DOS Project Part1 Requirements:

In this project, you have to implement a Twitter Clone and a client tester/simulator.

As of now, Tweeter does not seem to support a WebSocket API. As part I of this project, you need to build an engine that (in part II) will be paired up with WebSockets to provide full functionality. Specific things you have to do are:

- Implement a Twitter like engine with the following functionality:
  - Register account
  - Send tweet. Tweets can have hashtags (e.g. #COP5615isgreat) and mentions (@bestuser)
  - Subscribe to user's tweets
  - Re-tweets (so that your subscribers get an interesting tweet you got by other means)
  - Allow querying tweets subscribed to, tweets with specific hashtags, tweets in which the user is mentioned (my mentions)
  - If the user is connected, deliver the above types of tweets live (without querying)
- Implement a tester/simulator to test the above
  - Simulate as many users as you can
  - Simulate periods of live connection and disconnection for users
  - Simulate a Zipf distribution on the number of subscribers. For accounts with a lot of subscribers, increase the number of tweets. Make some of these messages re-tweets
- Other considerations:
  - The client part (send/receive tweets) and the engine (distribute tweets) have to be in separate processes. Preferably, you use multiple independent client processes that simulate thousands of clients and a single engine process
  - You need to measure various aspects of your simulator and report performance
  - More detail in lecture as the project progresses.

You need to submit your code, instructions how to run it and a report with performance numbers.