

Experiment – 4

Aim:

To implement basic DML Commands – SELECT, INSERT, UPDATE and DELETE.

Creating Tables to apply DDL Commands:

```
MariaDB [bank]> CREATE TABLE DEPOSIT(ACTNO VARCHAR(5), CNAME VARCHAR(20), BNAME VARCHAR(20),  
AMOUNT INT(8), ADATE DATE);
```

```
MariaDB [bank]> CREATE TABLE BRANCH(BNAME VARCHAR(20), CITY VARCHAR(20));
```

```
MariaDB [bank]> CREATE TABLE CUSTOMERS(CNAME VARCHAR(20), CITY VARCHAR(20));
```

```
MariaDB [bank]> CREATE TABLE BORROW(LOANNO VARCHAR(5), CNAME VARCHAR(20), BNAME VARCHAR(20),  
AMOUNT INT(8));
```

Structure of the tables after creating:

```
MariaDB [bank]> DESC DEPOSIT;
```

Field	Type	Null	Key	Default	Extra
ACTNO	varchar(5)	YES		NULL	
CNAME	varchar(20)	YES		NULL	
BNAME	varchar(20)	YES		NULL	
AMOUNT	int(8)	YES		NULL	
ADATE	date	YES		NULL	

5 rows in set (0.061 sec)

```
MariaDB [bank]> DESC BRANCH;
```

Field	Type	Null	Key	Default	Extra
BNAME	varchar(20)	YES		NULL	
CITY	varchar(20)	YES		NULL	

2 rows in set (0.038 sec)

```
MariaDB [bank]> DESC CUSTOMERS;
```

Field	Type	Null	Key	Default	Extra
CNAME	varchar(20)	YES		NULL	
CITY	varchar(20)	YES		NULL	

2 rows in set (0.045 sec)

```
MariaDB [bank]> DESC BORROW;
```

Field	Type	Null	Key	Default	Extra
LOANNO	varchar(5)	YES		NULL	
CNAME	varchar(20)	YES		NULL	
BNAME	varchar(20)	YES		NULL	
AMOUNT	int(8)	YES		NULL	

4 rows in set (0.040 sec)

1. INSERT QUERIES:

```
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('101', 'SUNIL', 'AJNI', '5000', '96-01-04');
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('102', 'MEHUL', 'KAROLBAGH', '8000', '95-11-17');
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('103', 'MADHURI', 'CHANDNI', '3400', '96-12-17');
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('104', 'PRAMOD', 'M.G.ROAD', '3400', '96-03-27');
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('105', 'SANDIP', 'ANDHERI', '2000', '95-03-31');
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('106', 'SHIVANI', 'VIRAR', '1000', '95-09-05');
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('107', 'KRANTI', 'NEHRU PLACE', '3000', '95-07-02');
MariaDB [bank]> INSERT INTO DEPOSIT VALUES('108', 'MINU', 'POWAI', '5000', '96-10-10');
MariaDB [bank]> INSERT INTO BRANCH VALUES('VRCE', 'NAGPUR');
MariaDB [bank]> INSERT INTO BRANCH VALUES('AJNI', 'NAGPUR');
MariaDB [bank]> INSERT INTO BRANCH VALUES('KAROLBAGH', 'DELHI');
MariaDB [bank]> INSERT INTO BRANCH VALUES('CHANDNI', 'DELHI');
MariaDB [bank]> INSERT INTO BRANCH VALUES('DHARAMPETH', 'NAGPUR');
MariaDB [bank]> INSERT INTO BRANCH VALUES('M.G.ROAD', 'BANGLORE');
MariaDB [bank]> INSERT INTO BRANCH VALUES('ANDHERI', 'MUMBAI');
MariaDB [bank]> INSERT INTO BRANCH VALUES('VIRAR', 'BOMBAY');
MariaDB [bank]> INSERT INTO BRANCH VALUES('NEHRU PLACE', 'DELHI');
MariaDB [bank]> INSERT INTO BRANCH VALUES('POWAI', 'BOMBAY');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('ANIL', 'CALCUTTA');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('MEHUL', 'BARODA');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('MANDAR', 'PATNA');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('MADHURI', 'NAGPUR');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('PRAMOD', 'NAGPUR');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('SANDIP', 'SURAT');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('SHIVANI', 'BOMBAY');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('KRANTI', 'BOMBAY');
MariaDB [bank]> INSERT INTO CUSTOMERS VALUES('NAREN', 'BOMBAY');
MariaDB [bank]> INSERT INTO BORROW VALUES('201', 'ANIL', 'VRCE', 1000);
MariaDB [bank]> INSERT INTO BORROW VALUES('206', 'MEHUL', 'AJNI', 5000);
MariaDB [bank]> INSERT INTO BORROW VALUES('311', 'SUNIL', 'DHARAMPETH', 3000);
MariaDB [bank]> INSERT INTO BORROW VALUES('321', 'MADHURI', 'ANDHERI', 2000);
MariaDB [bank]> INSERT INTO BORROW VALUES('375', 'PRAMOD', 'VIRAR', 8000);
MariaDB [bank]> INSERT INTO BORROW VALUES('481', 'KRANTI', 'NEHRU PLACE', 3600);
```

2. SELECT QUERIES:

Query-1: List all data from table deposit.

```
MariaDB [bank]> SELECT * FROM DEPOSIT;
```

ACTNO	CNAME	BNAME	AMOUNT	ADATE
100	ANIL	VRCE	10000	1995-03-01
101	SUNIL	AJNI	5000	1996-01-04
102	MEHUL	KAROLBAGH	8000	1995-11-17
103	MADHURI	CHANDNI	3400	1996-12-17
104	PRAMOD	M.G.ROAD	3400	1996-03-27
105	SANDIP	ANDHERI	2000	1995-03-31
106	SHIVANI	VIRAR	1000	1995-09-05
107	KRANTI	NEHRU PLACE	3000	1995-07-02
108	MINU	POWAI	5000	1996-10-10

Query-2: List all data from table borrow.

```
MariaDB [bank]> SELECT * FROM BORROW;
```

LOANNO	CNAME	BNAME	AMOUNT
201	ANIL	VRCE	1000
206	MEHUL	AJNI	5000
311	SUNIL	DHARAMPETH	3000
321	MADHURI	ANDHERI	2000
375	PRAMOD	VIRAR	8000
481	KRANTI	NEHRU PLACE	3600

Query-3: List all data from customers.

```
MariaDB [bank]> SELECT * FROM CUSTOMERS;
```

CNAME	CITY
ANIL	CALCUTTA
MEHUL	BARODA
MANDAR	PATNA
MADHURI	NAGPUR
PRAMOD	NAGPUR
SANDIP	SURAT
SHIVANI	BOMBAY
KRANTI	BOMBAY
NAREN	BOMBAY

Query-4: List all data from the table branch.

```
MariaDB [bank]> SELECT * FROM BRANCH;
```

BNAME	CITY
VRCE	NAGPUR
AJNI	NAGPUR
KAROLBAGH	DELHI
CHANDNI	DELHI
DHARAMPETH	NAGPUR
M.G.ROAD	BANGLORE
ANDHERI	MUMBAI
VIRAR	BOMBAY
NEHRU PLACE	DELHI
POWAI	BOMBAY

Query-5: Give account number and amount of depositors.

```
MariaDB [bank]> SELECT ACTNO,AMOUNT FROM DEPOSIT;
```

ACTNO	AMOUNT
100	10000
101	5000
102	8000
103	3400
104	3400
105	2000
106	1000
107	3000
108	5000

Query-6: Give name and account number of depositors.

```
MariaDB [bank]> SELECT CNAME, ACTNO FROM DEPOSIT;
```

CNAME	ACTNO
ANIL	100
SUNIL	101
MEHUL	102
MADHURI	103
PRAMOD	104
SANDIP	105
SHIVANI	106
KRANTI	107
MINU	108

Query-7: Give names of customer.

```
MariaDB [bank]> SELECT CNAME FROM CUSTOMERS;
```

CNAME
ANIL
MEHUL
MANDAR
MADHURI
PRAMOD
SANDIP
SHIVANI
KRANTI
NAREN

Query-8: Give names of branches.

```
MariaDB [bank]> SELECT BNAME FROM BRANCH;
```

BNAME
VRCE
AJNI
KAROLBAGH
CHANDNI
DHARAMPETH
M.G.ROAD
ANDHERI
VIRAR
NEHRU PLACE
POWAI

Query-9: Give me off borrowers.

```
MariaDB [bank]> SELECT CNAME FROM BORROW;
```

CNAME
ANIL
MEHUL
SUNIL
MADHURI
PRAMOD
KRANTI

Query-10: Given names of customers living in city Nagpur.

```
MariaDB [bank]> SELECT CNAME FROM CUSTOMERS WHERE CITY='NAGPUR';
```

CNAME
MADHURI
PRAMOD

3. UPDATE QUERIES:

Query-1: Give 10% interest to all depositors.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = AMOUNT + 0.1*AMOUNT;
```

```
MariaDB [bank]> SELECT CNAME, AMOUNT FROM DEPOSIT;
```

CNAME	AMOUNT
ANIL	11000
SUNIL	5500
MEHUL	8800
MADHURI	3740
PRAMOD	3740
SANDIP	2200
SHIVANI	1100
KRANTI	3300
MINU	5500

Query-2: Give 10% interest to all depositors having branch VRCE.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = AMOUNT + 0.1*AMOUNT WHERE BNAME = "VRCE";
MariaDB [bank]> SELECT BNAME, AMOUNT FROM DEPOSIT WHERE BNAME = "VRCE";
```

BNAME	AMOUNT
VRCE	12100

QUERY-3: Give 10% interest to all depositors living in Nagpur.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = AMOUNT + 0.1*AMOUNT WHERE CNAME IN (SELECT CNAME FROM CUSTOMERS WHERE CITY = "NAGPUR");
```

```
MariaDB [bank]> SELECT * FROM DEPOSIT WHERE CNAME IN (SELECT CNAME FROM CUSTOMERS WHERE CITY = "NAGPUR");
```

ACTNO	CNAME	BNAME	AMOUNT	ADATE
103	MADHURI	CHANDNI	4114	1996-12-17
104	PRAMOD	M.G.ROAD	4114	1996-03-27

Query-4: Give 10% interest to all depositors living in Nagpur and having branch city Bombay.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = AMOUNT + 0.1*AMOUNT WHERE CNAME IN (SELECT D.CNAME FROM DEPOSIT D INNER JOIN CUSTOMERS C ON D.CNAME = C.CNAME INNER JOIN BRANCH B ON C.CITY = B.CITY WHERE C.CITY = "NAGPUR" AND B.CITY = "BOMBAY" );
```

Query-5: Add rupees 100 to the deposit of Anil and assign it to Sunil.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = (SELECT AMOUNT FROM DEPOSIT WHERE CNAME = "ANIL") + 100 WHERE CNAME = "SUNIL";
```

```
MariaDB [bank]> SELECT CNAME,AMOUNT FROM DEPOSIT WHERE CNAME="ANIL" OR CNAME="SUNIL";
```

CNAME	AMOUNT
ANIL	12100
SUNIL	12200

Query-6: Assign to the deposit of Anil the maximum deposit from VRCE branch.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = ( SELECT MAX(AMOUNT) FROM DEPOSIT WHERE BNAME = "VRCE" ) WHERE CNAME = "ANIL";
```

```
MariaDB [bank]> SELECT CNAME,AMOUNT FROM DEPOSIT WHERE CNAME = "ANIL";
```

CNAME	AMOUNT
ANIL	12100

Query-7: Change the living city of VRCE branch borrowers to Nagpur.

```
MariaDB [bank]> UPDATE CUSTOMERS SET CITY = "NAGPUR" WHERE CNAME IN (SELECT CNAME FROM BORROW WHERE BNAME = "VRCE");
```

```
MariaDB [bank]> SELECT * FROM CUSTOMERS WHERE CITY = "NAGPUR";
```

CNAME	CITY
ANIL	NAGPUR
MADHURI	NAGPUR
PRAMOD	NAGPUR

Query-8: Update deposit of Anil, give him maximum deposit from depositors in living city Nagpur.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = (SELECT MAX(D2.AMOUNT) FROM DEPOSIT D2 INNER JOIN CUSTOMERS C WHERE C.CITY = "NAGPUR") WHERE CNAME = "ANIL";
```

```
MariaDB [bank]> SELECT CNAME,AMOUNT FROM DEPOSIT WHERE CNAME = "ANIL";
```

CNAME	AMOUNT
ANIL	12200

Query-10: Deposit the sum of the deposits of Sunil and Mehul in the account of Anil.

```
MariaDB [bank]> UPDATE DEPOSIT SET AMOUNT = (SELECT SUM(AMOUNT) FROM DEPOSIT WHERE CNAME IN ("SUNIL","MEHUL")) WHERE CNAME = "ANIL";
```

```
MariaDB [bank]> SELECT CNAME,AMOUNT FROM DEPOSIT WHERE CNAME IN ("ANIL","SUNIL","MEHUL");
```

CNAME	AMOUNT
ANIL	21000
SUNIL	12200
MEHUL	8800

4. DELETE QUERIES:

Query-1: Delete a customer.

```
MariaDB [bank]> DELETE FROM CUSTOMERS WHERE CNAME = "SANDIP";
```

Query-2: Delete depositors having deposit less than 500.

```
MariaDB [bank]> DELETE FROM DEPOSIT WHERE AMOUNT < 500;
```

Query-3: Delete deposit of Anil if Mehul is not a depositor.

```
MariaDB [bank]> DELETE FROM DEPOSIT WHERE CNAME = "ANIL" AND CNAME NOT IN ( SELECT CNAME FROM DEPOSIT WHERE CNAME = "MEHUL" );
```

Query-4: Delete branches having average deposit less than 5000.

```
MariaDB [bank]> DELETE FROM BRANCH WHERE BNAME IN ( SELECT BNAME FROM DEPOSIT GROUP BY BNAME HAVING AVG(AMOUNT) < 5000 );
```

Query-5: Delete branches having maximum loan more than 5000.

```
MariaDB [bank]> DELETE FROM BRANCH WHERE BNAME IN ( SELECT BNAME FROM BORROW GROUP BY BNAME HAVING MAX(AMOUNT) > 5000 );
```

Query-6: Delete branches having deposit from Nagpur.

```
MariaDB [bank]> DELETE FROM BRANCH WHERE BNAME IN ( SELECT C.BNAME FROM CUSTOMERS C INNER JOIN DEPOSIT D ON C.CNAME = D.CNAME WHERE C.CITY = "NAGPUR" );
```

Query-7: Delete customers from Bombay city.

```
MariaDB [bank]> DELETE FROM CUSTOMERS WHERE CITY = "BOMBAY";
```

Query-8: Delete borrower having loan more than 10000.

```
MariaDB [bank]> DELETE FROM BORROW WHERE AMOUNT > 10000;
```

Query-9: Delete borrower having branch name Chandni.

```
MariaDB [bank]> DELETE FROM BORROW WHERE BNAME = "CHANDNI";
```

Query-10: Delete deposit of Vijay.

```
MariaDB [bank]> DELETE FROM DEPOSIT WHERE CNAME = "VIJAY";
```

Experiment – 5

Aim:

Write the DML commands for implementing GROUP BY, HAVING and ORDER BY.

GROUP BY and HAVING:

Query-1: List the branches having sum of deposit more than 5000.

```
MariaDB [BANK]> SELECT BNAME FROM DEPOSIT WHERE BNAME IN (SELECT BNAME FROM BRANCH
WHERE CITY = "BOMBAY") GROUP BY BNAME HAVING SUM(AMOUNT) > 5000;
+-----+
| BNAME |
+-----+
| POWAI |
+-----+
```

Query-2: List the branches having a sum of deposit more than 5000 and located in city Bombay.

```
MariaDB [bank]> SELECT BNAME,AMOUNT FROM DEPOSIT GROUP BY BNAME HAVING SUM(AMOUNT) > 5000;
+-----+-----+
| BNAME | AMOUNT |
+-----+-----+
| AJNI   | 12200  |
| KAROLBAGH | 8800  |
| POWAI  | 5500   |
| VRCE   | 21000  |
+-----+-----+
```

Query-3: List the names of customers having deposit in the branches where the average deposit is more than 5000.

```
MariaDB [BANK]> SELECT CNAME,BNAME FROM DEPOSIT WHERE BNAME IN (SELECT BNAME FROM DEPOSIT GROUP
BY BNAME HAVING AVG(AMOUNT) > 5000);
+-----+-----+
| CNAME | BNAME |
+-----+-----+
| ANIL  | VRCE  |
| SUNIL | AJNI  |
| MEHUL | KAROLBAGH |
| MINU  | POWAI |
+-----+-----+
```

Query-4: List the names of customers having maximum deposit.

```
MariaDB [BANK]> SELECT BNAME FROM DEPOSIT GROUP BY BNAME HAVING COUNT(DISTINCT CNAME) =
(SELECT MAX(DepositorsCount) FROM (SELECT COUNT(DISTINCT CNAME) AS DepositorsCount FRO
M DEPOSIT GROUP BY BNAME) AS Subquery);
+-----+
| BNAME |
+-----+
| VIRAR |
+-----+
```

Query-5: List the names of customers having maximum deposit in the customers living in Nagpur.

```
MariaDB [BANK]> SELECT COUNT(CNAME) AS DepositorsCount FROM DEPOSIT WHERE CNAME IN (SELECT CNAME FROM CUSTOMERS WHERE CITY = "NAGPUR");
```

DepositorsCount
3

Query-6: List the name of branches having highest number of depositors.

```
MariaDB [BANK]> SELECT BNAME FROM DEPOSIT GROUP BY BNAME HAVING COUNT(CNAME) > 5;  
Empty set (0.001 sec)
```

Query-7: Count the number of depositors living in Nagpur.

```
MariaDB [BANK]> SELECT CNAME,AMOUNT FROM DEPOSIT WHERE BNAME = "VRCE" GROUP BY CNAME HAVING AMOUNT > ALL (SELECT AMOUNT FROM DEPOSIT WHERE BNAME = "VRCE");  
Empty set (0.001 sec)
```

Query-8: Give names of customers in VRCE branch having more deposit than all customers from same branch.

```
MariaDB [BANK]> SELECT CITY,COUNT(BNAME) FROM BRANCH GROUP BY CITY HAVING COUNT(*) = (SELECT MAX(BranchCount) FROM (SELECT COUNT(*) AS BranchCount FROM BRANCH GROUP BY CITY) AS Subquery);
```

CITY	COUNT(BNAME)
DELHI	3
NAGPUR	3

Query-9: Give name of branch where number of depositors is more than five.

```
MariaDB [BANK]> SELECT CNAME,AMOUNT FROM DEPOSIT WHERE AMOUNT = (SELECT MAX(AMOUNT) FROM DEPOSIT);
```

CNAME	AMOUNT
ANIL	21000

Query-10: Give names of cities in which the maximum number of branches are located.

```
MariaDB [BANK]> SELECT CNAME,AMOUNT FROM DEPOSIT WHERE AMOUNT = (SELECT MAX(AMOUNT) FROM DEPOSIT WHERE CNAME IN (SELECT CNAME FROM CUSTOMERS WHERE CITY = "NAGPUR"));
```

CNAME	AMOUNT
ANIL	21000

ORDER BY:

Query-1: List the branches according to their deposit amount in ascending order.

```
MariaDB [BANK]> SELECT BNAME,AMOUNT FROM DEPOSIT GROUP BY BNAME ORDER BY AMOUNT ASC;
```

BNAME	AMOUNT
VIRAR	1100
ANDHERI	2200
NEHRU PLACE	3300
M.G.ROAD	4525
CHANDNI	4525
POWAI	5500
KAROLBAGH	8800
AJNI	12200
VRCE	21000

Query-2: List the customers according to their loan amount in descending order.

```
MariaDB [BANK]> SELECT CNAME,AMOUNT FROM BORROW GROUP BY CNAME ORDER BY AMOUNT DESC;
```

CNAME	AMOUNT
PRAMOD	8000
MEHUL	5000
KRANTI	3600
SUNIL	3000
MADHURI	2000
ANIL	1000

Experiment – 6

Aim:

Write the queries to implement the joins.

JOIN Queries:

Query-1: Give name of customers living in city Bombay and having branch city Nagpur.

```
MariaDB [bank]> SELECT C.CNAME FROM CUSTOMERS C JOIN BRANCH B1 ON C.CITY = "BOMBAY" AND B1.CITY = "NAGPUR" AND C.CNAME = B1.BNAME;  
Empty set (0.001 sec)
```

Query-2: Give names of customers having the same living city as their branch city.

```
MariaDB [bank]> SELECT C.CNAME FROM CUSTOMERS C JOIN BRANCH B ON C.CITY = B.CITY AND C.CNAME = B.BNAME;  
Empty set (0.001 sec)
```

Query-3: Give names of customers who are borrowers as well as depositors and having living city Nagpur.

```
MariaDB [bank]> SELECT C.CNAME FROM CUSTOMERS C JOIN DEPOSIT D ON C.CNAME = D.CNAME JOIN BORROW B ON C.CNAME = B.CNAME WHERE C.CITY = "NAGPUR";  
+-----+  
| CNAME |  
+-----+  
| ANIL  |  
| MADHURI |  
| PRAMOD |  
+-----+
```

Query-4: Give names of customers who are depositors and have the same branch city as that of Sunil.

```
MariaDB [bank]> SELECT C.CNAME FROM CUSTOMERS C JOIN DEPOSIT D ON C.CNAME = D.CNAME JOIN BRANCH B1 ON C.CNAME = "SUNIL" AND B1.BNAME = "SUNIL" AND D.BNAME = B1.CITY;  
Empty set (0.001 sec)
```

Query-5: Give names of depositors having the same living city as that of Anil, and having deposit amount greater than 2000.

```
MariaDB [bank]> SELECT C.CNAME FROM CUSTOMERS C JOIN DEPOSIT D ON C.CNAME = D.CNAME WHERE C.CITY = (SELECT CITY FROM CUSTOMERS WHERE CNAME = "ANIL") AND D.AMOUNT > 2000;  
+-----+  
| CNAME |  
+-----+  
| ANIL  |  
| MADHURI |  
| PRAMOD |  
+-----+
```

Query-6: Retrieve the list of customers who have made a deposit but have not borrowed any money, along with the corresponding branch names.

```
MariaDB [bank]> SELECT C.CNAME, B.BNAME FROM CUSTOMERS C JOIN DEPOSIT D ON C.CNAME = D.CNAME LEFT JOIN BORROW R ON C.CNAME = R.CNAME JOIN BRANCH B ON D.BNAME = B.BNAME WHERE R.CNAME IS NULL;  
+-----+  
| CNAME | BNAME |  
+-----+  
| SANDIP | ANDHERI |  
| SHIVANI | VIRAR  |  
+-----+
```

Query-7: Find the customers who have borrowed money and the corresponding branch names where they have borrowed from.

```
MariaDB [bank]> SELECT C.CNAME, B.BNAME FROM CUSTOMERS C JOIN BORROW
R ON C.CNAME = R.CNAME JOIN BRANCH B ON R.BNAME = B.BNAME;
```

CNAME	BNAME
ANIL	VRCE
MEHUL	AJNI
MADHURI	ANDHERI
PRAMOD	VIRAR
KRANTI	NEHRU PLACE

Query-8: Retrieve the list of branches along with the total amount deposited in each branch.

```
MariaDB [bank]> SELECT B.BNAME, SUM(D.AMOUNT) AS TotalDeposit FROM BRANCH B JOIN
DEPOSIT D ON B.BNAME = D.BNAME GROUP BY B.BNAME;
```

BNAME	TotalDeposit
AJNI	12200
ANDHERI	2200
CHANDNI	4525
KAROLBAGH	8800
M.G.ROAD	4525
NEHRU PLACE	3300
POWAI	5500
VIRAR	4100
VRCE	21000

Query-9: Find the customers who have both made a deposit and borrowed money, along with the corresponding branch names.

```
MariaDB [bank]> SELECT C.CNAME, B.BNAME FROM CUSTOMERS C JOIN DEPOSIT D ON C.CNAME
= D.CNAME JOIN BORROW R ON C.CNAME = R.CNAME JOIN BRANCH B ON D.BNAME = B.BNAME;
```

CNAME	BNAME
ANIL	VRCE
MEHUL	KAROLBAGH
MADHURI	CHANDNI
PRAMOD	M.G.ROAD
KRANTI	NEHRU PLACE

Query-10: Retrieve the list of customers along with their corresponding branch names where they have made a deposit.

```
MariaDB [bank]> SELECT C.CNAME, B.BNAME FROM CUSTOMERS C JOIN DEPOSIT
D ON C.CNAME = D.CNAME JOIN BRANCH B ON D.BNAME = B.BNAME;
```

CNAME	BNAME
ANIL	VRCE
MEHUL	KAROLBAGH
MADHURI	CHANDNI
PRAMOD	M.G.ROAD
SANDIP	ANDHERI
SHIVANI	VIRAR
KRANTI	NEHRU PLACE

Experiment – 7

Aim:

Write the queries to implement the subqueries.

Tool Used: MariaDB.

Queries:

Query-1: Find the customers who live in the same city as the branch they made a deposit.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS WHERE CITY = (SELECT CITY FROM BRANCH WHERE  
BNAME = (SELECT BNAME FROM DEPOSIT WHERE CNAME = CUSTOMERS.CNAME));
```

CNAME
ANIL
SHIVANI

Query-2: Retrieve the customers who have made a deposit greater than the average deposit amount.

```
MariaDB [BANK]> SELECT CNAME FROM DEPOSIT WHERE AMOUNT > (SELECT AVG(AMOUNT) FROM DEPOSIT);
```

CNAME
ANIL
SUNIL
MEHUL

Query-3: Get the branches where the total amount borrowed is more than the average amount borrowed.

```
MariaDB [BANK]> SELECT BNAME FROM BORROW WHERE AMOUNT > (SELECT AVG(AMOUNT) FROM BORROW);
```

BNAME
AJNI
VIRAR

Query-4: Find the customers who have not made any deposits.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS WHERE CNAME NOT IN (SELECT DISTINCT CNAME  
FROM DEPOSIT);
```

CNAME
MANDAR
NAREN

Query-5: Retrieve the branches where no customers have borrowed any amount.

```
MariaDB [BANK]> SELECT BNAME FROM BRANCH WHERE BNAME NOT IN (SELECT DISTINCT BNAME
FROM BORROW);
```

BNAME
KAROLBAGH
CHANDNI
M.G.ROAD
POWAI

Query-6: Get the customers who have made deposits in all branches.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS WHERE (SELECT COUNT(DISTINCT BNAME
) FROM DEPOSIT WHERE DEPOSIT.CNAME = CUSTOMERS.CNAME) = (SELECT COUNT(DISTINCT
BNAME) FROM BRANCH);
Empty set (0.004 sec)
```

Query-7: Find the branches where the total amount borrowed is greater than the total amount deposited.

```
MariaDB [BANK]> SELECT BNAME FROM (SELECT BNAME, SUM(AMOUNT) AS TOTAL_BORROWED
FROM BORROW GROUP BY BNAME) AS B WHERE B.TOTAL_BORROWED > (SELECT COALESCE(SU
M(AMOUNT), 0) FROM DEPOSIT WHERE BNAME = B.BNAME GROUP BY BNAME);
```

BNAME
NEHRU PLACE
VIRAR

Query-8: Retrieve the customers who have made a deposit at a branch located in their city of residence.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS WHERE CNAME IN (SELECT D.CNAME FROM DEPOS
IT AS D INNER JOIN BRANCH AS B ON D.BNAME = B.BNAME WHERE CUSTOMERS.CITY = B.CITY);
```

CNAME
ANIL
SHIVANI

Query-9: Get the branches where the average amount borrowed is greater than the average amount deposited.

```
MariaDB [BANK]> SELECT BNAME FROM (SELECT BNAME, AVG(AMOUNT) AS AVG_BORROWED FROM BOR
ROW GROUP BY BNAME) AS B WHERE B.AVG_BORROWED > (SELECT AVG(AMOUNT) FROM DEPOSIT);
```

BNAME
VIRAR

Query-10: Find the customers who have borrowed more than the highest deposit amount made at any branch.

```
MariaDB [BANK]> SELECT CNAME FROM BORROW WHERE AMOUNT > (SELECT MAX(AMOUNT) FROM DEPOSIT);
Empty set (0.000 sec)
```

Experiment – 8

Aim:

Write the queries to implement the set operations.

Tool used: MariaDB.

Set operations Queries:

Query-1: Retrieve a list of all customer names who have made a deposit or live in the same city as their branch.

```
MariaDB [BANK]> SELECT CNAME FROM DEPOSIT UNION SELECT CNAME FROM CUSTOMERS WHERE CITY IN (
SELECT CITY FROM BRANCH);
```

CNAME
ANIL
SUNIL
MEHUL
MADHURI
PRAMOD
SANDIP
SHIVANI
KRANTI
MINU
ANKITA
NAREN

Query-2: Retrieve a list of customer names who have made a deposit and also live in the same city as their branch.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS WHERE CITY IN (SELECT CITY FROM BRANCH) INTERSE
CT SELECT CNAME FROM DEPOSIT;
```

CNAME
ANIL
MADHURI
PRAMOD
SHIVANI
KRANTI

Query-3: Retrieve a combined list of all customer names and branch names from the Customers and Branch tables.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS UNION SELECT BNAME FROM BRANCH;
```

CNAME
ANIL
MEHUL
MANDAR
MADHURI
PRAMOD
SANDIP
SHIVANI
KRANTI
NAREN
VRCE
AJNI
KAROLBAGH
CHANDNI
DHARAMPETH
M. G. ROAD
ANDHERI
VIRAR
NEHRU PLACE
POWAI

Query-4: Retrieve a combined list of all customer names and branch names from the Customers and Branch tables, including duplicates.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS UNION SELECT BNAME FROM BRANCH;
```

CNAME
ANIL
MEHUL
MANDAR
MADHURI
PRAMOD
SANDIP
SHIVANI
KRANTI
NAREN
VRCE
AJNI
KAROLBAGH
CHANDNI
DHARAMPETH
M.G. ROAD
ANDHERI
VIRAR
NEHRU PLACE
POWAI

Query-5: Retrieve a list of all unique branch names from the Branch table.

```
MariaDB [BANK]> SELECT BNAME FROM BRANCH;
```

BNAME
VRCE
AJNI
KAROLBAGH
CHANDNI
DHARAMPETH
M.G. ROAD
ANDHERI
VIRAR
NEHRU PLACE
POWAI

Query-6: Retrieve a list of all customer names who have made a deposit but do not live in the same city as their branch.

```
MariaDB [BANK]> SELECT CNAME FROM DEPOSIT EXCEPT SELECT CNAME FROM CUSTOMERS WHERE CITY IN (SELECT CITY FROM BRANCH);
```

CNAME
SUNIL
MEHUL
SANDIP
MINU
ANKITA

Query-7: Retrieve a list of all unique customer names from the Customers table.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS;
```

CNAME
ANIL
MEHUL
MANDAR
MADHURI
PRAMOD
SANDIP
SHIVANI
KRANTI
NAREN

Query-8: Retrieve a list of all customer names who have made a deposit and also live in the same city as their branch, including duplicates.

```
MariaDB [BANK]> SELECT CNAME FROM CUSTOMERS WHERE CITY IN (SELECT CITY FROM BRANCH) INTERSECT  
ALL SELECT CNAME FROM DEPOSIT;
```

CNAME
ANIL
MADHURI
PRAMOD
SHIVANI
KRANTI

Query-9: Retrieve a list of all customer names who have made a deposit but do not live in the same city as their branch, including duplicates.

```
MariaDB [BANK]> SELECT CNAME FROM DEPOSIT EXCEPT ALL SELECT CNAME FROM CUSTOMERS WHERE CITY  
IN (SELECT CITY FROM BRANCH);
```

CNAME
SUNIL
MEHUL
SANDIP
MINU
ANKITA

Query-10: Retrieve a list of all customer names who have made a deposit or live in the same city as their branch, including duplicates.

```
MariaDB [BANK]> SELECT CNAME FROM DEPOSIT UNION ALL SELECT CNAME FROM CUSTOMERS WHERE CITY IN (SELECT CITY FROM BRANCH);
```

CNAME
ANIL
SUNIL
MEHUL
MADHURI
PRAMOD
SANDIP
SHIVANI
KRANTI
MINU
ANKITA
ANIL
MADHURI
PRAMOD
SHIVANI
KRANTI
NAREN