Data Science Challenge

We have attached a cleaned-up and redacted data set that simulates Brex financial data.

There are four tables for you to work with:

1. Customer Accounts (id, name): a list of our customers with their names redacted and a unique identifier
2. Financial Accounts (id, customer_account_id, name): a list of bank accounts belonging to our customers
    a. customer_account_id: The ID of the customer that owns this bank account from Customer Accounts (table 1)
    b. id, name: Unique financial account identifier and redacted name of the account
3. Financials Balances (id, account_id, amount, accrual_date): a reading of the end-of-day balance per financial account
    a. account_id: the ID of the financial account (table 2) that the balance reading belongs to
    b. amount and accrual_date: The balance (in cents) reading and the date this reading was taken
4. Financials Transactions (id, account_id, amount, accrual_date): list of transactions in and out of each financial account
    a. account_id: the ID of the financial account (table 2) that the transaction reading belongs to
    b. amount and accrual_date: the amount (in cents) of each transaction and the date when the transaction occurred. Negative transactions are money leaving the bank account and positive transactions are money coming in

Task:

Calculate the approximate **total daily balance per customer**

1. The resulting table should have **one row per calendar day per customer**.
2. There are neither balance readings nor transactions for every calendar day per customer. This means you will need to **fill in missing calendar days** and interpolate a balance for those days (to make things simpler, we strongly recommend using the date range 2017-01-01 to 2018-09-22 for every customer).

3. Be careful of other possible data integrity issues.
4. There are a few ways to calculate the daily balance and each one may give you slightly different daily values. Don't worry about which one is most "correct". Instead, just pick one method (**make sure to use both financials_balances and financials_transactions tables**) and tell us how you did it.

Whatever method you choose, try to make it reasonably performant. It should not be taking more than a few minutes to re-derive the values. Take 2 hours max for the whole challenge. However far you get is OK. The time limit should give you an idea of the level of the solution we are looking for, so don't go too far down the rabbit hole. Use whatever database or scripting language you prefer. You may also use any online resources freely.

Submission
Submit the following:

1. Table/CSV with customer_account_id, date, balance columns
2. A brief outline on the method (in-line comments are fine)
3. All code needed for us to replicate your results (Notebook, scripts, SQL code, etc.)