

EXPERIMENT 5

AGGREGATE FUNCTIONS

1. List total loan

Select sum(amount) from borrow;

```
MySQL 8.0 Command Line Client - Unicode
mysql> select sum(amount) from borrow;
+-----+
| sum(amount) |
+-----+
| 22000.00 |
+-----+
1 row in set (0.10 sec)
```

2. List total deposit

Select sum(amount) from deposit;

```
1 row in set (0.10 sec)
mysql> select sum(amount) from deposit;
+-----+
| sum(amount) |
+-----+
| 20700.00 |
+-----+
1 row in set (0.00 sec)
mysql> select sum(amount) from borrow where branch="KAROLBAGH";
```

3. List total loan taken from KAROLBAGH branch

Select sum(amount) from borrow where bname=" KAROLBAGH";

```
mysql> select sum(amount) from borrow where branch="KAROLBAGH";
ERROR 1054 (42S22): Unknown column 'branch' in 'where clause'
mysql> select sum(amount) from borrow where bname="KAROLBAGH";
+-----+
| sum(amount) |
+-----+
| NULL |
+-----+
1 row in set (0.11 sec)
```

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

Select sum(amount) from deposit where adate>1996-01-01;

```
1 row in set (0.11 sec)
mysql> select sum(amount) from deposit where adate>1996-01-01;
+-----+
| sum(amount) |
+-----+
| 20700.00 |
+-----+
1 row in set, 1 warning (0.09 sec)
```

5. List total deposit of customers living in city NAGPUR

Select sum(d.amount) from deposit d, customer c where c.city='nagpur' and c.cname=d.cname;

```
mysql> use bank1;
Database changed
mysql> select sum(d.amount) from deposit d, customer c where c.city='nagpur' and c.cname=d.cname;
+-----+
| sum(d.amount) |
+-----+
| 4200.00 |
+-----+
1 row in set (0.73 sec)
```

6. List maximum deposit of customer living in Bombay

Select max(d.amount) from deposit d, customer c where c.city='bombay' and c.cname=d.cname;

```
mysql> select max(d.amount) from deposit d, customer c where c.city='bombay' and c.cname=d.cname;
+-----+
| max(d.amount) |
+-----+
|          5000.00 |
+-----+
1 row in set (0.10 sec)

mysql> _
```

7. List total deposit of customer having branch in BOMBAY

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

```
MySQL 8.0 Command Line Client - Unicode
mysql> SELECT SUM(AMOUNT) from deposit,BRANCH where city='BOMBAY';
+-----+
| SUM(AMOUNT) |
+-----+
|        41400.00 |
+-----+
1 row in set (0.07 sec)

mysql> SELECT COUNT(DISTINCT (CITY)) FROM BRANCH ;
```

8. Count total number of branch cities

SELECT COUNT(DISTINCT (CITY)) FROM BRANCH ;

```
1 row in set (0.07 sec)

mysql> SELECT COUNT(DISTINCT (CITY)) FROM BRANCH ;
+-----+
| COUNT(DISTINCT (CITY)) |
+-----+
|                4 |
+-----+
1 row in set (0.08 sec)
```

9. Count total number of customers cities

Select count(city) from customer;

```
ERROR 1146 (42S02): Table 'bank1.customers' doesn't exist
mysql> select count(city) from customer;
+-----+
| count(city) |
+-----+
|          10 |
+-----+
1 row in set (0.27 sec)

mysql> select count(branch) from customer;
```

10. Give branch names and branch wise deposit

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

```
1 row in set (0.08 sec)

mysql> SELECT BNAME , SUM(AMOUNT) FROM DEPOSIT GROUP BY BNAME;
+-----+-----+
| BNAME | SUM(AMOUNT) |
+-----+-----+
| VRCE  |          1000.00 |
| ANJNI |           500.00 |
| CHANDNI |         1200.00 |
| MG ROAD |         3000.00 |
| ANDHERI |         2000.00 |
| VIRAR |          1000.00 |
| NEHRU PALACE |         5000.00 |
| POWAI |          7000.00 |
+-----+-----+
8 rows in set (0.03 sec)
```

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;

```
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
NAGPUR	4200.00
SURAT	2000.00
BOMBAY	6000.00

5 rows in set (0.03 sec)

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

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

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

BNAME	SUM(AMOUNT)
VRCE	2000.00
AJNI	10000.00
DHARAMPETH	6000.00
ANDHERI	4000.00
VIRAR	16000.00
NEHRU PALACE	6000.00

6 rows in set (0.00 sec)

13. Count total number of customers

Select count(*) from customer;

```
mysql> select count(*) from customer;
```

count(*)
10

1 row in set (0.33 sec)

```
mysql>
```

14. Count total number of depositors branch wise

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

```
Syntax to use here: SELECT BName, count(*)from DEPOSIT, CUSTOMER where deposit.CNAME = CUSTOMER.CNAME group by BNAME at time 1
mysql> SELECT BName, count(*)from DEPOSIT, CUSTOMER where deposit.CNAME = CUSTOMER.CNAME group by BNAME;
```

BName	count(*)
VRCE	1
ANJNI	1
CHANDNI	1
MG ROAD	1
ANDHERI	1
VIRAR	1
NEHRU PALACE	1

7 rows in set (0.05 sec)

```
mysql>
```

15. Count total number of depositors branch wise

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

```
Syntax to use here: SELECT BName, count(*)from DEPOSIT, CUSTOMER where deposit.CNAME = CUSTOMER.CNAME group by BNAME at time 1
mysql> SELECT BName, count(*)from DEPOSIT, CUSTOMER where deposit.CNAME = CUSTOMER.CNAME group by BNAME;
```

BName	count(*)
VRCE	1
ANJNI	1
CHANDNI	1
MG ROAD	1
ANDHERI	1
VIRAR	1
NEHRU PALACE	1

7 rows in set (0.05 sec)

```
mysql>
```

16. Give maximum loan from branch VRCE

select max(amount)from borrow where bname="vrce";

```
mysql> select max(amount) from borrow where bname="vrce";
+-----+
| max(amount) |
+-----+
| 1000.00 |
+-----+
1 row in set (0.05 sec)

mysql> _
```

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));

EXPERIMENT NO.6 : 10/05/2021

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);

```
mysql> SELECT CNAME FROM DEPOSIT UNION (SELECT CNAME FROM BORROW);
+-----+
| CNAME |
+-----+
| ANIL  |
| SUNIL |
| MADHURI |
| PRAMOD |
| SANDIP |
| SHIVANI |
| KRANTI |
| MINU |
| MEHUL |
+-----+
9 rows in set (0.10 sec)
```

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');

```
mysql> SELECT D1.CNAME FROM DEPOSIT D1 WHERE D1.BNAME IN (SELECT D2.BNAME FROM DEPOSIT D2 WHERE D2.CNAME = 'SUNIL' );
+-----+
| CNAME |
+-----+
| SUNIL |
+-----+
1 row in set (0.04 sec)

mysql> _
```

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');

```
mysql> 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');
+-----+
| CNAME |
+-----+
| MADHURI |
+-----+
1 row in set (0.06 sec)
```

5. List all the depositors living in city NAGPUR

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

```
mysql> SELECT Distinct(CUSTOMER.CNAME) from CUSTOMER,DEPOSIT WHERE City='NAGPUR';
+-----+
| CNAME |
+-----+
| PRAMOD |
| MADHURI |
+-----+
2 rows in set (0.03 sec)
```

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');

```
MADHURI |
+-----+
2 rows in set (0.03 sec)

mysql> 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');
Empty 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 |
+-----+
1 row in set (0.00 sec)
```

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');

```
Empty 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 |
+-----+
1 row in set (0.00 sec)
```

8. List the customers having deposit greater than 1000 and loan less than 10000.

9. List the cities of depositors having branch VRCE.

10. List the depositors having amount less than 1000 and living in the same city as 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'));

```
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 |
+-----+
1 row in set (0.06 sec)

mysql>
```

12. List the amount for the depositors living in the city where Anil is living

EXPERIMENT NO.7 : 10/05/2021

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;
```

```
mysql> 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;
Empty set (0.00 sec)

mysql>
```

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;
```

```
mysql> SELECT distinct(customer.CNAME), BRANCH.CITY FROM BRANCH, customer WHERE BRANCH.city = customer.city;
+-----+-----+
| CNAME | CITY |
+-----+-----+
| KRANTI | BOMBAY |
| MADHURI | NAGPUR |
| NAREN | BOMBAY |
| PRAMOD | NAGPUR |
| SHIVANI | BOMBAY |
| SUNIL | DELHI |
+-----+-----+
6 rows in set (0.10 sec)
```

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;
```

```
mysql> SELECT C1.CNAME FROM CUSTOMER C1,DEPOSIT D1,BORROW B1 WHERE C1.CITY='NAGPUR' AND C1.CNAME=D1.CNAME AND D1.CNAME = B1.CNAME;
+-----+
| CNAME |
+-----+
| MADHURI |
| PRAMOD |
+-----+
2 rows in set (0.08 sec)
```

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;
```

```
mysql> 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;
+-----+-----+-----+-----+
| CNAME | AMOUNT | CNAME | AMOUNT |
+-----+-----+-----+-----+
| PRAMOD | 8000.00 | PRAMOD | 3000.00 |
| KRANTI | 3000.00 | KRANTI | 5000.00 |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

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');

```

1 row in set (0.06 sec)

mysql> SELECT D1.CNAME FROM DEPOSIT D1 WHERE D1.BNAME IN (SELECT D2.BNAME
-> FROM DEPOSIT D2 WHERE D2.CNAME = 'SUNIL');
+-----+
| CNAME |
+-----+
| SUNIL |
+-----+
1 row in set (0.14 sec)

```

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');

```

10 rows in set (0.06 sec)

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 (0.13 sec)

mysql>

```

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'));

```

1 row in set (0.03 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'));
Empty set (0.14 sec)

mysql>

```

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;

```

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 (0.04 sec)

mysql>

```

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');

```

syntax to use here: INTERSECT(SELECT CNAME FROM "BORROW") AS T1;
mysql> SELECT B1.CITY FROM DEPOSIT D1, BRANCH B1 WHERE D1.BNAME = B1.BNAME AND D1.CNAME IN ('SUNIL' , 'ANIL');
+-----+
| CITY |
+-----+
| NAGPUR |
+-----+
1 row in set (0.03 sec)

mysql>

```

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';

```

ERROR 1054 (42S22): Unknown column 'SUNIL' in 'where clause'
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 (0.07 sec)

mysql>

```