

## SQL Challenge 4

### Challenge 4 - Finance Analysis



# INTRODUCTION

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.

## TABLES

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	AccountID	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

# CASE STUDY QUESTIONS

1. What is the name of all the customers who live in New York?

```
104
105 -- 1. What are the names of all the customers who live in New York?
106
107 • SELECT FirstName, LastName
108 FROM CUSTOMERS
109 WHERE CITY = 'New York';
110
```

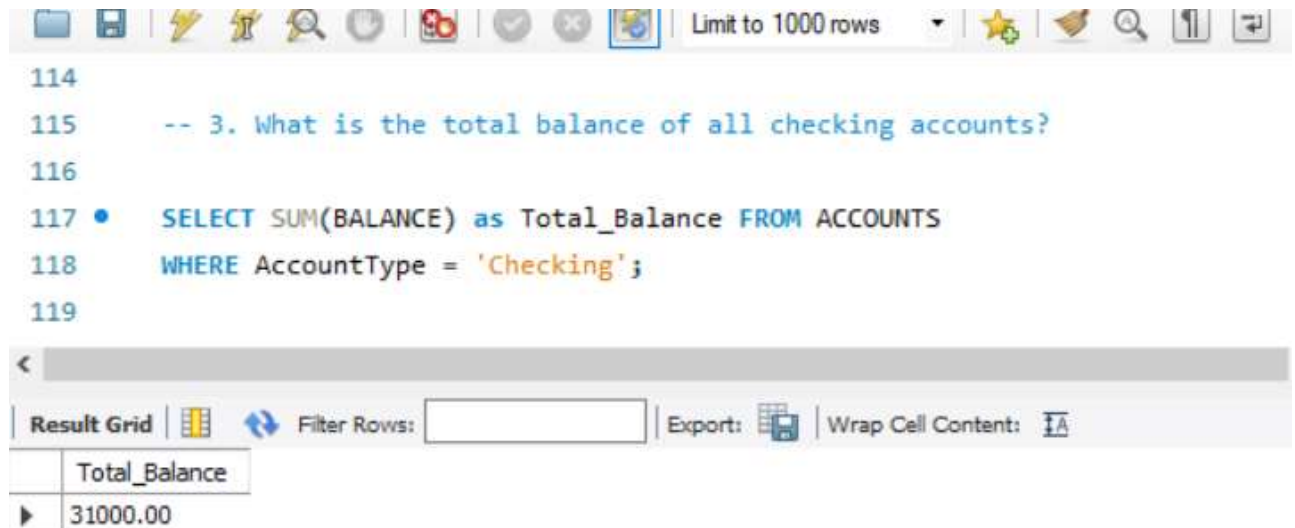
Result Grid		
	Filter Rows:	
	Export:	Wrap Cell Content:
FirstName	LastName	
John	Doe	
Jane	Doe	

2. What is the total number of accounts in the accounts table?

```
110
111 -- 2. What is the total number of accounts in the Accounts table?
112
113 • SELECT COUNT(AccountID) AS TOTAL_ACCOUNT FROM ACCOUNTS;
114
115
```

Result Grid	
	Filter Rows:
	Export:
	Wrap Cell Content:
TOTAL_ACCOUNT	
15	

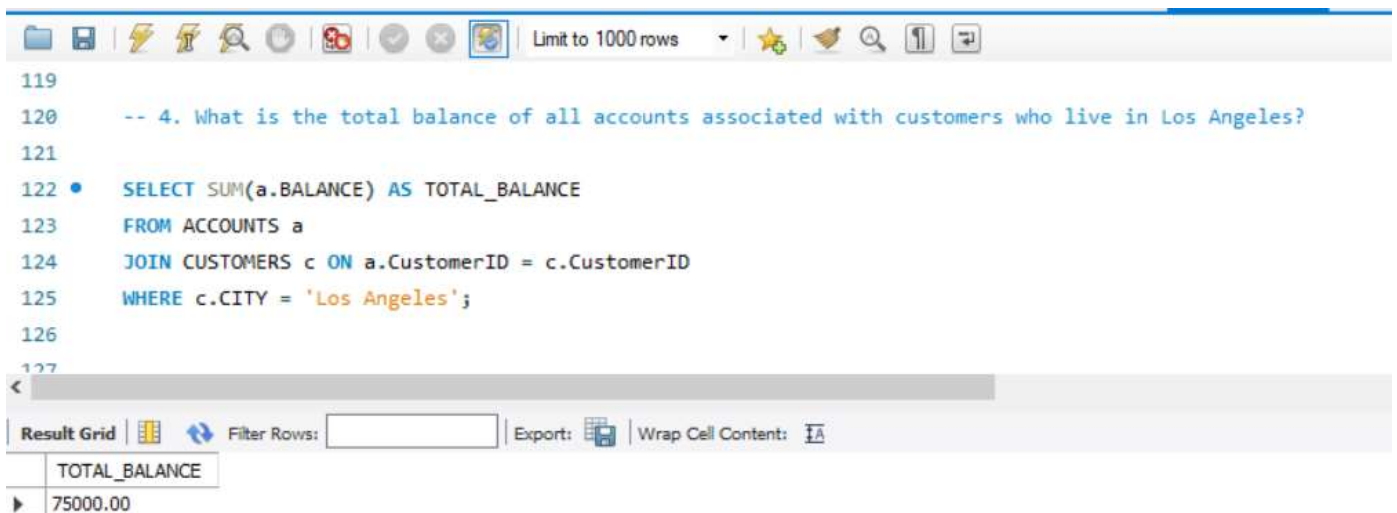
3. What is the total balance of all checking accounts?



```
114
115 -- 3. What is the total balance of all checking accounts?
116
117 • SELECT SUM(BALANCE) as Total_Balance FROM ACCOUNTS
118 WHERE AccountType = 'Checking';
119
```

Total_Balance
31000.00

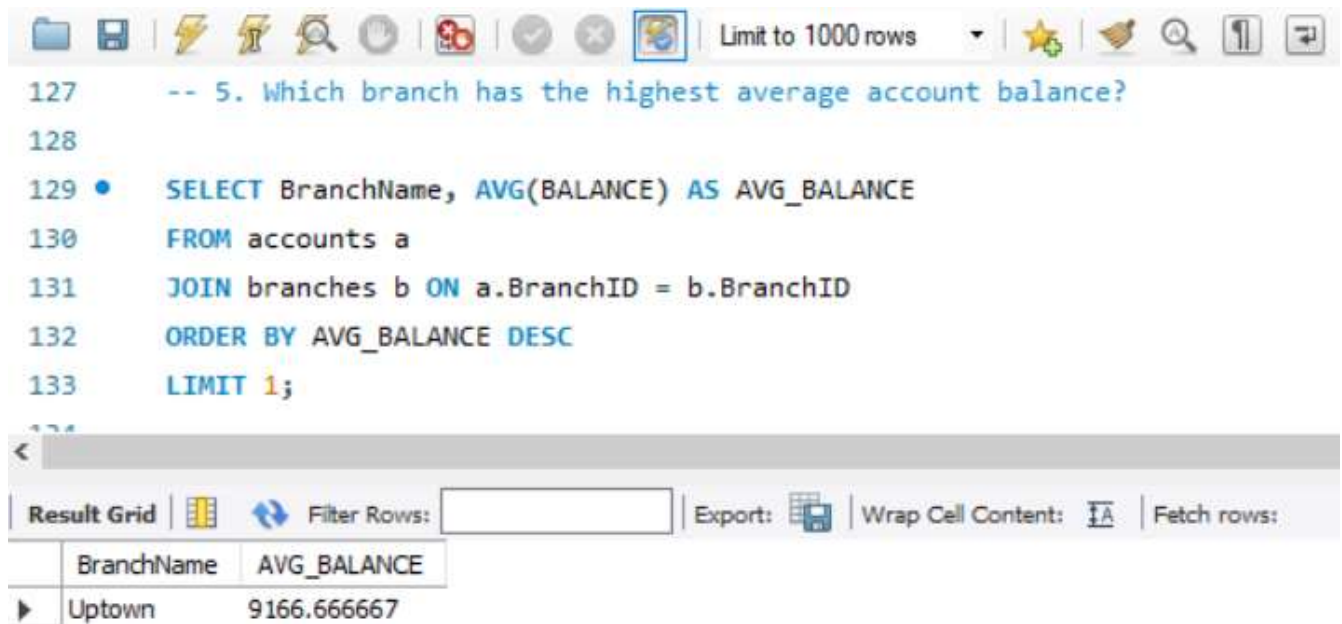
4. What is the total balance of all accounts associated with customers who live in Los Angeles?



```
119
120 -- 4. What is the total balance of all accounts associated with customers who live in Los Angeles?
121
122 • SELECT SUM(a.BALANCE) AS TOTAL_BALANCE
123 FROM ACCOUNTS a
124 JOIN CUSTOMERS c ON a.CustomerID = c.CustomerID
125 WHERE c.CITY = 'Los Angeles';
126
127
```

TOTAL_BALANCE
75000.00

5. Which branch has the highest average account balance?



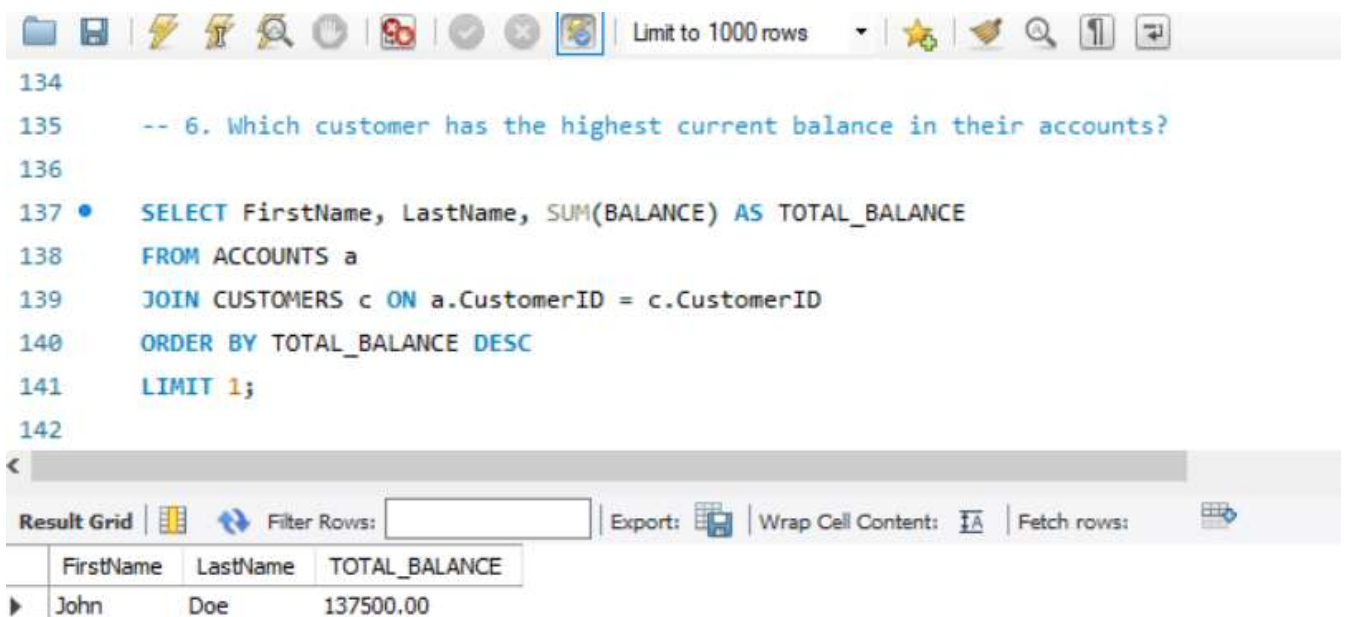
The screenshot shows a SQL IDE interface. The top toolbar includes icons for file operations, execution, and search, along with a dropdown menu set to "Limit to 1000 rows". The SQL editor contains the following query:

```
127 -- 5. Which branch has the highest average account balance?
128
129 • SELECT BranchName, AVG(BALANCE) AS AVG_BALANCE
130 FROM accounts a
131 JOIN branches b ON a.BranchID = b.BranchID
132 ORDER BY AVG_BALANCE DESC
133 LIMIT 1;
```

Below the editor, the "Result Grid" tab is active, displaying the query results in a table:

BranchName	AVG_BALANCE
Uptown	9166.666667

6. Which customer has the highest current balance in their accounts?



The screenshot shows a SQL IDE interface. The top toolbar includes icons for file operations, execution, and search, along with a dropdown menu set to "Limit to 1000 rows". The SQL editor contains the following query:

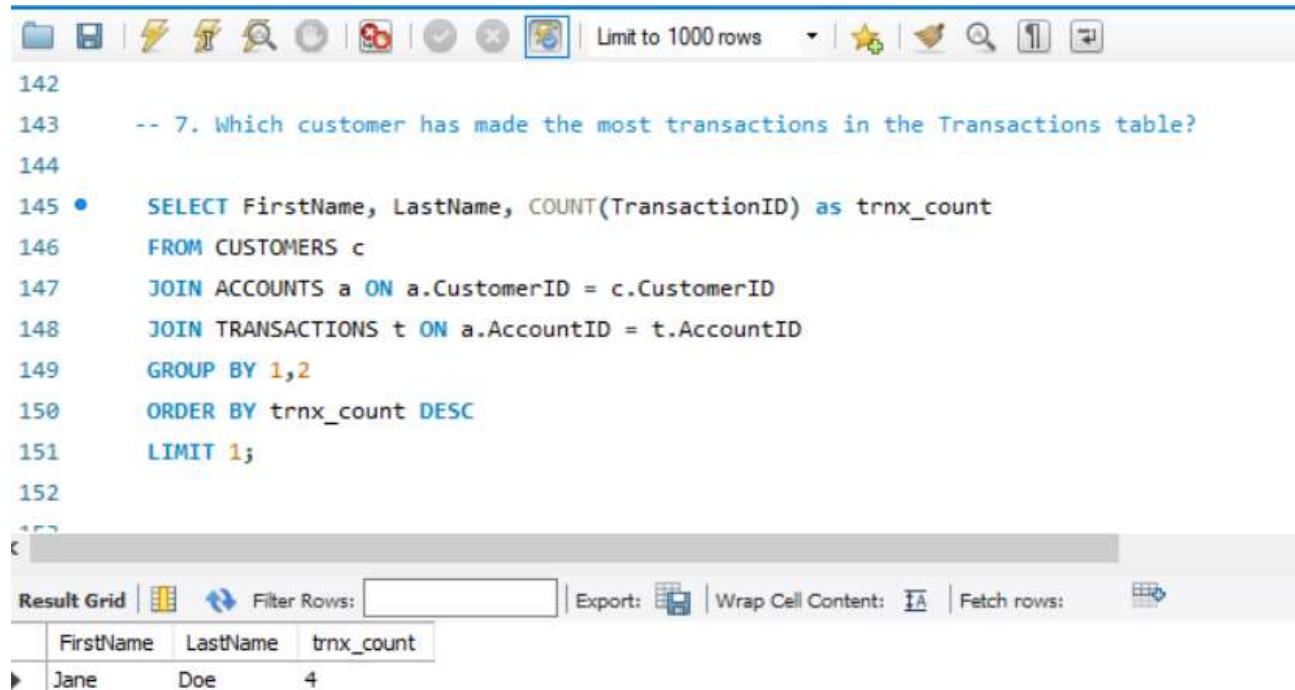
```
134
135 -- 6. Which customer has the highest current balance in their accounts?
136
137 • SELECT FirstName, LastName, SUM(BALANCE) AS TOTAL_BALANCE
138 FROM ACCOUNTS a
139 JOIN CUSTOMERS c ON a.CustomerID = c.CustomerID
140 ORDER BY TOTAL_BALANCE DESC
141 LIMIT 1;
```

Below the editor, the "Result Grid" tab is active, displaying the query results in a table:

FirstName	LastName	TOTAL_BALANCE
John	Doe	137500.00



7. Which customer has made the most transactions in the Transactions table?



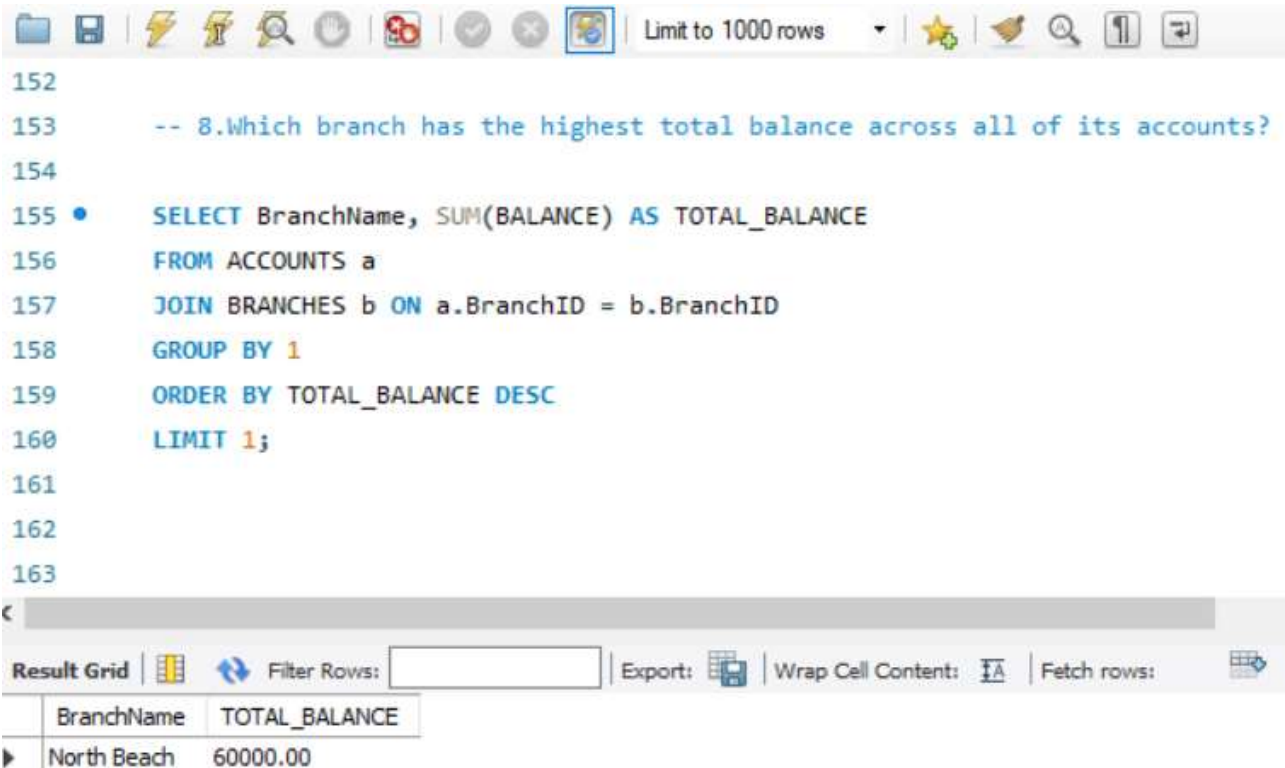
The screenshot shows a SQL IDE interface. The top toolbar includes icons for file operations, execution, and search, along with a 'Limit to 1000 rows' dropdown. The SQL editor contains the following query:

```
142
143 -- 7. Which customer has made the most transactions in the Transactions table?
144
145 • SELECT FirstName, LastName, COUNT(TransactionID) as trnx_count
146 FROM CUSTOMERS c
147 JOIN ACCOUNTS a ON a.CustomerID = c.CustomerID
148 JOIN TRANSACTIONS t ON a.AccountID = t.AccountID
149 GROUP BY 1,2
150 ORDER BY trnx_count DESC
151 LIMIT 1;
152
```

Below the editor, the 'Result Grid' tab is active, displaying the query results in a table:

FirstName	LastName	trnx_count
Jane	Doe	4

8. Which branch has the highest total balance across all of its accounts?



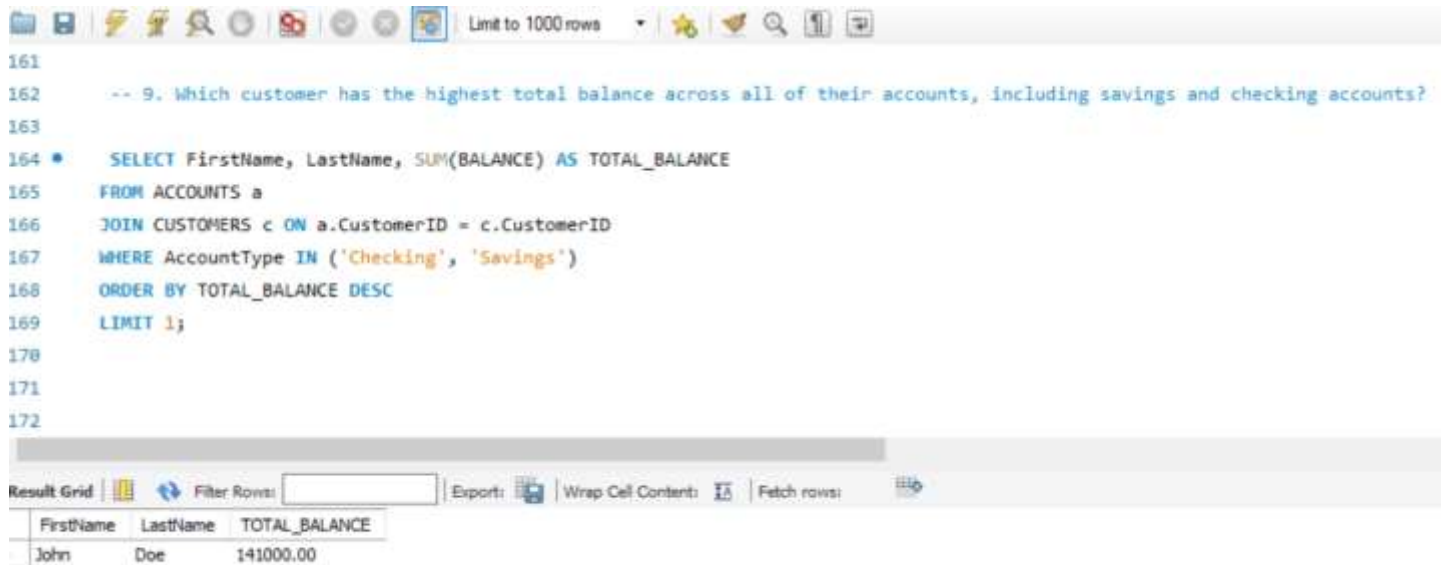
The screenshot shows a SQL IDE interface. The top toolbar includes icons for file operations, execution, and search, along with a 'Limit to 1000 rows' dropdown. The SQL editor contains the following query:

```
152
153 -- 8. Which branch has the highest total balance across all of its accounts?
154
155 • SELECT BranchName, SUM(BALANCE) AS TOTAL_BALANCE
156 FROM ACCOUNTS a
157 JOIN BRANCHES b ON a.BranchID = b.BranchID
158 GROUP BY 1
159 ORDER BY TOTAL_BALANCE DESC
160 LIMIT 1;
161
162
163
```

Below the editor, the 'Result Grid' tab is active, displaying the query results in a table:

BranchName	TOTAL_BALANCE
North Beach	60000.00

9. Which customer has the highest total balance across all of their accounts, including savings and checking accounts?



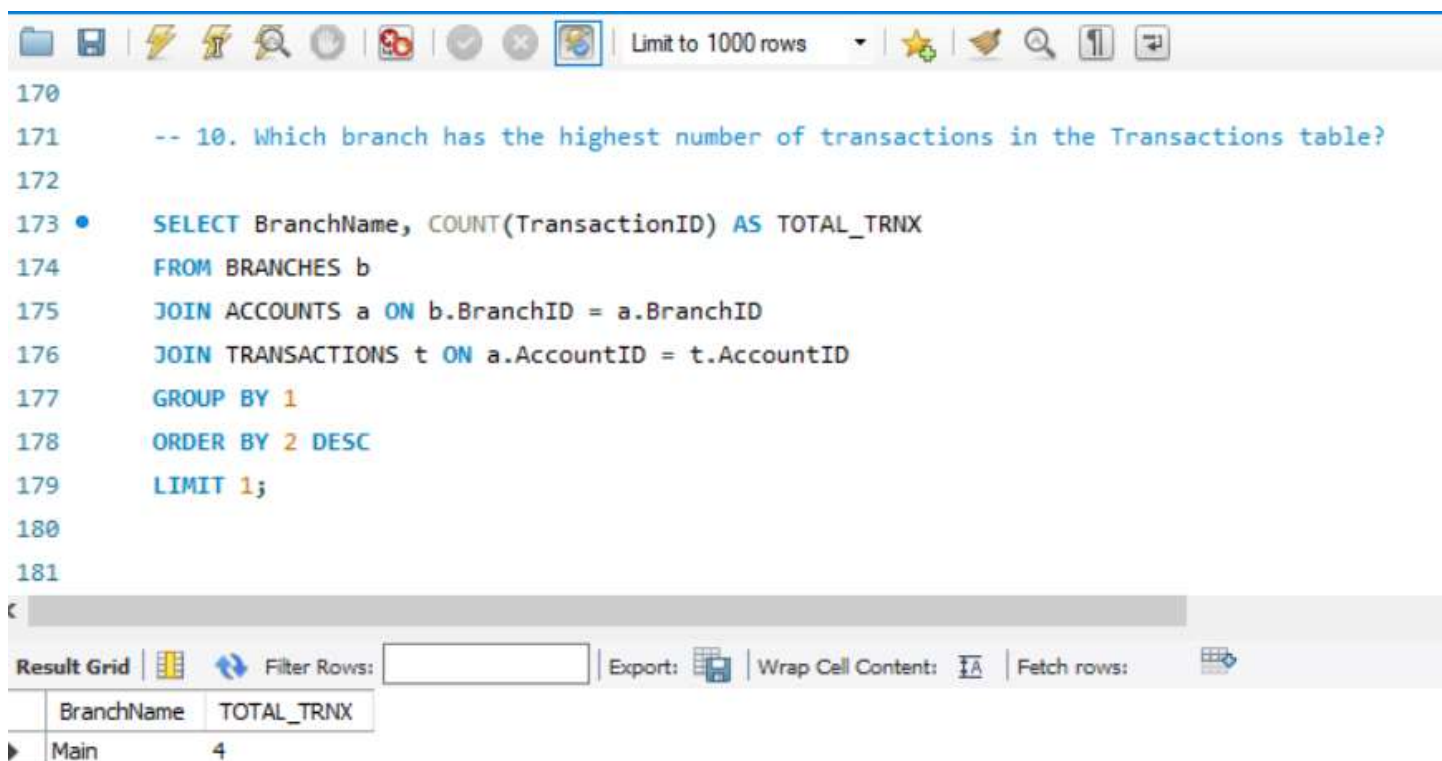
The screenshot shows a SQL IDE interface with a query editor and a result grid. The query is as follows:

```
-- 9. Which customer has the highest total balance across all of their accounts, including savings and checking accounts?  
  
SELECT FirstName, LastName, SUM(BALANCE) AS TOTAL_BALANCE  
FROM ACCOUNTS a  
JOIN CUSTOMERS c ON a.CustomerID = c.CustomerID  
WHERE AccountType IN ('Checking', 'Savings')  
ORDER BY TOTAL_BALANCE DESC  
LIMIT 1;
```

The result grid shows the following data:

FirstName	LastName	TOTAL_BALANCE
John	Doe	141000.00

10. Which branch has the highest number of transactions in the Transactions table?



The screenshot shows a SQL IDE interface with a query editor and a result grid. The query is as follows:

```
-- 10. Which branch has the highest number of transactions in the Transactions table?  
  
SELECT BranchName, COUNT(TransactionID) AS TOTAL_TRNX  
FROM BRANCHES b  
JOIN ACCOUNTS a ON b.BranchID = a.BranchID  
JOIN TRANSACTIONS t ON a.AccountID = t.AccountID  
GROUP BY 1  
ORDER BY 2 DESC  
LIMIT 1;
```

The result grid shows the following data:

BranchName	TOTAL_TRNX
Main	4

