COP5615 – Fall 2019

Project 4.1 – Twitter Engine

Project 4.1 Bonus Report

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Bonus Implementation: We did following changes for bonus part

- We disconnected users for a random time for 100 to 200 msec. Note that user is offline for longer time than he is online in our simulation.
- To simulate zipf distribution we increased the number of followers of certain accounts to be higher (according to zipf distribution s = 1, c = 2*n). [A network graph with followers obeying zipf law is attached below)
- We also increased number of tweets/retweets for accounts with large number of subscribers.

How to run: Run the following commands in Sequence

- mix deps.get
- mix compile
- mix run project4.exs <num_user> <num_tweets>

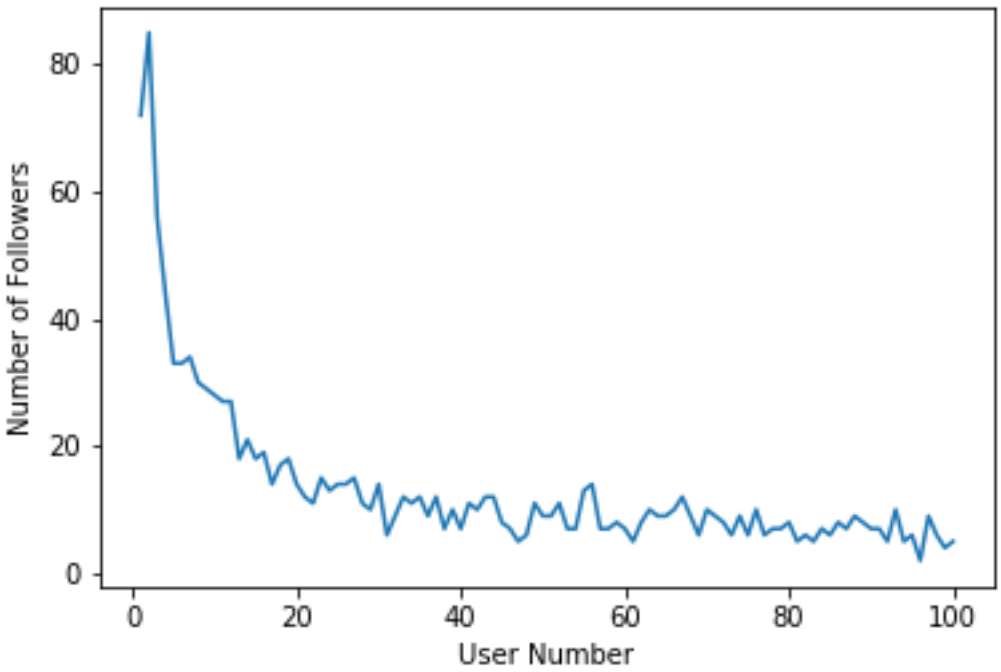
Performance Test:

(num_Users, lowest_num_tweet)*	Total time taken to converge	Avg Number of Tweet Received in Online Mode	Avg Number of Tweet Received in Offline + Online	Average Tweet Time	Avg Time for Search
50,10	**25453 ms**	**27**	**431**	**4.28 ms**	**0.1 ms**
100,10	**25844 ms**	**35**	**447**	**5.16 ms**	**0.1 ms**
100,100	**51547ms**	**35**	**1738**	**15.82 ms**	**2.83 ms**
1000,10	**85625 ms**	**35**	**746**	**102.44 ms**	**8.43 ms**
1000,50	**1131 s**	**37**	**3037**	**256 ms**	**12 ms**

*Note that in performance test num_tweet is lowest number of tweets to tweet. Account with more followers(subscribers) will have a large number of tweets to tweet.

To see that our social graph follows zipf distribution(on number of subscriber) we have attached visulaization of graph with 100 nodes. We have attached both radial layout and level wise layout. In radial layout, nodes at center have large size and large number of followers. As we move from centre, the number of followers decrease and node size decrease as well.

Fig 1. Number of Subscriber vs User Number, for 100 nodes network



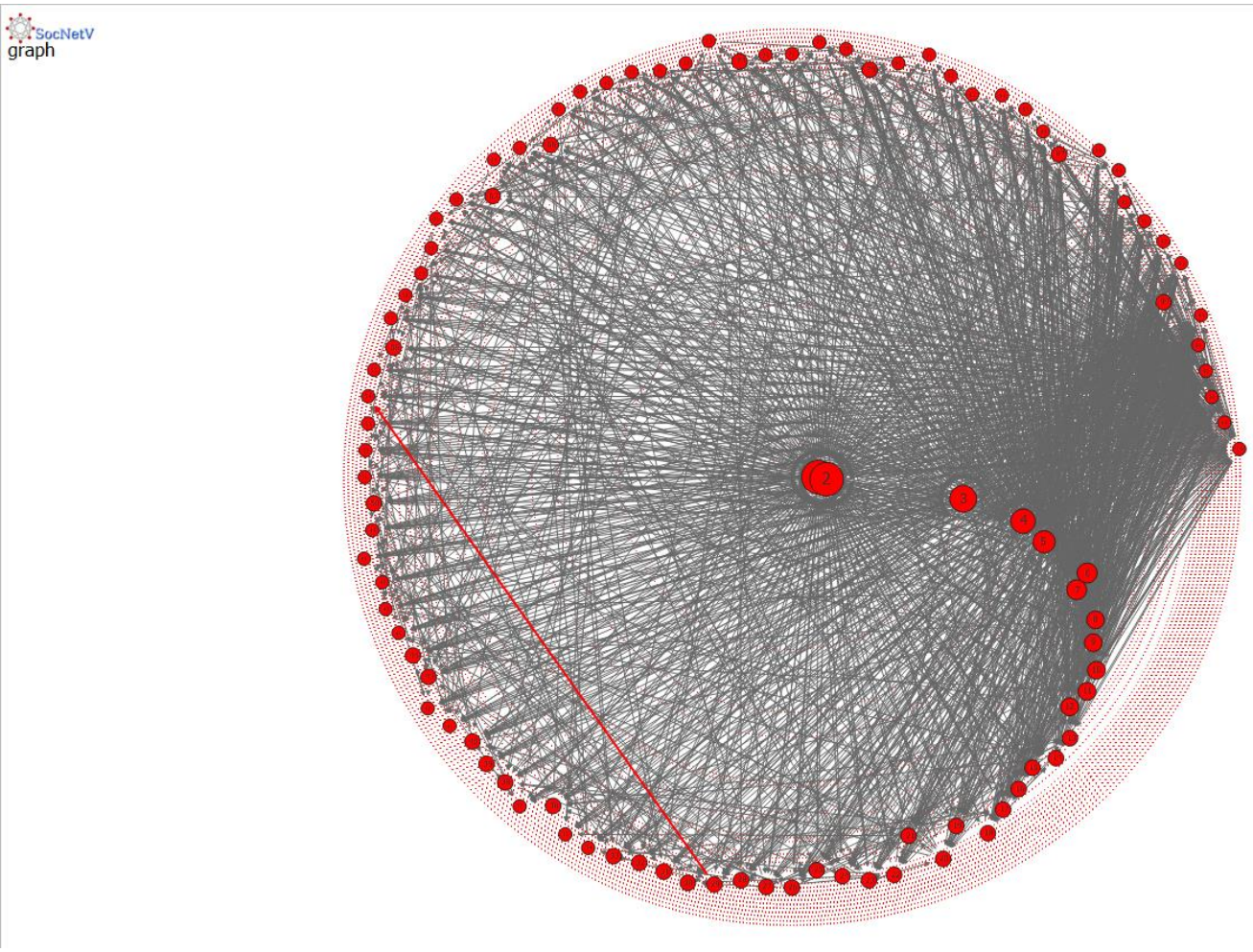


Fig.2. Social Graph of 100 nodes with subscriber obeying zipf distribution.(Radial Layout)

Fig.3 . Social Graph of 100 nodes with subscriber obeying zipf distribution.(Level Wise Layout) [Note, View graph by rotating]