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Class: SE Comps

Batch: C

Aim:Practicing DDL and DML commands.

Theory:

RDBMS

RDBMS stands for "Relational Database Management System." An RDBMS is a DBMS designed specifically for relational databases. Therefore, RDBMSes are a subset of DBMSes.

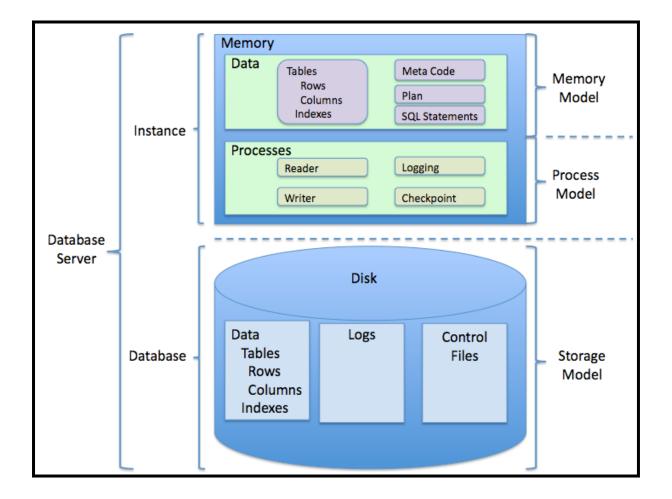
A relational database refers to a database that stores data in a structured format, using rows and columns. This makes it easy to locate and access specific values within the database. It is "relational" because the values within each table are related to each other. Tables may also be related to other tables. The relational structure makes it possible to run queries across multiple tables at once.

While a relational database describes the type of database an RDMBS manages, the RDBMS refers to the database program itself. It is the software that executes queries on the data, including adding, updating, and searching for values. An RDBMS may also provide a visual representation of the data. For example, it may display data in a tables like a spreadsheet, allowing you to view and even edit individual values in the table. Some RDMBS programs allow you to create forms that can streamline entering, editing, and deleting data.

Most well-known DBMS applications fall into the RDBMS category. Examples include Oracle Database, MySQL, Microsoft SQL Server, and IBM DB2. Some of these programs support non-relational databases, but they are primarily used for relational database management.

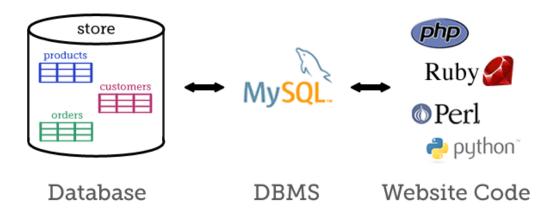
Examples of non-relational databases include Apache HBase, IBM Domino, and Oracle NoSQL Database. These type of databases are managed by other DMBS programs that support NoSQL, which do not fall into the RDBMS category.

General Structure of Relational Database



The term "relational database" was invented by E. F. Codd at IBM in 1970. Codd introduced the term in his research paper "A Relational Model of Data for Large Shared Data Banks". In this paper and later papers, he defined what he meant by "relational". One well-known definition of what constitutes a relational database system is composed of Codd's 12 rules. However, no commercial implementations of the relational model conform to all of Codd's rules, so the term has gradually come to describe a broader class of database systems, which at a minimum.

MySQL



MySQL is an Oracle-backed open source relational database management system (RDBMS) based on Structured Query Language (SQL). MySQL runs on virtually all platforms, including Linux, UNIX and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web applications and online publishing.

MySQL is based on a client-server model. The core of MySQL is MySQL server, which handles all of the database instructions (or commands). MySQL server is available as a separate program for use in a client-server networked environment and as a library that can be embedded (or linked) into separate applications.

MySQL operates along with several utility programs which support the administration of MySQL databases. Commands are sent to MySQLServer via the MySQL client, which is installed on a computer.

MySQL was originally developed to handle large databases quickly. Although MySQL is typically installed on only one machine, it is able to send the database to multiple locations, as users are able to access it via different MySQL client interfaces. These interfaces send SQL statements to the server and then display the results.

DDL

DDL is short name of Data Definition Language, which deals with database schemas and descriptions, of how the data should reside in the database.

• **CREATE** - to create a database and its objects like (table, index, views, store procedure, function, and triggers)

Syntax:

```
CREATE TABLE table_name(
    column_name datatype(size)
);
```

• **ALTER** - alters the structure of the existing database

Syntax:

ALTER TABLE table_name ADD column_name datatype;

• **DROP** - delete objects from the database

Syntax:

DROP TABLE *table_name*;

 TRUNCATE - remove all records from a table, including all spaces allocated for the records are removed

Syntax:

TRUNCATE TABLE *table_name*;

• **RENAME** - rename an object

Syntax:

RENAME TABLE table_name1 TO table_name2;

DML

A data manipulation language (DML) is a family of computer languages including commands permitting users to manipulate data in a database. This manipulation involves inserting data into database tables, retrieving existing data, deleting data from existing tables and modifying existing data. DML is mostly incorporated in SQL databases.

DML resembles simple English language and enhances efficient user interaction with the system. The functional capability of DML is organized in manipulation commands like SELECT, UPDATE, INSERT INTO and DELETE FROM, as described below:

• SELECT:

This command is used to retrieve rows from a table.

Syntax: SELECT [column name(s)] from [table name] where [conditions].

• UPDATE:

This command modifies data of one or more records.

Syntax: UPDATE [table name] SET [column name = value] where [condition].

• INSERT:

This command adds one or more records to a database table.

Syntax: INSERT INTO [table name] [column(s)] VALUES [value(s)].

• DELETE:

This command removes one or more records from a table according to specified conditions.

Syntax: DELETE FROM [table name] where [condition].

NOT NULL

MySQL The MySQL IS NOT NULL condition is used to test for a NOT NULL value in a <u>SELECT</u>, <u>INSERT</u>, UPDATE, or DELETE statement.

Syntax:

expression IS NOT NULL

Note:

- If expression is NOT a NULL value, the condition evaluates to TRUE.
- If expression is a NULL value, the condition evaluates to FALSE.

Example:

With SELECT Statement

select * from Contacts where last_name IS NOT NULL;

This MySQL IS NOT NULL example will return all records from the contacts table where the last_name does not contain a null value.

With INSERT Statement

insert into Contacts(contact id, contact name)

Select account_no, supplier_name from Suppliers where category IS NOT NULL;

This MySQL IS NOT NULL example will insert records into the contacts table where the category does not contain a null value.

With UPDATE Statement

update Contacts set status='completed' where last name IS NOT NULL;

This MySQL IS NOT NULL example will update records in the contacts table where the last_name does not contain a null value.

With DELETE Statement

delete from Contacts where last_name IS NOT NULL;

This MySQL IS NOT NULL example will delete all records from the contacts table where the last_name does not contain a null value.

Primary Key

- The PRIMARY KEY constraint uniquely identifies each record in a table.
- Primary keys must contain UNIQUE values, and cannot contain NULL values.
- A table can have only one primary key, which may consist of single or multiple fields.

SQL PRIMARY KEY on CREATE TABLE

```
CREATE TABLE Persons (
ID int NOT NULL,
LastName varchar(255) NOT NULL,
FirstName varchar(255),
Age int,
PRIMARY KEY (ID)
);
```

SQL PRIMARY KEY on ALTER TABLE

```
ALTER TABLE Persons
ADD PRIMARY KEY (ID);
```

DROP PRIMARY KEY Constraint

```
ALTER TABLE Persons
DROP PRIMARY KEY:
```

Unique Key

- The UNIQUE constraint ensures that all values in a column are different.
- Both the UNIQUE and PRIMARY KEY constraints provide a guarantee for uniqueness for a column or set of columns.
- A PRIMARY KEY constraint automatically has a UNIQUE constraint.
- However, you can have many UNIQUE constraints per table, but only one PRIMARY KEY constraint per table.

SQL UNIQUE Constraint on CREATE TABLE

```
CREATE TABLE Persons (
ID int NOT NULL,
LastName varchar(255) NOT NULL,
FirstName varchar(255),
Age int,
UNIQUE (ID)
);
```

SQL UNIQUE Constraint on ALTER TABLE

```
ALTER TABLE Persons
ADD UNIQUE (ID);
```

DROP a UNIQUE Constraint	
ALTER TABLE Persons	
DROP INDEX UC_Person;	

Output:

mysql> use vishal; Database changed

```
mysql> show tables;
+-----+
| Tables_in_vishal |
+-----+
| client_master |
| student |
+-----+
2 rows in set (0.00 sec)
```

1]Create table Client master:

mysql> create table Client_master(client_no varchar(6), name varchar(20), city varchar(15), pincode int(8), state varchar(15), bal_due float(10,2)); Query OK, 0 rows affected (0.03 sec)

ysql> describe client master;

mysqir ucser.	. criciic_mas				
Field	Type	Null	Key	Default	Extra
client_no name city pincode state bal due	varchar(6) varchar(20) varchar(15) int(8) varchar(15) float(10,2)	YES YES YES YES YES YES YES	 	NULL NULL NULL NULL NULL	
÷	+	+	+	+	

6 rows in set (0.00 sec)

mysql> create table product_master(product_no int(6), name varchar(15), profit_percent float(4,2), unit_measure varchar(10), qty_on_hand int(8), recorder_lvl int(8), sell_price float(8,2), cost_price float(8,2); ; Query OK, 0 rows affected (0.03 sec)

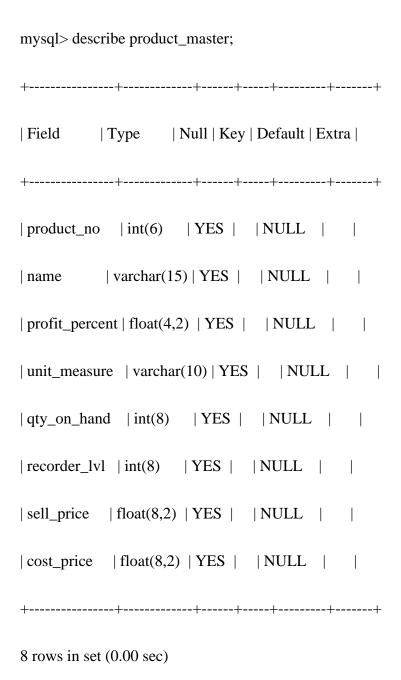
mysql> describe product_master;

Field	Туре	Null	Key	Default	Extra
product_no name profit_percent unit_measure qty_on_hand recorder_lv1 sell_price cost_price	int(6) varchar(15) float(4,2) varchar(10) int(8) int(8) float(8,2) float(8,2)	YES YES YES YES YES YES YES YES		NULL NULL NULL NULL NULL NULL NULL NULL	

Create table product master:

mysql> create table product_master(product_no int(6), name varchar(15), profit_percent float(4,2), unit_measure varchar(10), qty_on_hand int(8), recorder_lvl int(8), sell_price float(8,2), cost_price float(8,2));

Query OK, 0 rows affected (0.03 sec)



Create table salesman master:



mysql> create table salesman_master(salesman_no varchar(6), salesman_name

varchar(20),address1 varchar(30),address2 varchar(30), city varchar(20), pincode int(8), state

varchar(20), sal_amt float(8,2), tgt_to_get float(6,2), ytd_sales float(6,2), remarks

varchar(60));

Query OK, 0 rows affected (0.03 sec)

mysql> describe salesman_master;

```
| salesman_name | varchar(20) | YES | NULL |
       | varchar(30) | YES | NULL |
| address1
address2
        | varchar(30) | YES | NULL |
city | varchar(20) | YES | NULL |
        | int(8) | YES | | NULL | |
pincode
       | varchar(20) | YES | NULL |
state
| sal_amt
        | float(8,2) | YES | | NULL | |
| tgt_to_get | float(6,2) | YES | NULL |
| ytd_sales | float(6,2) | YES | NULL |
remarks
        | varchar(60) | YES | NULL | |
 -----+
```

11 rows in set (0.00 sec)

2]Describe Client master:

Describe Product master:

Field	Type	Null	Key	Default	Extra
product_no	int(6)	YES	 	NULL	
name	varchar(15)	YES		NULL	
profit_percent	float(4,2)	YES		NULL	
unit_measure	varchar(10)	YES		NULL	
qty_on_hand	int(8)	YES		NULL	
recorder_lvl	int(8)	YES		NULL	
sell_price	float(8,2)	YES		NULL	
cost_price	float(8,2)	YES		NULL	

Describe Salesman master:

Field	Type	Null	Key	Default	Extra
salesman_no	varchar(6)	YES		NULL	i i
salesman_name	varchar(20)	YES		NULL	
address1	varchar(30)	YES		NULL	
address2	varchar(30)	YES		NULL	
city	varchar(20)	YES		NULL	
pincode	int(8)	YES		NULL	
state	varchar(20)	YES		NULL	
sal_amt	float(8,2)	YES		NULL	
tgt_to_get	float(6,2)	YES		NULL	
ytd_sales	float(6,2)	YES		NULL	
remarks	varchar(60)	YES		NULL	

Insert data in client master:

```
mysql> describe client master;
                          | Null | Key | Default | Extra |
 Field
            Type
 client no
             varchar(6)
                           YES
                                         NULL
             varchar(20)
 name
                           YES
                                         NULL
             varchar(15)
                           YES
                                         NULL
 pincode
              int(8)
                                         NULL
             varchar(15)
  state
                                         NULL
 bal_due
             float(10,2)
                          YES
                                         NULL
 rows in set (0.00 sec)
mysql> insert into Client_master values("C00001" , "Ivan Bayross" , "Bombay", 400054 , "Maharashtra" , "15000");
Query OK, 1 row affected (0.01 sec)
mysql> insert into Client_master values("C00002" , "Vandana Saitwal" , "Madras", 780001 , "Tamil Nadu" , "0");
Query OK, 1 row affected (0.01 sec)
mysql> insert into Client_master values("C00003" , "Pramada Jaguste" , "Bombay", 400057 , "Maharashtra" , "5000");
Query OK, 1 row affected (0.01 sec)
mysql> insert into Client_master values("C00004" , "Basu Navindgi" , "Bombay", 400056 , "Maharashtra" , "0");
Query OK, 1 row affected (0.01 sec)
mysql> insert into Client_master values("C00005" , "Ravi Sreedharan" , "Delhi", 100001 , " " , "2000");
Query OK, 1 row affected (0.01 sec)
nysql> select * from Client_master;
 client_no | name
                              city | pincode | state
                                                               | bal_due |
 C00001
             Ivan Bayross
                                Bombay
                                         400054
                                                  Maharashtra |
                                                                 15000.00
                                                   Tamil Nadu
 C00002
             Vandana Saitwal
                               Madras
                                         780001
                                                                     0.00
 C00003
             Pramada Jaguste
                                Bombay
                                         400057
                                                   Maharashtra
                                                                  5000.00
 C00004
                                          400056
                                                   Maharashtra
                                                                     0.00
             Basu Navindgi
                                Bombay
 C00005
             Ravi Sreedharan | Delhi
                                         100001
                                                                  2000.00
 rows in set (0.00 sec)
```

```
mysql> insert into Client_master values("C00006" , "Rukmini" , "Bombay", 400050 , "Maharashtra ", "0");
Query OK, 1 row affected (0.01 sec)
mysql> select * from Client_master;
 client_no | name
                              city
                                       | pincode | state
                                                                | bal due |
                                          400054
                                                                  15000.00
 C00001
              Ivan Bayross
                                Bombay
                                                   Maharashtra
 C00002
                                          780001
                                                   Tamil Nadu
              Vandana Saitwal
                               Madras
                                                                      0.00
 C00003
              Pramada Jaguste
                                Bombay
                                          400057
                                                   Maharashtra
                                                                   5000.00
 C00004
              Basu Navindgi
                                Bombay
                                          400056
                                                   Maharashtra
                                                                      0.00
             Ravi Sreedharan
 C00005
                                          100001
                                                                   2000.00
                                Delhi
 C00006
              Rukmini
                               Bombay
                                          400050 | Maharashtra
                                                                      0.00
 rows in set (0.00 sec)
```

Insert data in product master:

```
nysql> describe product_master;
                  | Type
                                | Null | Key | Default | Extra |
 Field
 product no
                   varchar(6)
                                  YES
                                               NULL
                   varchar(15)
                                               NULL
  Description
                                 YES
  profit_percent
                   float(4,2)
                                               NULL
  unit_measure
                   varchar(10)
                                               NULL
  qty_on_hand
                   int(8)
                                               NULL
                   int(8)
  recorder lvl
                                 YES
                                               NULL
  sell_price
                   float(8,2)
                                  YES
                                               NULL
 cost_price
                   float(8,2)
                                               NULL
 rows in set (0.00 sec)
mysql> insert into product_master values("P00001" , "1.44 Floppies" , "5", "Piece" , "100 ", "20","525","500");
Query OK, 1 row affected (0.01 sec)
mysql> insert into product_master values("P03453" , "Monitors" , "6", "Piece" , "10 ", "3","12000","11280");
Query OK, 1 row affected (0.01 sec)
mysql> insert into product_master values("P06734" , "Mouse" , "5", "Piece" , "20 ", "5","1050","1000");
Query OK, 1 row affected (0.00 sec)
mysql> insert into product_master values("P07865" , "1.22 Floppies" , "5", "Piece" , "100 ", "20","525","500");
Query OK, 1 row affected (0.01 sec)
mysql> insert into product_master values("P07868" , "Keyboards" , "2", "Piece" , "10 ", "3","3150","3050");
Query OK, 1 row affected (0.01 sec)
mysql> insert into product_master values("P07885" , "CD Drive" , "2.5", "Piece" , "10 ", "3","5250","5100");
Query OK, 1 row affected (0.01 sec)
mysql> insert into product_master values("P07965" , "540 HDD" , "4", "Piece" , "10 ", "3","8400","8000");
Query OK, 1 row affected (0.01 sec)
mysql> insert into product_master values("P07975" , "1.44 Drive" , "5", "Piece" , "10 ", "3","1050","1000");
Query OK, 1 row affected (0.01 sec)
mysql> insert into product_master values("P08865" , "1.22 Drive" , "5", "Piece" , "2 ", "3","1050","1000");
Query OK, 1 row affected (0.01 sec)
```

product_no	Description	profit_percent	unit_measure	qty_on_hand	recorder_lvl	sell_price	cost_price
P00001	1.44 Floppies	 5.00	Piece	100	20	525.00	500.00
P03453	Monitors	6.00	Piece	10	3	12000.00	11280.00
P06734	Mouse	5.00	Piece	20	5	1050.00	1000.00
P07865	1.22 Floppies	5.00	Piece	100	20	525.00	500.00
P07868	Keyboards	2.00	Piece	10	3	3150.00	3050.00
P07885	CD Drive	2.50	Piece	10	3	5250.00	5100.00
P07965	540 HDD	4.00	Piece	10	3	8400.00	8000.00
P07975	1.44 Drive	5.00	Piece	10	3	1050.00	1000.00
P08865	1.22 Drive	5.00	Piece	2	3	1050.00	1000.00

Insert data in salesman master:

```
ysql> describe salesman_master;
                                 | Type | Null | Key | Default | Extra |

        salesman_no
        varchar(6)
        YES

        salesman_name
        varchar(20)
        YES

        address1
        varchar(30)
        YES

        address2
        varchar(30)
        YES

        city
        varchar(20)
        YES

        pincode
        int(8)
        YES

        state
        varchar(20)
        YES

        sal_amt
        float(8,2)
        YES

        tg_to_get
        float(6,2)
        YES

        ytd_sales
        float(6,2)
        YES

        remarks
        varchar(60)
        YES

                                                                                                | float(0,2)
| varchar(60) | YES
 nysql> insert into salesman master values("500001" , "Kiran" ,"A/14" , "Worli ", "Bombay ", 400002,"Maharashtra","3000","100","50","Good");,
Query OK, 1 row affected (0.01 sec)
-> insert into salesman_master values("S00001" , "Kiran" ,"A/14" , "Worli ", "Bombay ", 400002,"Maharashtra","3000","100","50","Good");
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 '
insert into salesman master values("S00001" , "Kiran" ,"A/14" , "Worli ", "Bomb' at line 1
mysql' insert into salesman master values("S00001" , "Kiran" ,"A/14" , "Worli ", "Bombay ", 400002,"Maharashtra","3000","100","50","Good");
Query OK, 1 row affected (0.01 sec)
mysql> insert into salesman_master values("S00002" , "Manish" , "65" , "Nariman" , "Bombay ", 400001,"Maharashtra","3000","200","100","Good");
Query OK, 1 row affected (0.01 sec)
 ysql> insert into salesman_master values("S00003" , "Ravi" , "P-7" ,"Bandra" ,"Bombay ", 400032,"Maharashtra","3000","200","100","Good");
uery OK, 1 row affected (0.01 sec)
mysql> insert into salesman_master values("500004" , "Ashish" , "A/5" , "Juhu", "Bombay ", 400044,"Maharashtra","3000","200","150","Good");
Query OK, 1 row affected (0.01 sec)
 ysql> select * from salesman_master;
   salesman_no | salesman_name | address1 | address2 | city | pincode | state
                                                                                                                                                                                                                              100.00 |
100.00 |
200.00 |
200.00 |
200.00 |
  S00001
S00001
S00002
                                                                                                                                                                Maharashtra | 3000.00 |
Maharashtra | 3000.00 |
Maharashtra | 3000.00 |
                                                                                                                                                                                                                                                         50.00 |
50.00 |
100.00 |
                                                                                                                                            400002
                                                                                                                                            400002
400001
                              | Ravi
| Ashish
                                                                                                                                                               Maharashtra
Maharashtra
                                                                                                                                                                                                                                                         100.00
  rows in set (0.00 sec)
```

- 3) Exercise on retrieving records from a table:
- 1] Find out the names of all the clients.

2] Retrieve the entire contents of the client_master table.

```
mysql> select * from Client_master;
 client_no | name
                                                              bal_due
                             city
                                      | pincode | state
 C00001
             Ivan Bayross
                                        400054 | Maharashtra
                                                               15000.00
                              Bombay
 C00002
             Vandana Saitwal
                                                 Tamil Nadu
                              Madras
                                        780001
                                                                   0.00
             Pramada Jaguste
 C00003
                               Bombay
                                        400057
                                                 Maharashtra
                                                                 5000.00
 C00004
             Basu Navindgi
                               Bombay
                                        400056
                                                 Maharashtra
                                                                   0.00
             Ravi Sreedharan
 C00005
                              Delhi
                                        100001
                                                                 2000.00
 C00006
           Rukmini
                                        400050 | Maharashtra
                              Bombay
                                                                   0.00
 rows in set (0.00 sec)
```

3] Retrieve the list of names and the cities of all the clients.

```
mysql> select name, city from Client_master;
                 city
 name
 Ivan Bayross
                 Bombay
 Vandana Saitwal
                   Madras
 Pramada Jaguste
                   Bombay
 Basu Navindgi
                   Bombay
 Ravi Sreedharan
                   Delhi
 Rukmini
                   Bombay
 rows in set (0.00 sec)
```

4] List the various products available from the product_master table

5] List all the clients who are located in Bombay.

```
mysql> select city = "Bombay" from Client_master;
 city = "Bombay" |
               1
               0
               1
                1
               0
               1 |
6 rows in set (0.00 sec)
mysql> select city from Client_master where city = "Bombay";
 city
 Bombay
 Bombay
 Bombay
 Bombay
4 rows in set (0.00 sec)
```

6] Find the names of the salesman who have a salary equal to Rs.3000.

salesman_no	salesman_name	address1	address2	city	pincode	state	sal_amt	tgt_to_get	ytd_sales	remarks
500001	Kiran	A/14	Worli	Bombay	400002	Maharashtra	3000.00	100.00	50.00	Good
500001	Kiran	A/14	Worli	Bombay	400002	Maharashtra	3000.00	100.00	50.00	Good
S00002	Manish	65	Nariman	Bombay	400001	Maharashtra	3000.00	200.00	100.00	Good
S00003	Ravi	P-7	Bandra	Bombay	400032	Maharashtra	3000.00	200.00	100.00	Good
S00004	Ashish	A/5	Juhu	Bombay	400044	Maharashtra	3000.00	200.00	150.00	Good
ROR 1054 (42	* from salesman_ \$22): Unknown co * from salesman_	lumn 'salar	y' in 'where	clause'	+					+
sql> select [:] ROR 1054 (42: sql> select [:]	* from salesman_u \$22): Unknown co	lumn 'salar master wher +	y' in 'where e sal_amt = +	e clause' 3000;	+	state	sal_amt	tgt_to_get	ytd_sales	t
sql> select ¹ ROR 1054 (42: sql> select ¹ salesman_no	* from salesman_ S22): Unknown co * from salesman_ + salesman_name	lumn 'salar master wher + address1 +	y' in 'where e sal_amt = + address2 +	clause' 3000; city	+					+
sql> select : ROR 1054 (42! sql> select :salesman_noS00001	* from salesman_ 522): Unknown co * from salesman_ salesman_name Kiran	lumn 'salar master wher + address1 + A/14	y' in 'where e sal_amt = + address2 + Worli	clause' 3000; city Bombay	400002	Maharashtra	3000.00	100.00	50.00	Good
sql> select = 100	* from salesman_s 522): Unknown co * from salesman_ salesman_name Kiran Kiran	lumn 'salar master wher +	y' in 'where e sal_amt = +	clause' 3000; city Bombay Bombay	+	Maharashtra Maharashtra	3000.00 3000.00	100.00 100.00	50.00 50.00	Good Good
sql> select = ROR 1054 (42) sql> select =	* from salesman_s \$22): Unknown co * from salesman_ salesman_name Kiran Kiran Kiran Manish	lumn 'salar master wher + address1 + A/14 A/14 65	y' in 'where e sal_amt = +	city Bombay Bombay Bombay	400002 400002 400001	Maharashtra Maharashtra Maharashtra Maharashtra	3000.00 3000.00 3000.00	100.00 100.00 200.00	50.00 50.00 100.00	Good Good Good
sql> select = 100	* from salesman_s 522): Unknown co * from salesman_ salesman_name Kiran Kiran	lumn 'salar master wher +	y' in 'where e sal_amt = +	clause' 3000; city Bombay Bombay	+	Maharashtra Maharashtra	3000.00 3000.00	100.00 100.00	50.00 50.00	Good Good

4] Exercise on updating records in a table:

1] Change the city of client_no C0000S to Bombay

client_no	name	city	pincode	state	bal_due
C00001	Ivan Bayross	Bombay	400054	Maharashtra	15000.00
C00002	Vandana Saitwal	Madras	780001	Tamil Nadu	0.00
C00003	Pramada Jaguste	Bombay	400057	Maharashtra	5000.00
C00004	Basu Navindgi	Bombay	400056	Maharashtra	0.00
C00005	Ravi Sreedharan	Delhi	100001		2000.00
C00006	Rukmini	Bombay	400050	Maharashtra	0.00
uery OK, 1 r ows matched:	e Client_master set row affected (0.01 : 1 Changed: 1 Wa	sec) arnings: (mere client_no	= "C00005";
ysql> update uery OK, 1 r ows matched: ysql> select	c Client_master set row affected (0.01 : 1 Changed: 1 Wa	sec) arnings: (ster;) +		+
ysql> update uery OK, 1 r ows matched:	c Client_master set row affected (0.01 : 1 Changed: 1 Wa	sec) arnings: (= "C00005"; + bal_due
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001	c Client_master set row affected (0.01 : 1 Changed: 1 Wa t * from Client_mas name	sec) arnings: (ster;) pincode 400054	state Maharashtra	+
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00002	c Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal	sec) arnings: (ster; city Bombay Madras	pincode 400054 780001	state State Maharashtra Tamil Nadu	+
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00003	c Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal Pramada Jaguste	sec) arnings: (ster; city Bombay Madras Bombay	pincode 400054 780001	state state Maharashtra Tamil Nadu Maharashtra	+
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00002 C00003 C00004	c Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal Pramada Jaguste Basu Navindgi	sec) arnings: (ster; city Bombay Madras Bombay Bombay Bombay	pincode 400054 780001 400057	state State Maharashtra Tamil Nadu	bal_due 15000.00 0.00 5000.00 0.00
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00003	c Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal Pramada Jaguste	sec) arnings: (ster; city Bombay Madras Bombay	pincode 400054 780001	state state Maharashtra Tamil Nadu Maharashtra	+

2] Change the bal due of client no C00001 to Rs 1000.

client_no	name	city	pincode	state	bal_due
C00001	Ivan Bayross	Bombay	400054	Maharashtra	15000.00
C00002	Vandana Saitwal	Madras	780001	Tamil Nadu	0.00
C00003	Pramada Jaguste	Bombay	400057	Maharashtra	5000.00
C00004	Basu Navindgi	Bombay	400056	Maharashtra	0.00
C00005	Ravi Sreedharan	Bombay	100001		2000.00
C00006	Rukmini	Bombay	400050	Maharashtra	0.00
ysql> update uery OK, 1 r ows matched:	c (0.00 sec) c Client_master set row affected (0.01 c 1 Changed: 1 Wa	sec) arnings: (where client_no	= "C00001";
ysql> update uery OK, 1 r ows matched:	c Client_master set row affected (0.01 1 Changed: 1 Wa	sec) arnings: (-	= "C00001"; ++ bal due
ysql> update uery OK, 1 r ows matched: ysql> select client_no	c Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name	sec) srnings: (ster; city	7 + pincode +	+ state 	++ bal_due ++
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001	c Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross	sec) arnings: (ster; city Bombay	+	 state Maharashtra	++ bal_due ++ 1000.00
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00002	e Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal	sec) arnings: (ster; city Bombay Madras	+	+ state + Maharashtra Tamil Nadu	++ bal_due ++ 1000.00 0.00
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00003	e Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal Pramada Jaguste	sec) arnings: (ster; city Bombay Madras Bombay	+	+ state + Maharashtra Tamil Nadu Maharashtra	++ bal_due ++ 1000.00 0.00 5000.00
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00003 C00004	e Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal Pramada Jaguste Basu Navindgi	sec) arnings: (ster;	+	+ state + Maharashtra Tamil Nadu	++ bal_due ++ 1000.00 0.00 5000.00 0.00
ysql> update uery OK, 1 r ows matched: ysql> select client_no C00001 C00003	e Client_master set row affected (0.01 1 Changed: 1 Wa * from Client_mas name Ivan Bayross Vandana Saitwal Pramada Jaguste	sec) arnings: (ster; city Bombay Madras Bombay	+	+ state + Maharashtra Tamil Nadu Maharashtra	++ bal_due ++ 1000.00 0.00 5000.00

3] Change the cost price of 1.22 Floppies to Rs.950.00.

product_no	Description	profit_percent	unit_measure	qty_on_hand	recorder_lvl	sell_price	cost_price
P00001	1.44 Floppies	 5.00	Piece	100	 20	525.00	500.00
P03453	Monitors	6.00	Piece	10	3	12000.00	11280.00
P06734	Mouse	5.00	Piece	20	5	1050.00	1000.00
P07865	1.22 Floppies	5.00	Piece	100	20	525.00	500.00
P07868	Keyboards	2.00	Piece	10	3	3150.00	3050.00
P07885	CD Drive	2.50	Piece	10] 3	5250.00	5100.00
P07965	540 HDD	4.00	Piece	10] 3	8400.00	8000.00
P07975	1.44 Drive	5.00	Piece	10] 3	1050.00	1000.00
P08865	1.22 Drive	5.00	Piece	2] 3	1050.00	1000.00
sql> update ery OK, 1 r ws matched:		Warnings: 0	"950" where Des	cription = "1.	22 Floppies";		
sql> update ery OK, 1 r ws matched: sql> select	product_master : ow affected (0.0: 1 Changed: 1 \ * from product_i	1 sec) Warnings: 0	·		+		+ cost_price
ery OK, 1 r ws matched: sql> select product_no	product_master: ow affected (0.0: 1 Changed: 1 \ * from product_ + Description	1 sec) Warnings: 0 master; profit_percent	unit_measure	+ qty_on_hand +	recorder_lvl		
sql> update ery OK, 1 r ws matched: sql> select product_no	product_master : ow affected (0.0: 1 Changed: 1 \ * from product_i	1 sec) Warnings: 0 master; profit_percent	·		+	sell_price 	+ cost_price + 500.00 11280.00
sql> update ery OK, 1 r ws matched: sql> select	product_master: ow affected (0.0: 1 Changed: 1 \ * from product_	1 sec) Warnings: 0 master; profit_percent	unit_measure	+ qty_on_hand +	recorder_1v1	525.00	+ 500.00
sql> update ery OK, 1 r ws matched: sql> select product_no P00001 P03453	product_master : ow affected (0.0: 1 Changed: 1 \ * from product_ Description 1.44 Floppies Monitors	1 sec) Warnings: 0 master;	unit_measure unit_measure Piece Piece	qty_on_hand 100	recorder_lvl 20	525.00 12000.00	500.00 11280.00
sql> update ery OK, 1 r ws matched: sql> select product_no P00001 P03453 P06734	product_master : ow affected (0.0: 1 Changed: 1 \ * from product Description +	1 sec) Warnings: 0 master;	unit_measure Piece Piece Piece	qty_on_hand 100 10	recorder_1v1 20 3	525.00 12000.00 1050.00	500.00 500.00 11280.00 1000.00 950.00
sql> update ery OK, 1 r ws matched: sql> select product_no P00001 P03453 P06734 P07865 P07868	product_master : ow affected (0.0: 1 Changed: 1 \ * from product_r	1 sec) Warnings: 0 master;	unit_measure Piece Piece Piece Piece	t	recorder_lvl 20 3 5	525.00 12000.00 1050.00 525.00	500.00 11280.00 1000.00 950.00
sql> update ery OK, 1 r ws matched: sql> select product_no P00001 P03453 P06734 P07865 P07868 P07888	product_master: ow affected (0.0: 1 Changed: 1 N * from product_n Description 1.44 Floppies Monitors Mouse 1.22 Floppies Keyboards	1 sec) Warnings: 0 master; profit_percent 5.00 5.00 5.00 2.00	unit_measure Piece Piece Piece Piece Piece	qty_on_hand 100 20 20 100	recorder_lvl 20 3 5 20 20 3	525.00 12000.00 1050.00 525.00 3150.00	500.00 11280.00 1000.00
sql> update ery OK, 1 r ws matched: sql> select product_no P00001 P03453 P06734 P07865	product_master : ow affected (0.0: 1 Changed: 1 N * from product_ Description 1.44 Floppies Monitors Mouse 1.22 Floppies Keyboards CD Drive	1 sec) Warnings: 0 master; profit_percent 5.00 6.00 5.00 2.00 2.50	unit_measure Piece Piece Piece Piece Piece Piece	qty_on_hand 100 10 20 10 10	recorder_lvl 20 3 5 20 3 3	525.00 12000.00 1050.00 525.00 3150.00 5250.00	500.00 11280.00 1000.00 950.00 3050.00

4] Change the city of the salesman to Mumbai.

salesman_no	salesman_name	address1	address2	city	pincode	state	sal_amt	tgt_to_get	ytd_sales	remark
500001	Kiran	A/14	Worli	Bombay	400002	+ Maharashtra	3000.00	100.00	50.00	Good
600001	Kiran	A/14	Worli	Bombay	400002	Maharashtra	3000.00	100.00	50.00	Good
00002	Manish	65	Nariman	Bombay	400001	Maharashtra	3000.00	200.00	100.00	Good
800003	Ravi	P-7	Bandra	Bombay	400032	Maharashtra	3000.00	200.00	100.00	Good
500004	Ashish	A/5	Juhu	Bombay	400044	Maharashtra	3000.00	200.00	150.00	Good
ery OK, 5 row ws matched: 5	(0.00 sec) salesman_master : saffected (0.0: Changed: 5 Wa	1 sec) arnings: 0	Mumbai" whe	re city= '	"Bombay";			·		
ql> update s ry OK, 5 row s matched: ! ql> select '	salesman_master : ws affected (0.03 5 Changed: 5 Wa	1 sec) arnings: 0 master;		·	·	state	- sal_amt	tgt_to_get	+ ytd_sales	remarks
ql> update s ry OK, 5 row s matched: S ql> select ' alesman_no	salesman_master : ss affected (0.03 6 Changed: 5 Wa * from salesman_	1 sec) arnings: 0 master;		·	·	state Maharashtra	sal_amt 3000.00	tgt_to_get	ytd_sales	remarks
ql> update s ry OK, 5 row s matched: ! ql> select '	salesman_master : vs affected (0.01 6 Changed: 5 Wa * from salesman_r salesman_name	1 sec) arnings: 0 master; address1	+ address2 +	+ city +	+ pincode					
ql> update sery OK, 5 row sers matched: Select and sele	salesman_master : us affected (0.0) c Changed: 5 Wa from salesman_r salesman_name Kiran	1 sec) arnings: 0 master;	+ address2 Worli	+ city + Mumbai	 pincode 400002	 Maharashtra	3000.00	100.00	50.00	Good
ql> update s ry OK, 5 row s matched: ! ql> select 3	salesman_master : ss affected (0.0) control (0.0) from salesman_ salesman_name Kiran Kiran	1 sec) arnings: 0 master; + address1 + A/14 A/14	address2 Worli Worli	+ city + Mumbai Mumbai	pincode 400002 400002	Maharashtra Maharashtra	3000.00 3000.00	100.00	50.00 50.00	Good Good

- 5] Exercise on deleting records in a table:
- 1] Delete all salesmen from the salesman_master whose salaries are equal to Rs.3500

salesman_no	salesman_name	address1	address2	city	pincode	state	sal_amt	tgt_to_get	ytd_sales	remarks
S00001	Kiran	+ A/14	 Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	Good
500001	Kiran	A/14	Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	Good
500002	Manish	65	Nariman	Mumbai	400001	Maharashtra	3000.00	200.00	100.00	Good
500003	Ravi	P-7	Bandra	Mumbai	400032	Maharashtra	3000.00	200.00	100.00	Good
500004	Ashish	A/5	Juhu	Mumbai	400044	Maharashtra	3500.00	200.00	150.00	Good
sql> delete ⁻ ery OK, 1 ro	+(0.00 sec) from salesman_ma: w affected (0.01 * from salesman_r	sec)	+sal_amt = ":	* 3500";	+					+
ery OK, 1 roo	from salesman_ma: w affected (0.01	sec) master; +	+	+	+	state	sal_amt		ytd_sales	+
sql> delete - ery OK, 1 roo sql> select ' salesman_no	from salesman_masw affected (0.01 * from salesman_r	sec) master; + address1 +	+ address2 +	+ city +	· · · · · · · · · · · · · · · · · · ·					+ + remark:
sql> delete - ery OK, 1 rou sql> select '	from salesman_ma: w affected (0.01 * from salesman_r	sec) master; +	+	+		state Maharashtra Maharashtra	sal_amt 00 3000.00	tgt_to_get	ytd_sales 50.00 50.00	+
eql> delete - ery OK, 1 rou eql> select - ealesman_no	from salesman_ma: w affected (0.01 * from salesman_ salesman_name Kiran	sec) master; + address1 + A/14	+ address2 + Worli	+ city + Mumbai	400002	Maharashtra	3000.00	100.00	50.00	remark:

2] Delete all products from product_master where the quantity on hand is equal to 100

oroduct_no	Description	profit_percent	unit_measure	qty_on_hand	recorder_lvl	sell_price	cost_price
 P00001	1.44 Floppies	5.00	Piece	100	20	525.00	500.00
P03453	Monitors	6.00	Piece	10] 3	12000.00	11280.00
P06734	Mouse	5.00	Piece	20	5	1050.00	1000.00
P07865	1.22 Floppies	5.00	Piece	100	20	525.00	950.00
P07868	Keyboards	2.00	Piece	10	3	3150.00	3050.00
907885	CD Drive	2.50	Piece	10	3	5250.00	5100.00
P07965	540 HDD	4.00	Piece	10	3	8400.00	8000.00
P07975	1.44 Drive	5.00	Piece	10] 3	1050.00	1000.00
		I = 00	I name		1 3	1 4050 00	1 4000 00
ery OK, 2 ro	from product_mows affected (0					1050.00 +	1000.00 -+
rows in set sql> delete ery OK, 2 ro	(0.00 sec) from product_m	aster where qty_o	-+				
rows in set sql> delete ery OK, 2 ro	(0.00 sec) from product_mows affected (0 * from product	aster where qty_o	n_hand = "100";				
rows in set sql> delete ery OK, 2 ro sql> select	(0.00 sec) from product_mows affected (0 * from product	aster where qty_o .01 sec) _master; profit_percent	n_hand = "100";				
rows in set sql> delete ery OK, 2 ro sql> select product_no	(0.00 sec) from product_m ows affected (0 * from product	aster where qty_o .01 sec) _master; profit_percent	n_hand = "100"; un_tand = "100"; unit_measure	qty_on_hand	recorder_lvl		cost_price
rows in set sql> delete ery OK, 2 ro	(0.00 sec) from product_mows affected (0 * from product Description	aster where qty_o .01 sec) _master; profit_percent 6.00	n_hand = "100"; unit_measure Piece	qty_on_hand	recorder_lvl		cost_price
rows in set sql> delete ery OK, 2 ro sql> select product_no	(0.00 sec) from product_mows affected (0 * from product Description Monitors Mouse Keyboards CD Drive	aster where qty_o .01 sec) _master;	n_hand = "100"; unit_measure Piece Piece Piece Piece	qty_on_hand 10 20 10 10	recorder_lv1 3 5 3 3	sell_price 12000.00 1050.00 3150.00 5250.00	cost_price 11280.00 1000.00 3050.00 5100.00
rows in set sql> delete ery OK, 2 ro sql> select product_no	(0.00 sec) from product_mows affected (0 * from product Description Monitors Mouse Keyboards CD Drive 540 HDD	aster where qty_o .01 sec) _master;	n_hand = "100"; unit_measure Piece Piece Piece Piece Piece Piece	qty_on_hand 10 20 10 10 10	recorder_lv1 3 5 3 3 3	sell_price 	cost_price 11280.00 1000.00 3050.00 5100.00 8000.00
rows in set sql> delete ery OK, 2 ro sql> select product_no	(0.00 sec) from product_mows affected (0 * from product Description Monitors Mouse Keyboards CD Drive	aster where qty_o .01 sec) _master;	n_hand = "100"; unit_measure Piece Piece Piece Piece	qty_on_hand 10 20 10 10	recorder_lv1 3 5 3 3	sell_price 12000.00 1050.00 3150.00 5250.00	cost_price 11280.00 1000.00 3050.00 5100.00

3] Delete from client_master where the column state holds the value Tamil Nadu 39;

```
mysql> select * from Client master;
 client_no | name
                               city
                                         pincode
                                                                  bal due
 C00001
              Ivan Bayross
                                Bombay
                                          400054
                                                   Maharashtra
                                                                  1000.00
             Vandana Saitwal
                                                   Tamil Nadu
 C00002
                                Madras
                                          780001
                                                                     0.00
              Pramada Jaguste
 C00003
                                Bombay
                                          400057
                                                   Maharashtra
                                                                   5000.00
 C00004
              Basu Navindgi
                                Bombay
                                          400056
                                                   Maharashtra
                                                                     0.00
                                                                  2000.00
 C00005
             Ravi Sreedharan
                                Bombay
                                          100001
 C00006
            Rukmini
                                Bombay
                                          400050
                                                   Maharashtra
                                                                     0.00
6 rows in set (0.00 sec)
mysql> delete from client_master where state= "Tamil Nadu";
Query OK, 1 row affected (0.01 sec)
mysql> select * from Client master;
                                city
                                                                 bal due
 client_no | name
                                       | pincode |
                                                  state
 C00001
             Ivan Bayross
                                Bombay
                                          400054
                                                   Maharashtra
                                                                  1000.00
 C00003
              Pramada Jaguste
                                Bombay
                                          400057
                                                   Maharashtra
                                                                   5000.00
              Basu Navindgi
                                                   Maharashtra
 C00004
                                Bombay
                                          400056
                                                                     0.00
 C00005
             Ravi Sreedharan
                                                                   2000.00
                                Bombay
                                          100001
 C00006
            Rukmini
                                          400050
                                                                     0.00
                                Bombay
                                                   Maharashtra
 rows in set (0.00 sec)
```

6] Exercise on Altering the table structure:

```
mysql> alter table Client_master Add telephone int(10);
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> select * from Client_master;
                                        | pincode | state
 client_no | name
                               city
                                                                 | bal_due | telephone
                                          400054
 C00001
              Ivan Bayross
                                Bombay
                                                   Maharashtra
                                                                   1000.00
                                                                                  NULL
 C00003
              Pramada Jaguste
                                Bombay
                                          400057
                                                   Maharashtra
                                                                   5000.00
                                                                                  NULL
 C00004
              Basu Navindgi
                                Bombay
                                          400056
                                                   Maharashtra
                                                                      0.00
                                                                                  NULL
 C00005
              Ravi Sreedharan
                                Bombay
                                          100001
                                                                   2000.00
                                                                                  NULL
 C00006
                                          400050
                                                                      0.00
             Rukmini
                                Bombay
                                                   Maharashtra
                                                                                  NULL
 rows in set (0.00 sec)
```

```
mysql> alter table product_master modify sell_price float(10,2);
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> select * from product_master;
 product_no | Description | profit_percent | unit_measure | qty_on_hand | recorder_lvl | sell_price | cost_price
 P03453
              Monitors
                                                                                             12000.00
                                                                                                           11280.00
                                       6.00
                                              Piece
                                                                       10
 P06734
                                                                       20
                                                                                              1050.00
                                                                                                            1000.00
              Mouse
                                       5.00
                                              Piece
 P07868
              Keyboards
                                       2.00
                                              Piece
                                                                       10
                                                                                       3
                                                                                              3150.00
                                                                                                            3050.00
                                       2.50
                                              Piece
                                                                       10
                                                                                              5250.00
                                                                                                            5100.00
 P07885
              CD Drive
 P07965
              540 HDD
                                       4.00
                                              Piece
                                                                       10
                                                                                              8400.00
                                                                                                            8000.00
 P07975
              1.44 Drive
                                       5.00
                                              Piece
                                                                       10
                                                                                              1050.00
                                                                                                            1000.00
 P08865
              1.22 Drive
                                       5.00 | Piece
                                                                                              1050.00
                                                                                                            1000.00
 rows in set (0.00 sec)
```

7]Exercise on deleting the table structure along with data:

```
mysql> drop table Client_master;
Query OK, 0 rows affected (0.02 sec)
mysql> select * from Client_master;
ERROR 1146 (42S02): Table 'vishal.client_master' doesn't exist
```

8]Exercise on renaming the table:

```
nysql> alter table salesman master rename to sman_master;
Query OK, 0 rows affected (0.02 sec)
mysql> select * from sman master;
 salesman_no | salesman_name | address1 | address2 | city
                                                                                                  | sal_amt | tgt_to_get | ytd_sales | remarks
                                                                      | pincode | state
  S00001
                                                                         400002
                                                                                                     3000.00
                                                                                                                                          Good
Good
                                    A/14
65
P-7
                                                                                                                                   50.00
100.00
 S00001
                 Kiran
                                                 Worli
                                                              Mumbai
                                                                         400002
                                                                                    Maharashtra
                                                                                                    3000.00
                                                                                                                     100.00
 S00002
                                                                         400001
                                                              Mumbai
                                                                                                    3000.00
                                                                                                                     200.00
                 Manish
                                                 Nariman
                                                                                    Maharashtra
 rows in set (0.00 sec)
```

Conclusion: Thus from this experiment we implement queries on DML as well as DDL and studied about DBMS.