

# TWITTER SIMULATOR

## PROJECT 4 - PART I

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### Running Instructions:

We need two terminals - one to run the twitter engine and the other to run the simulator.

1. First run `mix.escript.build` in both the terminals.
2. On Twitter engine/server, give the following command  
**`escript project4 engine`**
3. On Twitter Simulator give the below command  
**`escript project4 client <IP_ADDR_OF_ENGINE> <NO_OF_USERS>`**  
**Example: `escript project4 client 192.168.1.220 1000`**

### What is working:

The client connects to the server at the IP provided.

#### 1. Setup Phase

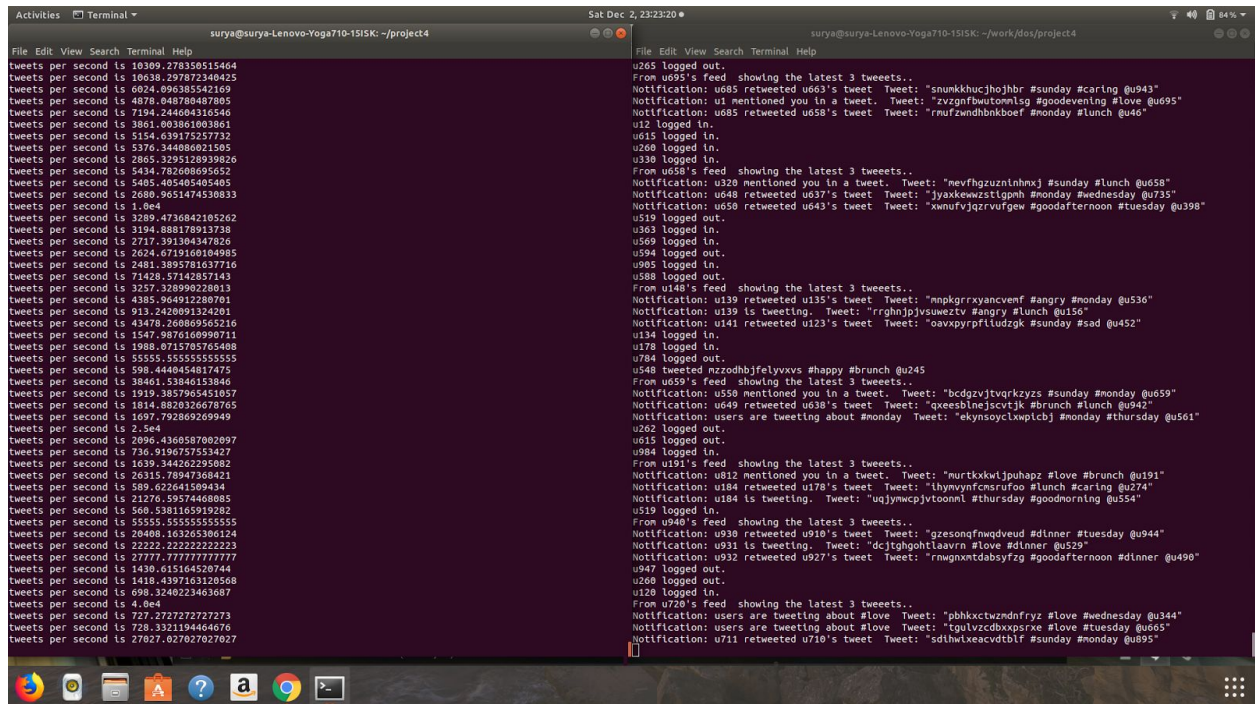
The simulator sends the request for registration or signup of the users. Once that is done simulator saves fixed number of hashtags and randomly assigns users to the hashtags. After that using Zipf distribution users are subscribed to other users. We have taken  $s$  value in the Zipf distribution equal to 2.

#### 2. Running phase

Once the setup is done each user sends tweets to the server. Server keeps track of the tweets and retweets that the simulator sends. Based on the count in the server server output's a rate of tweets per sec. Also, each process runs random amount of time, and logouts. When logout happens processes are killed, and simulator schedule the logged

out users to login after a random amount of time. While the user is logged out the tweets, mentions etc that the user is supposed to read are collected as feed in the server. Once the user is logged the feed is send to the user.

## Screenshot of the simulation in action:



```
File Edit View Search Terminal Help
tweeps per second ls 10309.278350515464
tweeps per second ls 10638.297872340425
tweeps per second ls 6024.096385542169
tweeps per second ls 4870.048780487085
tweeps per second ls 7194.244604316546
tweeps per second ls 3861.003861003861
tweeps per second ls 5154.63917527732
tweeps per second ls 5376.344086021505
tweeps per second ls 2865.3295128939826
tweeps per second ls 5434.782608695652
tweeps per second ls 5405.405405405405
tweeps per second ls 2680.9651474530833
tweeps per second ls 1.0e4
tweeps per second ls 3289.4736842165262
tweeps per second ls 3194.888178917320
tweeps per second ls 2717.391304347826
tweeps per second ls 2624.6719160104985
tweeps per second ls 2481.3895781637716
tweeps per second ls 71428.574142857143
tweeps per second ls 3257.328998228013
tweeps per second ls 4385.964912288701
tweeps per second ls 913.24208913242081
tweeps per second ls 43478.268869565216
tweeps per second ls 1547.9876100990711
tweeps per second ls 1988.0715705765408
tweeps per second ls 55555.555555555555
tweeps per second ls 598.4440454817475
tweeps per second ls 38461.53846153846
tweeps per second ls 1919.3857965451057
tweeps per second ls 1814.8828326670765
tweeps per second ls 1697.792869269949
tweeps per second ls 2.5e4
tweeps per second ls 2996.4368587082097
tweeps per second ls 736.9196757553427
tweeps per second ls 1639.344262295882
tweeps per second ls 26315.78947368421
tweeps per second ls 589.622641589434
tweeps per second ls 21276.59574468885
tweeps per second ls 568.538165919282
tweeps per second ls 55555.555555555555
tweeps per second ls 20480.163265366124
tweeps per second ls 22222.222222222223
tweeps per second ls 27777.777777777777
tweeps per second ls 1430.015164520744
tweeps per second ls 1410.4397163120508
tweeps per second ls 698.3240223463687
tweeps per second ls 4.0e4
tweeps per second ls 727.2727272727273
tweeps per second ls 728.3321194464676
tweeps per second ls 27827.027027027027

u265 logged out.
From u695's feed showing the latest 3 tweets..
Notification: u685 retweeted u693's tweet Tweet: "snunkkhucjohjbr #sunday #caring @u943"
Notification: u1 mentioned you in a tweet. Tweet: "zugzfbuwtomlsg #goodevening #love @u695"
u12 logged in.
u615 logged in.
u268 logged in.
u330 logged in.
From u658's feed showing the latest 3 tweets..
Notification: u328 mentioned you in a tweet. Tweet: "mevfhgzuznlnhmj #sunday #lunch @u658"
Notification: u648 retweeted u637's tweet Tweet: "jyaxkewzstlgpmh #monday #wednesday @u735"
Notification: u658 retweeted u643's tweet Tweet: "xwnufvjzrvufweg #goodafternoon #tuesday @u398"
u519 logged out.
u363 logged in.
u569 logged in.
u594 logged out.
u905 logged in.
u588 logged out.
From u148's feed showing the latest 3 tweets..
Notification: u139 retweeted u135's tweet Tweet: "mnpkgrrryancvenf #angry #monday @u536"
Notification: u139 is tweeting. Tweet: "rrghnjpvswewzlv #angry #lunch @u150"
Notification: u141 retweeted u123's tweet Tweet: "oavxpyrpfliudzgk #sunday #sad @u452"
u134 logged in.
u178 logged in.
u784 logged out.
u548 tweeted nzzodbbjfylyxvs #happy #brunch @u245
From u659's feed showing the latest 3 tweets..
Notification: u558 mentioned you in a tweet. Tweet: "bcdgzyjvqrkzyzs #sunday #monday @u659"
Notification: u649 retweeted u630's tweet Tweet: "qresbnejsvcvj #brunch #lunch @u942"
Notification: users are tweeting about #monday Tweet: "ekynsoyclxwplcbj #monday #thursday @u561"
u262 logged out.
u615 logged out.
u984 logged in.
From u191's feed showing the latest 3 tweets..
Notification: u812 mentioned you in a tweet. Tweet: "murtkxkwjpuhapz #love #brunch @u191"
Notification: u184 retweeted u178's tweet Tweet: "thymvynfensrufuo #lunch #caring @u274"
Notification: u184 is tweeting. Tweet: "uqjynwcpjytcoonn #thursday #goodmorning @u554"
u519 logged in.
From u940's feed showing the latest 3 tweets..
Notification: u938 retweeted u910's tweet Tweet: "gzsonqfmgwdveud #dinner #tuesday @u944"
Notification: u931 is tweeting. Tweet: "dcjthghohtlaavr #love #dinner @u529"
Notification: u932 retweeted u927's tweet Tweet: "rmgnxntdabsyfrzg #goodafternoon #dinner @u490"
u947 logged out.
u269 logged out.
u128 logged in.
From u720's feed showing the latest 3 tweets..
Notification: users are tweeting about #love Tweet: "pbhkxctvzndnfrfyz #love #wednesday @u344"
Notification: "tgvlvzcdxbxpsrxe #love #tuesday @u665"
Notification: u711 retweeted u710's tweet Tweet: "sdtwhlxecvdtblf #sunday #monday @u895"
```

## Performance Metrics:

Users	Avg tweets
30	125.37
100	1723.24
1000	4850.02
5000	9146.73
10000	8562.55

In a single machine increasing the number of users created flooding of processes so the rate is decreased.

Maximum rate of tweets that is generated is 1.25 million tweets per second.