# CSE370 : Database Systems

## Assignment 01/02/03 | Fall 2024

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**QUERY-1:**

SELECT customer.customer_name, borrower.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_21201574]> SELECT customer.customer_name, borrower.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)
```

**QUERY-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_21201574]> 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)
```

## QUERY-3:

SELECT branch_name, SUM(balance * 0.04) AS Total_Interest
FROM account
GROUP BY branch_name;

```
MariaDB [Bank_21201574]> 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)
```

## QUERY-4:

```
SELECT A.account_number, A.balance, C.customer_city
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 = (
    SELECT MAX(A2.balance)
    FROM account A2
    JOIN depositor D2 ON A2.account_number = D2.account_number
    JOIN customer C2 ON D2.customer_id = C2.customer_id
    WHERE C2.customer_city = C.customer_city
);
```

```
MariaDB [Bank_21201574]> SELECT A.account_number, A.balance, C.customer_city
    -> 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 = (
    ->      SELECT MAX(A2.balance)
    ->      FROM account A2
    ->      JOIN depositor D2 ON A2.account_number = D2.account_number
    ->      JOIN customer C2 ON D2.customer_id = C2.customer_id
    ->      WHERE C2.customer_city = C.customer_city
    -> );
+----------------+---------+---------------+
| account_number | balance | customer_city |
+----------------+---------+---------------+
| A-217          |     750 | Harrison      |
| A-215          |     700 | Rye           |
| A-222          |     700 | Pittsfield    |
| A-305          |     350 | Stamford      |
| A-201          |     900 | Palo Alto     |
+----------------+---------+---------------+
5 rows in set (0.001 sec)
```

## QUERY-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 ASC
LIMIT 5;

```
MariaDB [Bank_21201574]> 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 ASC
    -> LIMIT 5;
+-------------+--------+---------------+
| loan_number | amount | customer_name |
+-------------+--------+---------------+
| L-23        |   2000 | Smith         |
| L-14        |   1500 | Johnson       |
| L-15        |   1500 | Hayes         |
| L-16        |   1300 | Adams         |
| L-17        |   1000 | Jones         |
+-------------+--------+---------------+
5 rows in set (0.000 sec)
```

## QUERY-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_21201574]> 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 (0.000 sec)
```

**QUERY-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
WHERE customer.customer_id IN (
    SELECT customer_id
    FROM borrower
    GROUP BY customer_id
    HAVING COUNT(loan_number) >= 2
)
GROUP BY customer.customer_name;

```
MariaDB [Bank_21201574]> 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
    -> WHERE customer.customer_id IN (
    ->     SELECT customer_id
    ->     FROM borrower
    ->     GROUP BY customer_id
    ->     HAVING COUNT(loan_number) >= 2
    -> )
    -> GROUP BY customer.customer_name;
+---------------+------------+
| customer_name | total_loan |
+---------------+------------+
| Smith         |       2900 |
+---------------+------------+
1 row in set (0.001 sec)
```