Kyle Shin

How to use

1. Go into psql terminal and enter the lines in create_db.txt
2. Run test.py in order to create the initial tables
3. Run certik_api.py and run the API through a REST client like Insomnia.

Design

In this concept for a naive distributed transaction system, I designed an API using Python while maintaining my database using PostgreSQL. Some of the inspirations for the overall design techniques are derived from https://codeburst.io/this-is-how-easy-it-is-to-create-a-rest-api-8a25122ab1f3 and http://www.postgresqltutorial.com/postgresql-python/

PostgreSQL is used for 3 tables: transactions, users, and messages. The transactions table will store the sender/recipient ids and the amount sent. Users will be able to access all the transactions through the API. Users table stores unique usernames, the total balance, and a list of peers. Messages table stores the sender/recipient ids along with the message sent. Unlike the transactions table, the messages table only allows users to access messages they've received.

get_transactions/get_messages - Checks if the user(s) exist and then returns all of the transactions and messages related to the arguments. Transactions can be filtered by the sender, recipient, and messages can be filtered by senders only.

Set_peers - Goes through a user's messages and then sets the first 5 peers who sends it a "Y"

Post_user - creates a new user and makes sure balance is a valid number and that the username is unique

put_transactions/put_messages - Checks if the user(s) exist and then sends them currency or a message. For transactions, the API makes sure there is enough money in the user's balance before conducting the transaction and updating both user's balances. Messages and transactions will be stored in the table

Delete - Deletes a user from users and then changes all columns with that username to deleted_user to free up the name

Issues

Besides working with APIs and SQL for the first time, some of the few issues I've run into has led to potential issues when compiling this code. For one, I had issues with the installation of PostgreSQL so I was unable to test my methods involving the databases. Also I ran into difficulty with figuring out how to select specific users to add to the list of peers.