CSE370: DATABASE SYSTEMS

ASSIGNMENT-3

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Section: 07

Task-1

create database Bank_24241076;

```
MariaDB [(none)]> create database Bank_24241076;
Query OK, 1 row affected (0.001 sec)
```

show databases;

```
MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| bank_24241076      |
| company_24241076   |
| cse370_lab01_sec07 |
| google_24241076    |
| information_schema |
| mysql              |
| performance_schema |
| phpmyadmin         |
| test               |
+--------------------+
9 rows in set (0.021 sec)
```

use Bank_24241076;

```
MariaDB [(none)]> use Bank_24241076;
Database changed
```

show tables;

```
MariaDB [Bank_24241076]> show tables;
+------------------------+
| Tables_in_bank_24241076 |
+------------------------+
| account                |
| borrower               |
| branch                 |
| customer               |
| depositor              |
| loan                   |
+------------------------+
6 rows in set (0.001 sec)
```

SELECT customer.customer_name, loan.loan_number

FROM customer

JOIN borrower ON customer.customer_id = borrower.customer_id

JOIN loan ON borrower.loan_number = loan.loan_number

WHERE loan.branch_name = 'Downtown';

```
MariaDB [Bank_24241076]> SELECT customer.customer_name, loan.loan_number
    -> FROM customer
    -> JOIN borrower ON customer.customer_id = borrower.customer_id
    -> JOIN loan ON borrower.loan_number = loan.loan_number
    -> WHERE loan.branch_name = 'Downtown';
+---------------+-------------+
| customer_name | loan_number |
+---------------+-------------+
| Johnson       | L-14        |
| Jones         | L-17        |
| Williams      | L-17        |
+---------------+-------------+
3 rows in set (0.001 sec)
```

Task-2

SELECT c1.customer_name AS Customer1, c2.customer_name AS Customer2, c1.customer_city AS City

FROM customer c1

JOIN customer c2 ON c1.customer_city = c2.customer_city AND c1.customer_id < c2.customer_id;

```
MariaDB [Bank_24241076]> SELECT c1.customer_name AS Customer1, c2.customer_name AS Customer2, c1.customer_city AS City
    -> FROM customer c1
    -> JOIN customer c2 ON c1.customer_city = c2.customer_city AND c1.customer_id < c2.customer_id;
+-----------+-----------+------------+
| Customer1 | Customer2 | City       |
+-----------+-----------+------------+
| Jones     | Hayes     | Harrison   |
| Smith     | Curry     | Rye        |
| Lindsay   | Adams     | Pittsfield |
| Turner    | Green     | Stamford   |
+-----------+-----------+------------+
4 rows in set (0.001 sec)
```

Task-3

SELECT branch_name, SUM(balance * 0.04) AS Total_Interest

FROM account

GROUP BY branch_name;

```
MariaDB [Bank_24241076]> SELECT branch_name, SUM(balance * 0.04) AS Total_Interest
    -> FROM account
    -> GROUP BY branch_name;
+-------------+----------------+
| branch_name | Total_Interest |
+-------------+----------------+
| Brighton    |          66.00 |
| Downtown    |          20.00 |
| Mianus      |          28.00 |
| Perryridge  |          16.00 |
| Redwood     |          28.00 |
| Round Hill  |          14.00 |
+-------------+----------------+
6 rows in set (0.000 sec)
```

Task-4

```
SELECT c.customer_city, a.account_number, a.balance
FROM account a
JOIN depositor d ON a.account_number = d.account_number
JOIN customer c ON d.customer_id = c.customer_id
WHERE (a.balance, c.customer_city) IN (
   SELECT MAX(a2.balance), c2.customer_city
   FROM account a2
   JOIN depositor d2 ON a2.account_number = d2.account_number
   JOIN customer c2 ON d2.customer_id = c2.customer_id
   GROUP BY c2.customer_city
);
```

```
MariaDB [Bank_24241076]> SELECT c.customer_city, a.account_number, a.balance
    -> FROM account a
    -> JOIN depositor d ON a.account_number = d.account_number
    -> JOIN customer c ON d.customer_id = c.customer_id
    -> WHERE (a.balance, c.customer_city) IN (
    ->     SELECT MAX(a2.balance), c2.customer_city
    ->     FROM account a2
    ->     JOIN depositor d2 ON a2.account_number = d2.account_number
    ->     JOIN customer c2 ON d2.customer_id = c2.customer_id
    ->     GROUP BY c2.customer_city
    -> );
+---------------+----------------+---------+
| customer_city | account_number | balance |
+---------------+----------------+---------+
| Harrison      | A-217          |     750 |
| Rye           | A-215          |     700 |
| Pittsfield    | A-222          |     700 |
| Stamford      | A-305          |     350 |
| Palo Alto     | A-201          |     900 |
+---------------+----------------+---------+
5 rows in set (0.002 sec)
```

Task-5

SELECT loan.loan_number, loan.amount, customer.customer_name

FROM loan

JOIN borrower ON loan.loan_number = borrower.loan_number

JOIN customer ON borrower.customer_id = customer.customer_id

ORDER BY loan.amount DESC, loan.loan_number DESC

LIMIT 5;

```
MariaDB [Bank_24241076]> SELECT loan.loan_number, loan.amount, customer.customer_name
    -> FROM loan
    -> JOIN borrower ON loan.loan_number = borrower.loan_number
    -> JOIN customer ON borrower.customer_id = customer.customer_id
    -> ORDER BY loan.amount DESC, loan.loan_number DESC
    -> LIMIT 5;
+-------------+--------+---------------+
| loan_number | amount | customer_name |
+-------------+--------+---------------+
| L-23        |   2000 | Smith         |
| L-15        |   1500 | Hayes         |
| L-14        |   1500 | Johnson       |
| L-16        |   1300 | Adams         |
| L-17        |   1000 | Jones         |
+-------------+--------+---------------+
5 rows in set (0.000 sec)
```

Task-6

SELECT DISTINCT customer.customer_name

FROM customer

JOIN depositor ON customer.customer_id = depositor.customer_id

JOIN account ON depositor.account_number = account.account_number

JOIN borrower ON customer.customer_id = borrower.customer_id

JOIN loan ON borrower.loan_number = loan.loan_number

WHERE account.branch_name = 'Perryridge' AND loan.branch_name = 'Perryridge';

```
MariaDB [Bank_24241076]> SELECT DISTINCT customer.customer_name
    -> FROM customer
    -> JOIN depositor ON customer.customer_id = depositor.customer_id
    -> JOIN account ON depositor.account_number = account.account_number
    -> JOIN borrower ON customer.customer_id = borrower.customer_id
    -> JOIN loan ON borrower.loan_number = loan.loan_number
    -> WHERE account.branch_name = 'Perryridge' AND loan.branch_name = 'Perryridge';
+---------------+
| customer_name |
+---------------+
| Hayes         |
+---------------+
1 row in set (0.001 sec)
```

Task-7

SELECT customer.customer_name, SUM(loan.amount) AS total_loan

FROM customer

JOIN borrower ON customer.customer_id = borrower.customer_id

JOIN loan ON borrower.loan_number = loan.loan_number

GROUP BY customer.customer_id

HAVING COUNT(borrower.loan_number) >= 2;

```
MariaDB [Bank_24241076]> SELECT customer.customer_name, SUM(loan.amount) AS total_loan
    -> FROM customer
    -> JOIN borrower ON customer.customer_id = borrower.customer_id
    -> JOIN loan ON borrower.loan_number = loan.loan_number
    -> GROUP BY customer.customer_id
    -> HAVING COUNT(borrower.loan_number) >= 2;
+---------------+------------+
| customer_name | total_loan |
+---------------+------------+
| Smith         |       2900 |
+---------------+------------+
1 row in set (0.001 sec)
```