DBMS Practical no. 1 **FS19CO042**

Title: Create a New Database and Perform Following operations on that Database.

a) Create table
b) Alter the table
c) Rename Table
d) Drop the table. (Assume your own data).

Theory:

1. CREATE DATABASE query syntax and example.

   It is a DDL command used to create new database. Later we have to 'USE' the database

   - **Syntax:** CREATE DATABASE database_name;

     USE DATABASE database_name;

   - **Example:** CREATE DATABASE students;

     USE students;

2. CREATE TABLE query syntax and example.

   CREATE TABLE is a DDL command used to create a new table.

   - **Syntax:**

```
CREATE TABLE table_name (
        column1 datatype,
        column2 datatype,
        column3 datatype,
        ....
);
```

   - **Example:**

```
CREATE TABLE Persons (
        rollNo INT,
        lastName VARCHAR(25),
        firstName VARCHAR (25),
        address VARCHAR (255),
        birthDate DATE
);
```

3. <u>ALTER TABLE query syntax and example.</u>

ALTER TABLE is a DDL Command use to add, delete, or modify columns in an existing table. The ALTER TABLE statement is also used to add and drop various constraints on an existing table.

- **Syntax:** ALTER TABLE *table_name*
  ADD column_name datatype;
- **Example:** ALTER TABLE Persons
  ADD email VARCHAR(255);

4. <u>RENAME TABLE query syntax and example.</u>

It is a DDL Command use to rename the table.

- **Syntax:** RENAME TABLE table_name TO new_name;
- **Example:** RENAME TABLE Persons TO firstYearStudents;

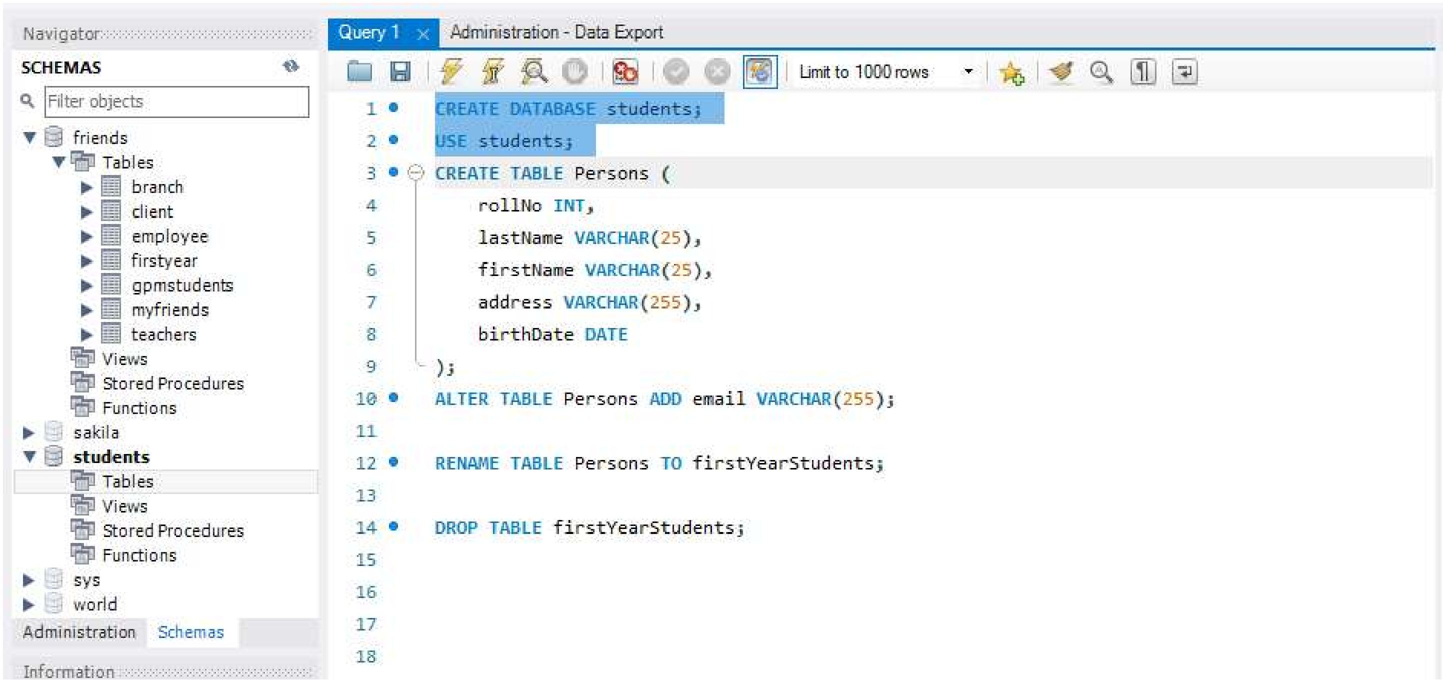
5. <u>DROP TABLE query syntax and example.</u>

The DROP TABLE query is used to drop an existing table in a database along with it's structure.

- **Syntax:** DROP TABLE *table_name*;
- **Example:** DROP TABLE firstYearStudents;

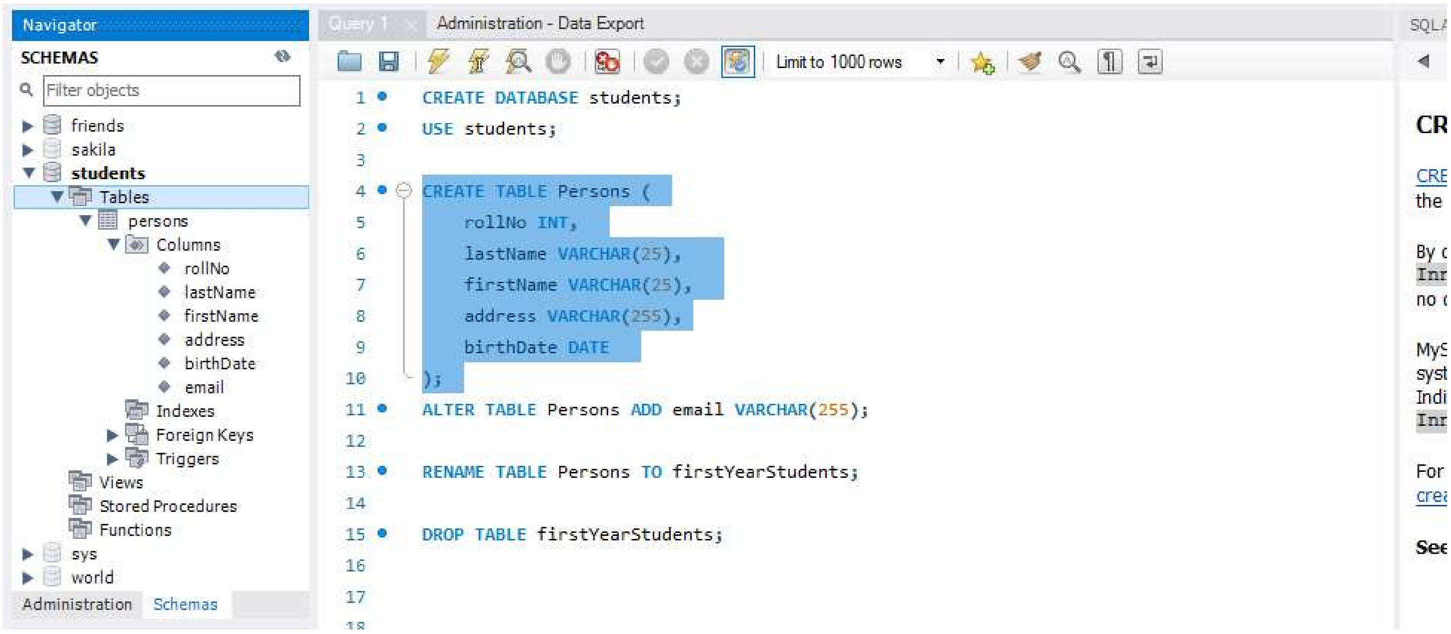
Queries and output:

1. CREATE DATABASE query syntax and example.

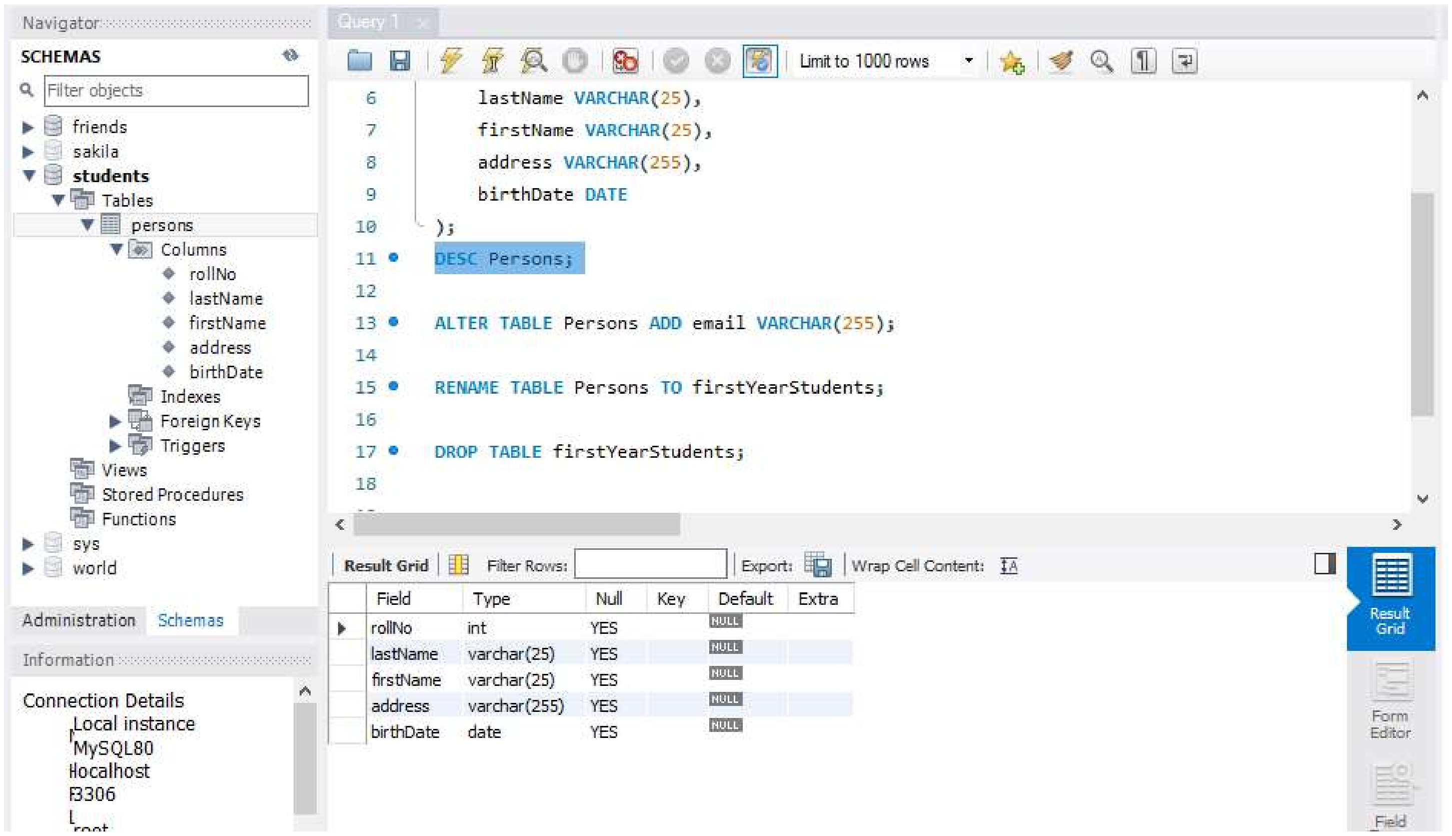


```
CREATE DATABASE students;
USE students;
CREATE TABLE Persons (
    rollNo INT,
    lastName VARCHAR(25),
    firstName VARCHAR(25),
    address VARCHAR(255),
    birthDate DATE
);
ALTER TABLE Persons ADD email VARCHAR(255);

RENAME TABLE Persons TO firstYearStudents;

DROP TABLE firstYearStudents;
```

2. CREATE TABLE query syntax and example.



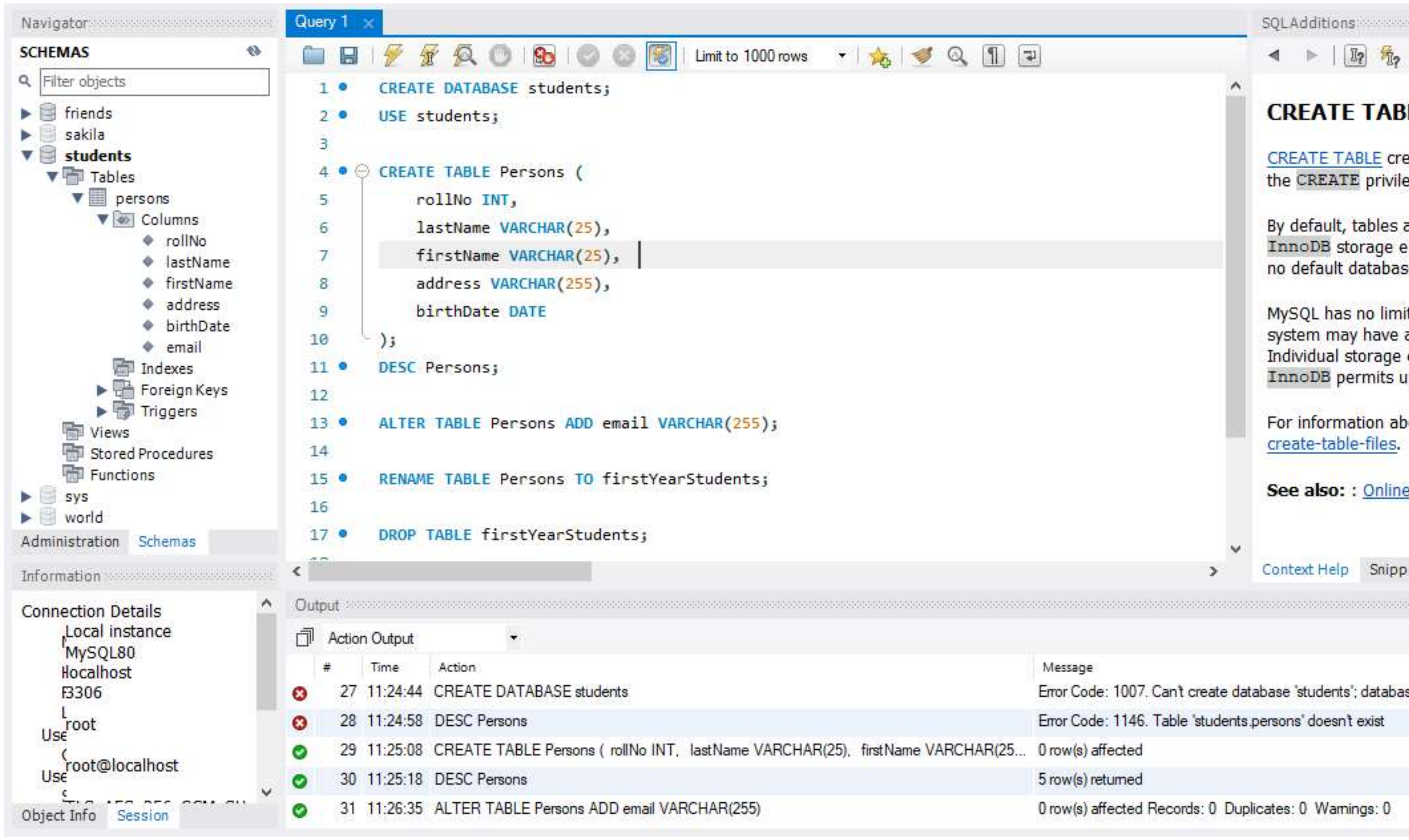
```
CREATE DATABASE students;
USE students;

CREATE TABLE Persons (
    rollNo INT,
    lastName VARCHAR(25),
    firstName VARCHAR(25),
    address VARCHAR(255),
    birthDate DATE
);
ALTER TABLE Persons ADD email VARCHAR(255);

RENAME TABLE Persons TO firstYearStudents;

DROP TABLE firstYearStudents;
```



```
    lastName VARCHAR(25),
    firstName VARCHAR(25),
    address VARCHAR(255),
    birthDate DATE
);
DESC Persons;

ALTER TABLE Persons ADD email VARCHAR(255);

RENAME TABLE Persons TO firstYearStudents;

DROP TABLE firstYearStudents;
```

Field	Type	Null	Key	Default	Extra
rollNo	int	YES		NULL	
lastName	varchar(25)	YES		NULL	
firstName	varchar(25)	YES		NULL	
address	varchar(255)	YES		NULL	
birthDate	date	YES		NULL	

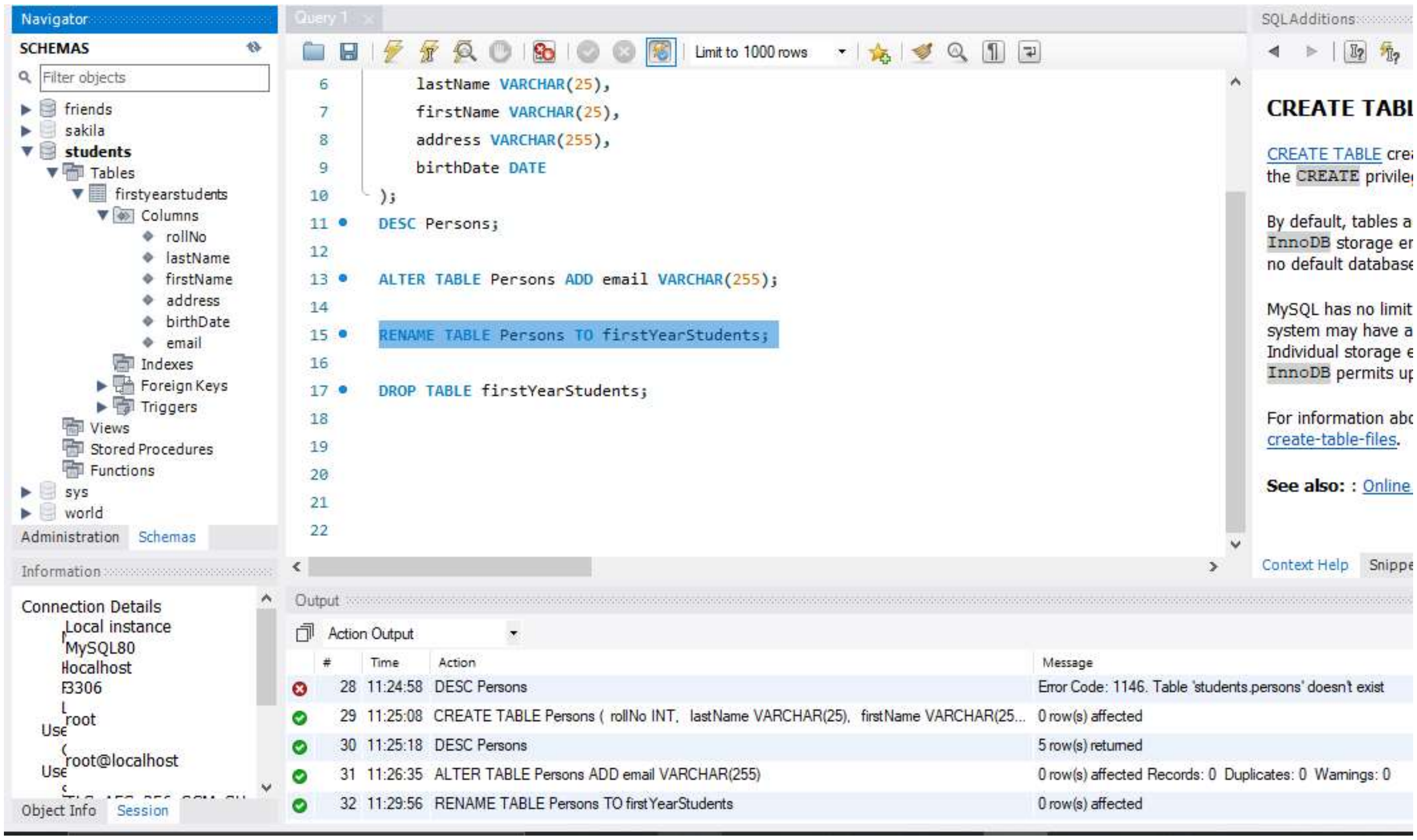
3. ALTER TABLE query syntax and example.



```
CREATE DATABASE students;
USE students;

CREATE TABLE Persons (
    rollNo INT,
    lastName VARCHAR(25),
    firstName VARCHAR(25),
    address VARCHAR(255),
    birthDate DATE
);
DESC Persons;

ALTER TABLE Persons ADD email VARCHAR(255);

RENAME TABLE Persons TO firstYearStudents;

DROP TABLE firstYearStudents;
```

```
#   Time      Action                                                                      Message
27  11:24:44  CREATE DATABASE students                                                    Error Code: 1007. Can't create database 'students'; databas
28  11:24:58  DESC Persons                                                                Error Code: 1146. Table 'students.persons' doesn't exist
29  11:25:08  CREATE TABLE Persons ( rollNo INT,  lastName VARCHAR(25),  firstName VARCHAR(25...  0 row(s) affected
30  11:25:18  DESC Persons                                                                5 row(s) returned
31  11:26:35  ALTER TABLE Persons ADD email VARCHAR(255)                                  0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0
```

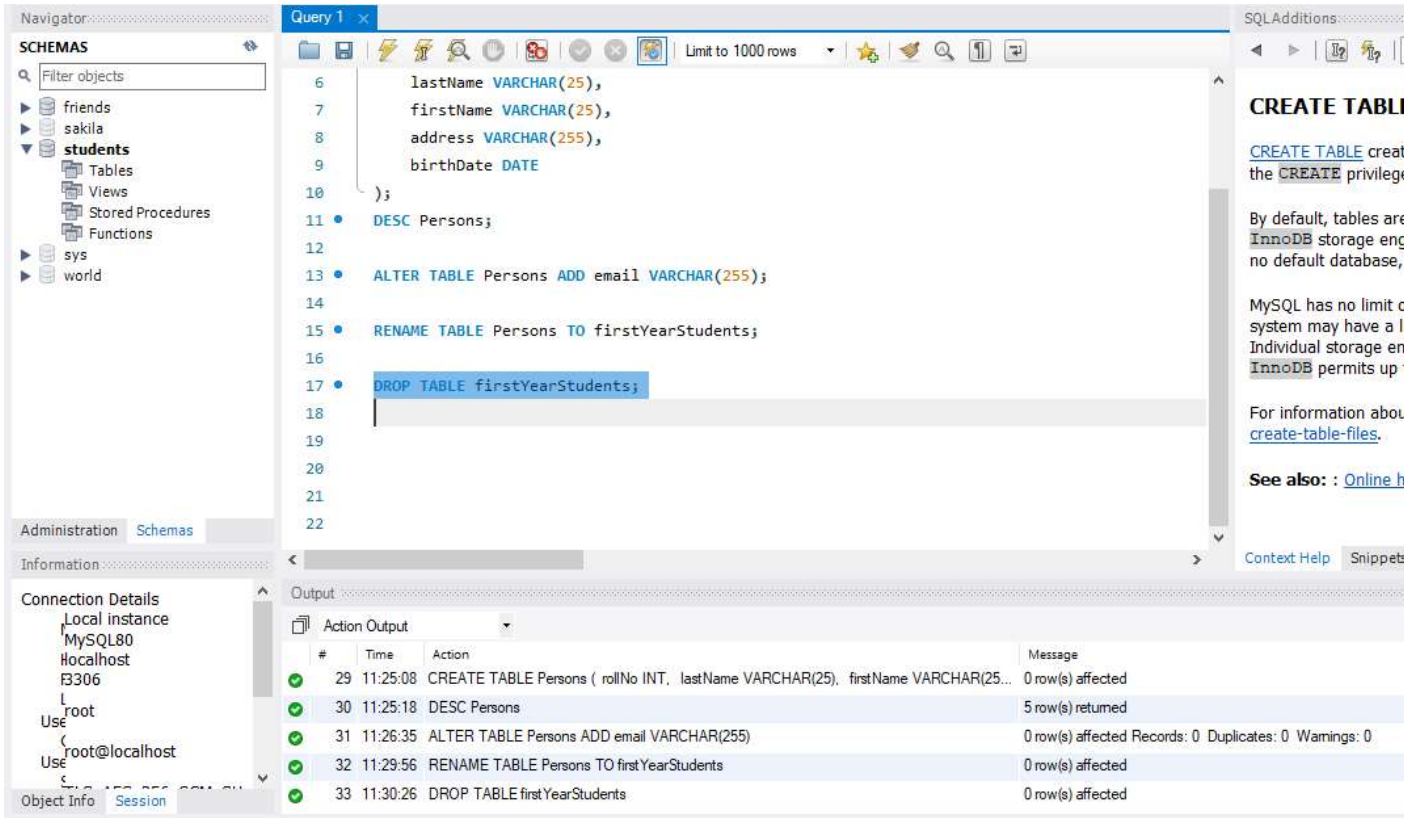
4. RENAME TABLE query syntax and example.



```
    lastName VARCHAR(25),
    firstName VARCHAR(25),
    address VARCHAR(255),
    birthDate DATE
);
DESC Persons;

ALTER TABLE Persons ADD email VARCHAR(255);

RENAME TABLE Persons TO firstYearStudents;

DROP TABLE firstYearStudents;
```

```
#   Time      Action                                                                  Message
28  11:24:58  DESC Persons                                                            Error Code: 1146. Table 'students.persons' doesn't exist
29  11:25:08  CREATE TABLE Persons ( rollNo INT,  lastName VARCHAR(25),  firstName VARCHAR(25...   0 row(s) affected
30  11:25:18  DESC Persons                                                            5 row(s) returned
31  11:26:35  ALTER TABLE Persons ADD email VARCHAR(255)                              0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0
32  11:29:56  RENAME TABLE Persons TO firstYearStudents                               0 row(s) affected
```

5. DROP TABLE query syntax and example.



```
    lastName VARCHAR(25),
    firstName VARCHAR(25),
    address VARCHAR(255),
    birthDate DATE
);
DESC Persons;

ALTER TABLE Persons ADD email VARCHAR(255);

RENAME TABLE Persons TO firstYearStudents;

DROP TABLE firstYearStudents;
```

```
#   Time      Action                                                                  Message
29  11:25:08  CREATE TABLE Persons ( rollNo INT,  lastName VARCHAR(25),  firstName VARCHAR(25...   0 row(s) affected
30  11:25:18  DESC Persons                                                            5 row(s) returned
31  11:26:35  ALTER TABLE Persons ADD email VARCHAR(255)                              0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0
32  11:29:56  RENAME TABLE Persons TO firstYearStudents                               0 row(s) affected
33  11:30:26  DROP TABLE firstYearStudents                                            0 row(s) affected
```

DBMS Practical no. 2

Title: Create a New Database and Perform Following operations on that Database.

a) Create a table
b) Insert values in that table
c) Update the table
d) Delete the contents of the table

Theory:

1. INSERT query syntax and example.

The INSERT INTO query is a DML command used to insert new records in a table.

Syntax:

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

a. <u>The first way specifies both the column names and the values to be inserted:</u>

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

b. <u>If you are adding values for all the columns of the table, you do not need to specify the column names in the SQL query. The INSERT INTO syntax would be as follows:</u>

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

Example:

Insert into employee values (1, "abc", "cba");

Insert into employee (employee_id, f_name) values (1, "xyz");

2. UPDATE query syntax and example.

   The UPDATE query is a DML command used to modify the existing records in a table.

   Syntax: UPDATE *table_name*
   SET *column1* = *value1*, *column2* = *value2*, ...
   WHERE *condition*;

   Example:

   Update employee set joining_date = 01-01-2000;

   update employee set l_name = "zyx" where employee_id=2;

3. DELETE query syntax and example.

   The DELETE query is a DML command used to delete existing records in a table.

   Syntax: DELETE FROM *table_name* WHERE *condition*;

   Example: DELETE FROM employee where f_name = "abc";

4. Delete all contents of table

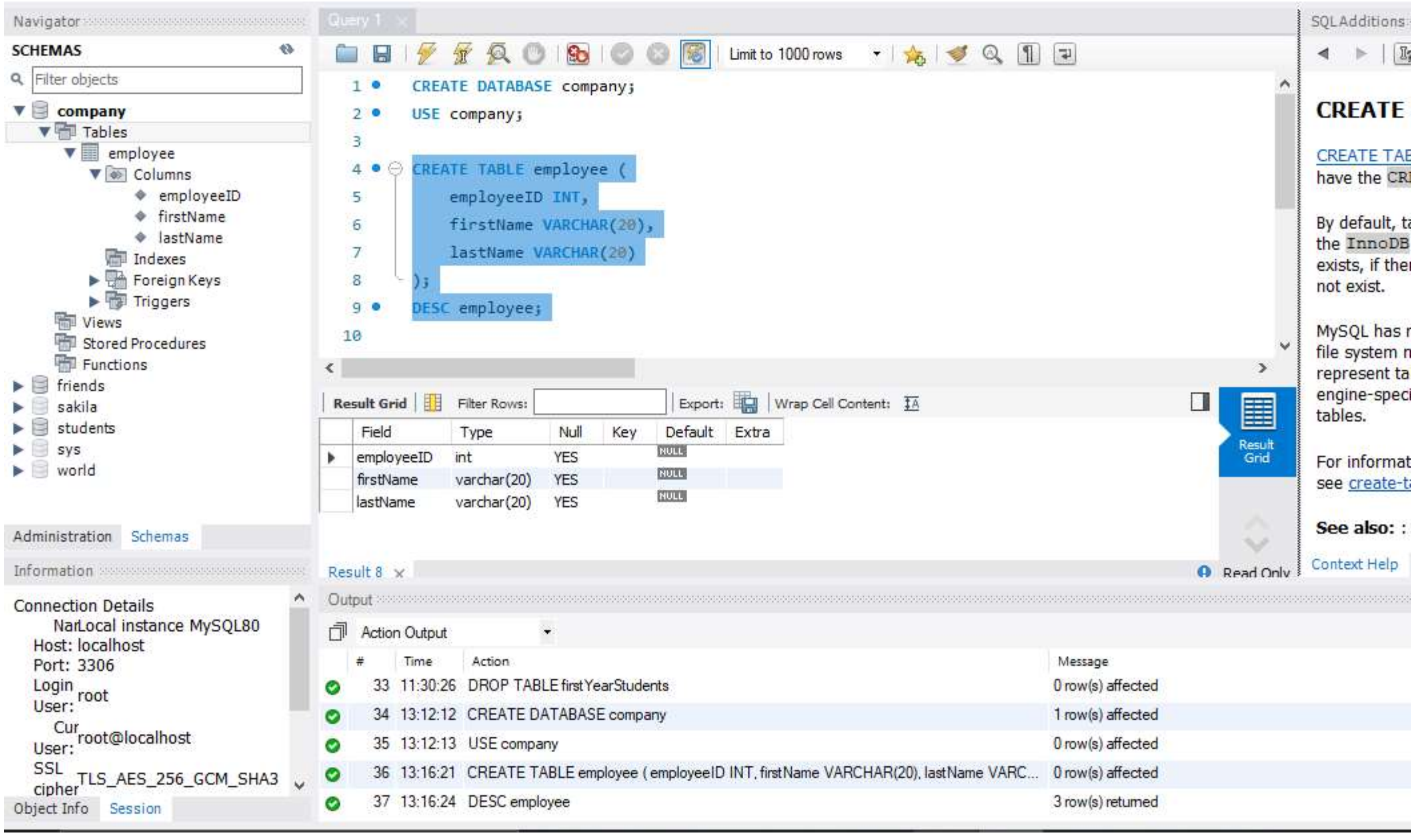
   The TRUNCATE is a DDL command used to delete all rows of table, while keeping structure intact.

   Syntax: TRUNCATE TABLE database_name;

   Example: TRUNCATE TABLE employee;

OUTPUT:

1. Create a Table



```
CREATE DATABASE company;
USE company;

CREATE TABLE employee (
    employeeID INT,
    firstName VARCHAR(20),
    lastName VARCHAR(20)
);
DESC employee;
```

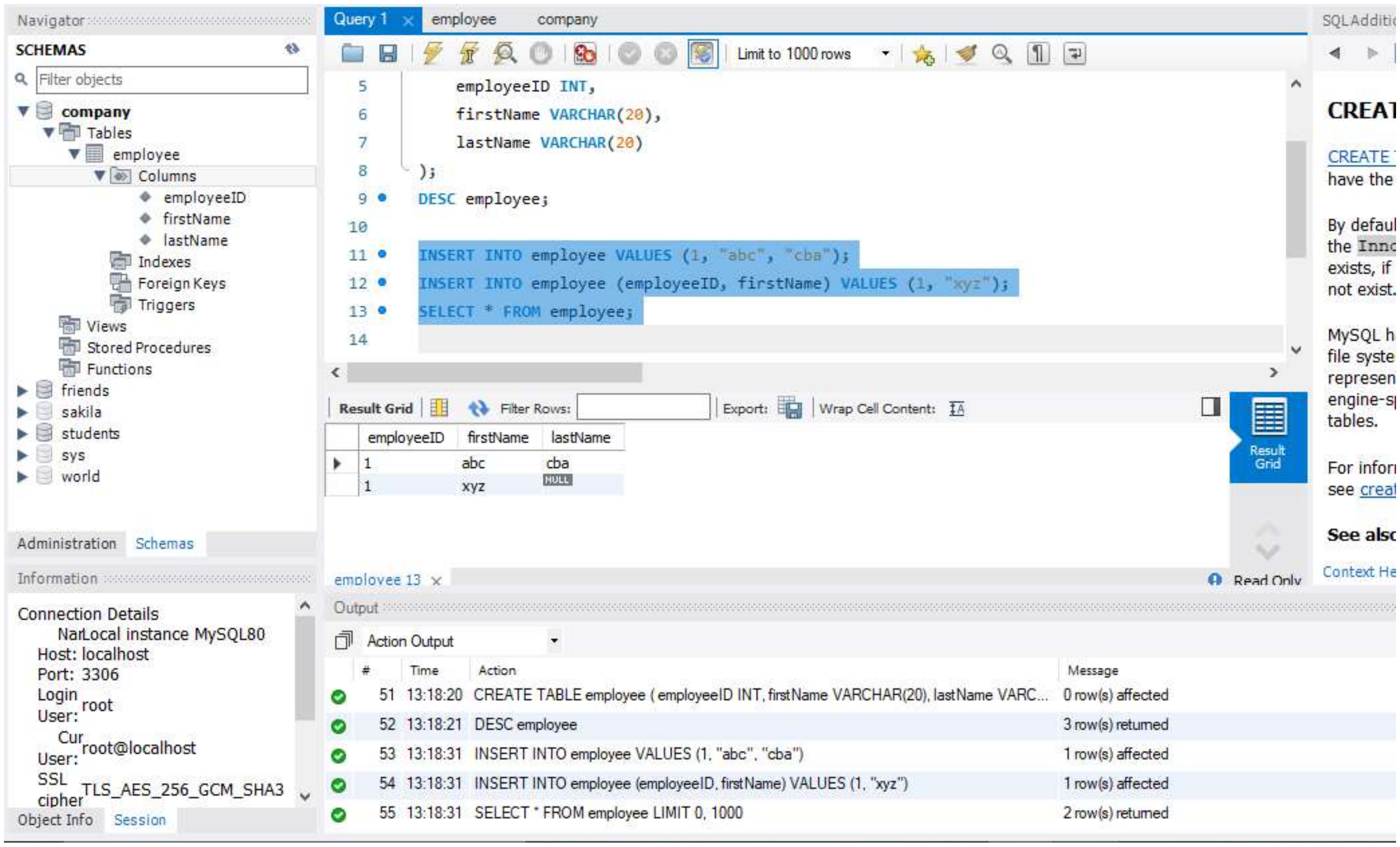
Field	Type	Null	Key	Default	Extra
employeeID	int	YES		NULL	
firstName	varchar(20)	YES		NULL	
lastName	varchar(20)	YES		NULL	

Connection Details
NarLocal instance MySQL80
Host: localhost
Port: 3306
Login User: root
Cur User: root@localhost
SSL cipher TLS_AES_256_GCM_SHA3

#	Time	Action	Message
33	11:30:26	DROP TABLE firstYearStudents	0 row(s) affected
34	13:12:12	CREATE DATABASE company	1 row(s) affected
35	13:12:13	USE company	0 row(s) affected
36	13:16:21	CREATE TABLE employee (employeeID INT, firstName VARCHAR(20), lastName VARC...	0 row(s) affected
37	13:16:24	DESC employee	3 row(s) returned

CREATE
CREATE TAE
have the CR
By default, t
the InnoDB
exists, if the
not exist.
MySQL has r
file system n
represent ta
engine-speci
tables.
For informat
see create-t
See also: :

2. Insert Values in the table



```
    employeeID INT,
    firstName VARCHAR(20),
    lastName VARCHAR(20)
);
DESC employee;

INSERT INTO employee VALUES (1, "abc", "cba");
INSERT INTO employee (employeeID, firstName) VALUES (1, "xyz");
SELECT * FROM employee;
```

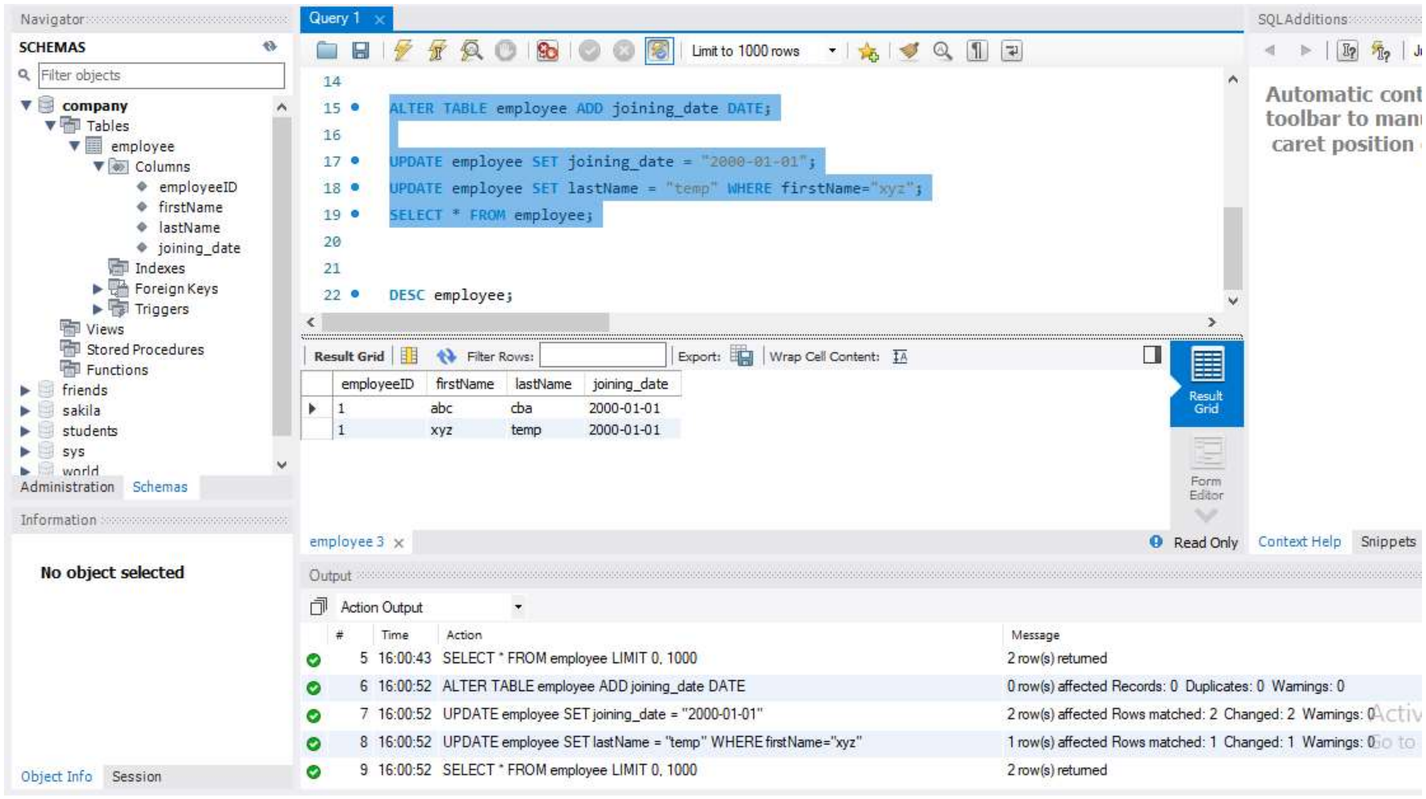
employeeID	firstName	lastName
1	abc	cba
1	xyz	NULL

Connection Details
NarLocal instance MySQL80
Host: localhost
Port: 3306
Login User: root
Cur User: root@localhost
SSL cipher TLS_AES_256_GCM_SHA3

#	Time	Action	Message
51	13:18:20	CREATE TABLE employee (employeeID INT, firstName VARCHAR(20), lastName VARC...	0 row(s) affected
52	13:18:21	DESC employee	3 row(s) returned
53	13:18:31	INSERT INTO employee VALUES (1, "abc", "cba")	1 row(s) affected
54	13:18:31	INSERT INTO employee (employeeID, firstName) VALUES (1, "xyz")	1 row(s) affected
55	13:18:31	SELECT * FROM employee LIMIT 0, 1000	2 row(s) returned

CREAT
CREATE
have the
By defaul
the Innc
exists, if
not exist.
MySQL h
file syste
represen
engine-s
tables.
For infor
see creat
See also

3. **Update the table**

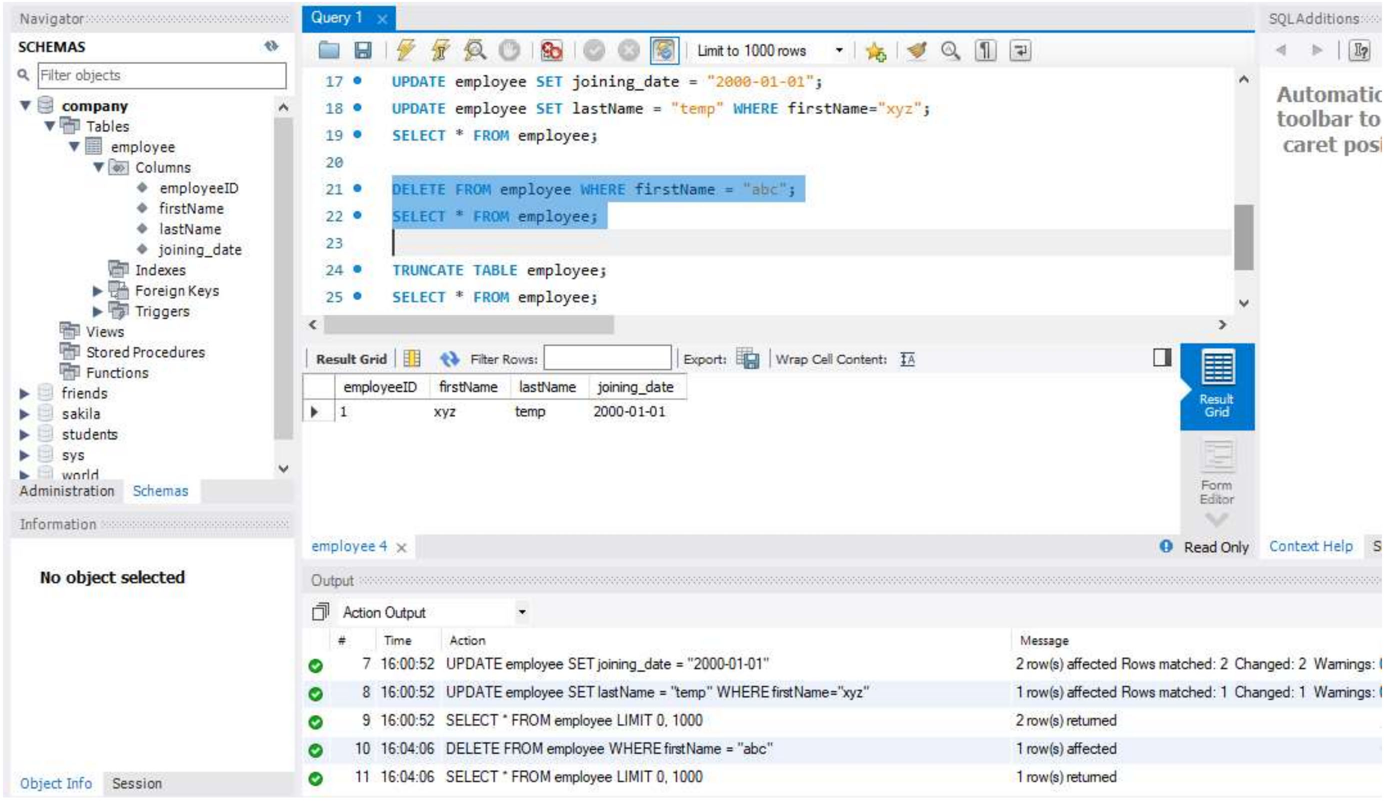


```
ALTER TABLE employee ADD joining_date DATE;

UPDATE employee SET joining_date = "2000-01-01";
UPDATE employee SET lastName = "temp" WHERE firstName="xyz";
SELECT * FROM employee;


DESC employee;
```

employeeID	firstName	lastName	joining_date
1	abc	cba	2000-01-01
1	xyz	temp	2000-01-01

```
#  Time      Action                                                        Message
5  16:00:43  SELECT * FROM employee LIMIT 0, 1000                          2 row(s) returned
6  16:00:52  ALTER TABLE employee ADD joining_date DATE                    0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0
7  16:00:52  UPDATE employee SET joining_date = "2000-01-01"               2 row(s) affected Rows matched: 2  Changed: 2  Warnings: 0
8  16:00:52  UPDATE employee SET lastName = "temp" WHERE firstName="xyz"   1 row(s) affected Rows matched: 1  Changed: 1  Warnings: 0
9  16:00:52  SELECT * FROM employee LIMIT 0, 1000                          2 row(s) returned
```

4. Delete specific row/s

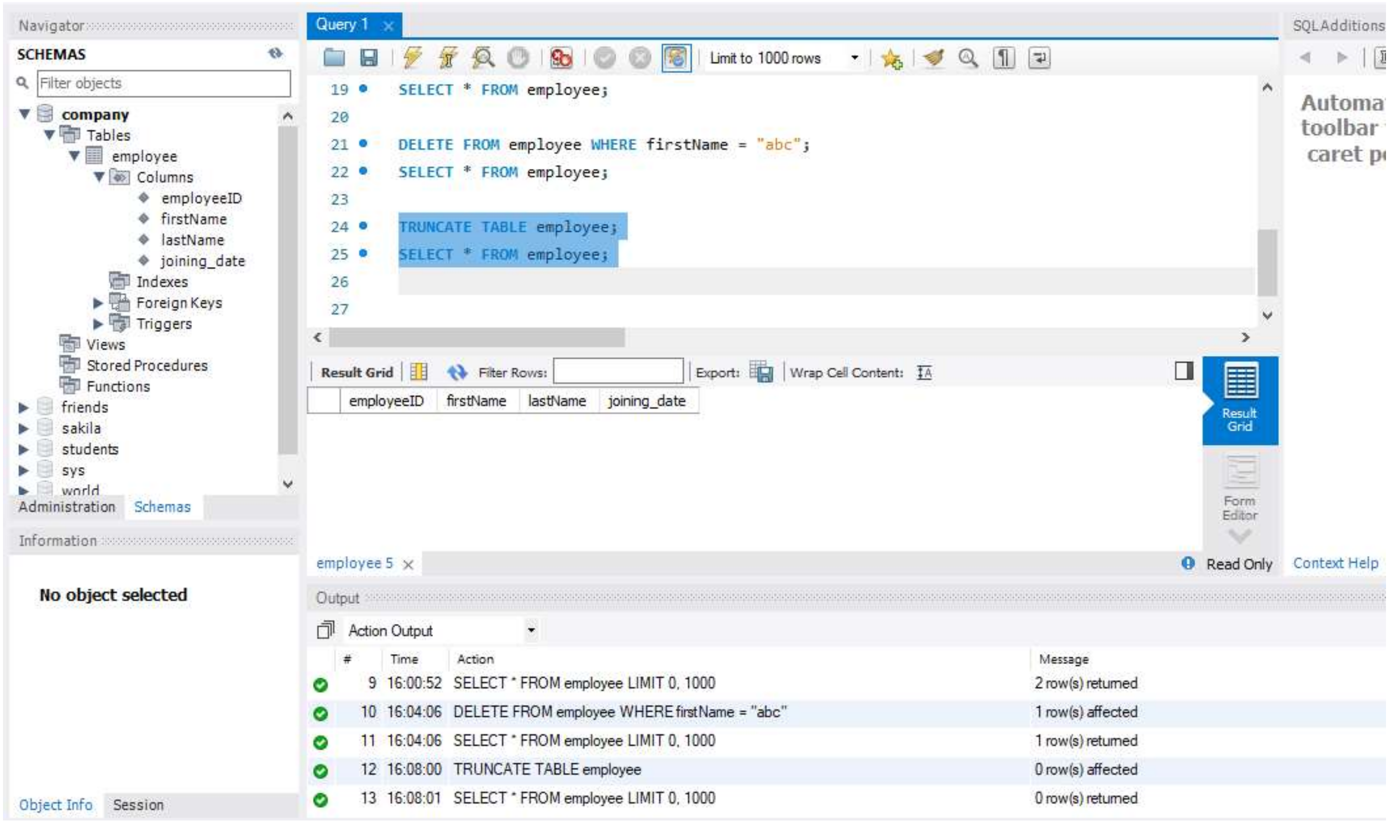


```
UPDATE employee SET joining_date = "2000-01-01";
UPDATE employee SET lastName = "temp" WHERE firstName="xyz";
SELECT * FROM employee;

DELETE FROM employee WHERE firstName = "abc";
SELECT * FROM employee;

TRUNCATE TABLE employee;
SELECT * FROM employee;
```

employeeID	firstName	lastName	joining_date
1	xyz	temp	2000-01-01

```
#   Time      Action                                                        Message
7   16:00:52  UPDATE employee SET joining_date = "2000-01-01"               2 row(s) affected Rows matched: 2  Changed: 2  Warnings:
8   16:00:52  UPDATE employee SET lastName = "temp" WHERE firstName="xyz"   1 row(s) affected Rows matched: 1  Changed: 1  Warnings:
9   16:00:52  SELECT * FROM employee LIMIT 0, 1000                          2 row(s) returned
10  16:04:06  DELETE FROM employee WHERE firstName = "abc"                  1 row(s) affected
11  16:04:06  SELECT * FROM employee LIMIT 0, 1000                          1 row(s) returned
```

5. Delete all the rows of the table



```
SELECT * FROM employee;

DELETE FROM employee WHERE firstName = "abc";
SELECT * FROM employee;

TRUNCATE TABLE employee;
SELECT * FROM employee;
```

Result Grid: employeeID | firstName | lastName | joining_date

```
#   Time      Action                                        Message
9   16:00:52  SELECT * FROM employee LIMIT 0, 1000          2 row(s) returned
10  16:04:06  DELETE FROM employee WHERE firstName = "abc"  1 row(s) affected
11  16:04:06  SELECT * FROM employee LIMIT 0, 1000          1 row(s) returned
12  16:08:00  TRUNCATE TABLE employee                       0 row(s) affected
13  16:08:01  SELECT * FROM employee LIMIT 0, 1000          0 row(s) returned
```

DBMS Practical no. 3

Title: Create a table and apply following clauses on it: Where , Having ,Group by, Order by clauses.

Theory:

1. Where Clause :

Where clause is used to specify the condition of DDL and DMl queries .

Syntax : SELECT column1, column2, ...

FROM table_name

WHERE condition;

Example : SELECT * FROM employee

WHERE dept="IT";

2. Having Clause :

Having clause is used with aggregate functions instead of Where clause.

Syntax :

```
SELECT column_name(s)  FROM table_name
GROUP BY column_name(s)
HAVING condition;
```

Example :

```
SELECT dept, count(emp_id) FROM employee

GROUP BY dept HAVING COUNT(*)>=2;
```

3. Group By Clause :

This group by clause groups all rows that have the same values into summary rows. It is often used with aggregate functions to group the result -set by one or more columns.

Syntax:

```
SELECT column1, column2  FROM table_name WHERE condition

ORDER BY column1, column2... ASC|DESC
```

Example :

```
SELECT count(*), dept FROM employee GROUP BY dept;
```

4. Order by clause :

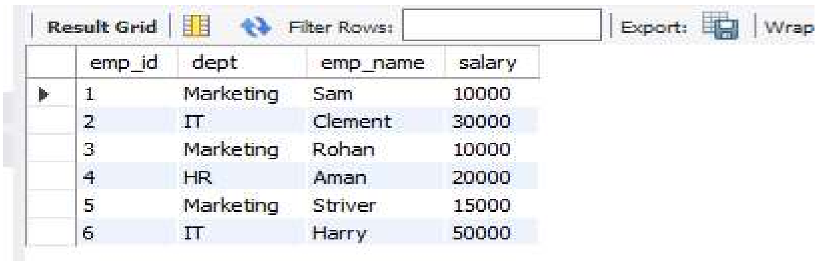
The order by is used to sort result set in ascending or descending order. It sorts record in ascending order by default .to sort record in descending order we used desc keyword .

Example :

```
SELECT emp_name, dept, salary FROM employee ORDER BY salary;

SELECT emp_name, dept, salary FROM employee ORDER BY salary DESC;
```

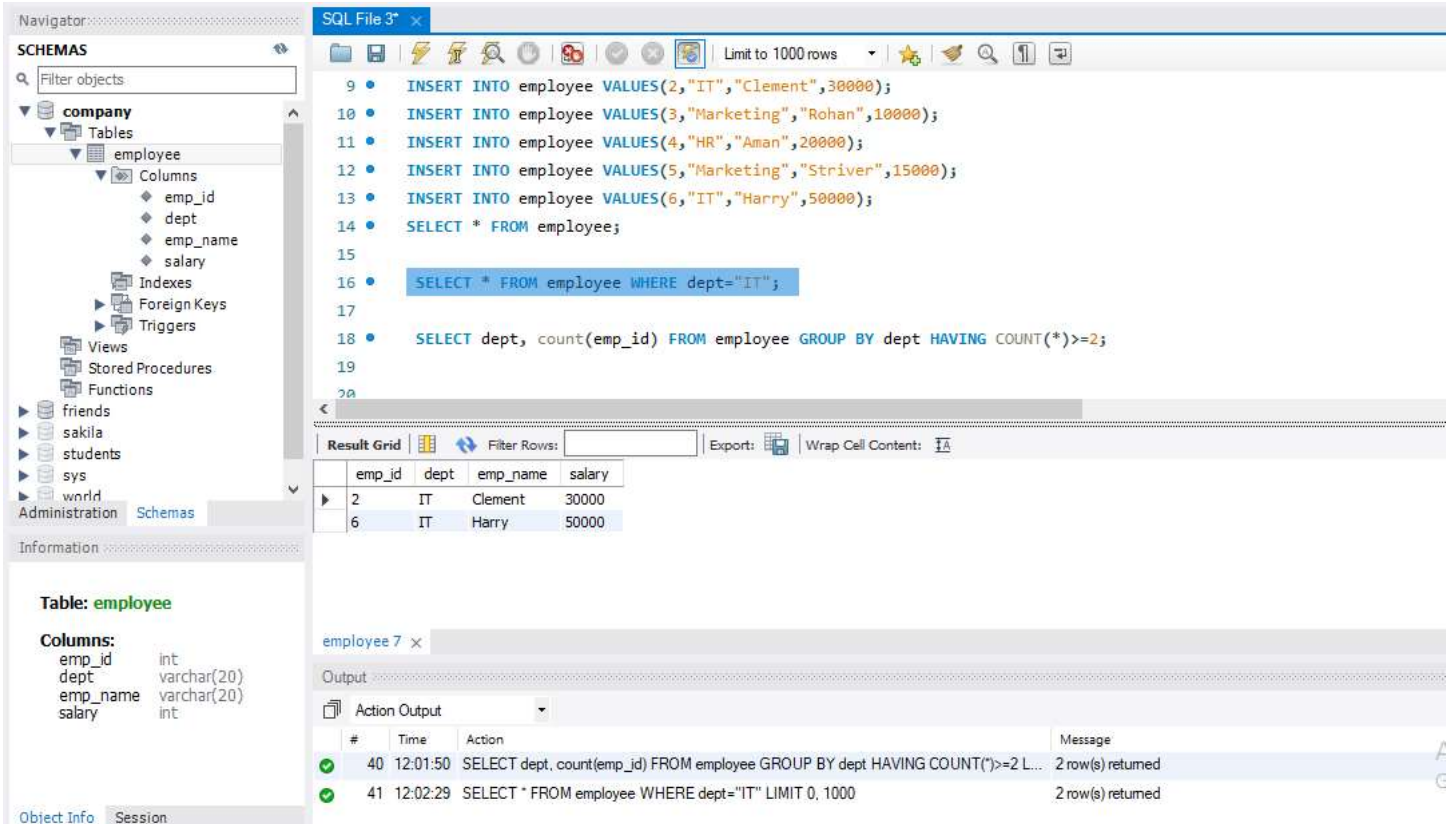
Output:

Table state:



	emp_id	dept	emp_name	salary
▶	1	Marketing	Sam	10000
	2	IT	Clement	30000
	3	Marketing	Rohan	10000
	4	HR	Aman	20000
	5	Marketing	Striver	15000
	6	IT	Harry	50000

1. Example of query using where clause.



```
INSERT INTO employee VALUES(2,"IT","Clement",30000);
INSERT INTO employee VALUES(3,"Marketing","Rohan",10000);
INSERT INTO employee VALUES(4,"HR","Aman",20000);
INSERT INTO employee VALUES(5,"Marketing","Striver",15000);
INSERT INTO employee VALUES(6,"IT","Harry",50000);
SELECT * FROM employee;

SELECT * FROM employee WHERE dept="IT";

 SELECT dept, count(emp_id) FROM employee GROUP BY dept HAVING COUNT(*)>=2;
```

	emp_id	dept	emp_name	salary
▶	2	IT	Clement	30000
	6	IT	Harry	50000

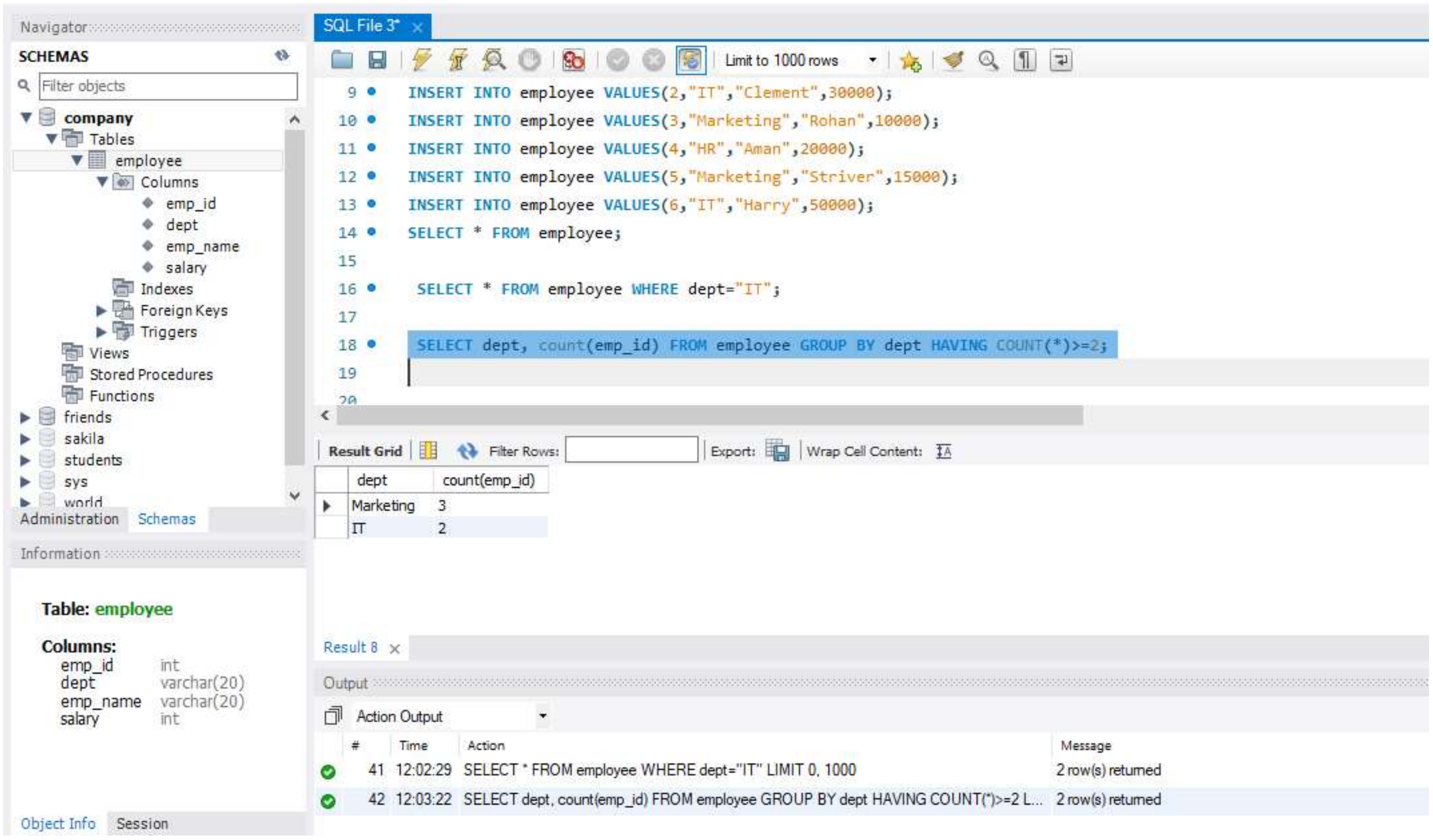
Table: employee

Columns:

emp_id	int
dept	varchar(20)
emp_name	varchar(20)
salary	int

```
#   Time      Action                                                                       Message
40  12:01:50  SELECT dept, count(emp_id) FROM employee GROUP BY dept HAVING COUNT(*)>=2 L...  2 row(s) returned
41  12:02:29  SELECT * FROM employee WHERE dept="IT" LIMIT 0, 1000                            2 row(s) returned
```

2. Example of query using having clause

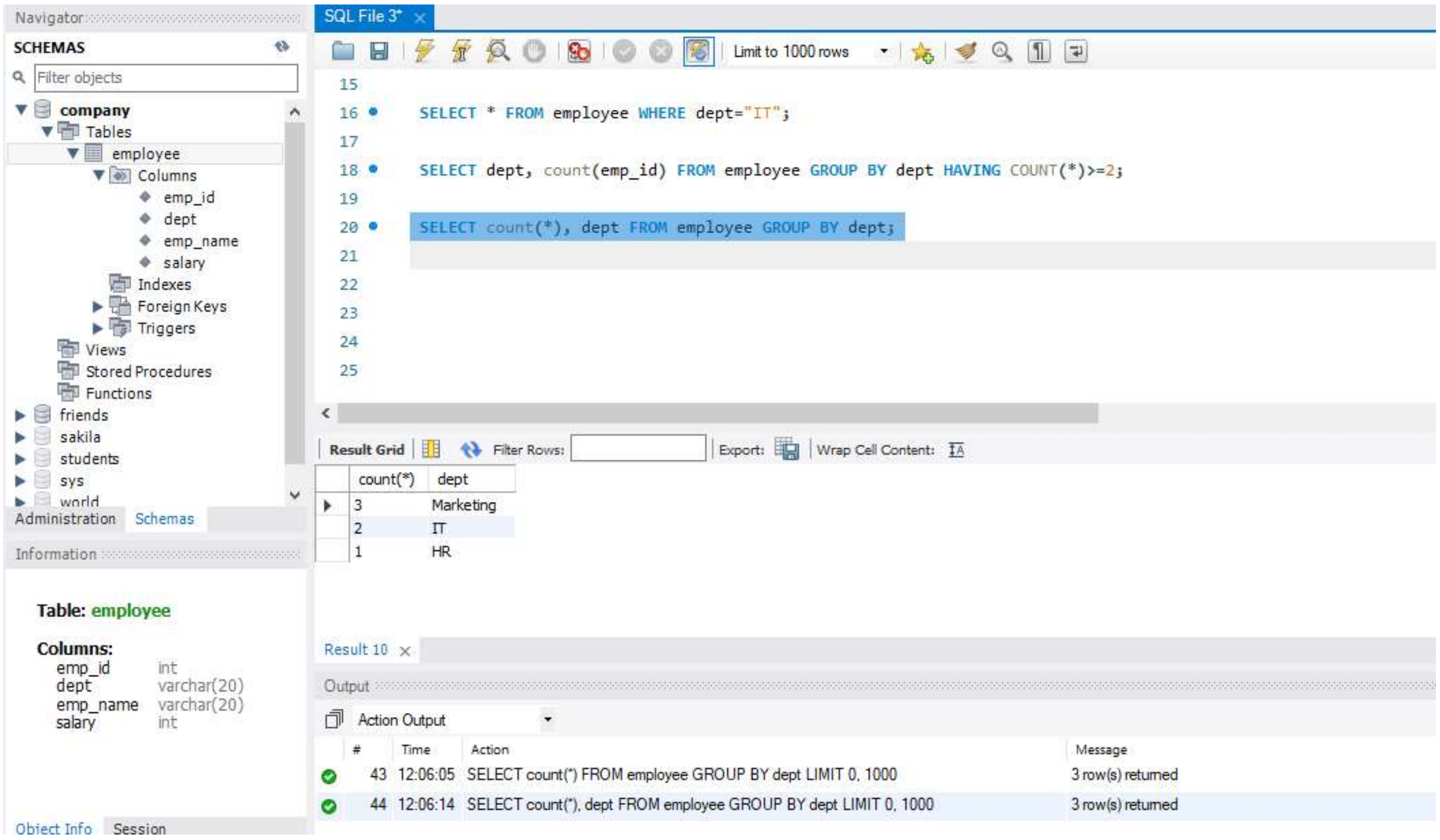


```
INSERT INTO employee VALUES(2,"IT","Clement",30000);
INSERT INTO employee VALUES(3,"Marketing","Rohan",10000);
INSERT INTO employee VALUES(4,"HR","Aman",20000);
INSERT INTO employee VALUES(5,"Marketing","Striver",15000);
INSERT INTO employee VALUES(6,"IT","Harry",50000);
SELECT * FROM employee;

 SELECT * FROM employee WHERE dept="IT";

 SELECT dept, count(emp_id) FROM employee GROUP BY dept HAVING COUNT(*)>=2;
```

dept	count(emp_id)
Marketing	3
IT	2

#	Time	Action	Message
41	12:02:29	SELECT * FROM employee WHERE dept="IT" LIMIT 0, 1000	2 row(s) returned
42	12:03:22	SELECT dept, count(emp_id) FROM employee GROUP BY dept HAVING COUNT(*)>=2 L...	2 row(s) returned

3. Example of query using Group by clause.

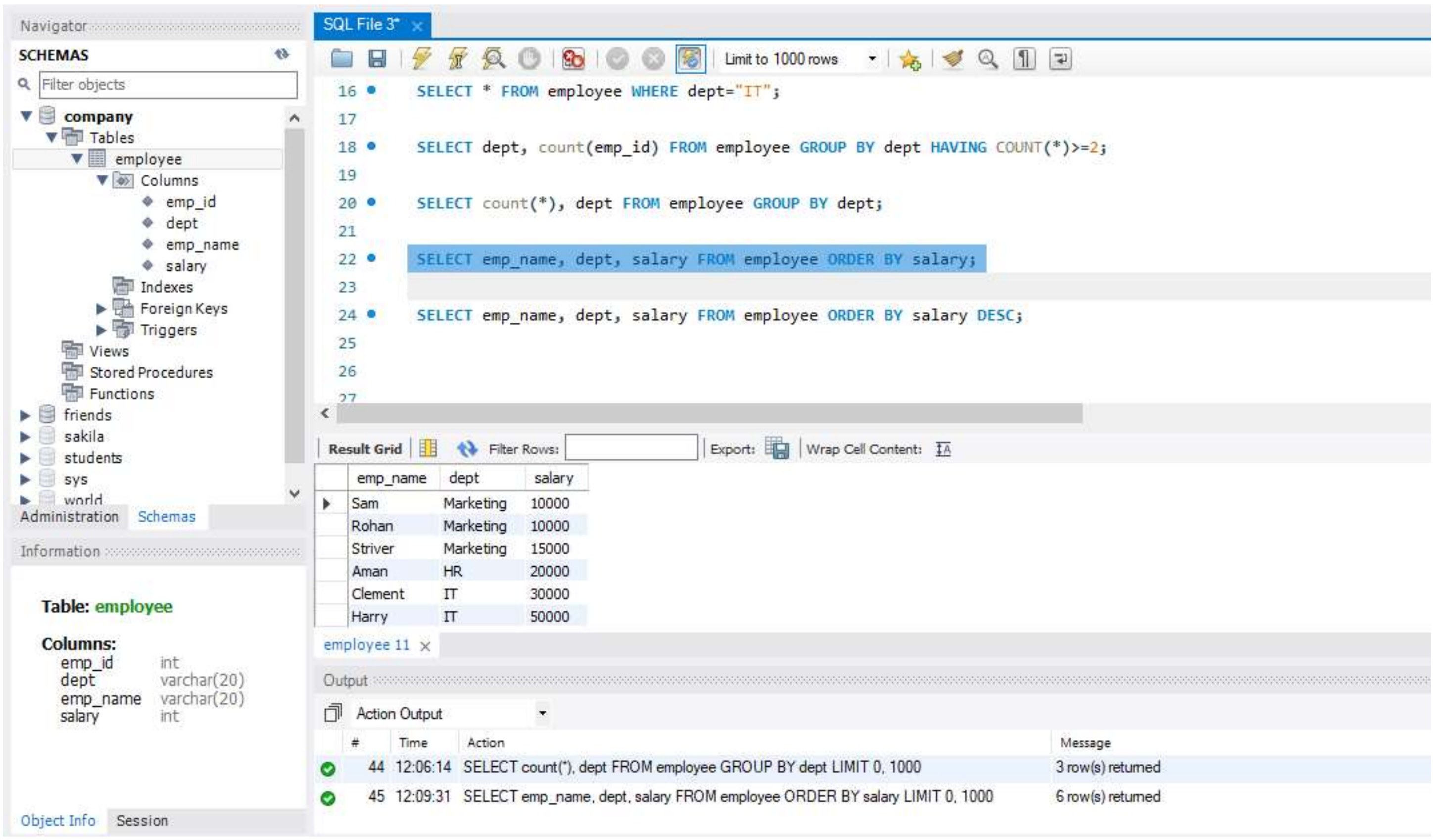


```
 SELECT * FROM employee WHERE dept="IT";

 SELECT dept, count(emp_id) FROM employee GROUP BY dept HAVING COUNT(*)>=2;

 SELECT count(*), dept FROM employee GROUP BY dept;
```

count(*)	dept
3	Marketing
2	IT
1	HR

#	Time	Action	Message
43	12:06:05	SELECT count(*) FROM employee GROUP BY dept LIMIT 0, 1000	3 row(s) returned
44	12:06:14	SELECT count(*), dept FROM employee GROUP BY dept LIMIT 0, 1000	3 row(s) returned

4. Example of query using order by clause.



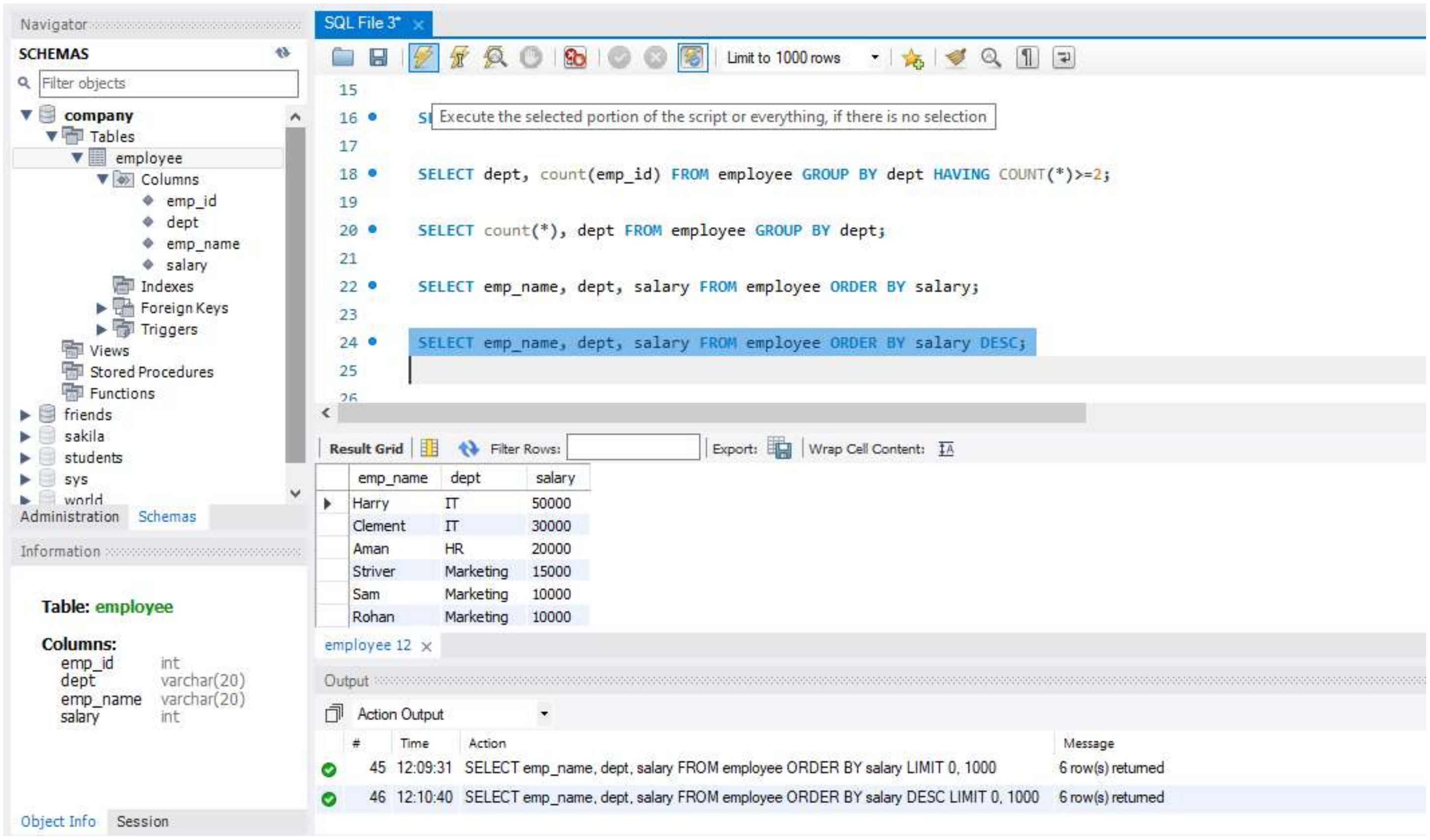
```
SELECT * FROM employee WHERE dept="IT";

SELECT dept, count(emp_id) FROM employee GROUP BY dept HAVING COUNT(*)>=2;

SELECT count(*), dept FROM employee GROUP BY dept;

SELECT emp_name, dept, salary FROM employee ORDER BY salary;

SELECT emp_name, dept, salary FROM employee ORDER BY salary DESC;
```

emp_name	dept	salary
Sam	Marketing	10000
Rohan	Marketing	10000
Striver	Marketing	15000
Aman	HR	20000
Clement	IT	30000
Harry	IT	50000

Table: employee

Columns:
emp_id int
dept varchar(20)
emp_name varchar(20)
salary int

#	Time	Action	Message
44	12:06:14	SELECT count(*), dept FROM employee GROUP BY dept LIMIT 0, 1000	3 row(s) returned
45	12:09:31	SELECT emp_name, dept, salary FROM employee ORDER BY salary LIMIT 0, 1000	6 row(s) returned



```
SI Execute the selected portion of the script or everything, if there is no selection

SELECT dept, count(emp_id) FROM employee GROUP BY dept HAVING COUNT(*)>=2;

SELECT count(*), dept FROM employee GROUP BY dept;

SELECT emp_name, dept, salary FROM employee ORDER BY salary;

SELECT emp_name, dept, salary FROM employee ORDER BY salary DESC;
```

emp_name	dept	salary
Harry	IT	50000
Clement	IT	30000
Aman	HR	20000
Striver	Marketing	15000
Sam	Marketing	10000
Rohan	Marketing	10000

Table: employee

Columns:
emp_id int
dept varchar(20)
emp_name varchar(20)
salary int

#	Time	Action	Message
45	12:09:31	SELECT emp_name, dept, salary FROM employee ORDER BY salary LIMIT 0, 1000	6 row(s) returned
46	12:10:40	SELECT emp_name, dept, salary FROM employee ORDER BY salary DESC LIMIT 0, 1000	6 row(s) returned

DBMS Practical no. 4

Title: Implement the following Functions in SQL a) Date functions b) Time functions c) String functions d) Aggregate functions.

Theory:

A. Date and Time function :

Date Function :

```
SELECT NOW();

SELECT CURDATE();

SELECT DATE(SYSDATE());

SELECT DATE_FORMAT("2020-10-18", "%d/%M/%Y");

SELECT DATEDIFF("2020-10-18", "2003-03-12");

SELECT CURTIME();

SELECT DATE_ADD("2020-10-18", INTERVAL 10 DAY);

SELECT DATE_SUB("2020-10-18", INTERVAL 10 DAY);

SELECT TIME(SYSDATE());

SELECT DAYNAME("2020-10-18");
```

Time Function :

```
SELECT current_time();

SELECT TIME_TO_SEC("19:30:10");
```

B. String Function :

```
SELECT ASCII("R");

SELECT CHAR(82);

SELECT LENGTH(emp_name), emp_name from employee;

SELECT BIT_LENGTH("Samuel"), emp_name from employee;

SELECT CONCAT(emp_name, " works in ", dept) from employee;
```

SELECT FIELD("s", "h", "a", "r", "p"), emp_name from employee;

SELECT FORMAT(88.38439, 2), emp_name from employee;

SELECT LOWER(emp_name), emp_name from employee;

SELECT UPPER(emp_name), emp_name from employee;

SELECT LEFT(emp_name, 3), emp_name from employee;

C. Aggregate functions :

SELECT MIN(salary) FROM employee;

SELECT MIN(salary) FROM employee WHERE dept="IT";

SELECT MAX(salary) FROM employee;

SELECT MAX(salary) FROM employee WHERE dept="Marketing";

SELECT AVG(salary) FROM employee;

SELECT AVG(salary) FROM employee WHERE dept IN("HR", "IT");

SELECT SUM(salary) FROM employee;

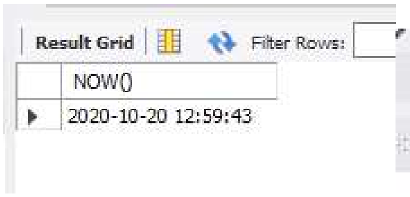
SELECT SUM(salary) FROM employee WHERE dept="Marketing";

SELECT COUNT(*) FROM employee;

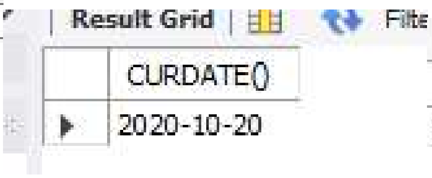
SELECT COUNT(*) FROM employee WHERE dept != "HR";

Output:

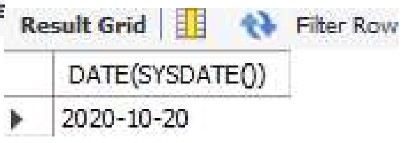
1. Date and time functions:



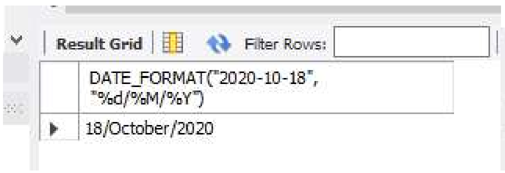
```
NOW()
2020-10-20 12:59:43
```



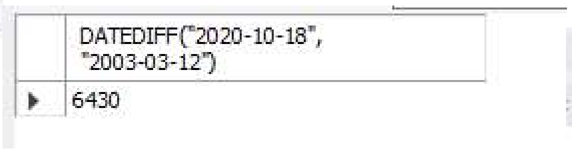
```
CURDATE()
2020-10-20
```



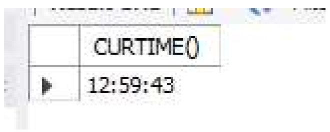
```
DATE(SYSDATE())
2020-10-20
```



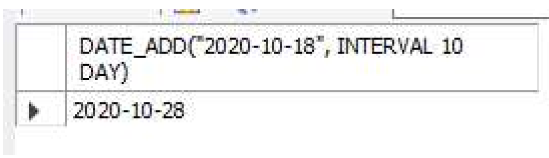
DATE_FORMAT("2020-10-18", "%d/%M/%Y")
18/October/2020



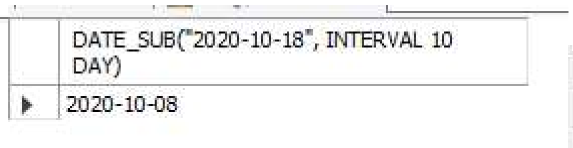
DATEDIFF("2020-10-18", "2003-03-12")
6430



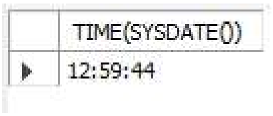
CURTIME()
12:59:43



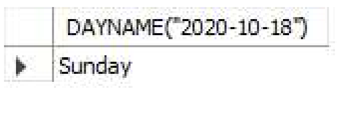
DATE_ADD("2020-10-18", INTERVAL 10 DAY)
2020-10-28



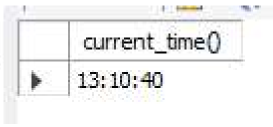
DATE_SUB("2020-10-18", INTERVAL 10 DAY)
2020-10-08



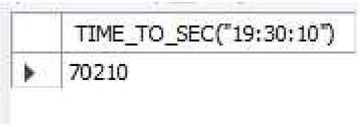
TIME(SYSDATE())
12:59:44



DAYNAME("2020-10-18")
Sunday

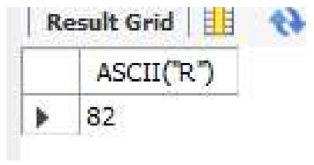


current_time()
13:10:40

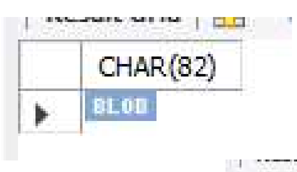


TIME_TO_SEC("19:30:10")
70210

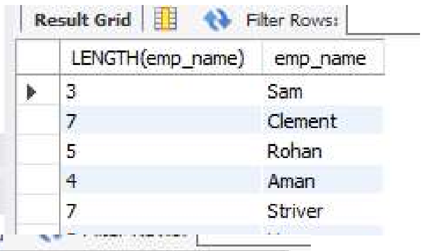
2. String functions:



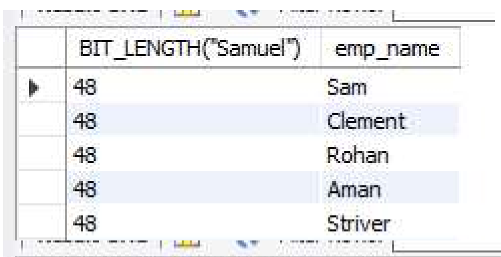
ASCII("R")
82



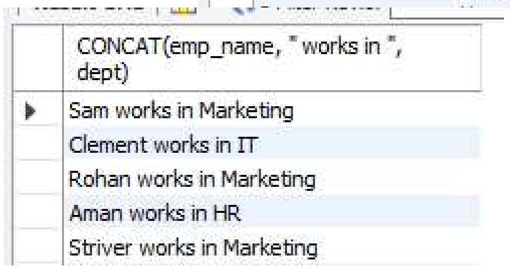
CHAR(82)
BLOB



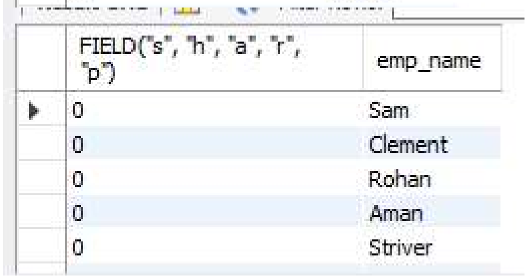
LENGTH(emp_name)	emp_name
3	Sam
7	Clement
5	Rohan
4	Aman
7	Striver



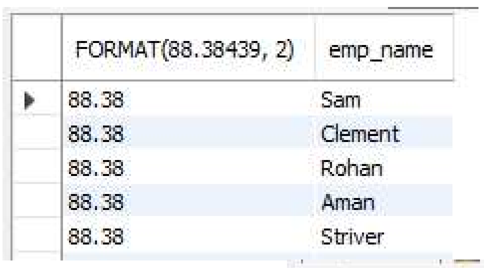
BIT_LENGTH("Samuel")	emp_name
48	Sam
48	Clement
48	Rohan
48	Aman
48	Striver



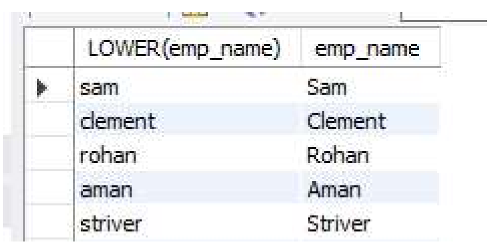
CONCAT(emp_name, " works in ", dept)
Sam works in Marketing
Clement works in IT
Rohan works in Marketing
Aman works in HR
Striver works in Marketing



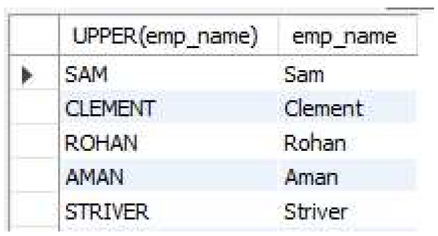
FIELD("s", "h", "a", "r", "p")	emp_name
0	Sam
0	Clement
0	Rohan
0	Aman
0	Striver



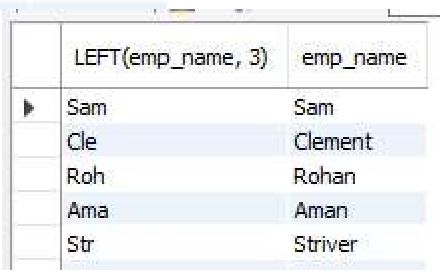
FORMAT(88.38439, 2)	emp_name
88.38	Sam
88.38	Clement
88.38	Rohan
88.38	Aman
88.38	Striver



LOWER(emp_name)	emp_name
sam	Sam
clement	Clement
rohan	Rohan
aman	Aman
striver	Striver



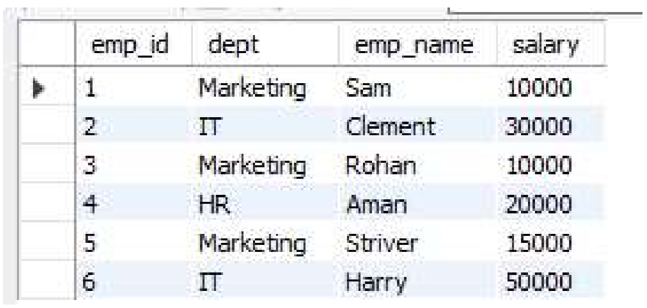
UPPER(emp_name)	emp_name
SAM	Sam
CLEMENT	Clement
ROHAN	Rohan
AMAN	Aman
STRIVER	Striver



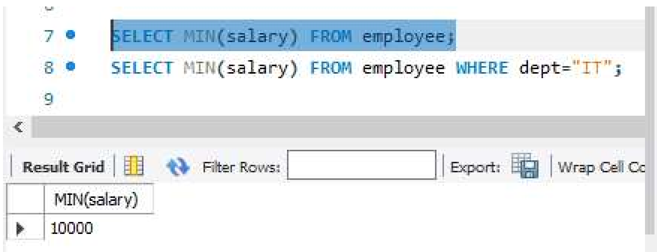
LEFT(emp_name, 3)	emp_name
Sam	Sam
Cle	Clement
Roh	Rohan
Ama	Aman
Str	Striver

3. Aggregate functions:

Employee table:

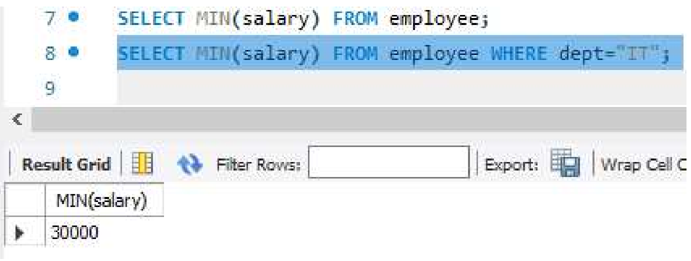


	emp_id	dept	emp_name	salary
▶	1	Marketing	Sam	10000
	2	IT	Clement	30000
	3	Marketing	Rohan	10000
	4	HR	Aman	20000
	5	Marketing	Striver	15000
	6	IT	Harry	50000



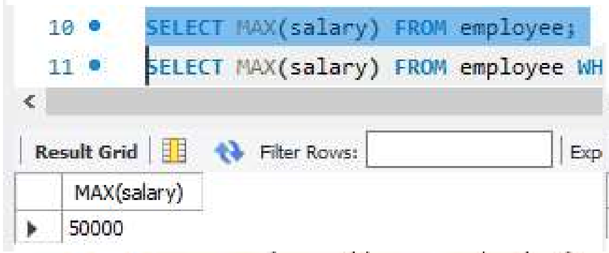
```sql
SELECT MIN(salary) FROM employee;
SELECT MIN(salary) FROM employee WHERE dept="IT";
```

```
MIN(salary)
10000
```



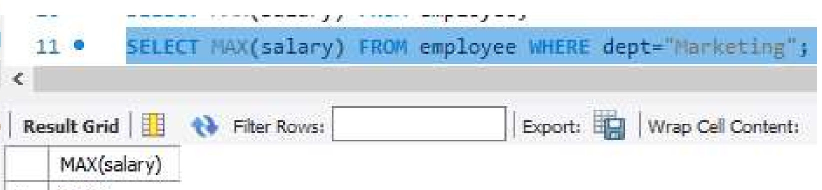
```sql
SELECT MIN(salary) FROM employee;
SELECT MIN(salary) FROM employee WHERE dept="IT";
```

```
MIN(salary)
30000
```



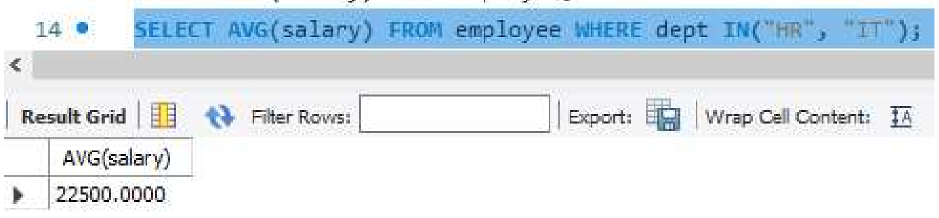
```sql
SELECT MAX(salary) FROM employee;
SELECT MAX(salary) FROM employee WH
```

```
MAX(salary)
50000
```



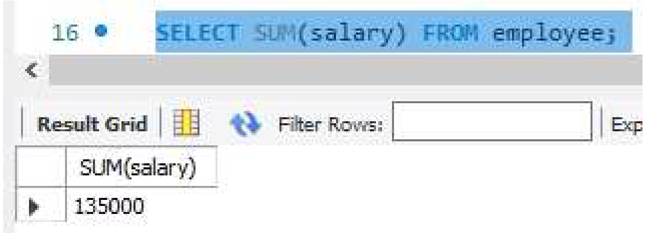
```sql
SELECT MAX(salary) FROM employee WHERE dept="Marketing";
```

```
MAX(salary)
15000
```



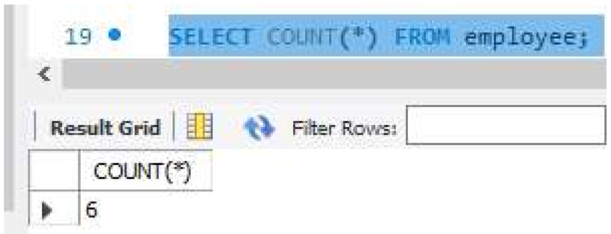
```sql
SELECT AVG(salary) FROM employee WHERE dept IN("HR", "IT");
```

```
AVG(salary)
22500.0000
```



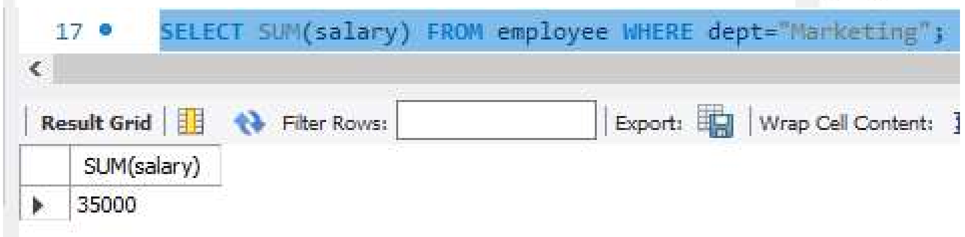
```sql
SELECT SUM(salary) FROM employee;
```

```
SUM(salary)
135000
```



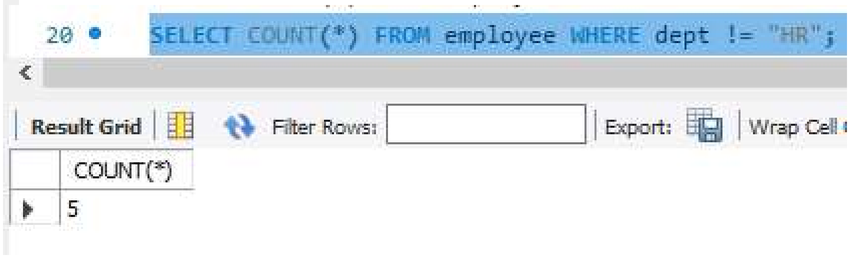
```sql
SELECT COUNT(*) FROM employee;
```

```
COUNT(*)
6
```



```sql
SELECT SUM(salary) FROM employee WHERE dept="Marketing";
```

```
SUM(salary)
35000
```



```sql
SELECT COUNT(*) FROM employee WHERE dept != "HR";
```

```
COUNT(*)
5
```

DBMS Practical no. 5

Title: Implementation of all types of Joins.

Theory:

1. Example of query using INNER JOIN.

   The inner join keyword selects records that have same values in both tables.

   Syntax : Select column_name() from table_name inner join table_name2

   on table_name.column_name=table_name2.column_name;

   Example : SELECT id, loanID, branch, amount FROM customer INNER JOIN loans ON id=loans.cID;

2. Example of query using LEFT OUTER JOIN.

   Left join keyword returns all records from the table (table1) , and the matched records from the right table(table2). The results is NULL from the right side if there is no match.

   Syntax : Select column_name() from table_name left join table_name2

   on table_name.column_name=table_name2.column_name;

   Example : SELECT id, custName, loanID, branch, amount FROM customer LEFT OUTER JOIN loans ON customer.ID=loans.cID;

3. Example of query using RIGHT OUTER JOIN.

   The right join keyword returns all records from the right table (table2) , and the matched records from the left table(table1). The results is NULL from the left side if there is no match.

   Syntax : Select column_name() from table_name1 right join table_name2 on

   table_name1.column_name=table_name2.column_name;

   Example : SELECT id, custName, loanID, branch, amount FROM customer RIGHT OUTER JOIN loans ON customer.ID=loans.cID;

4. Example of query using FULL OUTER JOIN.

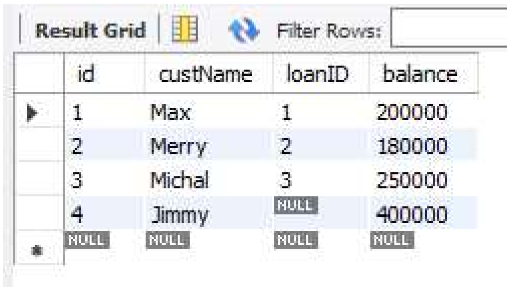
   The full outer join keyword returns all records when there ia a match in left(table1) or right(table2) table records.

   Syntax : Select column_name(s) from table_name1 full join table_name2 on table_name1.column_name=table_name2.column_name where condition;

Example : SELECT id, custName, loanID, branch, amount FROM customer FULL OUTER JOIN loans ON customer.ID=loans.cID;

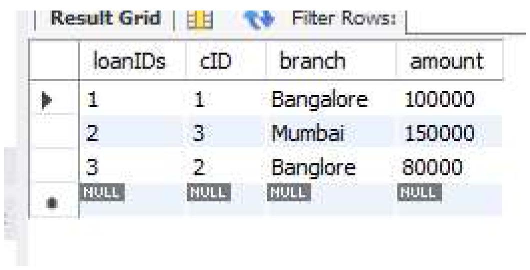
Output:

Customer table:



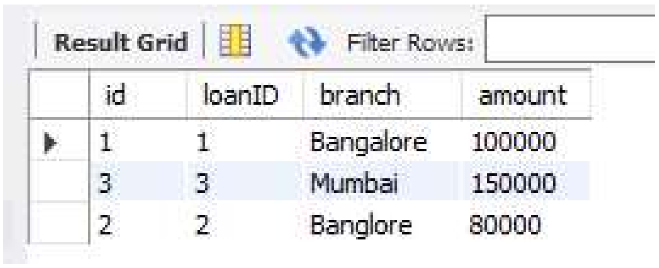
	id	custName	loanID	balance
▶	1	Max	1	200000
	2	Merry	2	180000
	3	Michal	3	250000
	4	Jimmy	NULL	400000
*	NULL	NULL	NULL	NULL

Loan table:



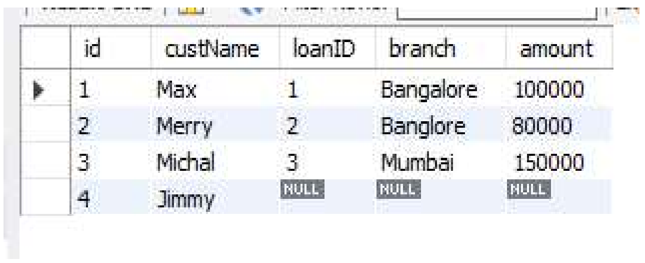
	loanIDs	cID	branch	amount
▶	1	1	Bangalore	100000
	2	3	Mumbai	150000
	3	2	Banglore	80000
*	NULL	NULL	NULL	NULL

1. Inner join



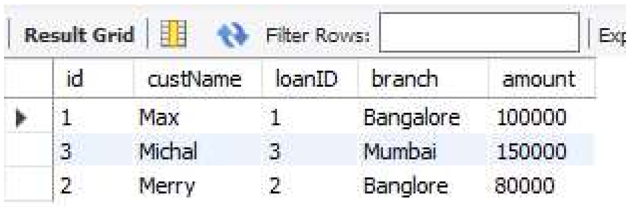
	id	loanID	branch	amount
▶	1	1	Bangalore	100000
	3	3	Mumbai	150000
	2	2	Banglore	80000

2. Left outer join:



	id	custName	loanID	branch	amount
▶	1	Max	1	Bangalore	100000
	2	Merry	2	Banglore	80000
	3	Michal	3	Mumbai	150000
	4	Jimmy	NULL	NULL	NULL

3. Right outer join



	id	custName	loanID	branch	amount
▶	1	Max	1	Bangalore	100000
	3	Michal	3	Mumbai	150000
	2	Merry	2	Banglore	80000