

DISTRIBUTED OPERATING SYSTEM

PROJECT-4 : Twitter Clone

Group Members:

Name: Shashank Bantakal UFID: 9592-6559

Name: Santhosh Suresh UFID: 5985-1919

Implementation Details:

The goal of this project is to implement a Twitter clone & a client simulator. The problem statement is to implement an engine that (in part II) will be paired up with Web Sockets to provide full functionality.

The client part (send/receive tweets) & the engine (distribute tweets) were simulated in separate OS processes.

Multiple independent client processes that represented simulated clients were spawned during an iteration and handled by a single server process.

The Twitter engine (Server) has been implemented 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)

Instructions to run the project :

Go inside the project directory and execute the following commands.

Step 1: run `mix deps.get`

Step 2: run `mix escript.build` , if you don't do the step one first, then it might throw an error and then you will have to run & then do `mix escript.build` again.

Step 3: To start the server,
`./twitter server`

Step 4: In a new window, here you have two options:

- To run as interactive client
- To run as simulator.

To run the interactive client, do the following:

```
./twitter client 127.0.0.1 username
```

You can run as many clients as you want in separate windows.

To run the simulator, do the following:

```
mix run proj4_1.exs a b
```

- a is the number of users to be registered.
- b is the number of tweet that each user has to make.

Note: To not overkill the processes, please enter at most 50 users and 20 tweets.

Interactive Client:

Upon choosing the interactive mode, the following screens will be shown.

Client Screen:

```
Shashank-MacBook-Pro:twitter sbantakal$ ./twitter client 127.0.0.1  
santhosh
```

```
22:11:26.091 [info] User :@santhosh
```

```
Options:
```

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

```
Enter your choice:
```

Server Screen:

```
22:23:04.761 [info] @santhosh has been registered successfully
```

```
22:23:04.800 [info]
```

```
Twitter Server Stats
```

```
Total Tweets => 0
```

```
Tweets(per sec) => 0.0
```

Total Users => 1
Online Users => 1
Offline Users => 0

Register Again:

Shashank-MacBook-Pro:twitter sbantakal\$./twitter client 127.0.0.1
santhosh

22:27:08.681 [info] username already allotted, try something else!

Subscribe to a user:

22:29:09.764 [info] User :@sbantakal

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 4

Enter the username you want to follow(without @ in begining): santhosh

Tweet & Live Feed

22:11:26.091 [info] User :@santhosh

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 1

Enter tweet: Hey There, this is my #first tweet !

22:29:31.612 [info] User :@sbantakal

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice:

22:32:49.125 [info] @santhosh |>| Hey There, this is my #first tweet
!

Retweet:

Enter your choice: Want to retweet(y/n)?

22:34:18.671 [info] @santhosh |>| Hey There, this is my #first tweet
!

Want to retweet(y/n)?y

Mention:

22:39:23.621 [info] User :@sbantakal

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 1

Enter tweet: hi @santhosh how are you ?

Options:

22:39:28.219 [info] User :@santhosh

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice:

22:39:46.586 [info] @sbantakal |>| hi @santhosh how are you ?

#Hashtag Query:

22:46:45.933 [info] User :@santhosh

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe

5. Unsubscribe
6. Login
7. Logout
Enter your choice: 1
Enter tweet: this is my #first tweet

22:39:47.571 [info] User :@sbantakal
Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 1
Enter tweet: #first tweet today
Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice:
22:46:58.227 [info] User :@sbantakal
Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 2
Enter hashtag to query for: #first

22:47:04.372 [info] Hash Tweet |>| #first tweet today

22:47:04.416 [info] Hash Tweet |>| this is my #first tweet

#Mention Query:

23:06:31.010 [info] User :@sbantakal
Options:
1. Tweet

2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 1

Enter tweet: @santhosh how are you?

23:06:46.886 [info] User :@sbantakal

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 3

Enter the username(add @ in begining) to look for: @santhosh

23:08:03.616 [info] Mention Tweet |>|@santhosh how are you?

Feed On Login Back:

05:49:31.590 [info] User :@sbantakal

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 4

Enter the username you want to follow(without @ in begining): milind

Enter your choice: 4

Enter the username you want to follow(without @ in begining): Santhosh

User @sbantakal then logs off:

05:49:52.111 [info] User :@sbantakal

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe

6. Login
7. Logout
Enter your choice: 7

People he subscribes to tweet:

05:49:35.319 [info] User :@santhosh

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 1

Enter tweet: Santhosh's first tweet

Enter tweet: Santhosh's second tweet

05:49:39.202 [info] User :@milind

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 1

Enter tweet: Milinds first tweet

Enter tweet: Milind's second tweet

User @sbantakal then logs in:

05:49:58.181 [info] User :@sbantakal

Options:

1. Tweet
2. Hashtag query
3. Mention query
4. Subscribe
5. Unsubscribe
6. Login
7. Logout

Enter your choice: 6

05:50:53.457 [info] Feed |>| Santhosh's first tweet

05:50:53.507 [info] Feed |>| Santhosh's second tweet

05:50:53.558 [info] Feed |>| Milinds first tweet

05:50:53.609 [info] Feed |>| Milind's second tweet

Options:

Simulation Mode:

```
Shashanks-MacBook-Pro:twitter sbantakal$ ./twitter server
warning: not passing the :switches or :strict option to OptionParser is deprecated
(elixir) lib/option_parser.ex:607: OptionParser.build_config/1
(elixir) lib/option_parser.ex:231: OptionParser.parse/2
(twitter) lib/twitter.ex:4: Twitter.main/1
(elixir) lib/kernel/cli.ex:121: anonymous fn/3 in Kernel.CLI.exec_fun/2
```

21:58:24.705 [info]

```
Twitter Server Stats
Total Tweets => 0
Tweets(per sec) => 0.0
Total Users => 0
Online Users => 0
Offline Users => 0
```

21:58:26.287 [info] @6qfKEahoSD has been registered successfully

21:58:26.287 [info] @aILhxqfrJW has been registered successfully

21:58:26.287 [info] @rdk6L7R03z has been registered successfully

21:58:26.288 [info] @AtFhW9Ph5e has been registered successfully

21:58:26.288 [info] @CmPkaxE6ez has been registered successfully

21:58:26.288 [info] @IazytGxhtL has been registered successfully

21:58:26.288 [info] @M6YTNaHsRF has been registered successfully

21:58:26.288 [info] @V49ceKF3ju has been registered successfully

21:58:26.288 [info] @VhRb0s1Jzz has been registered successfully

21:58:26.288 [info] @5JrLBz67nY has been registered successfully

21:59:44.715 [info]

```
Twitter Server Stats
Total Tweets => 56
Tweets(per sec) => 0.0
Total Users => 10
Online Users => 10
Offline Users => 0
```


Shashanks-MacBook-Pro:twitter sbantakal\$

Shashanks-MacBook-Pro:twitter sbantakal\$ mix run proj4_1.exs 10 5

21:58:27.355 [info] @AtFhw9Ph5e |>| jDx6319qYX07FyHQ141HtAyDQsXaBkumwv nsfNLI igBwk4xrpWTH CJuNNXMso eCb7KUyFLFuZi7DVXyC CPn5KQ1 ByA0skF

21:58:27.356 [info] @CmPkaXE6ez |>| xt6lN mzP7EZim3 cOSiEhVHgucUs2f4MowYVK be0JvPx0JztjB7wfmI39gdgrmUYGL2No 0c6RHHtw3a 01KtS0M XQ0AZAM2

21:58:27.355 [info] @5JrLBz67nY |>| CNQw7J0ni11 8y5ms5 ZuUNecsnxImXIyojA3 uN90hkcWo5Kfbye8 o uZvIE7c2ggM Bi qScH7Ay3edwZymcVCfkEDtWyJDt

21:58:27.356 [info] @6qfKEahoSD |>| seGYPCGFFX0Dyh 08FQavoqGG5dnI RYcCt X RIUvkmZwDtG4 i1KmpHIXEGkR5k80Q0b0W6Qp9PH dHQUu0Cfx3s6r9QQIM b2T

21:58:27.355 [info] @5JrLBz67nY |>| CNQw7J0ni11 8y5ms5 ZuUNecsnxImXIyojA3 uN90hkcWo5Kfbye8 o uZvIE7c2ggM Bi qScH7Ay3edwZymcVCfkEDtWyJDt

21:58:27.356 [info] @6qfKEahoSD |>| seGYPCGFFX0Dyh 08FQavoqGG5dnI RYcCt X RIUvkmZwDtG4 i1KmpHIXEGkR5k80Q0b0W6Qp9PH dHQUu0Cfx3s6r9QQIM b2T

21:58:27.355 [info] @Iazyt6xhtL |>| OTj11 y0PSeMdhfhxw2TDz F1D QdA5CcrpBXjAsH fguqPY M NiPLxHqk qQo64Ahx2 A4Nita56 2K dL7XTUCXQaF872tqX7

21:58:27.355 [info] @5JrLBz67nY |>| CNQw7J0ni11 8y5ms5 ZuUNecsnxImXIyojA3 uN90hkcWo5Kfbye8 o uZvIE7c2ggM Bi qScH7Ay3edwZymcVCfkEDtWyJDt

21:58:27.355 [info] @M6YTNaHsRF |>| DS3DCdzmyAfw1 tnbkIv dvu9H0efy6uHNzISuDA9 h0nj7cJhIkQEewq5DyB DdoigJ3Uxm6fJYaxyhyAsuwkPsE0gy93JtATR

21:58:27.357 [info] @Iazyt6xhtL |>| CNQw7J0ni11 8y5ms5 ZuUNecsnxImXIyojA3 uN90hkcWo5Kfbye8 o uZvIE7c2ggM Bi qScH7Ay3edwZymcVCfkEDtWyJDt

21:58:31.987 [info] @CmPkaXE6ez |>| gQbK00 B e PwjGY850YamFnQHqnP7Fjw0s5NppL27Vd0sVnEymoUrqb018M wA XFIMNup0sYCuTBjAx3N8HcjBX1Lyp5KIIri4

21:58:32.584 [info] @6qfKEahoSD |>| 940JKeB4V0izhKusRlar8v66Xg3Ev2LMeXP9Pvyx8w6WsPPaxIFfj6UYymf7CL6XdYtElgCiPoOTT8 ouZV4WC7oNtk97i9RD08E

21:58:33.989 [info] @5JrLBz67nY |>| PvN1VV3UREz8LZm WLJajfQOLPl iS83TozRFFI dGHj8zUsmJ tvPtEw l3LZEGaA01bQB19lotP oRzTZza9vpL gYWBLDgN

21:58:35.258 [info] @M6YTNaHsRF |>| bTZ5b69 MQLABEEeI4QXcik5PW9d lE8sYRtrpDZYfJVE5Ag MoKfsSYrS9oKWU26K wyjAvAYy h2lZ7EZ nd43Vxw8ERK0gh

21:58:36.626 [info] @6qfKEahoSD |>| SKz6ANqoKJ3RSsPWTJKCb U5l8qPbjG0mkFogIPfbG5Etb45o7SAM4dvnhj10b76ajZJ53MDwyQwDUW5BYk6L198x Ny86JIqwXg

21:58:37.032 [info] @6qfKEahoSD |>| rI0vgfELP5Hf hahoyyU6HztKsgKSzy7 D TUAj4D00rQN6kp X rTm 9xkC k iBXK q se7MraURlN Tnaa zvhbe WUREdg

21:58:37.245 [info] @5JrLBz67nY |>| MLRYu 4o1InMc4sbw6ZhP k8 o0c6QI7McUuOpq WbdUJ48Eqpito00gn0o49JhzS1BnhNC0aXmp fv6QL48K DgpUPJL5eHhKlR

21:58:37.245 [info] @5JrLBz67nY |>| MLRYu 4o1InMc4sbw6ZhP k8 o0c6QI7McUuOpq WbdUJ48Eqpito00gn0o49JhzS1BnhNC0aXmp fv6QL48K DgpUPJL5eHhKlR

21:58:38.026 [info] @5JrLBz67nY |>| 9XZFxn9a5BdhNKEw0ryjFTuilb c6Ye1dDtFtceJPo HOE2nTszniylPwDJliMnI0W9QpTw YWRiFW7qLoRr3yGWHXgbYs2Aq06o

21:58:38.026 [info] @5JrLBz67nY |>| 9XZFxn9a5BdhNKEw0ryjFTuilb c6Ye1dDtFtceJPo HOE2nTszniylPwDJliMnI0W9QpTw YWRiFW7qLoRr3yGWHXgbYs2Aq06o

21:58:38.026 [info] @5JrLBz67nY |>| 9XZFxn9a5BdhNKEw0ryjFTuilb c6Ye1dDtFtceJPo HOE2nTszniylPwDJliMnI0W9QpTw YWRiFW7qLoRr3yGWHXgbYs2Aq06o

21:58:38.026 [info] @Iazyt6xhtL |>| 9XZFxn9a5BdhNKEw0ryjFTuilb c6Ye1dDtFtceJPo HOE2nTszniylPwDJliMnI0W9QpTw YWRiFW7qLoRr3yGWHXgbYs2Aq06o

21:58:39.946 [info] @M6YTNaHsRF |>| WvMoYiuSnLD9Gzq1Nm5E0PoN 5lVXP zLF3d1qQ5MOT BL7wseSeVYYMc10HUPIpPkI1UtKMB3RfpI96yX8 5rzStjgeDJCJBy e