Readme

Team:

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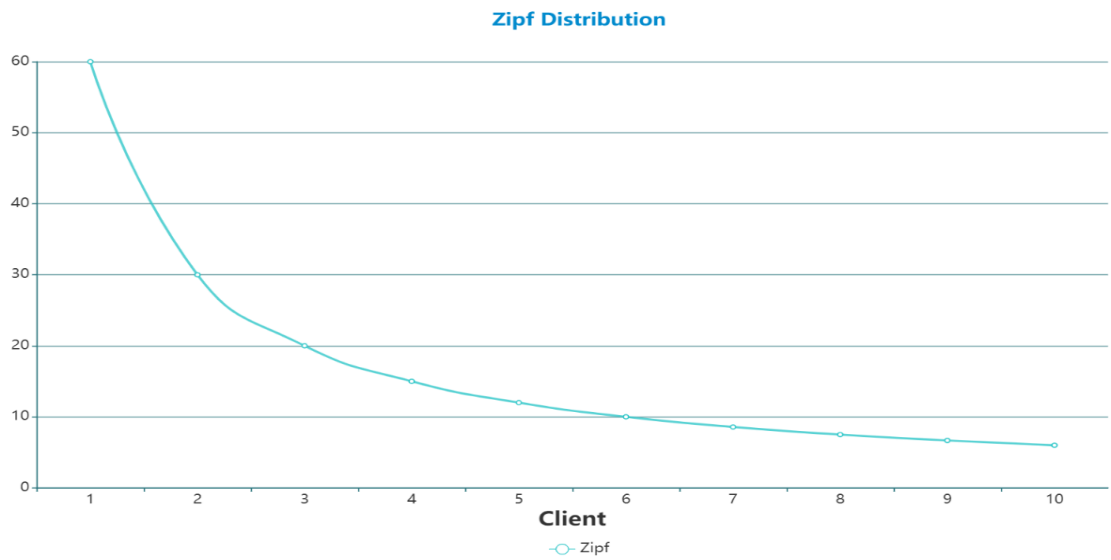
How to run:

Remote
server port=9002,hostname=localhost
Client port=2552,hostname=localhost
Firstly open Server:dotnet fsi --langversion:preview Server.fsx
Secondly open Client:dotnet fsi --langversion:preview Client.fsx N
N:Number of users

Implementation:

Server:
(1) register_actor: This Actor is responsible to register username and password.
(2) login_actor: This Actor is responsible to log in with a registered username and password.
(3) sendTweet_actor:This Actor is responsible to send tweets to other users.
(4) subscribe_actor:This Actor is responsible to subscribe other users.
(5) retweet_actor:This Actor is responsible to retweet other users tweet.
(6) querySubscrible_actor:This Actor is responsible to query about what users subscribe to a user.
(7) queryHashtag_actor:This Actor is responsible to query special Hashtag.
(8) queryMention_actor:This Actor is responsible to query what content the user mentioned.
Client:
(1) connect and disconnect: By default, all users are connected. There is a 10% probability that they will not be connected. The tags and mentions of users who are not connected will not exist, and other users who subscribe to him will not see him online.
(2) Zipf_subscribe:Each client is ranked from 1-N where N is the number of users. Each client will make 1/rank number of tweets per millisecond to the server.number of subscribes, simulate a Zipf distribution.



(3) client_simulator:This actor will evaluate the performance of Twitter by recording registered users, sending tweets, subscribing to users, Zipf, retweets, querying subscriptions, querying hashtags, and querying the time mentioned.

Result:(10 users as an example,Client result in Result.txt)

Server:

```
register:  username: user7 and password: user7
message: register,user8,password8
register:  username: user8 and password: user8
message: register,user9,password9
register:  username: user9 and password: user9
message: send,user0,I am user0 This is0th tweet @user1 #topic4
send: tweetContent: I am user0 This is0th tweet @user1 #topic4
message: send,user0,I am user0 This is1th tweet @user7 #topic6
send: tweetContent: I am user0 This is1th tweet @user7 #topic6
message: send,user1,I am user1 This is0th tweet @user3 #topic9
```

```
subscribe: sUsername: user7
message: subscribe,user0,user8
subscribe: sUsername: user8
message: subscribe,user0,user9
subscribe: sUsername: user9
message: retweet,user0,user0
retweet: rUsername: user0
message: retweet,user0,user1
```

```
Username: user7
Username: user8
Username: user9
message: querysubscribe,user1
querysubscribe: username: user1
Username: user0
message: querysubscribe,user2
querysubscribe: username: user2
Username: user0
```

```
tweetContent: I am user1 This is0th tweet @user3 #topic9
tweetContent: I am user1 This is0th tweet @user3 #topic9
tweetContent: I am user1 This is0th tweet @user3 #topic9
message: query#,user2,#topic7
query#: hashTag: #topic7
tweetContent: I am user3 This is1th tweet @user7 #topic7
tweetContent: I am user4 This is1th tweet @user3 #topic7
message: query#,user3,#topic1
```

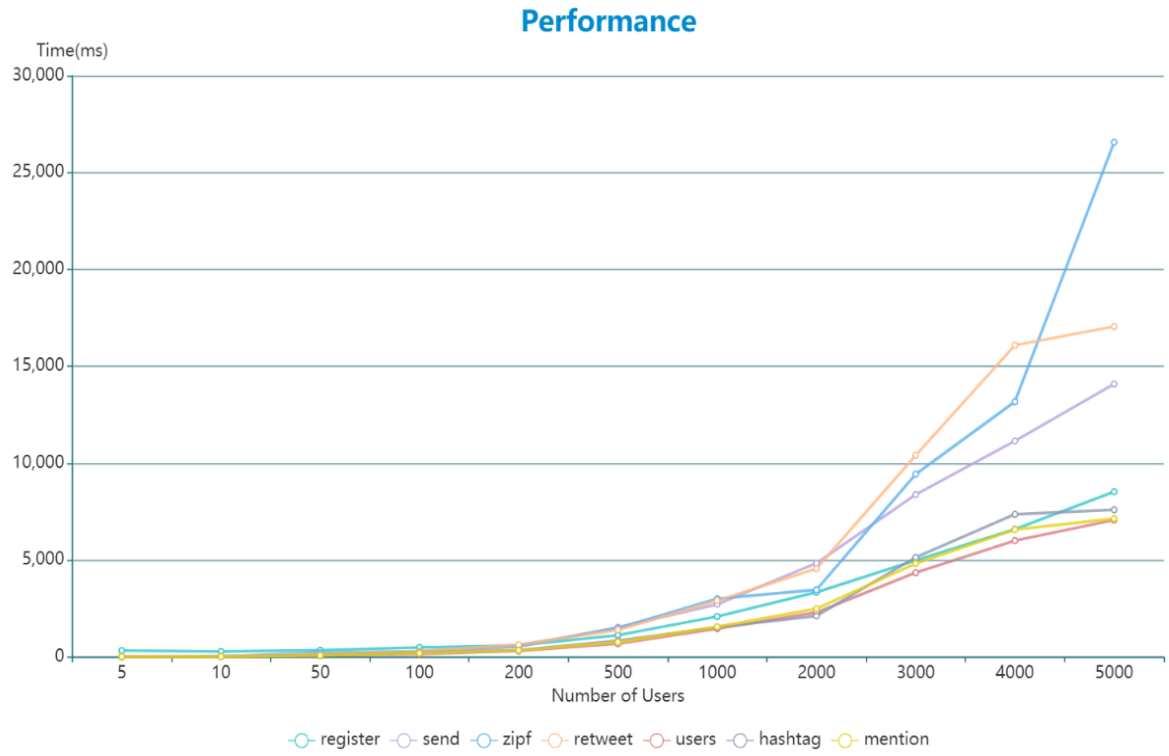
```
message: querysubscribe,user1
querysubscribe: username: user1
Username: user0
Username: user0
Username: user0
message: query#,user0,#topic1
query#: hashTag: #topic1
tweetContent: I am user4 This is0th tweet @user0 #topic1
tweetContent: I am user4 This is0th tweet @user0 #topic1
tweetContent: I am user0 This is1th tweet @user1 #topic1
tweetContent: I am user1 This is0th tweet @user0 #topic1
tweetContent: I am user1 This is1th tweet @user0 #topic1
message: query#,user1,#topic1
query#: hashTag: #topic1
```

Client:

```
************************************************************
*******************   performance   **********************
register 10 users, time is 518.511700
10 users send 2 tweets of per user, time is 62.376100 and live connection user is 9
Zipf subscribe 10 users, time is 25.143900
10 users retweet 2 tweets of per user is 28.266200 and live connection user is 9
query subscribe of 10 users, time is 22.786000 and live connection user is 10
query 10 hashtag, time is 16.753000 and live connection user is 9
query 10 mention, time is 15.917200 and live connection user is 10
The time of 10 random operations is 537.818700 and live connection user is 10
```

Performance:

users	register	send	zipf	retweet	subscribe	hashtag	mention
5	329.3377	18.2400	12.2065	15.5313	6.3305	8.9978	14.3804
10	282.0952	33.1688	27.6950	32.7091	19.4049	15.0906	17.6283
50	343.0404	136.3510	213.9374	142.1209	78.2160	75.9960	79.1146
100	491.9659	270.3742	298.7337	294.5574	147.3760	230.2821	196.8646
200	598.8412	528.3827	594.8456	634.3038	308.4170	342.1422	340.9901
500	1124.9816	1529.5842	1490.7523	1397.0603	685.2494	837.6207	766.9667
1000	2089.2842	2716.4888	3010.5645	2905.7171	1459.2135	1531.3520	1559.0295
2000	3339.0786	4843.0530	3469.6742	4556.9809	2297.7820	2116.2172	2493.1995
3000	4987.1042	8383.3438	9437.7915	10412.5130	4351.1768	5143.2575	4822.3235
4000	6600.2778	11153.1924	13180.6067	16095.5663	6007.4597	7367.5819	6575.7702
5000	8530.7216	14097.9365	26572.4532	17060.1862	7070.4842	7596.6053	7140.3560



What is the largest network you managed to deal with:

The biggest number of users we tested is 5000.