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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.

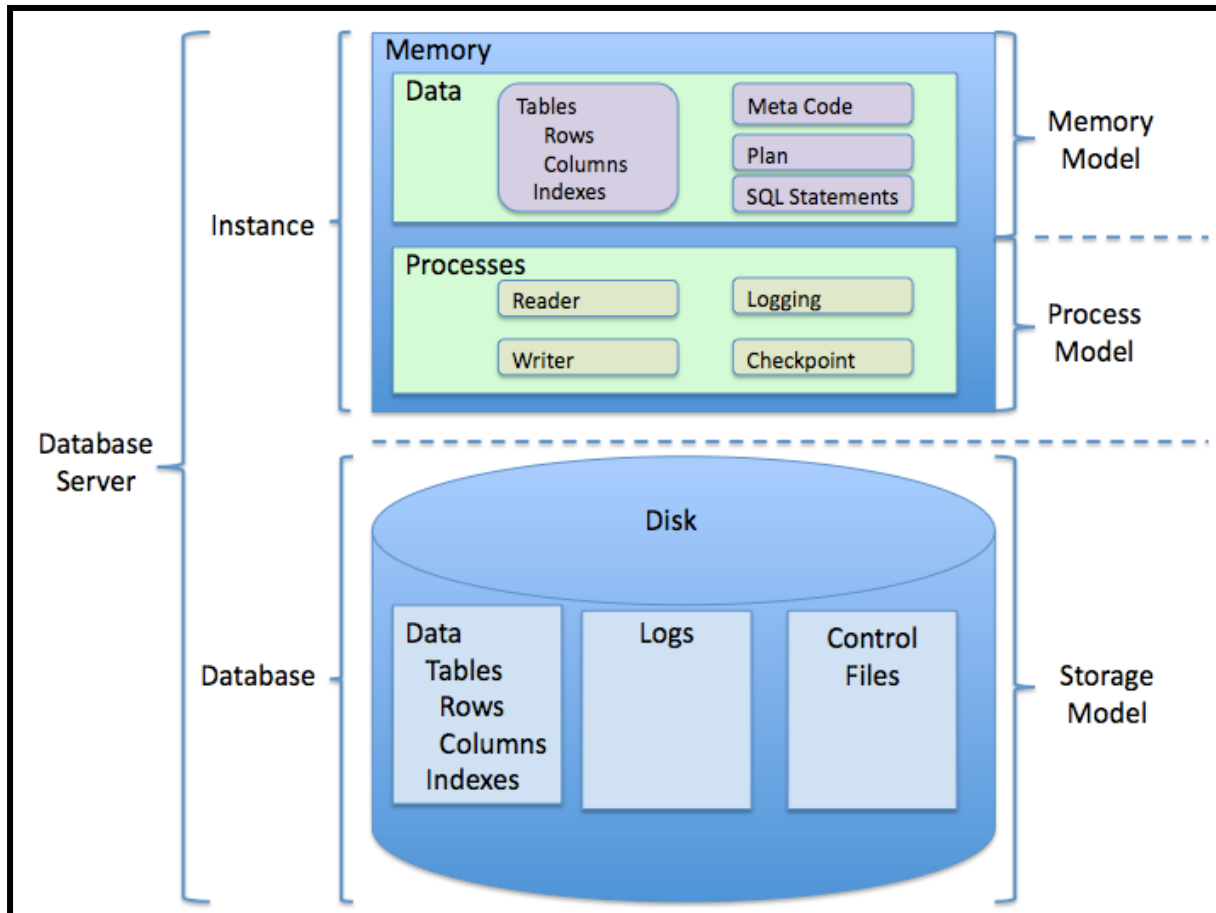
A relational database refers to a database that stores data in a structured format, using rows and columns. This makes it easy to locate and access specific values within the database. It is "relational" because the values within each table are related to each other. Tables may also be related to other 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 RDBMS 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 table like a spreadsheet, allowing you to view and even edit individual values in the table. Some RDBMS 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 DBMS 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 SELECT, INSERT, 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> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sakila |
| sys |
| test |
| vishal |
| world |
+-----+
8 rows in set (0.00 sec)
```

```
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)
```

```
mysql> describe client_master;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| client_no | varchar(6) | YES | | NULL | |
| name | varchar(20) | YES | | NULL | |
| city | varchar(15) | YES | | NULL | |
| pincode | int(8) | YES | | NULL | |
| state | varchar(15) | YES | | NULL | |
| bal_due | float(10,2) | YES | | 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 | 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 | |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

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)

```
mysql> 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	

8 rows in set (0.00 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;
```

Field	Type	Null	Key	Default	Extra
salesman_no	varchar(6)	YES		NULL	
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	

11 rows in set (0.00 sec)

```
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;
```

+-----+-----+-----+-----+-----+-----+					
Field	Type	Null	Key	Default	Extra
+-----+-----+-----+-----+-----+-----+					
salesman_no	varchar(6)	YES		NULL	

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		
---------	-------------	-----	--	------	--	--

+-----+-----+-----+-----+-----+

11 rows in set (0.00 sec)

2]Describe Client master:

```
mysql> describe client_master;
```

Field	Type	Null	Key	Default	Extra
client_no	varchar(6)	YES		NULL	
name	varchar(20)	YES		NULL	
city	varchar(15)	YES		NULL	
pincode	int(8)	YES		NULL	
state	varchar(15)	YES		NULL	
bal_due	float(10,2)	YES		NULL	

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

Describe Product master:

```
mysql> 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	

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

Describe Salesman master:

```
mysql> describe salesman_master;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| salesman_no    | varchar(6)    | YES  |     | NULL    |       |
| 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    |       |
+-----+-----+-----+-----+-----+-----+
11 rows in set (0.00 sec)
```

Insert data in client master:

```
mysql> describe client_master;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| client_no | varchar(6) | YES | | NULL | |
| name | varchar(20) | YES | | NULL | |
| city | varchar(15) | YES | | NULL | |
| pincode | int(8) | YES | | NULL | |
| state | varchar(15) | YES | | NULL | |
| bal_due | float(10,2) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
6 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)
```

```
mysql> select * from Client_master;
+-----+-----+-----+-----+-----+-----+
| 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 |
+-----+-----+-----+-----+-----+-----+
5 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 |
+-----+-----+-----+-----+-----+-----+
| 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 |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

Insert data in product master:

```
mysql> describe product_master;
```

Field	Type	Null	Key	Default	Extra
product_no	varchar(6)	YES		NULL	
Description	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	

```
8 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)
```

```
mysql> select * from product_master;
```

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

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


Insert data in salesman master:

```
mysql> describe salesman_master;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| salesman_no | varchar(6) | YES | | NULL | |
| 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 | |
+-----+-----+-----+-----+-----+-----+
11 rows in set (0.00 sec)

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)

-> 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)

mysql> insert into salesman_master values("S00003" , "Ravi" , "P-7" , "Bandra" , "Bombay " , 400032,"Maharashtra","3000","200","100","Good");
Query OK, 1 row affected (0.01 sec)

mysql> insert into salesman_master values("S00004" , "Ashish" , "A/5" , "Juhu" , "Bombay " , 400044,"Maharashtra","3000","200","150","Good");
Query OK, 1 row affected (0.01 sec)

mysql> select * from salesman_master;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| salesman_no | salesman_name | address1 | address2 | city | pincode | state | sal_amt | tgt_to_get | ytd_sales | remarks |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| S00001 | Kiran | A/14 | Worli | Bombay | 400002 | Maharashtra | 3000.00 | 100.00 | 50.00 | Good |
| S00001 | 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 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

3) Exercise on retrieving records from a table:

1] Find out the names of all the clients.

```
mysql> select name from Client_master;
+-----+
| name |
+-----+
| Ivan Bayross |
| Vandana Saitwal |
| Pramada Jaguste |
| Basu Navindgi |
| Ravi Sreedharan |
| Rukmini |
+-----+
6 rows in set (0.00 sec)
```

2] Retrieve the entire contents of the client_master table.

```
mysql> select * from Client_master;
```

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

```
6 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;
```

name	city
Ivan Bayross	Bombay
Vandana Saitwal	Madras
Pramada Jaguste	Bombay
Basu Navindgi	Bombay
Ravi Sreedharan	Delhi
Rukmini	Bombay

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

4] List the various products available from the product_master table

```
mysql> select Description from product_master;
+-----+
| Description |
+-----+
| 1.44 Floppies |
| Monitors |
| Mouse |
| 1.22 Floppies |
| Keyboards |
| CD Drive |
| 540 HDD |
| 1.44 Drive |
| 1.22 Drive |
+-----+
9 rows in set (0.00 sec)
```

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.

```
mysql> select * from salesman_master;
```

salesman_no	salesman_name	address1	address2	city	pincode	state	sal_amt	tgt_to_get	ytd_sales	remarks
S00001	Kiran	A/14	Worli	Bombay	400002	Maharashtra	3000.00	100.00	50.00	Good
S00001	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

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

```
mysql> select * from salesman_master where salary = 3000;
```

ERROR 1054 (42S22): Unknown column 'salary' in 'where clause'

```
mysql> select * from salesman_master where sal_amt = 3000;
```

salesman_no	salesman_name	address1	address2	city	pincode	state	sal_amt	tgt_to_get	ytd_sales	remarks
S00001	Kiran	A/14	Worli	Bombay	400002	Maharashtra	3000.00	100.00	50.00	Good
S00001	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

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

4] Exercise on updating records in a table:

1] Change the city of client_no C0000S to Bombay

```
mysql> select * from Client_master;
```

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

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

```
mysql> update Client_master set city = "Bombay" where client_no = "C00005";
```

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> select * from Client_master;
```

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

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

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

```
mysql> select * from Client_master;
```

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

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



```
mysql> update Client_master set bal_due = "1000" where client_no = "C00001";  
Query OK, 1 row affected (0.01 sec)  
Rows matched: 1  Changed: 1  Warnings: 0
```



```
mysql> select * from Client_master;
```

client_no	name	city	pincode	state	bal_due
C00001	Ivan Bayross	Bombay	400054	Maharashtra	1000.00
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

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

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

```
mysql> select * from product_master;
```

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

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

```
mysql> update product_master set cost_price = "950" where Description = "1.22 Floppies";
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> select * from product_master;
```

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	950.00
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

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

4] Change the city of the salesman to Mumbai.

```
mysql> select * from salesman_master;
```

salesman_no	salesman_name	address1	address2	city	pincode	state	sal_amt	tgt_to_get	ytd_sales	remarks
S00001	Kiran	A/14	Worli	Bombay	400002	Maharashtra	3000.00	100.00	50.00	Good
S00001	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

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

```
mysql> update salesman_master set city= "Mumbai" where city= "Bombay";
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5  Changed: 5  Warnings: 0
```

```
mysql> select * from salesman_master;
```

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
S00001	Kiran	A/14	Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	Good
S00002	Manish	65	Nariman	Mumbai	400001	Maharashtra	3000.00	200.00	100.00	Good
S00003	Ravi	P-7	Bandra	Mumbai	400032	Maharashtra	3000.00	200.00	100.00	Good
S00004	Ashish	A/5	Juhu	Mumbai	400044	Maharashtra	3000.00	200.00	150.00	Good

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

5] Exercise on deleting records in a table:

1] Delete all salesmen from the salesman_master whose salaries are equal to Rs.3500

```
mysql> select * from salesman_master;
```

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
S00001	Kiran	A/14	Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	Good
S00002	Manish	65	Nariman	Mumbai	400001	Maharashtra	3000.00	200.00	100.00	Good
S00003	Ravi	P-7	Bandra	Mumbai	400032	Maharashtra	3000.00	200.00	100.00	Good
S00004	Ashish	A/5	Juhu	Mumbai	400044	Maharashtra	3500.00	200.00	150.00	Good

5 rows in set (0.00 sec)

```
mysql> delete from salesman_master where sal_amt = "3500";
```

Query OK, 1 row affected (0.01 sec)

```
mysql> select * from salesman_master;
```

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
S00001	Kiran	A/14	Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	Good
S00002	Manish	65	Nariman	Mumbai	400001	Maharashtra	3000.00	200.00	100.00	Good
S00003	Ravi	P-7	Bandra	Mumbai	400032	Maharashtra	3000.00	200.00	100.00	Good

4 rows in set (0.00 sec)

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

```
mysql> select * from product_master;
```

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	950.00
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

9 rows in set (0.00 sec)

```
mysql> delete from product_master where qty_on_hand = "100";
```

Query OK, 2 rows affected (0.01 sec)

```
mysql> select * from product_master;
```

product_no	Description	profit_percent	unit_measure	qty_on_hand	recorder_lvl	sell_price	cost_price
P03453	Monitors	6.00	Piece	10	3	12000.00	11280.00
P06734	Mouse	5.00	Piece	20	5	1050.00	1000.00
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

7 rows in set (0.00 sec)

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	state	bal_due
C00001	Ivan Bayross	Bombay	400054	Maharashtra	1000.00
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

```
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;
```

client_no	name	city	pincode	state	bal_due
C00001	Ivan Bayross	Bombay	400054	Maharashtra	1000.00
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

```
5 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;
```

client_no	name	city	pincode	state	bal_due	telephone
C00001	Ivan Bayross	Bombay	400054	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	Rukmini	Bombay	400050	Maharashtra	0.00	NULL

```
5 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	6.00	Piece	10	3	12000.00	11280.00
P06734	Mouse	5.00	Piece	20	5	1050.00	1000.00
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

```
7 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:

```
mysql> 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	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
S00001	Kiran	A/14	Worli	Mumbai	400002	Maharashtra	3000.00	100.00	50.00	Good
S00002	Manish	65	Nariman	Mumbai	400001	Maharashtra	3000.00	200.00	100.00	Good
S00003	Ravi	P-7	Bandra	Mumbai	400032	Maharashtra	3000.00	200.00	100.00	Good

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

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