Lab Assignment 03 (CSE370)

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Section: 07

MySQL commands:

- **mysql -u root -p**
- **“”**
- **show databases;**
- **create database lab_assignment_02;**
- **use lab_assignment_02;**

Constructing the table

```
create table customer (
customer_id varchar(10) not null,
customer_name varchar(20) not null,
customer_street varchar(30),
customer_city varchar(30),
primary key (customer_id));
```

```
create table branch (
branch_name varchar(15),
branch_city varchar(30),
assets int,
primary key (branch_name),
check (assets >= 0));
```

```
create table account (
branch_name varchar(15),
account_number varchar(10) not null,
balance int,
primary key (account_number),
check (balance >= 0));
```

```
create table loan (
loan_number varchar(10) not null,
branch_name varchar(15),
amount int,
primary key (loan_number));
```

```
create table depositor (
customer_id varchar(10) not null,
account_number varchar(10) not null,
primary key (customer_id,account_number),
foreign key (customer_id) references customer(customer_id),
foreign key (account_number) references account(account_number));
```

```
create table borrower (
customer_id varchar(10) not null,
loan_number varchar(10) not null,
primary key (customer_id, loan_number),
foreign key (customer_id) references customer(customer_id),
foreign key (loan_number) references loan(loan_number));
```

```
insert into customer values
('C-101','Jones', 'Main', 'Harrison'),
('C-201','Smith', 'North', 'Rye'),
('C-211','Hayes', 'Main', 'Harrison'),
('C-212','Curry', 'North', 'Rye'),
('C-215','Lindsay', 'Park', 'Pittsfield'),
('C-220','Turner', 'Putnam', 'Stamford'),
('C-222','Williams', 'Nassau', 'Princeton'),
('C-225','Adams', 'Spring', 'Pittsfield'),
('C-226','Johnson', 'Alma', 'Palo Alto'),
('C-233','Glenn', 'Sand Hill', 'Woodside'),
('C-234','Brooks', 'Senator', 'Brooklyn'),
('C-255','Green', 'Walnut', 'Stamford');
```

```
insert into branch values
('Downtown', 'Brooklyn',9000000),
('Redwood', 'Palo Alto',2100000),
('Perryridge', 'Horseneck',1700000),
('Mianus', 'Horseneck',400000),
('Round Hill', 'Horseneck',8000000),
('Pownal', 'Bennington',300000),
('North Town', 'Rye',3700000),
('Brighton', 'Brooklyn',7100000);
```

```
insert into account values
('Downtown','A-101',500),
('Mianus','A-215',700) ,
('Perryridge','A-102',400),
('Round Hill','A-305',350),
('Brighton','A-201',900),
('Redwood','A-222',700),
('Brighton','A-217',750);
```

```
insert into loan values
('L-17', 'Downtown', 1000),
('L-23', 'Redwood', 2000),
('L-15', 'Perryridge', 1500),
('L-14', 'Downtown', 1500),
('L-93', 'Mianus', 500),
('L-11', 'Round Hill', 900),
('L-16', 'Perryridge', 1300);
```

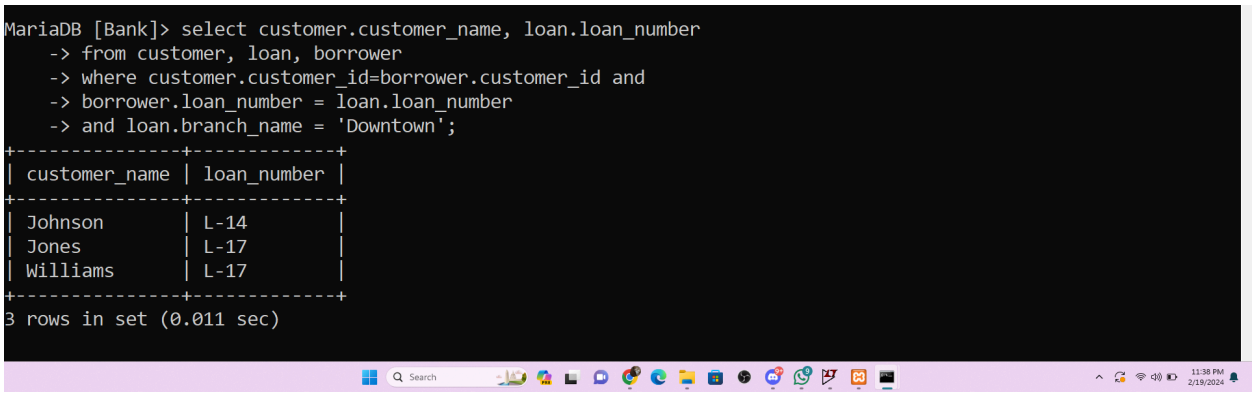
```
insert into depositor values
('C-226', 'A-101'),
('C-201', 'A-215'),
('C-211', 'A-102'),
('C-220', 'A-305'),
('C-226', 'A-201'),
('C-101', 'A-217'),
('C-215', 'A-222');
```

```
insert into borrower values
('C-101', 'L-17'),
('C-201', 'L-23'),
('C-211', 'L-15'),
('C-226', 'L-14'),
('C-212', 'L-93'),
('C-201', 'L-11'),
('C-222', 'L-17'),
('C-225', 'L-16');
```

#Task-01

- **Find the name and loan number of all customers having a loan at the Downtown branch.**

- Select customer.customer_name, loan.loan_number from customer, loan, borrower where customer.customer_id=borrower.customer_id and borrower.loan_number = loan.loan_number and loan.branch_name = 'Downtown';



#Task-02

- **Find all the possible pairs of customers who are from the same city. show in the format Customer1, Customer2, City. [2]**

- Select l1.customer_name as Customer1, l2.customer_name as Customer2, l1.customer_city as city from customer l1, customer l2 where l1.customer_city = l2.customer_city and l1.customer_name!= l2.customer_name group by city;

```
MariaDB [Bank]> select l1.customer_name as Customer1, l2.customer_name
    -> as Customer2, l1.customer_city as city
    -> from customer l1, customer l2 where
    -> l1.customer_city = l2.customer_city and
    -> l1.customer_name!= l2.customer_name
    -> group by city;
+-----------+-----------+------------+
| Customer1 | Customer2 | city       |
+-----------+-----------+------------+
| Hayes     | Jones     | Harrison   |
| Adams     | Lindsay   | Pittsfield |
| Curry     | Smith     | Rye        |
| Green     | Turner    | Stamford   |
+-----------+-----------+------------+
4 rows in set (0.001 sec)
```

#Task-03

- **If the bank gives out 4% interest to all accounts, show the total interest across each branch. Print Branch_name, Total_Interest [1]**

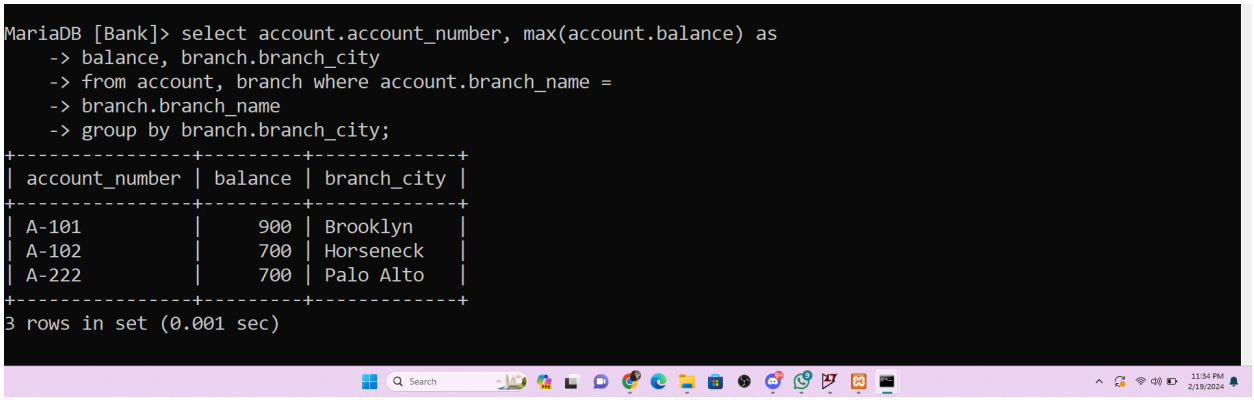
- Select account.branch_name, sum(account.balance*(4/100)) as Total_Interest from account group by branch_name;

```
MariaDB [Bank]> select account.branch_name,
    -> sum(account.balance*(4/100)) as Total_Interest from
    -> account group by branch_name;
+-------------+----------------+
| branch_name | Total_Interest |
+-------------+----------------+
| Brighton    |        66.0000 |
| Downtown    |        20.0000 |
| Mianus      |        28.0000 |
| Perryridge  |        16.0000 |
| Redwood     |        28.0000 |
| Round Hill  |        14.0000 |
+-------------+----------------+
6 rows in set (0.001 sec)
```

#Task-04

- **Find account numbers with the highest balances for each city in the database [1]**

- Select account.account_number, max(account.balance) as balance, branch.branch_city from account, branch where account.branch_name = branch.branch_name group by branch.branch_city;

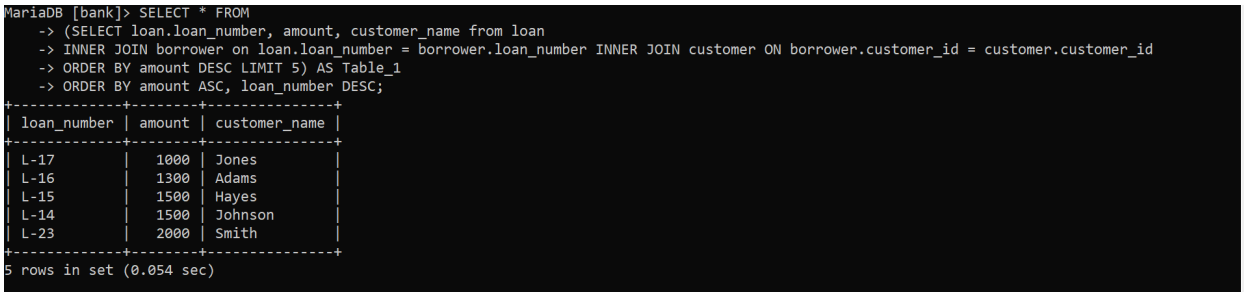


```
MariaDB [Bank]> select account.account_number, max(account.balance) as
    -> balance, branch.branch_city
    -> from account, branch where account.branch_name =
    -> branch.branch_name
    -> group by branch.branch_city;
+----------------+---------+-------------+
| account_number | balance | branch_city |
+----------------+---------+-------------+
| A-101          |     900 | Brooklyn    |
| A-102          |     700 | Horseneck   |
| A-222          |     700 | Palo Alto   |
+----------------+---------+-------------+
3 rows in set (0.001 sec)
```

#Task-05

- **Show the loan number, loan amount, and name of customers who have the top 5 highest loan amounts. The data should be sorted by increasing amounts, then decreasing loan numbers in case of the same loan amount. [Hint for top 5 check the "limit" keyword in mysql] [2]**

- Select * FROM
  (Select loan.loan_number, amount, customer_name from loan
  INNER JOIN borrower on loan.loan_number = borrower.loan_number
INNER JOIN customer ON borrower.customer_id = customer.customer_id
ORDER BY amount DESC LIMIT 5) AS Table_1
  ORDER BY amount ASC, loan_number DESC;

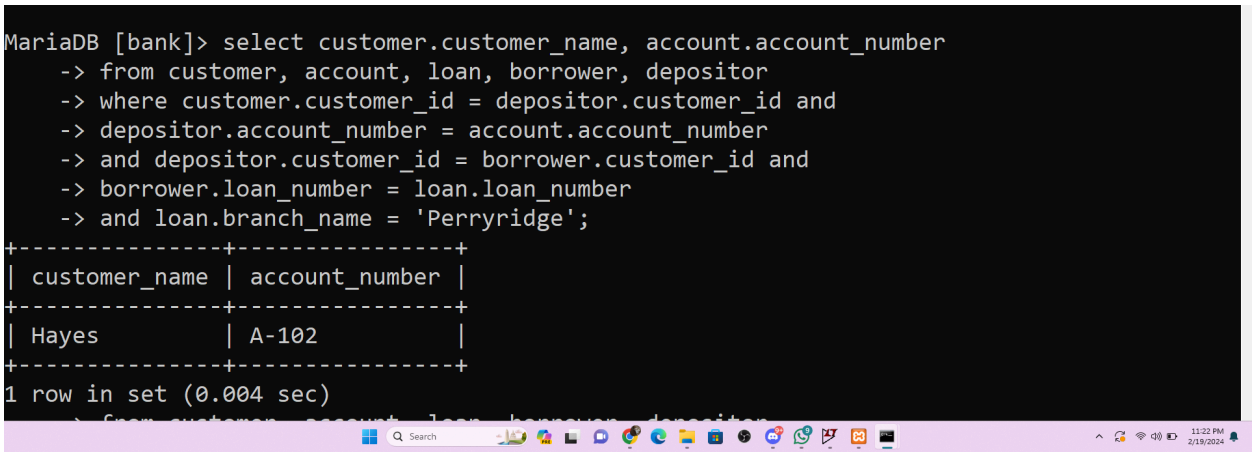


```
MariaDB [bank]> SELECT * FROM
    -> (SELECT loan.loan_number, amount, customer_name from loan
    -> INNER JOIN borrower on loan.loan_number = borrower.loan_number INNER JOIN customer ON borrower.customer_id = customer.customer_id
    -> ORDER BY amount DESC LIMIT 5) AS Table_1
    -> ORDER BY amount ASC, loan_number DESC;
+-------------+--------+---------------+
| loan_number | amount | customer_name |
+-------------+--------+---------------+
| L-17        |   1000 | Jones         |
| L-16        |   1300 | Adams         |
| L-15        |   1500 | Hayes         |
| L-14        |   1500 | Johnson       |
| L-23        |   2000 | Smith         |
+-------------+--------+---------------+
5 rows in set (0.054 sec)
```

#Task-06

- **Find the names of customers with an account and also a loan at the Perryridge branch. [2]**

- Select customer.customer_name, account.account_number from customer, account, loan, borrower, depositor where customer.customer_id = depositor.customer_id and depositor.account_number = account.account_number and depositor.customer_id = borrower.customer_id and borrower.loan_number = loan.loan_number and loan.branch_name = 'Perryridge'



```
MariaDB [bank]> select customer.customer_name, account.account_number
    -> from customer, account, loan, borrower, depositor
    -> where customer.customer_id = depositor.customer_id and
    -> depositor.account_number = account.account_number
    -> and depositor.customer_id = borrower.customer_id and
    -> borrower.loan_number = loan.loan_number
    -> and loan.branch_name = 'Perryridge';
+---------------+----------------+
| customer_name | account_number |
+---------------+----------------+
| Hayes         | A-102          |
+---------------+----------------+
1 row in set (0.004 sec)
```

#Task-07

- **Find the total loan amount of all customers having at least 2 loans from the bank. Show in format customer name, total_loan. [2]**

- Select customer.customer_name, count(*) as number_of_loans, sum(loan.amount) as total_loan from customer, loan, borrower where customer.customer_id=borrower.customer_id and borrower.loan_number = loan.loan_number group by customer.customer_id having count(customer.customer_id) = 2;

```
MariaDB [bank]> select customer.customer_name, count(*) as
    -> number_of_loans, sum(loan.amount) as total_loan from
    -> customer, loan, borrower
    -> where customer.customer_id=borrower.customer_id and
    -> borrower.loan_number = loan.loan_number
    -> group by customer.customer_id having
    -> count(customer.customer_id) = 2;
+---------------+-----------------+------------+
| customer_name | number_of_loans | total_loan |
+---------------+-----------------+------------+
| Smith         |               2 |       2900 |
+---------------+-----------------+------------+
1 row in set (0.004 sec)
```