ROLL NO:19131A05P1 V SATYA SIVA LALITHA GAYATHRI BODA
CSE 4

Part A

Aim: SQL commands:

i) Create table
ii) View structure of table
iii) Alter table for adding/deleting columns and modifying columns
iv) Insert data into table
v) View data in the table (for all records, specific attributes and specific records)
vi) To Update records
vii) Delete records
viii) To eliminate duplicate rows when using a select statement
ix) Drop table

Prerequisite: Oracle.

Outcome: Table is created and records are inserted and viewed.

Theory:

SQL CREATE TABLE Syntax

```
CREATE TABLE table_name
(
column_name1 data_type(size) constraints,
column_name2 data_type(size) constraints,
column_name3 data_type(size) constraints,
....
);
```

SQL INSERT INTO Syntax

It is possible to write the INSERT INTO statement in two forms.

The first form does not specify the column names where the data will be inserted, only their values:

```
INSERT INTO table_name
VALUES (value1,value2,value3,...);
```

The second form specifies both the column names and the values to be inserted:

```
INSERT INTO table_name (column1,column2,column3,...)
VALUES (value1,value2,value3,...);
```

SQL SELECT Syntax

```
SELECT column_name(s) FROM table_name;
```

and

```
SELECT * FROM table_name;
```

and

```
SELECT column_name(s) FROM table_name WHERE condition
```

SQL DELETE Syntax

```
DELETE FROM table_name WHERE condition;
```

SQL UPDATE Syntax

```
UPDATE table_name
SET column1 = value1, column2 = value2, ...
WHERE condition;
```

Procedure:

1. Formulate the query for given problem.
2. Write the SQL query with proper input.
3. Execute the query.

Practice Exercise:

S.no	Query statement
1	(a) Create an Account with the following attributes acctno - Account Number – Integer bal – Balance – Interger (b) Add column acctHolderName attribute with type Number (c) Change column acctHolderName type to varchar (d) Delete column acctHolderName
2	Create the Depositor table with th following attributes custname – Customer Name – varchar custID – Customer ID – Integer
3	Create the Loan table with the following attributes loan_no_loan number – Integer br_name – Branch name – varchar amount –loan amount – float
4	Create the Borrower with the following attributes custname – Customer Name – varchar loan_no – loan number – Integer

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5 Create Department Table with following columns and constraints:

Column name	Type & Size
Dept_no	numeric(2)
Dname	varchar(15)
Location	varchar(12)

6 Create Emp table with following columns and constraints:

Column name	Type & Size
Emp_no	numeric(4)
Ename	varchar(20)
Gender	char(1)
Job	varchar(12)
Mgr	numeric(4)
Hiredate	date
Salary	numeric(8)
Comm	numeric(8)
Dept_no	numeric(2)

7 Insert following data into Department table:

Dept_no	Dname	Location
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	MARKETING	BOSTON

8 Insert following data into Emp table:

E_no	Ename	Gender	Job	Mgr	Hiredate	Salary	Comm	Dept_no
7369	Smith	M	CLERK	7902	17-DEC-80	8000	-	20
7499	Allen	F	SALESMAN	7698	20-FEB-81	16000	3000	30
7521	Ward	M	SALESMAN	7698	22-FEB-81	12500	5000	30
7566	Jones	F	MANAGER	7839	02-APR-81	29750	-	20
7654	Martin	M	SALESMAN	7698	28-SEP-81	12500	14000	30

7698	Blake	M	MANAGER	7839	01-MAY-81	28500	-	30
7782	Clark	M	MANAGER	7839	09-JUN-81	24500	-	10
7788	Scott	M	ANALYST	7566	09-DEC-82	30000	-	20
7839	King	M	PRESIDENT	-	17-NOV-81	50000	-	10
7844	Turner	M	SALESMAN	7698	08-SEP-81	15000	-	30
7876	Adams	M	CLERK	7788	12-JAN-83	11000	-	20
7900	James	M	CLERK	7698	03-DEC-81	95000	-	30
7902	Ford	M	ANALYST	7566	03-DEC-81	30000	-	20
7934	Miller	F	CLERK	7782	23-JAN-82	13000	-	10

9	Display all the information of the EMP table?
10	Display all the information of the Department table?
11	Display name of all the departments?
12	Display all department names along with location?
13	Display name and salary of all female employees.
14	Display name of all male employees in department no 20.
15	Display name of all employees whose salary is more than 10000.
16	Display information of all clerks.
17	Display Employee no. and name of all male who are getting salary less than 20000.
18	Display information of all employees working in Dept. no. 20.
19	Display unique Jobs from EMP table?
20	Display the structure of all tables.

Instructions:

1. Write and execute the query in Oracle/SQL server.
2. Paste the snapshot of the output in input & output section.

Part B

Code:

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1)a)

```
SQL>  create table Account(acctno int,bal int);

Table created.
```

b)

```
SQL>  alter table Account add (acctHolderName int);

Table altered.
```

c)

```
SQL> alter table Account modify acctHolderName varchar(50);

Table altered.
```

d)

```
SQL> alter table Account drop column acctHolderName;

Table altered.
```

2) a)

```
SQL> create table Depositor(custname varchar(50),custID int);

Table created.
```

3)

```
SQL> create table Loan(loan_no int,br_name varchar(20),amount float);

Table created.
```

4)

```
SQL> create table Borrower(custname varchar(30),loan_no int);

Table created.
```

5)

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```
SQL> create table Department(Dept_no number(2),Dname varchar(15),Location varchar(12));

Table created.
```

6)

```
SQL> create table Emp1(Emp_no number(4),Ename varchar(20),Gender char(1),Job varchar(12),Mgr number(4),Hiredate date,Salary
number(8),Comm number(8),Dept_no number(2));

Table created.
```

7)

```
SQL>  insert into Department values(10,'ACCOUNTING','NEWYORK');

1 row created.

SQL>  insert into Department values(20,'RESEARCH','DALLAS');

1 row created.

SQL> insert into Department values(30,'SALES','CHICAGO');

1 row created.

SQL> insert into Department values(40,'MARKETING','BOSTON');

1 row created.
```

8)

```
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7369,'Smith','M','CLERK',7902,TO_DATE('17/12/1980','DD/MM/YYYY'),8000,20);

1 row created.

SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,COMM,DEPT_NO) values(7499,'Allen','F','SALESMAN',7698,TO_DATE('20/02/1981','DD/MM/YYYY'),16000,3000,30);

1 row created.

SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,COMM,DEPT_NO) values(7521,'Ward','M','SALESMAN',7698,TO_DATE('22/02/1981','DD/MM/YYYY'),12500,5000,30);

1 row created.

SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7566,'Jones','F','MANAGER',7839,TO_DATE('02/04/1981','DD/MM/YYYY'),29750,20);

1 row created.

SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,COMM,DEPT_NO) values(7654,'Martin','M','SALESMAN',7698,TO_DATE('28/09/1981','DD/MM/YYYY'),12500,14000,30);

1 row created.
```

```
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7698,'Blake','M','MANAGER',7839,TO_DATE('01/05/1981','DD/MM/YYYY'),28500,30);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7782,'Clark','M','MANAGER',7839,TO_DATE('09/06/1981','DD/MM/YYYY'),24500,10);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7788,'Scott','M','ANALYST',7566,TO_DATE('09/12/1982','DD/MM/YYYY'),30000,20);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,HIREDATE,SALARY,DEPT_NO) values(7839,'King','M','PRESIDENT',TO_DATE('17/11/1981','DD/MM/YYYY'),50000,10);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7844,'Turner','M','SALESMAN',7698,TO_DATE('08/09/1981','DD/MM/YYYY'),15000,30);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7876,'Adams','M','CLERK',7788,TO_DATE('12/01/1983','DD/MM/YYYY'),11000,20);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7900,'James','M','CLERK',7698,TO_DATE('03/12/1981','DD/MM/YYYY'),95000,30);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7902,'Ford','M','ANALYST',7566,TO_DATE('03/12/1981','DD/MM/YYYY'),30000,20);
1 row created.
SQL> insert into emp1(EMP_NO,ENAME,GENDER,JOB,MGR,HIREDATE,SALARY,DEPT_NO) values(7934,'Miller','F','CLERK',7782,TO_DATE('23/01/1982','DD/MM/YYYY'),13000,10);
1 row created.
```

9)

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Results Explain Describe Saved SQL History

EMP_NO	ENAME	GENDER	JOB	MGR	HIREDATE	SALARY	COMM	DEPT_NO
7369	Smith	M	CLERK	7902	12/17/1980	8000	-	20
7499	Allen	F	SALESMAN	7698	02/20/1981	16000	3000	30
7521	Ward	M	SALESMAN	7698	02/22/1981	12500	5000	30
7566	Jones	F	MANAGER	7839	04/02/1981	29750	-	20
7654	Martin	M	SALESMAN	7698	09/28/1981	12500	14000	30
7698	Blake	M	MANAGER	7839	05/01/1981	28500	-	30
7782	Clark	M	MANAGER	7839	06/09/1981	24500	-	10
7788	Scott	M	ANALYST	7566	12/09/1982	30000	-	20
7839	King	M	PRESIDENT	-	11/17/1981	50000	-	10
7844	Turner	M	SALESMAN	7698	09/08/1981	15000	-	30
7876	Adams	M	CLERK	7788	01/12/1983	11000	-	20
7900	James	M	CLERK	7698	12/03/1981	95000	-	30
7902	Ford	M	ANALYST	7566	12/03/1981	30000	-	20
7934	Miller	F	CLERK	7782	01/23/1982	13000	-	10

14 rows returned in 0.00 seconds Download

10)


```
select * from Department;
```

Results Explain Describe Saved SQL History

DEPT_NO	DNAME	LOCATION
10	ACCOUNTING	NEWYORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	MARKETING	BOSTON

4 rows returned in 0.00 seconds Download

11)

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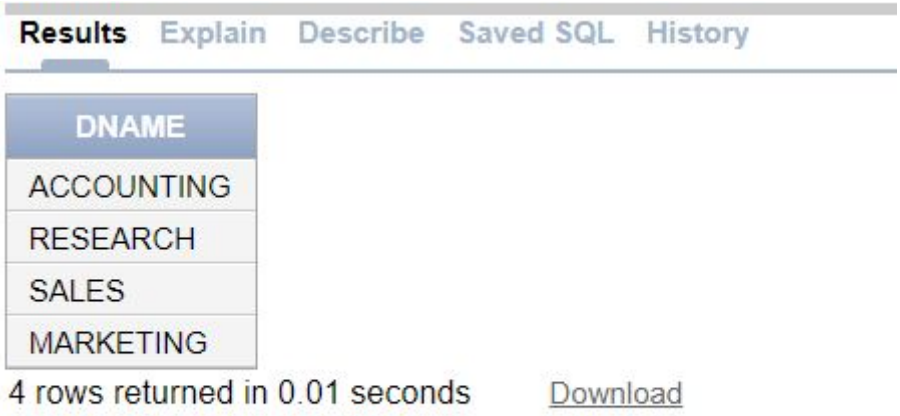
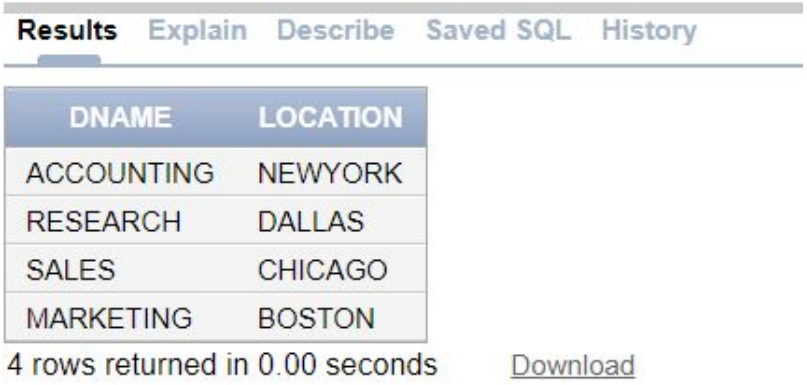


12)



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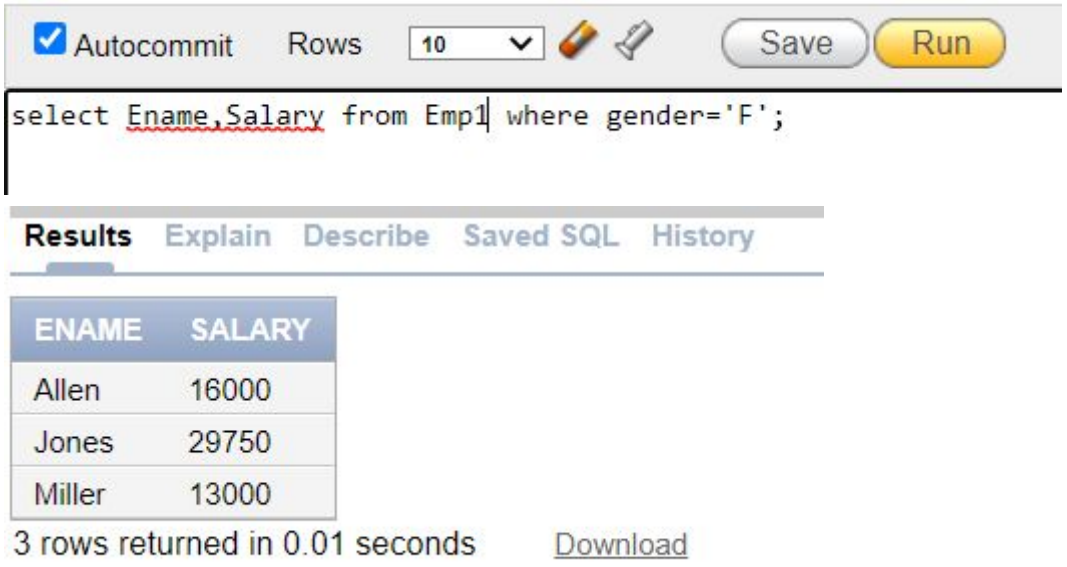
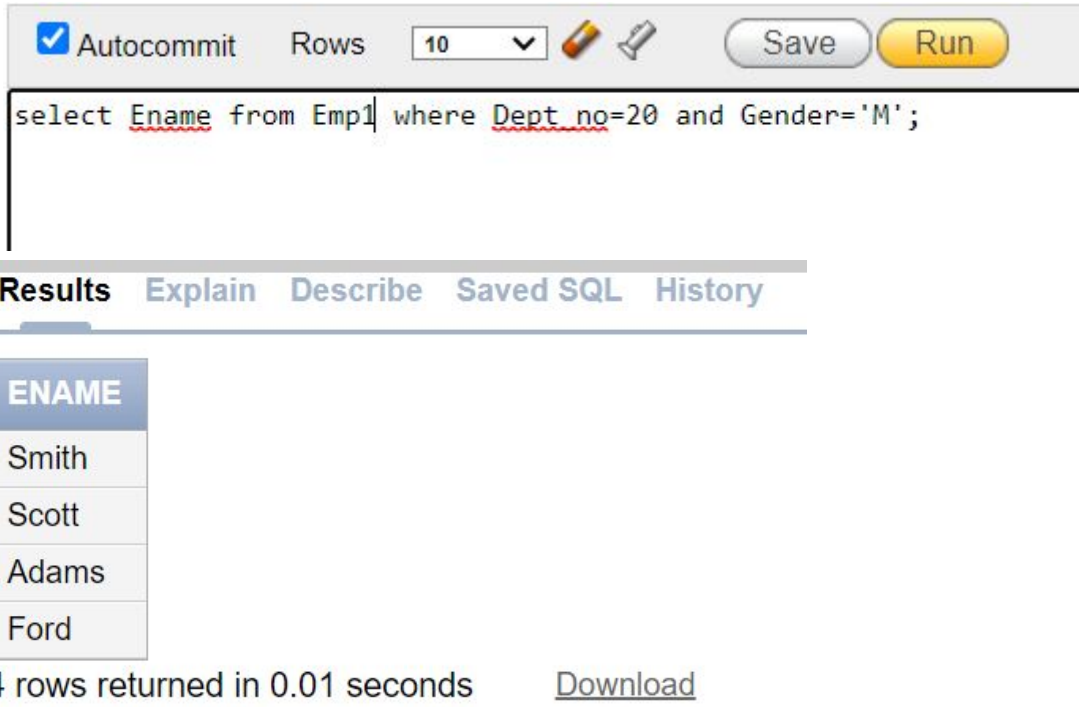
13)



14)



15)

select Ename from Emp1 where Salary>10000;

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Results Explain Describe Saved SQL History

ENAME
Allen
Ward
Jones
Martin
Blake
Clark
Scott
King
Turner
Adams
James
Ford
Miller

13 rows returned in 0.01 seconds Download

16)

select * from Emp1 where Job='CLERK';

Results Explain Describe Saved SQL History

EMP_NO	ENAME	GENDER	JOB	MGR	HIREDATE	SALARY	COMM	DEPT_NO
7369	Smith	M	CLERK	7902	12/17/1980	8000	-	20
7876	Adams	M	CLERK	7788	01/12/1983	11000	-	20
7900	James	M	CLERK	7698	12/03/1981	95000	-	30
7934	Miller	F	CLERK	7782	01/23/1982	13000	-	10

4 rows returned in 0.01 seconds Download

17)

select Emp_no,Ename from Emp1 where Gender='M' and Salary<20000;

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Results Explain Describe Saved SQL History

EMP_NO	ENAME
7369	Smith
7521	Ward
7654	Martin
7844	Turner
7876	Adams

5 rows returned in 0.00 seconds Download

18)

select * from Emp1 where Dept_no=20;

Results Explain Describe Saved SQL History

EMP_NO	ENAME	GENDER	JOB	MGR	HIREDATE	SALARY	COMM	DEPT_NO
7369	Smith	M	CLERK	7902	12/17/1980	8000	-	20
7566	Jones	F	MANAGER	7839	04/02/1981	29750	-	20
7788	Scott	M	ANALYST	7566	12/09/1982	30000	-	20
7876	Adams	M	CLERK	7788	01/12/1983	11000	-	20
7902	Ford	M	ANALYST	7566	12/03/1981	30000	-	20

5 rows returned in 0.00 seconds Download

19)

select distinct Job from Emp1;

Results Explain Describe Saved SQL History

JOB
CLERK
SALESMAN
PRESIDENT
MANAGER
ANALYST

5 rows returned in 0.01 seconds Download

20)desc Emp1;

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Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **EMP1**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMP1	EMP_NO	NUMBER	-	4	0	-	✓	-	-
	ENAME	VARCHAR2	20	-	-	-	✓	-	-
	GENDER	CHAR	1	-	-	-	✓	-	-
	JOB	VARCHAR2	12	-	-	-	✓	-	-
	MGR	NUMBER	-	4	0	-	✓	-	-
	HIREDATE	DATE	7	-	-	-	✓	-	-
	SALARY	NUMBER	-	8	0	-	✓	-	-
	COMM	NUMBER	-	8	0	-	✓	-	-
	DEPT_NO	NUMBER	-	2	0	-	✓	-	-

1 - 9

desc Department;

Results **Explain** **Describe** Saved SQL History

Object Type **TABLE** Object **DEPARTMENT**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DEPARTMENT	DEPT_NO	NUMBER	-	2	0	-	✓	-	-
	DNAME	VARCHAR2	15	-	-	-	✓	-	-
	LOCATION	VARCHAR2	12	-	-	-	✓	-	-

1 - 3

desc Borrower;

Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **BORROWER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BORROWER	CUSTNAME	VARCHAR2	30	-	-	-	✓	-	-
	LOAN_NO	NUMBER	22	-	0	-	✓	-	-

1 - 2

desc Loan;

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Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **LOAN**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
LOAN	LOAN_NO	NUMBER	22	-	0	-	✓	-	-
	BR_NAME	VARCHAR2	20	-	-	-	✓	-	-
	AMOUNT	FLOAT	126	126	-	-	✓	-	-

1 - 3

desc Depositor;

Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **DEPOSITOR**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DEPOSITOR	CUSTNAME	VARCHAR2	50	-	-	-	✓	-	-
	CUSTID	NUMBER	22	-	0	-	✓	-	-

1 - 2

Input & Output:

Observation & Learning:
Performed following operations using sql
Created tables
Viewed the structure of table
Altered the table for adding/deleting columns and modifying columns
Inserted data into table
Viewed data in the table (for all records, specific attributes and specific records)
Updated the records
Deleted records
Eliminated duplicate rows when using a select statement
Dropped the tables

Conclusion:
Learned and practiced DDL commands and recorded the outputs perfectly.

Questions:

1. What is DDL (Data Definition Language)?
2. How the strings are inserted into the table?
3. What happen if one attribute is not there in insertion list?
4. What happen if domain type of data inserted is different from that of column?

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5. What happen if where clause is not given in query?
6. What are the various comparison operator used in condition part?

Answers:

1. **A DDL is a language used to define data structures and modify data. For example, DDL commands can be used to add, remove, or modify tables within in a database.**
2. **By using Varchar(n) datatype,where n is the max length of a string ex: sname varchar(20)**
   Using insert we can enter strings .Strings have to be enclosed in single quotes.
   Eg: insert into [tablename] values(1,'GVP');
3. **Specify the attributes present and insert data into them only**
   eg: insert into [tablename](variables,...) values (values,..);
   (or) simply insert NULL in that place INSERT Leads
   VALUES('name','cityName',null,'anotherValue');
4. **Use MODIFY command with ALTER the datatype.**
   ex:alter table [tablename] modify [attributename] [newdatatype];
5. **Unnecessary tuples will also get selected**
6. **= (equal to)**
   < > (not equal to)
   > (greater than)
   < (less than)
   >= (greater than or equal to)
   <= (less than or equal to)