DOS COP5615 Project 4 Part 1
Siddharth Jain 9881-8991
Syed Muhammad Ali 3816-1305

Key Functionalities:

- Register account
- Send a tweet. Tweets can have hashtags and mentions.
- Subscribe to user's tweets
- Re-tweets
- Query tweets subscribed to, tweets with specific hashtags, tweets in which the user is mentioned
- If the user is connected, the tweets are delivered live (without querying)

Simulator Functionalities:

- The simulator simulates as many users as the input provided
- Periodically, the simulator connects & disconnects users randomly
- The number of subscribers to users are assigned based on zipf distribution. The user with more subscribers tweets more frequently. The frequency is directly proportional to the user's subscribers.

Other Considerations:
- The client part (send/receive tweets) and the engine (distribute tweets) run on separate processes.

RUNNING INSTRUCTIONS:

Go to \Twitter Clone\Twitter Clone

1. Run the Server.fsx file as: dotnet fsi --langversion:preview ServerPerformance.fsx
2. Run the Client.fsx file as: dotnet fsi --langversion:preview ClientPerformance.fsx <no_of_clients> <no_of_requests> eg. dotnet fsi --langversion:preview ClientPerformance.fsx 2000 2000

Performance:

For 2000 clients & 2000 total requests:

Average time per tweet is 145.804178 milliseconds

Average time per mention query is 431.713918 milliseconds

Average time per subscribed query is 145.804178 milliseconds

Average time per hashtag query is 452.716216 milliseconds