COP5615 – Distributed Operating System Principles
Project 4 – Part 1 (Twitter Simulator)

Team Members:

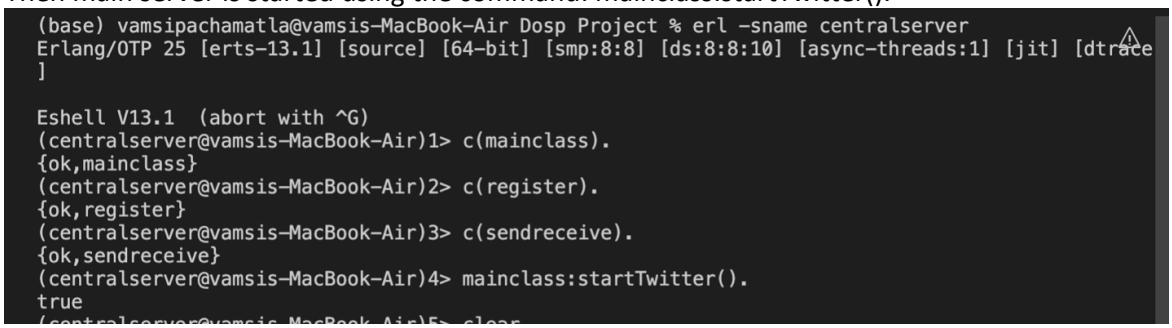
(I) Vamsi Pachamatla - 1708 0059
(II) Yashas Kuchimanchi. – 5043 1189

Problem Statement:

The main idea of this project is to implement a twitter clone and a client tester/simulator. In Part I we need to develop a twitter like engine which later can be paired with web-sockets to provide complete functionality. Engine should support functionalities like account registration, sending tweets, subscription to user's tweets, re-tweeting, and querying subscribed tweets. Also implement a tester which simulates test cases like number of users, periods of live connection and disconnection users, zipf distribution on the number of subscribers.

Execution Steps:

1. In order to run the project, first the environment should be created using the command: **erl -sname centralserver** and then update the central server name in the mainclass.
2. Next, we need to compile these 3 erlang files: **mainclass**, **sendreceive**, and **register** using the commands **c(mainclass). , c(register). and c(sendreceive).**
3. Then main server is started using the command: mainclass:startTwitter().



4. Now we open multiple terminals and run "erl -sname centralserverVamsi" to run clients for different user interfaces and then register and sign in with all the different users in different terminals.

```
(base) vamsipachamatla@vamsis-MacBook-Air Dosp Project % erl -sname centralserverVamsi
Erlang/OTP 25 [erts-13.1] [source] [64-bit] [smp:8:8] [ds:8:8:10] [async-threads:1] [jit] [dtrace]

Eshell V13.1  (abort with ^G)
(centralserverVamsi@vamsis-MacBook-Air)1> mainclass:startTheRegistration().
Welcome to the twitter clone
Do you want to SignIn or register For Signin enter S for register RR
Enter UsernameVamsi
Enter PasswordVamsi
Enter Emailvamsi@gmail.com
Registered
ok
(centralserverVamsi@vamsis-MacBook-Air)2> mainclass:startTheRegistration().
Welcome to the twitter clone
Do you want to SignIn or register For Signin enter S for register RS
Enter UsernameVamsi
Enter PasswordVamsi
Signed In
ok
```

5. Then subscribe a user to the other user using the code “mainclass:subscribe().”

```
Welcome to the twitter clone
Do you want to SignIn or register For Signin enter S for register RS
Enter UsernameYashas
Enter PasswordYashas
Signed In
ok
(centralserverYashas@vamsis-MacBook-Air)3> mainclass:subscribe().
Enter User You want to subscribe toVamsi
"Subscribed"
ok
```

6. After subscribing to your friend you can send a tweet and the message will be sent to that guy.

```
(centralserverVamsi@vamsis-MacBook-Air)4> mainclass:sendTweet().
Enter Your Tweet Hi Yashas
Tweet Posted
ok
Vamsi : Hi Vamsi                          (centralserverVamsi@vamsis-MacBook-Air)5> mainclass:sendTweet().
Enter Your Tweet How are you!
Tweet Posted
ok
(centralserverVamsi@vamsis-MacBook-Air)6> mainclass:subscribe().
Enter User You want to subscribe toVamsi
"Subscribed"
ok
Yashas : Hi Yashas                        (centralserverYashas@vamsis-MacBook-Air)4> mainclass:sendTweet().
Enter Your Tweet Hi Vamsi
Tweet Posted
ok
Yashas : How are you!                     Yashas : Hi @Yashas
                                  Yashas : Hi @Yashas
```

7. Also you can mention your friend by sending tweet with @ and mentions can be seen using the code “mainclass:myMentions().”

```
Yashas : How are you!                     Yashas : Hi @Yashas                       Yashas : Hi @Yashas
                        (centralserverYashas@vamsis-MacBook-Air)5> mainclass:myMentions().
'Vamsi' : 'Hi @Yashas'
ok
(centralserv
6>
```

8. You can check all the subscribed tweets using the function getSubscribedTweets().

```
(centralserverYashas@vamsis-MacBook-Air)6> mainclass:getSubscribedTweets().
[{{"Vamsi"},["Hi Yashas","How are you!","Hi @Yashas","Checking # Hashtag"]}]
ok
(centralserverYashas@vamsis-MacBook-Air)7>
```

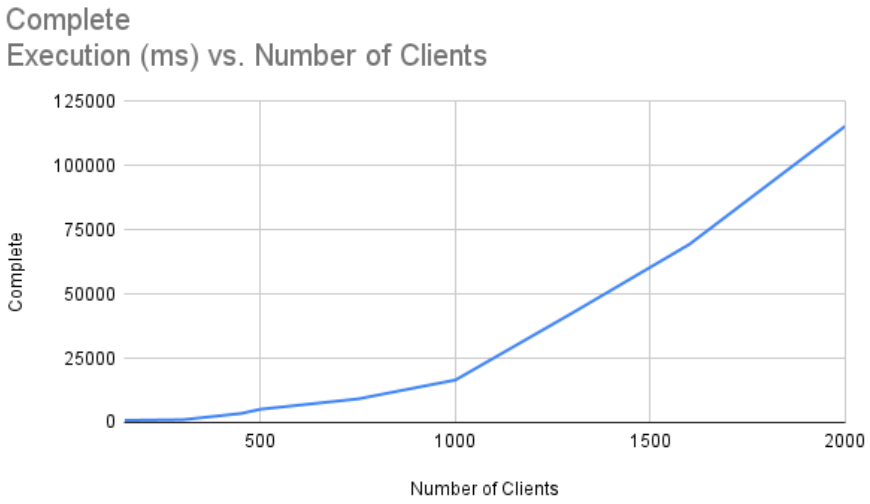
Implemented Functionalities:

1. Implemented Account Registration where all the users can register on the server and the user data is saved in the database.
2. Implemented function for sending tweets where the can include hashtags and mentions.
3. Implemented a functionality where users can subscribe to other users' tweets which they like.
4. Implemented a functionality where users can re-tweet other users' tweets so that the subscribers are able to see the tweets by other means.
5. Implemented a functionality where users are allowed to querying tweets based on subscribed tweets, specific hashtags and tweets with user mentioned.
6. Successfully implemented a functionality which delivers all types of tweets live when the user is connected live.

Statistics:

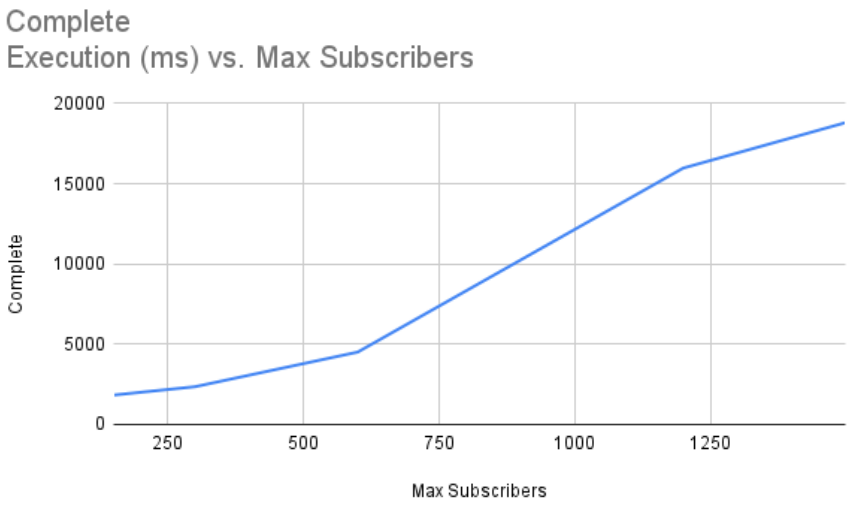
1. Number of clients vs Complete Execution time

Number of Clients	Complete Execution (ms)
150	820
300	1066
450	3503
500	5136
750	9152
1000	16629
1300	42738
1600	69634
2000	116104



2. Max Subscribers vs Complete execution time

Max Subscribers	Complete execution
150	1823
300	2346
600	4519
1200	16009
1499	18880



Conclusion:

We have successfully implemented a Twitter clone using the functionalities account registration, signin account, send tweet, subscribe a person to get their tweets, re-tweet also send a tweet with specific hashtags with different users.