors VALUES(30,'DAKSH','qyx@gmail.com');
select *from authors;
```

```
mysql> INSERT INTO authors VALUES(11,'GAURAV','xyx@gmail.com');
Query OK, 1 row affected (0.12 sec)

mysql> INSERT INTO authors VALUES(21,'SAURABH','xwx@gmail.com');
Query OK, 1 row affected (0.13 sec)

mysql> ^C
mysql> INSERT INTO authors VALUES(15,'KARAN','xax@gmail.com');
Query OK, 1 row affected (0.11 sec)

mysql> INSERT INTO authors VALUES(25,'UTSAV','xvx@gmail.com');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO authors VALUES(19,'VISHAL','xfyx@gmail.com');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO authors VALUES(30,'DAKSH','qyx@gmail.com');
Query OK, 1 row affected (0.12 sec)

mysql> select *from authors;
+-----+
| authorid | name      | email          |
+-----+
| 11 | GAURAV | xyx@gmail.com |
| 21 | SAURABH | xwx@gmail.com |
| 15 | KARAN | xax@gmail.com |
| 25 | UTSAB | vx@gmail.com |
| 19 | VISHAL | xfyx@gmail.com |
| 30 | DAKSH | qyx@gmail.com |
+-----+
6 rows in set (0.05 sec)
```

1-Add unique constraint to title in books table

Query- ALTER TABLE books ADD UNIQUE(isbn);

desc books;

```
mysql> ALTER TABLE books ADD UNIQUE(isbn);
Query OK, 0 rows affected (1.50 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc books;
+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+
| isbn  | int           | YES  | UNI | NULL    |       |
| title | varchar(50)   | YES  |     | NULL    |       |
| price | float         | YES  |     | NULL    |       |
| qty   | int           | YES  |     | NULL    |       |
+-----+
4 rows in set (0.07 sec)
```

2- Add not null constraint to price in books table

Query: alter table books modify price float not null;

desc books;

```
mysql> alter table books modify price float not null;
Query OK, 0 rows affected (2.60 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc books;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| isbn  | int           | YES  | UNI | NULL    |       |
| title | varchar(50)   | YES  |     | NULL    |       |
| price | float         | NO   |     | NULL    |       |
| qty   | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.06 sec)
```

3- Alter check constraint in price that it greater than 0

Query: alter table books add check(price>0);

desc books;

```
mysql> alter table books add check(price>0);
Query OK, 6 rows affected (2.34 sec)
Records: 6 Duplicates: 0 Warnings: 0

mysql> desc books;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| isbn  | int           | YES  | UNI | NULL    |       |
| title | varchar(50)   | YES  |     | NULL    |       |
| price | float         | NO   |     | NULL    |       |
| qty   | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

4- Drop not null constraints for qty

Query: alter table books modify qty int null;

desc books;

```
mysql> alter table books modify qty int null;
Query OK, 0 rows affected (0.54 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc books;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| isbn  | int           | YES  | UNI | NULL    |       |
| title | varchar(50)   | YES  |     | NULL    |       |
| price | float         | NO   |     | NULL    |       |
| qty   | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.07 sec)
```

5- Set default qty for books to 0

Query: alter table books alter qty set default 0;

desc books;

```
mysql> alter table books alter qty set default 0;
Query OK, 0 rows affected (0.25 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc books;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| isbn  | int           | YES  | UNI | NULL    |       |
| title | varchar(50)   | YES  |     | NULL    |       |
| price | float         | NO   |     | NULL    |       |
| qty   | int           | YES  |     | 0       |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

6-Drop email from author table

Query: alter table authors drop column email;

desc authors;

```
mysql> alter table authors drop column email;
Query OK, 0 rows affected (1.02 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc authors;
+-----+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| authorid | int      | YES  |     | NULL    |       |
| name     | varchar(30) | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.11 sec)
```

7- Drop any one foreign key constraint

Query:

alter table books_authors drop foreign key books_authors_ibfk_1;

desc book_aurthor;

```
mysql> alter table book_author drop foreign key book_author_ibfk_1;
Query OK, 0 rows affected (0.39 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc book_author;
+-----+-----+-----+-----+-----+-----+
| Field      | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| authorid   | int  | YES  | MUL | NULL    |       |
| isbn       | int  | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.41 sec)
```

8- Drop a primary key

Query:

alter table author drop primary key; desc author; alter table authors drop column authorid;

desc authors;

```
MySQL 8.0 Command Line Client
mysql> alter table author drop primary key;
Query OK, 5 rows affected (2.89 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> desc author;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| authorid | int          | NO   |     | NULL    |       |
| name     | varchar(50)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.07 sec)

mysql> alter table author drop column authorid;
Query OK, 0 rows affected (1.78 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc author;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| name  | varchar(50)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql>
```

9- Attribute to author table and set constraint for it

Query:

alter table authors add authorSSN varchar(50);

desc authors;

```
mysql> alter table authors add authorSSN varchar(50);
Query OK, 0 rows affected (1.82 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc authors;
ERROR 1146 (42S02): Table 'database.authors' doesn't exist
mysql> desc authors;
```

Field	Type	Null	Key	Default	Extra
authorid	int	YES		NULL	
name	varchar(30)	YES		NULL	
authorSSN	varchar(50)	YES		NULL	

3 rows in set (0.10 sec)

update authors set authorSSN='19BBS0026' where name='GAURAV';

update authors set authorSSN='19BCI0026' where name='SAURABH';

update authors set authorSSN='19BMI0026' where name='KARAN';

update authors set authorSSN='19BLI0026' where name='DAKSH';

update authors set authorSSN='19BBD0026' where name='VISHAL';

update authors set authorSSN='19BVS0026' where name='UTSAV';

alter table authors add primary key(authorSSN);

select* from authors;

```
mysql> update authors set authorSSN='19BBS0026' where name='GAURAV';
Query OK, 1 row affected (0.11 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update authors set authorSSN='19BCI0026' where name='SAURABH';
Query OK, 1 row affected (0.09 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update authors set authorSSN='19BMI0026' where name='KARAN';
Query OK, 1 row affected (0.30 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update authors set authorSSN='19BLI0026' where name='DAKSH';
Query OK, 1 row affected (0.18 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update authors set authorSSN='19BBD0026' where name='VISHAL';
Query OK, 1 row affected (0.07 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update authors set authorSSN='19BVS0026' where name='UTSAV';
Query OK, 1 row affected (0.11 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> alter table authors add primary key(authorSSN);
Query OK, 0 rows affected (1.75 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select* from author;
ERROR 1146 (42S02): Table 'database.author' doesn't exist
mysql> select* from authors;
+-----+-----+
| name   | authorSSN |
+-----+-----+
| VISHAL | 19BBD0026 |
| GAURAV | 19BBS0026 |
| SAURABH | 19BCI0026 |
| DAKSH  | 19BLI0026 |
| KARAN  | 19BMI0026 |
| UTSAV  | 19BVS0026 |
+-----+-----+
6 rows in set (0.05 sec)
```


Q 3:

Query:

Create table department(deptNo int,deptName varchar(20),
locationvarchar(20),constraint pk_dept primary key(deptNo));

```
mysql> Create table department(deptNo int,deptName varchar(20), location varchar(20),constraint pk_dept  
primary key(deptNo));  
Query OK, 0 rows affected (0.10 sec)
```

```
mysql> desc department;  
+-----+-----+-----+-----+-----+-----+  
| Field      | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| deptNo     | int           | NO   | PRI | NULL    |       |  
| deptName   | varchar(20)   | YES  |     | NULL    |       |  
| location   | varchar(20)   | YES  |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
3 rows in set (0.00 sec)
```

Query:

Create table employee(empNo int,empName varchar(20),job varchar(20),mgr
int,hireDate date,salary int,comm int, deptNo int,constraint pk_emp primary
key(empNo) ,constraint fk_deptNo foreign key (deptNo) references
department (deptNo));

```
mysql> Create table employee(empNo int,empName varchar(20),job varchar(20),mgr int,hireDate date,salary  
int,comm int, deptNo int,constraint pk_emp primary key(empNo) ,constraint fk_deptNo foreign key (deptNo)  
references department (deptNo));  
Query OK, 0 rows affected (0.12 sec)
```

```
mysql> desc employee;
```

Field	Type	Null	Key	Default	Extra
empNo	int	NO	PRI	NULL	
empName	varchar(20)	YES		NULL	
job	varchar(20)	YES		NULL	
mgr	int	YES		NULL	
hireDate	date	YES		NULL	
salary	int	YES		NULL	
comm	int	YES		NULL	
deptNo	int	YES	MUL	NULL	

3 rows in set (0.00 sec)

Query:

insert into department values(1001,"Frontend Developer","Hyderabad");

Insert into department values(1002,"Backend Developer","Bangalore");

Insert into department values(1003,"MERN stack developer","Mumbai");

Insert into department values(1004,"MEAN stack developer","Lucknow");

Insert into department values(1005,"UI Designer","Bhopal");

```
mysql> insert into department values(1001,"Frontend Developer","Hyderabad");
Query OK, 1 row affected (0.06 sec)

mysql> Insert into department values(1002,"Backend Developer","Bangalore");
Query OK, 1 row affected (0.01 sec)

mysql> Insert into department values(1003,"MERN stack developer","Mumbai");
Query OK, 1 row affected (0.01 sec)

mysql> Insert into department values(1004,"MEAN stack developer","Lucknow");
Query OK, 1 row affected (0.01 sec)

mysql> Insert into department values(1005,"UI Designer","Bhopal");
Query OK, 1 row affected (0.01 sec)

mysql> select * from department;
+-----+-----+-----+
| deptNo | deptName          | location |
+-----+-----+-----+
| 1001   | Frontend Developer | Hyderabad |
| 1002   | Backend Developer  | Bangalore |
| 1003   | MERN stack developer | Mumbai   |
| 1004   | MEAN stack developer | Lucknow  |
| 1005   | UI Designer        | Bhopal   |
+-----+-----+-----+
5 rows in set (0.00 sec)
```

Manager-7121, team leader-4153,team member-8451,head manager-9999,presentator-1000,salesman-2000,president-1111,PA-8125

Query: insert into employee values(2001,"Shree","manager",7121,"2017-05-1",20000,4555,1001);

insert into employee values(2002,"Rohan","Team Leader",4153,"2018-06-2",30000,8421,1003);

insert into employee values(2003,"Satya","Head Manager",9999,"2010-07-17",45000,2785,1004);

insert into employee values(2004,"Vidya","Presentator",1000,"2015-07-20",11000,3245,1005);

insert into employee values(2005,"Ganesh","Team member",4153,"2014-01-10",28000,8571,1003);

```
insert into employee values(2006,"Rohit","Team Leader",7121,"2017-05-1",20000,4555,1001);
```

```
insert into employee values(2007,"nikhil","salesman",2000,"2001-06-12",8000,7514,1005);
```

```
insert into employee values(2008,"Shiva","Team member",8451,"2014-06-1",14000,5841,1002);
```

```
insert into employee values(2009,"Arjun","PA",8125,"2015-01-1",40000,1245,1001);
```

```
insert into employee values(2010,"Jagan","President",1111,"2001-01-7",84500,1279,1003);
```

1. Display the dept information from department table

Query:

```
select * from department;
```

```
mysql> select * from department;
+-----+-----+-----+
| deptNo | deptName          | location |
+-----+-----+-----+
| 1001   | Frontend Developer | Hyderabad |
| 1002   | Backend Developer  | Bangalore |
| 1003   | MERN stack developer | Mumbai   |
| 1004   | MEAN stack developer | Lucknow  |
| 1005   | UI Designer        | Bhopal   |
+-----+-----+-----+
5 rows in set (0.00 sec)
```

2. Display the details of all employee

Query:

```
select * from employee;
```

```
mysql> select * from employee;
+-----+-----+-----+-----+-----+-----+-----+-----+
| empNo | empName | job          | mgr | hireDate   | salary | comm | deptNo |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 2001 | Shree   | manager      | 7121 | 2017-05-01 | 20000  | 4555 | 1001 |
| 2002 | Rohan   | Team Leader  | 4153 | 2018-06-02 | 30000  | 8421 | 1003 |
| 2003 | Satya   | Head Manager | 9999 | 2010-07-17 | 45000  | 2785 | 1004 |
| 2004 | Vidya   | Presentator  | 1000 | 2015-07-20 | 11000  | 3245 | 1005 |
| 2005 | Ganesh  | Team member  | 4153 | 2014-01-10 | 28000  | 8571 | 1003 |
| 2006 | Rohit   | Team Leader  | 7121 | 2017-05-01 | 20000  | 4555 | 1001 |
| 2007 | nikhil  | salesman     | 2000 | 2001-06-12 | 8000   | 7514 | 1005 |
| 2008 | Shiva   | Team member  | 8451 | 2014-06-01 | 14000  | 5841 | 1002 |
| 2009 | Arjun   | PA           | 8125 | 2015-01-01 | 40000  | 1245 | 1001 |
| 2010 | Jagan   | President    | 1111 | 2001-01-07 | 84500  | 1279 | 1003 |
+-----+-----+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

3. display the name and job for all employee

Query:

```
select empName,job from employee;
```

```
mysql> select empName,job from employee;
+-----+-----+
| empName | job          |
+-----+-----+
| Shree   | manager      |
| Rohan   | Team Leader  |
| Satya   | Head Manager |
| Vidya   | Presentator  |
| Ganesh  | Team member  |
| Rohit   | Team Leader  |
| nikhil  | salesman     |
| Shiva   | Team member  |
| Arjun   | PA           |
| Jagan   | President    |
+-----+-----+
10 rows in set (0.00 sec)
```

4. display name and salary for all employee

Query:

select empName,salary from employee;

```
mysql> select empName,salary from employee;
+-----+-----+
| empName | salary |
+-----+-----+
| Shree   | 20000  |
| Rohan   | 30000  |
| Satya   | 45000  |
| Vidya   | 11000  |
| Ganesh  | 28000  |
| Rohit   | 20000  |
| nikhil  | 8000   |
| Shiva   | 14000  |
| Arjun   | 40000  |
| Jagan   | 84500  |
+-----+-----+
10 rows in set (0.00 sec)
```

5. display employee number and total salary for each employee

Query:

select empNo,salary +comm as "total salary" from employee;

```
mysql> select empNo,salary +comm as "total salary" from employee;
+-----+-----+
| empNo | total salary |
+-----+-----+
| 2001  | 24555       |
| 2002  | 38421       |
| 2003  | 47785       |
| 2004  | 14245       |
| 2005  | 36571       |
| 2006  | 24555       |
| 2007  | 15514       |
| 2008  | 19841       |
| 2009  | 41245       |
| 2010  | 85779       |
+-----+-----+
10 rows in set (0.00 sec)
```

6. display employee name and anual salary for all employee

Query:

select empName,12*(salary) as "annual salary" from employee;

```
mysql> select empName,12*(salary) as "annual salary" from employee;
+-----+-----+
| empName | annual salary |
+-----+-----+
| Shree   | 240000        |
| Rohan   | 360000        |
| Satya   | 540000        |
| Vidya   | 132000        |
| Ganesh  | 336000        |
| Rohit   | 240000        |
| nikhil  | 96000         |
| Shiva   | 168000        |
| Arjun   | 480000        |
| Jagan   | 1014000       |
+-----+-----+
10 rows in set (0.00 sec)
```

7. display the names of all employee who are working in department number 1001

Query:

select empName from employee where deptNo =1001;

```
mysql> select empName from employee where deptNo =1001;
+-----+
| empName |
+-----+
| Shree   |
| Rohit   |
| Arjun   |
+-----+
3 rows in set (0.00 sec)
```

8. display the names of all employee working as salesman and drawing a salary more than 3000

Query:

`select empName from employee where job="salesman" and salary > 3000;`

```
mysql> select empName from employee where job="salesman" and salary > 3000;
+-----+
| empName |
+-----+
| nikhil  |
+-----+
1 row in set (0.00 sec)
```

9. display employee number and names for employee who earns commission

Query:

`select empNo,empName where comm>0;`

```
mysql> select empNo,empName from employee where comm>0;
+-----+-----+
| empNo | empName |
+-----+-----+
| 2001  | Shree   |
| 2002  | Rohan   |
| 2003  | Satya   |
| 2004  | Vidya   |
| 2005  | Ganesh  |
| 2006  | Rohit   |
| 2007  | nikhil  |
| 2008  | Shiva   |
| 2009  | Arjun   |
| 2010  | Jagan   |
+-----+-----+
10 rows in set (0.00 sec)
```


10. display names of employee who do not earn any commission

Query:

select empName from employee where comm =0;

```
mysql> select empName from employee where comm =0;  
Empty set (0.00 sec)
```

11. display the names of employee who are working as manager, salseman or Ream leader and drawing a salary more than 10000

Query:

select empName from employee where job="manager" or job = "salesman" or job="Team Leader" and salary > 10000;

```
mysql> select empName from employee where job="manager" or job = "salesman" or job="Team Leader" and salary > 10000;  
+-----+  
| empName |  
+-----+  
| Shree   |  
| Rohan   |  
| Rohit   |  
| nikhil  |  
+-----+  
4 rows in set (0.00 sec)
```

12. display the names of employee who are working in company for the past 5 years

Query:

select empName from employee where hireDate >="2015-01-01";

```
mysql> select empName from employee where hireDate >="2015-01-01";
+-----+
| empName |
+-----+
| Shree   |
| Rohan   |
| Vidya   |
| Rohit   |
| Arjun   |
+-----+
5 rows in set (0.03 sec)
```

13. display the list of employee who have joins the company before 30 june 90 or after 31dec 90

Query:

select empName from employee where hireDate <="1990-06-30" or hireDate
>= "1990-12-31";

```
mysql> select empName from employee where hireDate <="1990-06-30" or hireDate >= "1990-12-31";
+-----+
| empName |
+-----+
| Shree   |
| Rohan   |
| Satya   |
| Vidya   |
| Ganesh  |
| Rohit   |
| nikhil  |
| Shiva   |
| Arjun   |
| Jagan   |
+-----+
10 rows in set (0.00 sec)
```

14. display the names of employee working in department number 1001 or 1003 Or 1005 or employee working as clerks, salseman or analyst.

Query:

Select empName from employee where deptNo = 1001 or deptNo = 1003 or deptNo=1005;

```
mysql> Select empName from employee where deptNo = 1001 or deptNo = 1003 or deptNo=1005;
+-----+
| empName |
+-----+
| Shree   |
| Rohan   |
| Vidya   |
| Ganesh  |
| Rohit   |
| nikhil  |
| Arjun   |
| Jagan   |
+-----+
8 rows in set (0.03 sec)
```

15. display names of employee whose name starts with alphabet S.

Query:

select empName from employee where empName like "S%";

```
mysql> select empName from employee where empName like "S%";
+-----+
| empName |
+-----+
| Shree   |
| Satya   |
| Shiva   |
+-----+
3 rows in set (0.03 sec)
```

16. display names of employee whose name ends with alphabet S

Query:

select empName from employee where empName like "%S"

```
mysql> select empName from employee where empName like "%S";  
Empty set (0.00 sec)  
;
```

17. display the names of employee whose names have second alphabet A in their names

Query:

select empName from employee where empName like "_a%";

```
mysql> select empName from employee where empName like "_a%";  
+-----+  
| empName |  
+-----+  
| Satya   |  
| Ganesh  |  
| Jagan   |  
+-----+  
3 rows in set (0.00 sec)
```

18. display the names of employee whose name is exactly five character in length

Query:

select empName from employee where length(empName)=5;

```
mysql> select empName from employee where length(empName)=5;
+-----+
| empName |
+-----+
| Shree   |
| Rohan   |
| Satya   |
| Vidya   |
| Rohit   |
| Shiva   |
| Arjun   |
| Jagan   |
+-----+
8 rows in set (0.12 sec)
```

19. display the total number of employee working in the company

Query:

Select count(empNo) from employee;

```
mysql> Select count(empNo) from employee;
+-----+
| count(empNo) |
+-----+
|           10 |
+-----+
1 row in set (0.20 sec)
```

20. display the total salary being paid to all employee

Query:

select sum(salary) from employee;

```
mysql> select sum(salary) from employee;
+-----+
| sum(salary) |
+-----+
|      300500 |
+-----+
1 row in set (0.03 sec)
```

21. display the maximum salary from emp table

Query:

`select max(salary) from employee;`

```
mysql> select max(salary) from employee;
+-----+
| max(salary) |
+-----+
|      84500 |
+-----+
1 row in set (0.03 sec)
```

22. display minimum salary from emp table

Query:

`select min(salary) from employee;`

```
mysql> select min(salary) from employee;
+-----+
| min(salary) |
+-----+
|       8000 |
+-----+
1 row in set (0.00 sec)
```

23. display the average salary from emp table

Query:

`select avg(salary) from employee;`

```
mysql> select avg(salary) from employee;
+-----+
| avg(salary) |
+-----+
| 30050.0000 |
+-----+
1 row in set (0.00 sec)
```

24. display the maximum salary being paid to salesman

Query:

`select max(salary) from employee where job="salesman";`

```
mysql> select max(salary) from employee where job="salesman";
+-----+
| max(salary) |
+-----+
|      8000 |
+-----+
1 row in set (0.00 sec)
```

25. display the maximum salary being paid in dept no 1002

Query:

`select max(salary) from employee where deptNo=1002;`

```
mysql> select max(salary) from employee where deptNo=1002;
+-----+
| max(salary) |
+-----+
|      14000 |
+-----+
1 row in set (0.03 sec)
```

26. display the min salary being paid to any salseman

Query:

`select min(salary) from employee where job="salesman";`

```
mysql> select min(salary) from employee where job="salesman";
+-----+
| min(salary) |
+-----+
|       8000 |
+-----+
1 row in set (0.00 sec)
```

27. display the average salary drawn by manager

Query:

`select avg(salary) from employee where job="manager";`

```
mysql> select avg(salary) from employee where job="manager";
+-----+
| avg(salary) |
+-----+
| 20000.0000 |
+-----+
1 row in set (0.00 sec)
```


28. display the names of employee in order of salary i.e the name of the employee earning lowest salary should appear first

Query:

`select empName from employee order by salary;`

```
mysql> select empName from employee order by salary;
+-----+
| empName |
+-----+
| nikhil  |
| Vidya   |
| Shiva   |
| Shree   |
| Rohit   |
| Ganesh  |
| Rohan   |
| Arjun   |
| Satya   |
| Jagan   |
+-----+
10 rows in set (0.03 sec)
```

29. display the names of employees in descending order of salary

Query:

`select empName from employee order by salary desc;`

```
mysql> select empName from employee order by salary desc;
+-----+
| empName |
+-----+
| Jagan   |
| Satya   |
| Arjun   |
| Rohan   |
| Ganesh   |
| Shree    |
| Rohit    |
| Shiva    |
| Vidya    |
| nikhil   |
+-----+
10 rows in set (0.00 sec)
```

30. display the details from emp table in order of emp name

Query:

select empName from employee order by empName;

```
mysql> select empName from employee order by empName;
+-----+
| empName |
+-----+
| Arjun    |
| Ganesh    |
| Jagan     |
| nikhil    |
| Rohan     |
| Rohit     |
| Satya     |
| Shiva     |
| Shree     |
| Vidya     |
+-----+
10 rows in set (0.03 sec)
```

31. display empno ename deptno and sal. sort the output first based on name and within name by deptno and within deptno by sal .

Query:

select empNo,empName,deptNo,salary from employee order by
empName,deptNo,salary;

```
mysql> select empNo,empName,deptNo,salary from employee order by empName,deptNo,salary;
+-----+-----+-----+-----+
| empNo | empName | deptNo | salary |
+-----+-----+-----+-----+
| 2009 | Arjun   | 1001   | 40000  |
| 2005 | Ganesh  | 1003   | 28000  |
| 2010 | Jagan   | 1003   | 84500  |
| 2007 | nikhil  | 1005   | 8000   |
| 2002 | Rohan   | 1003   | 30000  |
| 2006 | Rohit   | 1001   | 20000  |
| 2003 | Satya   | 1004   | 45000  |
| 2008 | Shiva   | 1002   | 14000  |
| 2001 | Shree   | 1001   | 20000  |
| 2004 | Vidya   | 1005   | 11000  |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

32. display the name of the employee along with their annual salary (sal*12)
the name of the employee earning highest annual salary should appear first.

Query:

select empName,12*(salary) as "annual salary" from employee order by
12*(salary) desc;

```
mysql> select empName,12*(salary) as "annual salary" from employee order by 12*(salary) desc;
+-----+-----+
| empName | annual salary |
+-----+-----+
| Jagan   | 1014000      |
| Satya   | 540000       |
| Arjun   | 480000       |
| Rohan   | 360000       |
| Ganesh  | 336000       |
| Shree   | 240000       |
| Rohit   | 240000       |
| Shiva   | 168000       |
| Vidya   | 132000       |
| nikhil  | 96000        |
+-----+-----+
10 rows in set (0.00 sec)
```

33. display name, sal, hra, pf, da, total sal for each employee. the output should be in the order of total sal, hra 15% of sal, da 10% of sal, pf 5% of sal total salary will be $(sal * hra * da) - pf$

Query:

select empName,(0.15*salary) as "hra",(0.1*salary) as "da",(0.05*salary) as "pf" , ((salary*0.15*salary*0.1*salary)-(0.05*salary)) as "total salary" from employee;

```
mysql> select empName,(0.15*salary) as "hra",(0.1*salary) as "da",(0.05*salary) as "pf" , ((salary*0.15*salary*0.1*salary)-(0.05*salary)) as "total salary" from employee;
+-----+-----+-----+-----+-----+
| empName | hra    | da    | pf    | total salary |
+-----+-----+-----+-----+-----+
| Shree   | 3000.00 | 2000.0 | 1000.00 | 119999999000.000 |
| Rohan   | 4500.00 | 3000.0 | 1500.00 | 404999998500.000 |
| Satya   | 6750.00 | 4500.0 | 2250.00 | 1366874997750.000 |
| Vidya   | 1650.00 | 1100.0 | 550.00  | 19964999450.000 |
| Ganesh  | 4200.00 | 2800.0 | 1400.00 | 329279998600.000 |
| Rohit   | 3000.00 | 2000.0 | 1000.00 | 119999999000.000 |
| nikhil  | 1200.00 | 800.0  | 400.00  | 7679999600.000 |
| Shiva   | 2100.00 | 1400.0 | 700.00  | 41159999300.000 |
| Arjun   | 6000.00 | 4000.0 | 2000.00 | 959999998000.000 |
| Jagan   | 12675.00 | 8450.0 | 4225.00 | 9050266870775.000 |
+-----+-----+-----+-----+-----+
10 rows in set (0.04 sec)
```

34. display dept number and total number of employees within each group

Query:

select deptNo,count(empNo) as "totalEmp" from employee group by deptNo;

```
mysql> select deptNo,count(empNo) as "totalEmp" from employee group by deptNo;
+-----+-----+
| deptNo | totalEmp |
+-----+-----+
| 1001   | 3        |
| 1002   | 1        |
| 1003   | 3        |
| 1004   | 1        |
| 1005   | 2        |
+-----+-----+
5 rows in set (0.01 sec)
```

35. display the various jobs and total number of employee with each job group

Query:

select job,count(empNo) from employee group by job;

```
mysql> select job,count(empNo) from employee group by job;
+-----+-----+
| job          | count(empNo) |
+-----+-----+
| manager      | 1            |
| Team Leader  | 2            |
| Head Manager | 1            |
| Presentator  | 1            |
| Team member  | 2            |
| salesman     | 1            |
| PA           | 1            |
| President    | 1            |
+-----+-----+
8 rows in set (0.00 sec)
```

36. display department number and total salary for each department

Query:

select deptNo,sum(salary) as "total salary" from employee group by deptNo;

```
mysql> select deptNo,sum(salary) as "total salary" from employee group by deptNo;
+-----+-----+
| deptNo | total salary |
+-----+-----+
| 1001 | 80000 |
| 1002 | 14000 |
| 1003 | 142500 |
| 1004 | 45000 |
| 1005 | 19000 |
+-----+-----+
5 rows in set (0.00 sec)
```

37. display department number and maximum salary for each department

Query:

select deptNo, max(salary) from employee group by deptNo;

```
mysql> select deptNo, max(salary) from employee group by deptNo;
+-----+-----+
| deptNo | max(salary) |
+-----+-----+
| 1001 | 40000 |
| 1002 | 14000 |
| 1003 | 84500 |
| 1004 | 45000 |
| 1005 | 11000 |
+-----+-----+
5 rows in set (0.00 sec)
```

38. display the various jobs and total salary for each job

Query:

`select job ,sum(salary) as "total salary" from employee group by job;`

```
mysql> select job ,sum(salary) as "total salary" from employee group by job;
+-----+-----+
| job          | total salary |
+-----+-----+
| manager      | 20000       |
| Team Leader   | 50000       |
| Head Manager  | 45000       |
| Presentator   | 11000       |
| Team member   | 42000       |
| salesman      | 8000        |
| PA            | 40000       |
| President     | 84500       |
+-----+-----+
8 rows in set (0.00 sec)
```

39. display each job along with minimum sal being paid in each job group

Query:

`select job,min(salary) from employee group by job;`

```
mysql> select job,min(salary) from employee group by job;
+-----+-----+
| job          | min(salary) |
+-----+-----+
| manager      | 20000       |
| Team Leader   | 20000       |
| Head Manager  | 45000       |
| Presentator   | 11000       |
| Team member   | 14000       |
| salesman      | 8000        |
| PA            | 40000       |
| President     | 84500       |
+-----+-----+
8 rows in set (0.00 sec)
```

40. display the department numbers with more than three employee in each dept

Query:

select deptNo ,count(deptNo) from employee group by deptNo having count(*)>3;

```
mysql> select deptNo ,count(deptNo) from employee group by deptNo having count(*)>3;
Empty set (0.00 sec)
```

41. display the various jobs along with total sal for each of the jobs where total sal is greater Than 40000.

Query:

select job,sum(salary) as "total salary" from employee having sum(salary) > 40000;

```
mysql> select job,sum(salary) as "total salary" from employee having sum(salary) > 40000;
+-----+-----+
| job    | total salary |
+-----+-----+
| manager |      300500 |
+-----+-----+
1 row in set (0.00 sec)
```

41. display the various jobs along with total number of employee in each job. the output should contain only those jobs with more than three employee

Query:

select job,count(empNo) from employee group by job having count(empNo) > 3;


```
mysql> select job,count(empNo) from employee group by job having count(empNo) > 3;  
Empty set (0.03 sec)
```

43. display the name of emp who earns highest sal

Query:

select empName from employee where (salary= (select max(salary) from employee));

```
mysql> select empName from employee where (salary= (select max(salary) from employee));  
+-----+  
| empName |  
+-----+  
| Jagan   |  
+-----+  
1 row in set (0.00 sec)
```

44. display the employee number and name of employee working as salesman and earning highest salary among salesman.

Query:

Select empNo,empName from employee where job="salesman" and salary=(select max(salary) from employee where job="salesman");

```
mysql> Select empNo,empName from employee where job="salesman" and salary=(select max(salary) from employee where job="salesman");  
+-----+-----+  
| empNo | empName |  
+-----+-----+  
| 2007  | nikhil  |  
+-----+-----+  
1 row in set (0.00 sec)
```

45. display the names of salesman who earn salary more than that of james of that of sal lesser than that of scott.

Query:

select empName from employee where job="salesman" and salary>(select salary from employee where job="salesman" and empNo=20011) and salary <(select salary from employee where job="salesman" and empNo=20012);

```
mysql> select empName from employee where job="salesman" and salary>(select salary from employee where j
ob="salesman" and empNo=20011) and salary <(select salary from employee where job="salesman" and empNo=2
0012);
Empty set (0.00 sec)
```