Inspiring Excellence

CSE 370: Database Systems
Lab Homework 4
Section: 07

Submitted by:
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1. Find the name and loan number of all customers having a loan at the Downtown branch.

SQL query

```
-- (1)
SELECT
  customer.customer_name as name,
  loan.loan_number
from
  (
    (
      customer
      INNER JOIN borrower on customer.customer_id =
borrower.customer_id
    )
    INNER JOIN loan on borrower.loan_number = loan.loan_number
  )
WHERE
  branch_name = "DownTown";
```

Outputs:

```
+----------+-------------+
| name     | loan_number |
+----------+-------------+
| Johnson  | L-14        |
| Jones    | L-17        |
| Williams | L-17        |
+----------+-------------+
3 rows in set (0.002 sec)
```

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

SQL query

```
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_name < C2.customer_name
  AND C1.customer_city = C2.customer_city;
```

Outputs:

```
+-----------+-----------+------------+
| Customer1 | Customer2 | City       |
+-----------+-----------+------------+
| Hayes     | Jones     | Harrison   |
| Curry     | Smith     | Rye        |
| Adams     | Lindsay   | Pittsfield |
| Green     | Turner    | Stamford   |
+-----------+-----------+------------+
4 rows in set (0.001 sec)

MariaDB [370_l4]>
```

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

SQL query

```
SELECT
  branch_name AS Branch_name,
  SUM((balance * 4) / 100) AS Total_interest
FROM
  account
GROUP BY
  branch_name;
```

Outputs:

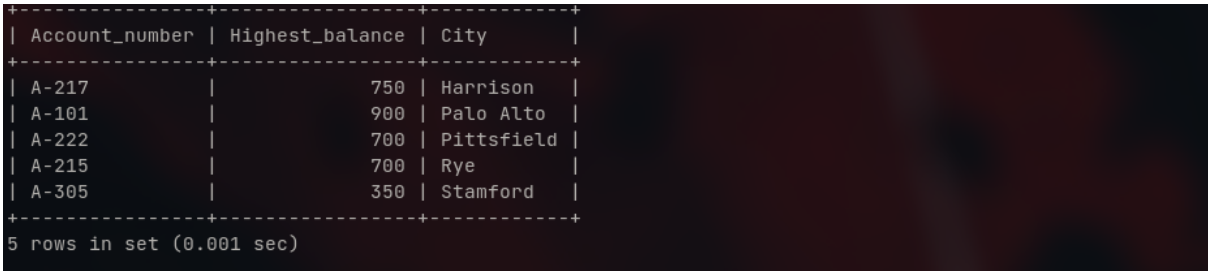
```
+-------------+----------------+
| Branch_name | Total_interest |
+-------------+----------------+
| Brighton    |        66.0000 |
| Downtown    |        20.0000 |
| Mianus      |        28.0000 |
| Perryridge  |        16.0000 |
| Redwood     |        28.0000 |
| Round Hill  |        14.0000 |
+-------------+----------------+
6 rows in set (0.001 sec)
```

4. Find account numbers with the highest balances for each city in the database [1]

SQL query

```
SELECT
  D.account_number AS Account_number,
  MAX(A.balance) AS Highest_balance,
  C.customer_city AS City
FROM
  (
    customer C
    INNER JOIN depositor D ON C.customer_id = D.customer_id
  )
  INNER JOIN account A ON D.account_number = A.account_number
GROUP BY
  C.customer_city;
```

Outputs:



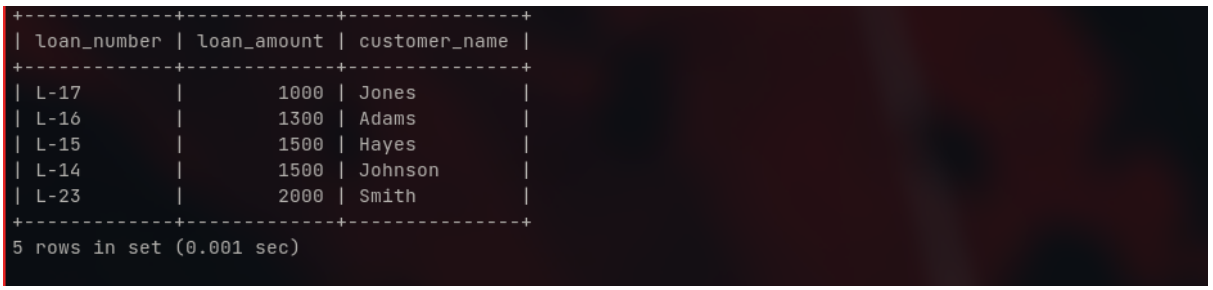
```
+----------------+-----------------+------------+
| Account_number | Highest_balance | City       |
+----------------+-----------------+------------+
| A-217          |             750 | Harrison   |
| A-101          |             900 | Palo Alto  |
| A-222          |             700 | Pittsfield |
| A-215          |             700 | Rye        |
| A-305          |             350 | Stamford   |
+----------------+-----------------+------------+
5 rows in set (0.001 sec)
```

5. 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]

SQL query

```
SELECT
  *
FROM
  (
    SELECT
      L.loan_number,
      L.amount AS loan_amount,
      C.customer_name
    FROM
      (
        borrower B
        INNER JOIN loan L ON L.loan_number = B.loan_number
      )
      INNER JOIN customer C ON B.customer_id = C.customer_id
    ORDER BY
      L.amount DESC
    LIMIT
      5
  ) AS L
ORDER BY
  loan_amount ASC,
  loan_number DESC;
```

Outputs:



```
+-------------+-------------+---------------+
| loan_number | loan_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 (0.001 sec)
```

6. Find the names of customers with an account and also a loan at the Perryridge branch.

SQL query

```
SELECT
  C.customer_name
FROM
  (
    (
      loan L
      INNER JOIN account A ON L.branch_name = A.branch_name
    )
    INNER JOIN borrower B ON L.loan_number = B.loan_number
  )
  INNER JOIN customer C ON B.customer_id = C.customer_id
WHERE
  A.branch_name = "Perryridge"
  and L.branch_name = "Perryridge"
GROUP BY
  A.branch_name;
```

Outputs:

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

SQL query

```
SELECT
  C.customer_name,
  SUM(L.amount) AS total_loan
FROM
  (
    loan L
    INNER JOIN borrower B ON L.loan_number = B.loan_number
  )
  INNER JOIN customer C ON B.customer_id = C.customer_id
GROUP BY
  C.customer_id
HAVING
  count(*) ⩾ 2;
```

Outputs:

```
+---------------+------------+
| customer_name | total_loan |
+---------------+------------+
| Smith         |       2900 |
+---------------+------------+
1 row in set (0.002 sec)
```