EXPERIMENT NO.5 : AGGREGATE FUNCTION

1.List total loan

SELECT SUM (AMOUNT) FROM BORROW;

2.List total deposit

SELECT SUM (AMOUNT) FROM DEPOSIT;

3.List total loan taken from KAROLBAGH branch

SELECT MAX(AMOUNT) FROM BORROW WHERE BNAME ='KAROLBAGH';

4.List total deposit of customers having account date later than 1-Jan-96

SELECT SUM(AMOUNT) from deposit where adate>'1995-03-01';

5.List total deposit of customers living in city NAGPUR

SELECT SUM(D1.AMOUNT) FROM DEPOSIT D1 , CUSTOMER C1 WHERE C1.CITY = 'NAGPUR' AND C1.CNAME = D1.CNAME;

6.List maximum deposit of customer living in Bombay

SELECT MAX(D1.AMOUNT) FROM DEPOSIT D1 , CUSTOMER C1 WHERE C1.CITY = 'Bombay' AND C1.CNAME = D1.CNAME;

7.List total deposit of customer having branch in BOMBAY

SELECT SUM (AMOUNT) from deposit,BRANCH where city='BOMBAY';

8.Count total number of branch cities

SELECT COUNT(DISTINCT (CITY)) FROM BRANCH ;

9.Count total number of customers cities

SELECT count(city) from CUSTOMER;

10.Give branch names and branch wise deposit

SELECT BNAME , SUM(AMOUNT) FROM DEPOSIT GROUP BY BNAME;

11.Give city wise name and branch wise deposit

SELECT C1.CITY , SUM(D1.AMOUNT) FROM CUSTOMER C1 , DEPOSIT D1 WHERE D1.CNAME = C1.CNAME GROUP BY C1.CITY;

12.Give the branch wise loan of customer living in NAGPUR

SELECT BNAME , SUM(AMOUNT) FROM BORROW,CUSTOMER WHERE city ='NAGPUR' GROUP BY BNAME;

13.Count total number of customers

SELECT count(cname) from CUSTOMER;

14.Count total number of depositors branch wise

SELECT BName, count (*)from DEPOSIT, CUSTOMER where deposit.CNAME = CUSTOMER.CNAME group by BNAME

15.Count total number of depositors branch wise

SELECT BName, count (*)from DEPOSIT, CUSTOMER where deposit.CNAME = CUSTOMER.CNAME group by BNAME

16.Give maximum loan from branch VRCE

SELECT MAX(AMOUNT) FROM BORROW WHERE BNAME ='VRCE';

17.Give the number of customers who are depositors as well as borrowers

SELECT COUNT(DISTINCT (CNAME)) FROM CUSTOMER WHERE CNAME IN ((SELECT CNAME FROM DEPOSIT) INTERSECT (SELECT CNAME FROM BORROW));

OUTPUT

```
mysql> SELECT SUM(AMOUNT) FROM BORROW;
+-------------+
| SUM(AMOUNT) |
+-------------+
|    22000.00 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT SUM(AMOUNT) FROM DEPOSIT;
+-------------+
| SUM(AMOUNT) |
+-------------+
|    17200.00 |
+-------------+
1 row in set (0.00 sec)

mysql>
mysql> SELECT MAX(AMOUNT) FROM BORROW WHERE BNAME ='KAROLBAGH';
+-------------+
| MAX(AMOUNT) |
+-------------+
|        NULL |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT SUM(AMOUNT) from deposit where adate>'1995-03-01';
+-------------+
| SUM(AMOUNT) |
+-------------+
|    16200.00 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT SUM(D1.AMOUNT) FROM DEPOSIT D1 , CUSTOMER C1 WHERE C1.CITY = 'NAGPUR' AND C1.CNAME = D1.CNAME;
+----------------+
| SUM(D1.AMOUNT) |
+----------------+
|        4200.00 |
+----------------+
1 row in set (0.00 sec)

mysql> SELECT MAX(D1.AMOUNT) FROM DEPOSIT D1 , CUSTOMER C1 WHERE C1.CITY = 'Bombay' AND C1.CNAME = D1.CNAME;
+----------------+
| MAX(D1.AMOUNT) |
+----------------+
|        5000.00 |
+----------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT SUM(AMOUNT) from deposit,BRANCH where city='BOMBAY';
+-------------+
| SUM(AMOUNT) |
+-------------+
|    34400.00 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT COUNT(DISTINCT (CITY)) FROM BRANCH ;
+------------------------+
| COUNT(DISTINCT (CITY)) |
+------------------------+
|                      4 |
+------------------------+
1 row in set (0.00 sec)

mysql> SELECT count(city) from CUSTOMER;
+-------------+
| count(city) |
+-------------+
|          10 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT BNAME , SUM(AMOUNT) FROM DEPOSIT GROUP BY BNAME;
+--------------+-------------+
| BNAME        | SUM(AMOUNT) |
+--------------+-------------+
| AJNI         |      500.00 |
| ANDHERI      |     2000.00 |
| CHANDNI      |     1200.00 |
| KAROLBAGH    |     3500.00 |
| MG-ROAD      |     3000.00 |
| NEHRU-PALACE |     5000.00 |
| VRCE         |     2000.00 |
+--------------+-------------+
7 rows in set (0.00 sec)

mysql> SELECT C1.CITY , SUM(D1.AMOUNT) FROM CUSTOMER C1 , DEPOSIT D1 WHERE D1.CNAME = C1.CNAME GROUP BY C1.CITY;
+----------+----------------+
| CITY     | SUM(D1.AMOUNT) |
+----------+----------------+
| CALCUTTA |        1000.00 |
| DELHI    |         500.00 |
| BARODA   |        3500.00 |
| NAGPUR   |        4200.00 |
| SURAT    |        2000.00 |
| BOMBAY   |        6000.00 |
+----------+----------------+
```

```
mysql> SELECT BNAME , SUM(AMOUNT) FROM BORROW,CUSTOMER  WHERE city ='NAGPUR' GROUP BY BNAME;
+--------------+-------------+
| BNAME        | SUM(AMOUNT) |
+--------------+-------------+
| VRCE         |    18000.00 |
| AJNI         |    10000.00 |
| DHARAMPETH   |     6000.00 |
| ANDHERI      |     4000.00 |
| NEHRU-PALACE |     6000.00 |
+--------------+-------------+
5 rows in set (0.00 sec)

mysql> SELECT count(cname) from CUSTOMER;
+--------------+
| count(cname) |
+--------------+
|           10 |
+--------------+
1 row in set (0.00 sec)
```

```
K.CNAME group by BNAME  at line 1
mysql> SELECT BNAME, count(*) from DEPOSIT, CUSTOMER where deposit.CNAME = CUSTOMER.CNAME group by BNAME;
+--------------+----------+
| BNAME        | count(*) |
+--------------+----------+
| VRCE         |        2 |
| AJNI         |        1 |
| KAROLBAGH    |        1 |
| CHANDNI      |        1 |
| MG-ROAD      |        1 |
| ANDHERI      |        1 |
| NEHRU-PALACE |        1 |
+--------------+----------+
7 rows in set (0.01 sec)

mysql> SELECT MAX(AMOUNT) FROM BORROW WHERE BNAME ='VRCE';
+-------------+
| MAX(AMOUNT) |
+-------------+
|     8000.00 |
+-------------+
1 row in set (0.00 sec)
```

EXPERIMENT NO.6 : SET OPERATIONS

1. List all the customers who are depositors but not borrowers.

SELECT CNAME FROM DEPOSIT MINUS SELECT CNAME FROM BORROW;

2. List all the customers who are both depositors and borrowers

SELECT CNAME FROM DEPOSIT UNION (SELECT CNAME FROM BORROW);

3. List all the depositors having deposit in all the branches where Sunil is having Account

SELECT D1.CNAME FROM DEPOSIT D1 WHERE D1.BNAME IN (SELECT D2.BNAME FROM DEPOSIT D2 WHERE D2.CNAME = 'SUNIL');

4. List all the customers living in city NAGPUR and having branch city BOMBAY or DELHI

SELECT C1.CNAME FROM CUSTOMER C1,DEPOSIT D1, BRANCH B1 WHERE C1.CITY = 'NAGPUR' AND C1.CNAME = D1.CNAME AND D1.BNAME = B1.BNAME AND B1.CITY IN ('BOMBAY','DELHI');

5. List all the depositors living in city NAGPUR

SELECT Distinct(CUSTOMER.CNAME) from CUSTOMER,DEPOSIT WHERE City='NAGPUR';

6. List all the depositors living in the city NAGPUR and having branch in city BOMBAY

SELECT C1.CNAME FROM CUSTOMER C1,DEPOSIT D1, BRANCH B1 WHERE C1.CITY = 'NAGPUR' AND C1.CNAME = D1.CNAME AND D1.BNAME = B1.BNAME AND B1.CITY IN ('BOMBAY');

7. List the branch cities of Anil and Sunil

SELECT B1.CITY FROM DEPOSIT D1, BRANCH B1 WHERE D1.BNAME = B1.BNAME AND D1.CNAME IN ('SUNIL' ,'ANIL');

11. List all the cities where branches of Anil and Sunil are locate

SELECT B1.CITY FROM BRANCH B1 WHERE B1.BNAME IN (SELECT D1.BNAME FROM DEPOSIT D1 WHERE D1.CNAME IN ('ANIL','SUNIL'));

OUTPUT

```
mysql> SELECT B1.CITY FROM DEPOSIT D1, BRANCH B1 WHERE D1.BNAME = B1.BNAME AND D1.CNAME IN ('SUNIL' ,'ANIL');
+--------+
| CITY   |
+--------+
| NAGPUR |
| NAGPUR |
+--------+
2 rows in set (0.00 sec)

mysql> SELECT B1.CITY FROM BRANCH B1 WHERE B1.BNAME IN (SELECT D1.BNAME FROM DEPOSIT D1 WHERE D1.CNAME IN ('ANIL','SUNIL'));
+--------+
| CITY   |
+--------+
| NAGPUR |
| NAGPUR |
+--------+
2 rows in set (0.00 sec)
```

EXPERIMENT NO.7 : JOIN OR CARTESIAN PRODUCT

1.Give name of customers having living city BOMBAY and branch city NAGPUR

SELECT D1.CNAME,D1.BNAME,C1.CNAME,C1.CITY,B1.CITY,B1.BNAME FROM DEPOSIT D1,CUSTOMER C1,BRANCH B1 WHERE C1.CITY = 'BOMBAY' AND B1.CITY = 'NAGPUR' AND D1.CNAME = C1.CNAME AND D1.BNAME = B1.BNAME;

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

SELECT distinct(customer.CNAME), BRANCH.CITY FROM BRANCH, customer WHERE BRANCH.city = customer.city;

3.Give names of customers who are borrowers as well as depositors and having city NAGPUR.

SELECT C1.CNAME FROM CUSTOMER C1,DEPOSIT D1,BORROW B1 WHERE C1.CITY='NAGPUR' AND C1.CNAME=D1.CNAME AND D1.CNAME = B1.CNAME;

4.Give names of borrowers having deposit amount greater than 1000 and loan amount greater than 2000.

SELECT BR1.CNAME, BR1.AMOUNT, D1.CNAME, D1.AMOUNT FROM BORROW BR1,DEPOSIT D1 WHERE D1.CNAME = BR1.CNAME AND D1.AMOUNT > 1000 AND BR1.AMOUNT > 2000;

5.Give names of depositors having the same branch as the branch of Sunil

SELECT D1.CNAME FROM DEPOSIT D1 WHERE D1.BNAME IN (SELECT D2.BNAME FROM DEPOSIT D2 WHERE D2.CNAME = 'SUNIL');

6.Give names of borrowers having loan amount greater than the loan amount of Pramod

SELECT BR1.CNAME,BR1.AMOUNT FROM BORROW BR1 WHERE BR1.AMOUNT > ALL (SELECT BR2.AMOUNT FROM BORROW BR2 WHERE BR2.CNAME = 'PRAMOD');

7.Give the name of the customer living in the city where branch of depositor Sunil is located.

SELECT C.CNAME FROM CUSTOMER C WHERE C.CITY IN (SELECT B.CITY FROM BRANCH B WHERE B.BNAME IN (SELECT D.BNAME FROM DEPOSIT D WHERE D.CNAME='SUNIL'));

8.Give branch city and living city of Pramod

SELECT B1.CITY , C1.CITY FROM BRANCH B1,CUSTOMER C1, DEPOSIT D1 WHERE C1.CNAME = 'PRAMOD' AND C1.CNAME = D1.CNAME AND D1.BNAME = B1.BNAME;

9.Give branch city of Sunil and branch city of Anil

SELECT B1.CITY FROM DEPOSIT D1, BRANCH B1 WHERE D1.BNAME = B1.BNAME AND D1.CNAME IN ('SUNIL' ,'ANIL');

10.Give the living city of Anil and the living city of Sunil

SELECT C1.CNAME, C1.CITY FROM CUSTOMER C1 WHERE C1.CNAME = 'ANIL' OR C1.CNAME = 'SUNIL';

OUTPUT

```
mysql> SELECT BR1.CNAME,BR1.AMOUNT FROM BORROW BR1 WHERE BR1.AMOUNT > ALL (SELECT BR2.AMOUNT FROM BORROW BR2 WHERE BR2.CNAME = 'PRAMOD');
Empty set (0.01 sec)

mysql> SELECT C.CNAME FROM CUSTOMER C WHERE C.CITY IN (SELECT B.CITY FROM BRANCH B WHERE B.BNAME IN (SELECT D.BNAME FROM DEPOSIT D WHERE D.CNAME='SUNIL'));
+---------+
| CNAME   |
+---------+
| MADHURI |
| PRAMOD  |
+---------+
2 rows in set (0.00 sec)

mysql> SELECT B1.CITY , C1.CITY FROM BRANCH B1,CUSTOMER C1, DEPOSIT D1 WHERE C1.CNAME = 'PRAMOD' AND C1.CNAME = D1.CNAME AND D1.BNAME = B1.BNAME;
+-----------+--------+
| CITY      | CITY   |
+-----------+--------+
| BANGALORE | NAGPUR |
+-----------+--------+
1 row in set (0.01 sec)

mysql> SELECT B1.CITY FROM DEPOSIT D1, BRANCH B1 WHERE D1.BNAME = B1.BNAME AND D1.CNAME IN ('SUNIL' ,'ANIL');
+--------+
| CITY   |
+--------+
| NAGPUR |
| NAGPUR |
+--------+
2 rows in set (0.00 sec)

mysql>
mysql> SELECT C1.CNAME, C1.CITY FROM CUSTOMER C1 WHERE C1.CNAME = 'ANIL' OR C1.CNAME = 'SUNIL';
+-------+----------+
| CNAME | CITY     |
+-------+----------+
| ANIL  | CALCUTTA |
| SUNIL | DELHI    |
+-------+----------+
2 rows in set (0.01 sec)

mysql>
```

EXPERIMENT NO.8 : GROUP BY AND HAVING

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

SELECT D.BNAME FROM DEPOSIT D, BRANCH B WHERE D.BNAME=B.BNAME GROUP BY D.BNAME
HAVING SUM(D.AMOUNT)>5000;

2.List the branches having sum of deposit more than 500 and located in city BOMBAY

SELECT D.BNAME FROM DEPOSIT D, BRANCH B WHERE D.BNAME=B.BNAME AND B.CITY='BOMBAY'
GROUP BY D.BNAME HAVING SUM(D.AMOUNT)>5000;

**3.List the names of customers having deposited in the branches where the average deposit is more
than 5000.**

select CNAME from deposit where AMOUNT=(select AVG(Amount) from DEPOSIT GROUP BY BNAME having AVG(Amount)>5000);

4.List the names of customers having maximum deposit

SELECT CNAME,MAX(AMOUNT)"AMOUNT" FROM deposit;

5.List the name of branch having highest number of depositors?

SELECT D1.BNAME FROM DEPOSIT D1 GROUP BY D1.BNAME HAVING COUNT(D1.CNAME) > = ALL (SELECT COUNT (D2.CNAME) FROM DEPOSIT D2 GROUP BY D2.BNAME);

6.Count the number of depositors living in NAGPUR.

select count(deposit.cname)from deposit,CUSTOMER where CUSTOMER.CITY='nagpur';

7.Give names of customers in VRCE branch having more deposite than any other customer in same branch

Select CNAME from deposit where BNAME='VRCE' and amount=(select max(AMOUNT) from deposit where BNAME='VRCE');

8.Give the names of branch where number of depositors is more than 5

SELECT BNAME from deposit GROUP BY BNAME HAVING COUNT(BNAME)>5;

9.Give the names of cities in which the maximum number of branches are located

select C.CNAME ,count(B.BNAME) from CUSTOMER C inner join Branch B on C.CNAME=B.BNAME group by C.Cname order by count(B.BName) DESC;

10.Count the number of customers living in the city where branch is located

select count(b1.bname) From deposit d1 , borrow b1 , customer c1 Where c1.cname=d1.cname and d1.cname=b1.cname and c1.city in (select city from customer);

OUTPUT

```
mysql> select count(deposit.cname)from deposit,CUSTOMER where  CUSTOMER.CITY='nagpur';
+---------------------+
| count(deposit.cname) |
+---------------------+
|                  16 |
+---------------------+
1 row in set (0.00 sec)

mysql> Select CNAME from deposit  where BNAME='VRCE' and amount=(select max(AMOUNT)  from deposit where BNAME='VRCE');
+---------+
| CNAME   |
+---------+
| ANIL    |
| SHIVANI |
+---------+
2 rows in set (0.00 sec)

mysql> SELECT BNAME from deposit GROUP BY BNAME HAVING COUNT(BNAME)>5;
Empty set (0.00 sec)

mysql> SELECT BNAME from deposit GROUP BY BNAME HAVING COUNT(BNAME)>3;
Empty set (0.00 sec)

mysql> select C.CNAME ,count(B.BNAME) from CUSTOMER C inner join Branch B on C.CNAME=B.BNAME group by C.Cname order by count(B.BName) DESC;
Empty set (0.01 sec)

mysql> select count(b1.bname) From deposit d1 , borrow b1 , customer c1 Where c1.cname=d1.cname and d1.cname=b1.cname and c1.city in (select city from customer);
+----------------+
| count(b1.bname) |
+----------------+
|              6 |
+----------------+
1 row in set (0.00 sec)
```

```
mysql>
mysql> SELECT D.BNAME FROM DEPOSIT D, BRANCH B WHERE D.BNAME=B.BNAME GROUP BY D.BNAME HAVING SUM(D.AMOUNT)>5000;
Empty set (0.01 sec)

mysql> SELECT D.BNAME FROM DEPOSIT D, BRANCH B WHERE D.BNAME=B.BNAME GROUP BY D.BNAME HAVING SUM(D.AMOUNT)>3000;
+--------------+
| BNAME        |
+--------------+
| KAROLBAGH    |
| NEHRU-PALACE |
+--------------+
2 rows in set (0.00 sec)

mysql> SELECT D.BNAME FROM DEPOSIT D, BRANCH B WHERE D.BNAME=B.BNAME AND B.CITY='BOMBAY' GROUP BY D.BNAME HAVING SUM(D.AMOUNT)>500;
+---------+
| BNAME   |
+---------+
| ANDHERI |
+---------+
1 row in set (0.00 sec)

mysql> select CNAME from deposit where AMOUNT=(select AVG(Amount) from DEPOSIT GROUP BY BNAME having AVG(Amount)>5000);
Empty set (0.00 sec)

mysql> select CNAME from deposit where AMOUNT=(select AVG(Amount) from DEPOSIT GROUP BY BNAME having AVG(Amount)>3000);
ERROR 1242 (21000): Subquery returns more than 1 row
mysql> SELECT CNAME,MAX(AMOUNT)"AMOUNT" FROM deposit;
+-------+---------+
| CNAME | AMOUNT  |
+-------+---------+
| ANIL  | 5000.00 |
+-------+---------+
1 row in set (0.00 sec)
```