

# CHALLENGE 4

## FINANCE ANALYSIS

SQL CASE STUDY



CREATED  
BY

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# MY ROLE

YOU ARE A FINANCE ANALYST WORKING FOR  
'THE BIG BANK'.  
YOU HAVE BEEN TASKED WITH FINDING OUT  
ABOUT YOUR CUSTOMERS AND THEIR  
BANKING BEHAVIOUR. EXAMINE THE  
ACCOUNTS THEY HOLD AND THE TYPE OF  
TRANSACTIONS THEY MAKE TO DEVELOP  
GREATER INSIGHT INTO YOUR CUSTOMERS.

# HERE ARE THE TABLES YOU WILL BE USING

Customers

| CustomerID | FirstName | LastName | City          | State |
|------------|-----------|----------|---------------|-------|
| 1          | John      | Doe      | New York      | NY    |
| 2          | Jane      | Doe      | New York      | NY    |
| 3          | Bob       | Smith    | San Francisco | CA    |
| 4          | Alice     | Johnson  | San Francisco | CA    |
| 5          | Michael   | Lee      | Los Angeles   | CA    |
| 6          | Jennifer  | Wang     | Los Angeles   | CA    |

Accounts

| AccountID | CustomerID | BranchID | AccountType | Balance |
|-----------|------------|----------|-------------|---------|
| 1         | 1          | 5        | Checking    | 1000    |
| 2         | 1          | 5        | Savings     | 5000    |
| 3         | 2          | 1        | Checking    | 2500    |
| 4         | 2          | 1        | Savings     | ####    |
| 5         | 3          | 2        | Checking    | 7500    |
| 6         | 3          | 2        | Savings     | ####    |
| 7         | 4          | 8        | Checking    | 5000    |
| 8         | 4          | 8        | Savings     | ####    |
| 9         | 5          | 14       | Checking    | ####    |
| 10        | 5          | 14       | Savings     | ####    |
| 11        | 6          | 2        | Checking    | 5000    |
| 12        | 6          | 2        | Savings     | ####    |
| 13        | 1          | 5        | Credit Card | -500    |
| 14        | 2          | 1        | Credit Card | -1000   |
| 15        | 3          | 2        | Credit Card | -2000   |

Transactions

| TransactionID | AccoutID | TransactionDate | Amount |
|---------------|----------|-----------------|--------|
| 1             | 1        | 2022-01-01      | -500   |
| 2             | 1        | 2022-01-02      | -250   |
| 3             | 2        | 2022-01-03      | 1000   |
| 4             | 3        | 2022-01-04      | -1000  |
| 5             | 3        | 2022-01-05      | 500    |
| 6             | 4        | 2022-01-06      | 1000   |
| 7             | 4        | 2022-01-07      | -500   |
| 8             | 5        | 2022-01-08      | -2500  |
| 9             | 6        | 2022-01-09      | 500    |
| 10            | 6        | 2022-01-10      | -1000  |
| 11            | 7        | 2022-01-11      | -500   |
| 12            | 7        | 2022-01-12      | -250   |
| 13            | 8        | 2022-01-13      | 1000   |
| 14            | 8        | 2022-01-14      | -1000  |
| 15            | 9        | 2022-01-15      | 500    |

Branches

| BranchID | BranchName         | City          | State |
|----------|--------------------|---------------|-------|
| 1        | Main               | New York      | NY    |
| 2        | Downtown           | San Francisco | CA    |
| 3        | West LA            | Los Angeles   | CA    |
| 4        | East LA            | Los Angeles   | CA    |
| 5        | Uptown             | New York      | NY    |
| 6        | Financial District | San Francisco | CA    |
| 7        | Midtown            | New York      | NY    |
| 8        | South Bay          | San Francisco | CA    |
| 9        | Downtown           | Los Angeles   | CA    |
| 10       | Chinatown          | New York      | NY    |
| 11       | Marina             | San Francisco | CA    |
| 12       | Beverly Hills      | Los Angeles   | CA    |
| 13       | Brooklyn           | New York      | NY    |
| 14       | North Beach        | San Francisco | CA    |
| 15       | Pasadena           | Los Angeles   | CA    |

1. WHAT ARE THE NAMES OF ALL THE CUSTOMERS WHO LIVE IN NEW YORK?

```
3 SELECT CONCAT( FirstName, ' ', LastName) AS customer_name  
4 FROM Customers  
5 WHERE City = "New York";  
-
```

# OUTPUT

Query #1 Execution time: 8ms

| customer_name |
|---------------|
| John Doe      |
| Jane Doe      |

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2. WHAT IS THE TOTAL NUMBER OF ACCOUNTS IN THE ACCOUNTS TABLE?

```
9 SELECT COUNT(AccountID) AS Total  
10 FROM Accounts;
```

# OUTPUT

|              |                     |
|--------------|---------------------|
| Query #2     | Execution time: 1ms |
| <b>Total</b> |                     |
| 15           |                     |

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3. WHAT IS THE TOTAL  
BALANCE OF ALL CHECKING  
ACCOUNTS?

```
14 SELECT SUM(Balance) AS Total_Balance
15 FROM Accounts
16 WHERE AccountType = "Checking";
```

# OUTPUT

|                      |                     |
|----------------------|---------------------|
| Query #3             | Execution time: 0ms |
| <b>Total_Balance</b> |                     |
| 31000.00             |                     |

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4. WHAT IS THE TOTAL BALANCE  
OF ALL ACCOUNTS ASSOCIATED  
WITH CUSTOMERS WHO LIVE IN  
LOS ANGELES?

```
19  
20 SELECT SUM(A.Balance) AS Total_Balance  
21 FROM Accounts AS A  
22 JOIN Customers AS C USING(CustomerID)  
23 WHERE C.City = "Los Angeles";
```

# OUTPUT

| Query #4             | Execution time: 0ms |
|----------------------|---------------------|
| <b>Total_Balance</b> |                     |
|                      | 75000.00            |

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## 5. WHICH BRANCH HAS THE HIGHEST AVERAGE ACCOUNT BALANCE?

```
26  
27 SELECT B.BranchName, AVG(A.Balance) AS Highest_Average  
28 FROM Branches AS B  
29 JOIN Accounts AS A USING(BranchID)  
30 GROUP BY BranchID  
31 ORDER BY AVG(A.Balance) DESC  
32 LIMIT 1;
```

# OUTPUT

Query #5    Execution time: 1ms

| BranchName  | Highest_Average |
|-------------|-----------------|
| North Beach | 30000.000000    |

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## 6. WHICH CUSTOMER HAS THE HIGHEST CURRENT BALANCE IN THEIR ACCOUNTS?

```
--  
36 SELECT C.FirstName,C.LastName,SUM(A.Balance) AS highest_current_balance  
37 FROM Accounts AS A  
38 JOIN Customers AS C USING(CustomerID)  
39 GROUP BY C.CustomerID  
40 ORDER BY SUM(A.Balance) DESC  
41 LIMIT 1;
```

# OUTPUT

Query #6 Execution time: 0ms

| FirstName | LastName | highest_current_balance |
|-----------|----------|-------------------------|
| Michael   | Lee      | 60000.00                |

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## 7. WHICH CUSTOMER HAS MADE THE MOST TRANSACTIONS IN THE TRANSACTIONS TABLE?

```
44  
45 SELECT C.FirstName,C.LastName,COUNT(T.TransactionID) AS most_transactions  
46 FROM Transactions AS T  
47 JOIN Accounts AS A USING (AccountID)  
48 JOIN Customers AS C USING(CustomerID)  
49 GROUP BY C.FirstName,C.LastName  
50 ORDER BY COUNT(T.TransactionID) DESC  
51 LIMIT 2;  
52
```

# OUTPUT

Query #7    Execution time: 0ms

| FirstName | LastName | most_transactions |
|-----------|----------|-------------------|
| Alice     | Johnson  | 4                 |
| Jane      | Doe      | 4                 |

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8. WHICH BRANCH HAS THE HIGHEST TOTAL BALANCE ACROSS ALL OF ITS ACCOUNTS?

```
24  
55 SELECT B.BranchName, SUM(A.Balance) AS highest_total_balance  
56 FROM Branches AS B  
57 JOIN Accounts AS A USING(BranchID)  
58 GROUP BY B.BranchName  
59 ORDER BY SUM(A.Balance) DESC  
60 LIMIT 1;
```

# OUTPUT

Query #8   **Execution time: 0ms**

| BranchName  | highest_total_balance |
|-------------|-----------------------|
| North Beach | 60000.00              |

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9. WHICH CUSTOMER HAS THE HIGHEST TOTAL BALANCE ACROSS ALL OF THEIR ACCOUNTS, INCLUDING SAVINGS AND CHECKING ACCOUNTS?

```
64 SELECT C.FirstName,C.LastName,SUM(A.Balance) AS highest_total_balance
65 FROM Accounts AS A
66 JOIN Customers AS C USING(CustomerID)
67 WHERE A.AccountType IN("Savings" , "Checking")
68 GROUP BY CustomerID
69 ORDER BY SUM(A.Balance) DESC
```

# OUTPUT

Query #9 Execution time: 1ms

| FirstName | LastName | highest_total_balance |
|-----------|----------|-----------------------|
| Michael   | Lee      | 60000.00              |

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10. WHICH BRANCH HAS THE HIGHEST NUMBER OF TRANSACTIONS IN THE TRANSACTIONS TABLE?

```
74 SELECT B.BranchName,COUNT(T.TransactionID) AS most_transactions  
75 FROM Transactions AS T  
76 JOIN Accounts AS A USING (AccountID)  
77 JOIN Branches AS B USING(BranchID)  
78 GROUP BY B.BranchName  
79 ORDER BY COUNT(T.TransactionID) DESC  
80 LIMIT 2;
```

# OUTPUT

Query #10    Execution time: 0ms

| BranchName | most_transactions |
|------------|-------------------|
| South Bay  | 4                 |
| Main       | 4                 |

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