Homework 2

SUBJECT: RE: Welcome to your second week at Borromean!
TO: Kelly Davenport (CTO)
FROM: Jonas Zhonghan Xie (Database Team)

Hi Kelly,

Thank you for your email! I am more than delighted to be part of Borromean. I attached my answers and the data dictionaries for the tables to this email.

Part 1

1. Every investor will pay about $2,112,857 for the share of the company.

```
mysql> SELECT (30000000-15210000)/7;
+------------------------+
| (30000000-15210000)/7 |
+------------------------+
|          2112857.1429 |
+------------------------+
1 row in set (0.06 sec)
```

Part 2

1. There are 24 accounts in the `account` dataset.

```
mysql> SELECT account_id FROM account;
+------------+
| account_id |
+------------+
|         10 |
|         11 |
|         12 |
|         14 |
|         15 |
|         21 |
|         22 |
|         23 |
|          1 |
|          2 |
|          3 |
|          4 |
|          5 |
|         17 |
|         27 |
|          7 |
|          8 |
|         29 |
|         13 |
|         18 |
|         19 |
|         24 |
|         25 |
|         28 |
+------------+
24 rows in set (0.10 sec)
```

2. The primary key of the `account` table is `account_id`. The description of `account` is shown below:

```
mysql> DESC account;
+--------------------+----------------------------------+------+-----+---------+----------------+
| Field              | Type                             | Null | Key | Default | Extra          |
+--------------------+----------------------------------+------+-----+---------+----------------+
| account_id         | int unsigned                     | NO   | PRI | NULL    | auto_increment |
| product_cd         | varchar(10)                      | NO   | MUL | NULL    |                |
| cust_id            | int unsigned                     | NO   | MUL | NULL    |                |
| open_date          | date                             | NO   |     | NULL    |                |
| close_date         | date                             | YES  |     | NULL    |                |
| last_activity_date | date                             | YES  |     | NULL    |                |
| status             | enum('ACTIVE','CLOSED','FROZEN') | YES  |     | NULL    |                |
| open_branch_id     | smallint unsigned                | YES  | MUL | NULL    |                |
| open_emp_id        | smallint unsigned                | YES  | MUL | NULL    |                |
| avail_balance      | float(10,2)                      | YES  |     | NULL    |                |
| pending_balance    | float(10,2)                      | YES  |     | NULL    |                |
+--------------------+----------------------------------+------+-----+---------+----------------+
11 rows in set (0.07 sec)
```

3. As you can see from the description of the `account` table above, the status of the accounts can be ACTIVE, CLOSED or FROZEN. But in the `account` table, the accounts are all ACTIVE.

```
mysql> SELECT DISTINCT status FROM account;
+--------+
| status |
+--------+
| ACTIVE |
+--------+
1 row in set (0.05 sec)
```

Part 3

1. The employee who has the ID `1` has opened the most accounts. The employee has opened 8 accounts.

```
mysql> SELECT open_emp_id FROM account ORDER BY open_emp_id;
+-------------+
| open_emp_id |
+-------------+
|           1 |
|           1 |
|           1 |
|           1 |
|           1 |
|           1 |
|           1 |
|           1 |
|          10 |
|          10 |
|          10 |
|          10 |
|          10 |
|          10 |
|          10 |
|          10 |
|          13 |
|          13 |
|          13 |
|          16 |
|          16 |
|          16 |
|          16 |
|          16 |
|          16 |
+-------------+
24 rows in set (0.07 sec)
```

2. The top-performing employee who has the ID `1` started working the company on June 22, 2001.

```
mysql> SELECT emp_id, start_date FROM employee ORDER BY emp_id;
+--------+------------+
| emp_id | start_date |
+--------+------------+
|      1 | 2001-06-22 |
|      2 | 2002-09-12 |
|      3 | 2000-02-09 |
|      4 | 2002-04-24 |
|      5 | 2003-11-14 |
|      6 | 2004-03-17 |
|      7 | 2004-09-15 |
|      8 | 2002-12-02 |
|      9 | 2002-05-03 |
|     10 | 2002-07-27 |
|     11 | 2000-10-23 |
|     12 | 2003-01-08 |
|     13 | 2000-05-11 |
|     14 | 2002-08-09 |
|     15 | 2003-04-01 |
|     16 | 2001-03-15 |
|     17 | 2002-06-29 |
|     18 | 2002-12-12 |
+--------+------------+
18 rows in set (0.06 sec)
```

Part 4

1. The recent transaction date and the accounts are shown below:

```
mysql> SELECT txn_date, account_id FROM transaction ORDER BY txn_date DESC;
+---------------------+------------+
| txn_date            | account_id |
+---------------------+------------+
| 2004-12-28 00:00:00 |         15 |
| 2004-10-28 00:00:00 |         22 |
| 2004-09-30 00:00:00 |         12 |
| 2004-06-30 00:00:00 |         23 |
| 2004-06-30 00:00:00 |          3 |
| 2004-01-27 00:00:00 |         13 |
| 2004-01-12 00:00:00 |         17 |
| 2003-09-12 00:00:00 |         10 |
| 2003-07-30 00:00:00 |         28 |
| 2003-07-30 00:00:00 |         21 |
| 2002-12-15 00:00:00 |          8 |
| 2002-11-23 00:00:00 |          7 |
| 2002-09-30 00:00:00 |         24 |
| 2002-08-24 00:00:00 |         14 |
| 2001-05-23 00:00:00 |         18 |
| 2001-05-23 00:00:00 |         19 |
| 2001-03-12 00:00:00 |          5 |
| 2001-03-12 00:00:00 |          4 |
| 2000-01-15 00:00:00 |         11 |
| 2000-01-15 00:00:00 |          2 |
| 2000-01-15 00:00:00 |          1 |
+---------------------+------------+
21 rows in set (0.10 sec)
```

2. The primary key of the `transaction` table is `txn_id`. The description of `transaction` is shown below:

```
mysql> DESC transaction;
+---------------------+-------------------+------+-----+---------+----------------+
| Field               | Type              | Null | Key | Default | Extra          |
+---------------------+-------------------+------+-----+---------+----------------+
| txn_id              | int unsigned      | NO   | PRI | NULL    | auto_increment |
| txn_date            | datetime          | NO   |     | NULL    |                |
| account_id          | int unsigned      | NO   | MUL | NULL    |                |
| txn_type_cd         | enum('DBT','CDT') | YES  |     | NULL    |                |
| amount              | double(10,2)      | NO   |     | NULL    |                |
| teller_emp_id       | smallint unsigned | YES  | MUL | NULL    |                |
| execution_branch_id | smallint unsigned | YES  | MUL | NULL    |                |
| funds_avail_date    | datetime          | YES  |     | NULL    |                |
+---------------------+-------------------+------+-----+---------+----------------+
8 rows in set (0.06 sec)
```

Part 5

1. About the branches, there are 3 branches are located in Massachusetts.

```
mysql> SELECT branch_id, state FROM branch  ORDER BY state DESC;
+-----------+-------+
| branch_id | state |
+-----------+-------+
|         4 | NH    |
|         1 | MA    |
|         2 | MA    |
|         3 | MA    |
+-----------+-------+
4 rows in set (0.13 sec)
```

2. The name, address and the ZIP code of the branches are listed below. I also attached the query time as a field below.

```
mysql> SELECT name, address, zip, NOW() FROM branch;
+--------------+---------------------+-------+---------------------+
| name         | address             | zip   | NOW()               |
+--------------+---------------------+-------+---------------------+
| Headquarters | 3882 Main St.       | 02451 | 2025-02-01 19:19:50 |
| Woburn Branch | 422 Maple St.      | 01801 | 2025-02-01 19:19:50 |
| Quincy Branch | 125 Presidential Way | 02169 | 2025-02-01 19:19:50 |
| So. NH Branch | 378 Maynard Ln.    | 03079 | 2025-02-01 19:19:50 |
+--------------+---------------------+-------+---------------------+
4 rows in set (0.05 sec)
```

I also created the data dictionaries for the tables mentioned above: `account`, `employee`, `transaction`, and `branch`. You can find the data dictionary in each sheet in the Excel file which is attached to this email. Please let me know if you have any questions or additional data request for the next steps.

For Raj's question, it took me about half to an hour to complete the task and create the data dictionaries. I haven't heard from him about his farm business yet. But it really sounds interesting to run a farm!

Thank you again!

Best,
Jonas