

# PROJECT 4.2 REPORT

## **1. Twitter Implementation:**

Implemented a Twitter clone as a client-server model using Elixir. Server is used to store data and the ETS registry functionality available in Elixir is used for this implementation. Information about registered users, user tweets, retweets, subscription, hashtags, mentions, etc. are stored in respective tables inside ETS registry. Only one server is implemented to handle multiple clients created using actor model. Every client communicates with the server during execution of below mentioned functionalities. Additionally, a web interface for the simulator is implemented using phoenix framework that allows access to the web browser. This is achieved by creating web sockets using phoenix channels and using JavaScript libraries to send messages to the browser.

### **1.1 Register account**

- Users must go through registration in order to access the twitter implementation.
- Every registered user has a unique username consisting of small a-z, capital A-Z, numbers 0-9, and no special characters.
- Server uses handle\_cast during registration to keep track of all the users by storing them in the “*user\_list*” table inside ETS registry.
- The user has to be registered in order to access “*Tweety*”, which is our twitter clone application.

### **1.2 Send tweet**

- Users generate random tweets consisting of some strings (nouns and verbs), hashtags <#florida> and user mentions <@username>.
- User mentions consists of users tagged in a tweet.
- Client forwards generated tweet to server for further operations.
- Server uses handle\_cast to add the tweet to the existing list of tweets in the “*tweet*” table corresponding to the user generating the tweet.
- It also adds the tweet to the existing list of tweets in the “*hashTags*” table corresponding to every hashtag mentioned in the tweet.
- It also adds the tweet to the existing list of tweets in the “*user\_mention\_tweets*” table corresponding to every user mentioned in the tweet.
- Sends notification to all the followers of the user and users mentioned in the tweet.
- All the above data stored is sent to web browser by creating web-sockets and using phoenix channels.
- All the tweets generated by a user are displayed on the web browser under “*Tweet*” tab for every user.

### **1.3 User Subscription**

- Users can subscribe to/ follow other users.
- When a user is following other user, server is informed, and it updates the “*subscriberList*” and “*subscribersOf*” tables corresponding to the user.
- Server implementation uses handle\_call during account subscription, to maintain updated ETS registry. It is helpful for sending notifications and handling deletion of an account.

- After every tweet by a user, server accesses the above stored “*subscribersOf*” table entries and uses it to send notifications to the user’s followers.
- During deletion, server accesses the above stored “*subscriberList*” table entries and uses it to update all the users that the deleted account has subscribed to.
- All subscription information is displayed on the web browser under “*Subscribe*” tab for every user.

## 1.4 Notification

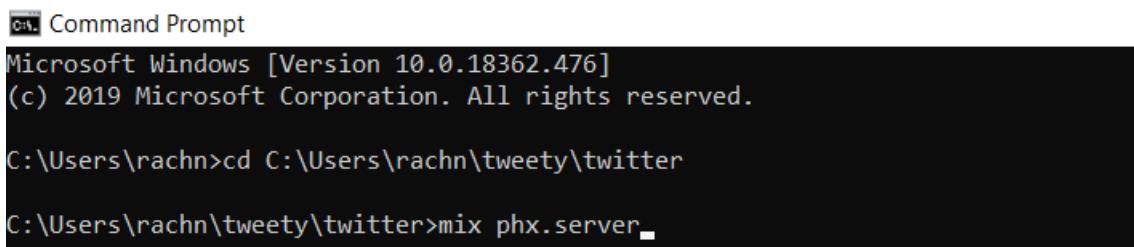
- Users when logged in automatically receive notification for tweets/ re-tweets they are mentioned in and tweets/re-tweets posted by the users they are subscribed to.
- Server forwards notifications to mention list and forward list of users after every tweet and re-tweet.
- The notifications generated are displayed on the web browser under “*Notifications*” tab for every user.
- Additionally, user mentioned notifications are displayed on the web browser under “*Mentions*” tab.
- User mentioned tweets are available for *retweet*. When a tweet is retweeted by a user, it gets updated to the user’s “*Tweet*” tab.

## 2. User Interface Implementation

### 2.1 Setup

Following are the steps required to setup and run *Tweety* application.

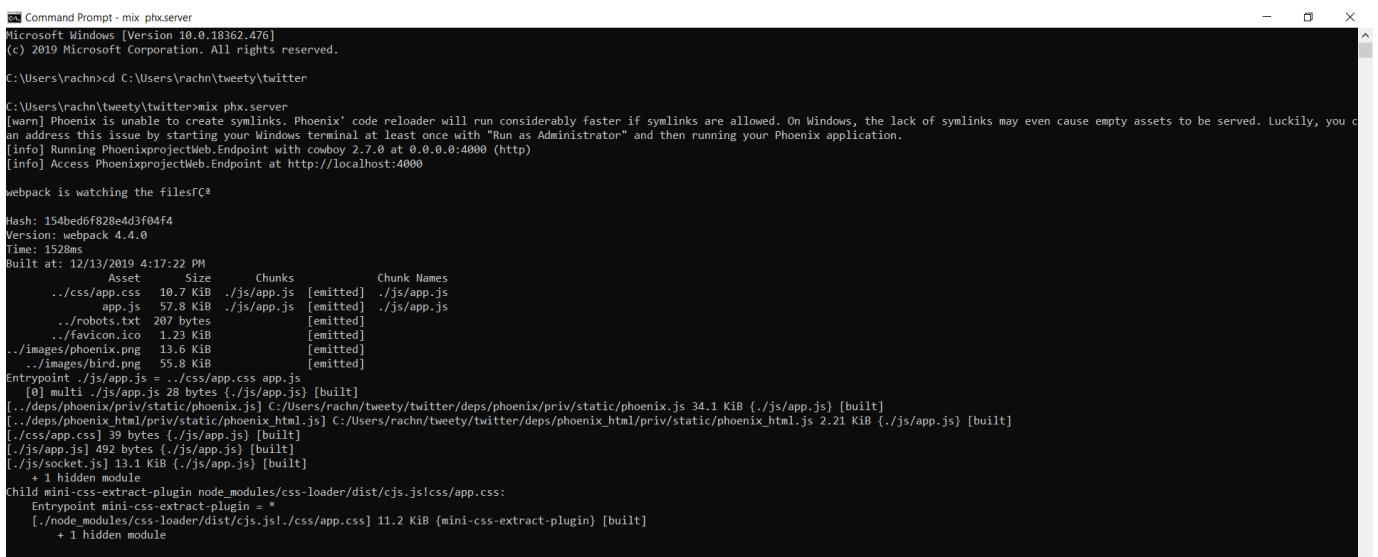
*Step 1:* On terminal 1, run "mix phx.server"



```
Command Prompt
Microsoft Windows [Version 10.0.18362.476]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\rachn>cd C:\Users\rachn\tweety\twitter

C:\Users\rachn\tweety\twitter>mix phx.server
```



```
Command Prompt - mix phx.server
Microsoft Windows [Version 10.0.18362.476]
(c) 2019 Microsoft Corporation. All rights reserved.

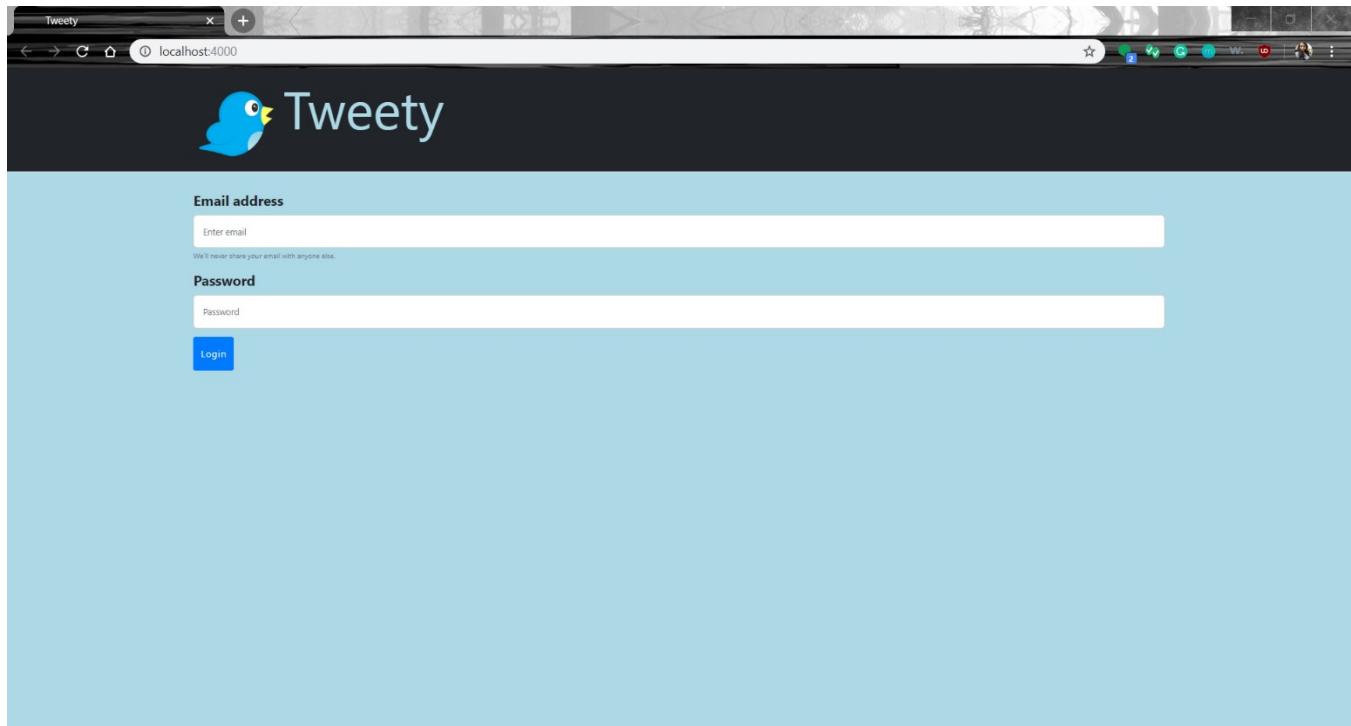
C:\Users\rachn>cd C:\Users\rachn\tweety\twitter

C:\Users\rachn\tweety\twitter>mix phx.server
[warn] Phoenix is unable to create symlinks. Phoenix' code reloader will run considerably faster if symlinks are allowed. On Windows, the lack of symlinks may even cause empty assets to be served. Luckily, you can address this issue by starting your Windows terminal at least once with "Run as Administrator" and then running your Phoenix application.
[info] Running PhoenixprojectWeb.Endpoint with cowboy 2.7.0 at 0.0.0.0:4000 (http)
[info] Access PhoenixprojectWeb.Endpoint at http://localhost:4000

webpack is watching the files for changes
Hash: 154bedd6f828e4d3f04f4
Version: webpack 4.4.0
Time: 1528ms
Built at: 12/13/2019 4:17:22 PM
          Asset      Size    Chunks      Chunk Names
        ./css/app.css  10.7 KiB  ./js/app.js  [emitted]  ./js/app.css
        app.js       57.8 KiB  ./js/app.js  [emitted]  ./js/app.js
      ./robots.txt   207 bytes           [emitted]
     ./favicon.ico  1.23 KiB           [emitted]
./images/phoenix.png  13.6 KiB           [emitted]
./images/bird.png   55.8 KiB           [emitted]
Entrypoint ./js/app.js = ./css/app.css app.js
[0] multi ./js/app.js 28 bytes {./js/app.js} [built]
[./deps/phoenixpriv/static/phoenix.js] C:/Users/rachn/tweety/twitter/deps/phoenix/priv/static/phoenix.js 34.1 KiB {./js/app.js} [built]
[./deps/phoenix_html/priv/static/phoenix.html.js] C:/Users/rachn/tweety/twitter/deps/phoenix_html/priv/static/phoenix.html.js 2.21 KiB {./js/app.js} [built]
[./css/app.css] 39 bytes {./js/app.js} [built]
[./js/app.js] 492 bytes {./js/app.js} [built]
[./js/socket.js] 13.1 KiB {./js/app.js} [built]
+ 1 hidden module
Child mini-css-extract-plugin node_modules/css-loader/dist/cjs.js!css/app.css:
  Entrypoint mini-css-extract-plugin = *
    [./node_modules/css-loader/dist/cjs.js!./css/app.css] 11.2 KiB {mini-css-extract-plugin} [built]
    + 1 hidden module
```

**Step 2:** Go to the browser and type "localhost:4000"

**Step 3:** Check for login page



**Step 4:** Open terminal 2 and run "mix test" -

- Running mix test seeds our ETS table with data (reference- Project 4.1), i.e. unique username generation, tweets, subscriptions, notifications.

```
CH Select Command Prompt
Microsoft Windows [Version 10.0.18362.476]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\rachn>cd C:\Users\rachn\tweety\twitter

C:\Users\rachn\tweety\twitter>mix test
```

```
Command Prompt
| Test 1 : Testing all the functionalities together |
|-----|
| This test will test all the twitter functionalities implemented |
I have started
Creating 100 users
User1 is @black-haze-9446
User @black-haze-9446 is following User @polished-meadow-6573

User @black-haze-9446 is following User @solitary-fire-483
User @black-haze-9446 is following User @blue-cloud-4374
User @black-haze-9446 is following User @sparkling-silence-8766
User @black-haze-9446 is following User @rough-fog-1689
User @black-haze-9446 is following User @dawn-leaf-8035
User @black-haze-9446 is following User @green-forest-6240
User @black-haze-9446 is following User @still-paper-7576
User @black-haze-9446 is following User @empty-tree-635
User @black-haze-9446 is following User @throbbing-frog-5186

User @black-haze-9446 tweet: #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908

Notification to @frosty-dream-9001: User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >

Notification to @small-cloud-78: User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >

Notification to @small-forest-1908: User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >

Notification to @late-field-9926: User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >

Notification to @black-haze-9446: User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >
```

```
Command Prompt
User @black-haze-9446 tweet: @black-haze-9446 The hamster vibrating hamster sadly breathed because some hamster sadly breathed down into up on upon below above through across towards a vibrating hamster which, became a vibrating hamster @wild-voice-8979 #diedforgood @blue-sky-7112 #slicedbyaknife #dodgedabullet @solitary-fire-483

Notification to @blue-sky-7112: User @black-haze-9446 has mentioned you in tweet < @black-haze-9446 The hamster vibrating hamster sadly breathed because some hamster sadly breathed down into up on upon below above through across towards a vibrating hamster which, became a vibrating hamster @wild-voice-8979 #diedforgood @blue-sky-7112 #slicedbyaknife #dodgedabullet @solitary-fire-483 >

Notification to @solitary-fire-483: User @black-haze-9446 has mentioned you in tweet < @black-haze-9446 The hamster vibrating hamster sadly breathed because some hamster sadly breathed down into up on upon below above through across towards a vibrating hamster which, became a vibrating hamster @wild-voice-8979 #diedforgood @blue-sky-7112 #slicedbyaknife #dodgedabullet @solitary-fire-483 >

Notification to @wild-voice-8979: User @black-haze-9446 has mentioned you in tweet < @black-haze-9446 The hamster vibrating hamster sadly breathed because some hamster sadly breathed down into up on upon below above through across towards a vibrating hamster which, became a vibrating hamster @wild-voice-8979 #diedforgood @blue-sky-7112 #slicedbyaknife #dodgedabullet @solitary-fire-483 >

Notification to @black-haze-9446: User @black-haze-9446 has mentioned you in tweet < @black-haze-9446 The hamster vibrating hamster sadly breathed because some hamster sadly breathed down into up on upon below above through across towards a vibrating hamster which, became a vibrating hamster @wild-voice-8979 #diedforgood @blue-sky-7112 #slicedbyaknife #dodgedabullet @solitary-fire-483 >

User @black-haze-9446 tweet: The clock professional clock shockingly kicked because some clock shockingly kicked down into up on upon below above through across towards a professional clock which, became a professional clock @black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180

Notification to @morning-darkness-6367: User @black-haze-9446 has mentioned you in tweet < The clock professional clock shockingly kicked because some clock shockingly kicked down into up on upon below above through across towards a professional clock which, became a professional clock @black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180 >

Notification to @autumn-sun-180: User @black-haze-9446 has mentioned you in tweet < The clock professional clock shockingly kicked because some clock shockingly kicked down into up on upon below above through across towards a professional clock which, became a professional clock @black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180 >

Notification to @misty-tree-8430: User @black-haze-9446 has mentioned you in tweet < The clock professional clock shockingly kicked because some clock shockingly kicked down into up on upon below above through across towards a professional clock which, became a professional clock @black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180 >

Notification to @empty-tree-635: User @black-haze-9446 has mentioned you in tweet < The clock professional clock shockingly kicked because some clock shockingly kicked down into up on upon below above through across towards a professional clock which, became a professional clock @black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180 >

Notification to @young-sun-1237: User @black-haze-9446 has mentioned you in tweet < The clock professional clock shockingly kicked because some clock shockingly kicked down into up on upon below above through across towards a professional clock which, became a professional clock @black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180 >

Notification to @black-haze-9446: User @black-haze-9446 has mentioned you in tweet < The clock professional clock shockingly kicked because some clock shockingly kicked down into up on upon below above through across towards a professional clock which, became a professional clock @black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180 >

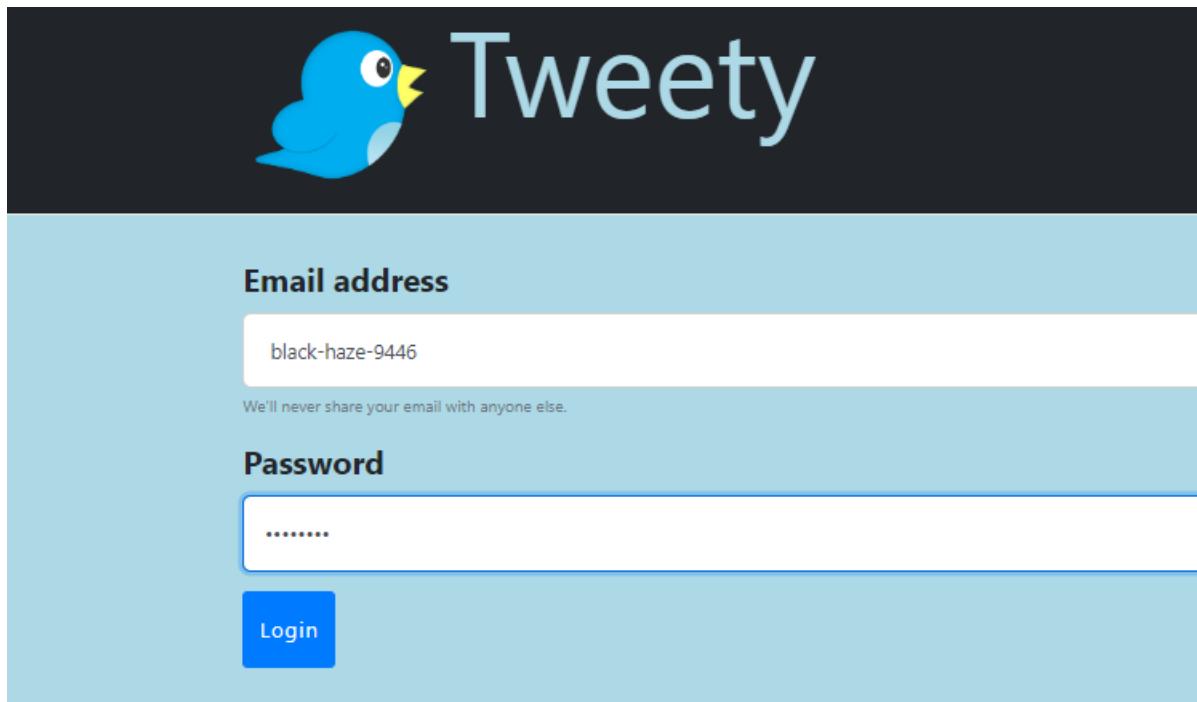
-----LOGIN CREDENTIALS-----
Test 1 completed successfully
Please use username: black-haze-9446
password: password
-----.

Finished in 6.8 seconds
1 test, 0 failures
Randomized with seed 903000
C:\Users\rach\ntweet\twitter>
```

**Step 5:** After the mix test is successful, copy the *username* and *password* specified in terminal 2 and paste it in browser to use the web interface.

```
--LOGIN CREDENTIALS--  
Test 1 completed successfully  
Please use username: black-haze-9446  
password: password  
  
Finished in 6.8 seconds  
1 test, 0 failures  
  
Randomized with seed 903000
```

**Step 6:** Login from browser into "Tweety"-



## 2.2. Tweety Front Page

**Step 7:** Functionalities implemented in Tweety are described below:

a. Welcome <current user>: Welcome, black-haze-9446

b. Home

The screenshot shows a web browser window titled "Tweety". The address bar says "localhost:4000". The main content area has a dark header with the "Tweety" logo and a "Logout" button. Below the header is a navigation bar with links: Home, Tweet, Subscribe, Notifications, Mentions, and Explore. A red box highlights the "Welcome, black-haze-9446" message. The main content area displays a list of 20 user profiles who have joined Tweety, each preceded by a small blue bird icon.

- ⌚ @autumn-breeze-8145 has joined Tweety!
- ⌚ @black-star-5193 has joined Tweety!
- ⌚ @cool-sky-1448 has joined Tweety!
- ⌚ @misty-bush-8875 has joined Tweety!
- ⌚ @throbbing-field-6094 has joined Tweety!
- ⌚ @proud-sun-2963 has joined Tweety!
- ⌚ @wispypine-2297 has joined Tweety!
- ⌚ @morning-darkness-6367 has joined Tweety!
- ⌚ @wispypine-4382 has joined Tweety!
- ⌚ @muddy-flower-4150 has joined Tweety!
- ⌚ @small-cloud-78 has joined Tweety!
- ⌚ @young-snowflake-5389 has joined Tweety!
- ⌚ @proud-bush-5498 has joined Tweety!
- ⌚ @winter-voice-1953 has joined Tweety!
- ⌚ @purple-haze-1442 has joined Tweety!
- ⌚ @fragrant-frog-3396 has joined Tweety!
- ⌚ @icy-shadow-6378 has joined Tweety!

c. Tweet

The screenshot shows a web browser window titled "Tweety". The address bar says "localhost:4000". The main content area has a dark header with the "Tweety" logo and a "Logout" button. Below the header is a navigation bar with links: Home, Tweet, Subscribe, Notifications, Mentions, and Explore. A red box highlights the "Welcome, black-haze-9446" message. The main content area displays a list of tweets from various users, each preceded by a small blue bird icon. The tweets are displayed in a threaded list format.

- #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908
- @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112
- @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813
- @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414
- @black-haze-9446 #diedforgood #dodgedabullet #sleeplikeababy The boy beautiful boy precisely killed because some boy precisely killed down into up on upon below above through across towards a beautiful boy which, became a beautiful boy @old-dream-1988 #runforfun @wispypine-4382
- The dog lovely dog shockingly slept because some dog shockingly slept down into up on upon below above through across towards a lovely dog which, became a lovely dog @twilight-hill-3917 @blue-sky-7112 @spring-forest-2603 #sleeplikeababy #runforfun @black-haze-9446 @green-night-7783
- @empty-sound-6299 @cool-darkness-9589 @black-haze-9446 @solitary-fire-4608 The clock slimy clock calmly ran because some clock calmly ran down into up on upon below above through across towards a slimy clock which, became a slimy clock @autumn-breeze-8145 @old-bush-8954
- #killedbyafan @black-haze-9446 #slicedbyaknife @misty-cloud-9704 The duck beautiful duck shockingly slept because some duck shockingly slept down into up on upon below above through across towards a beautiful duck which, became a beautiful duck #sleeplikeababy @young-snowflake-5389
- @black-haze-9446 @crimson-paper-9317 @throbbing-snow-3664 The boy professional boy shockingly slept because some boy shockingly slept down into up on upon below above through across towards a professional boy which, became a professional boy @young-sun-1237 @green-violet-5105 @rough-fog-1689
- #dodgedabullet @nameless-cloud-9248 #runforfun #slicedbyaknife @blue-sky-7112 The boy professional boy precisely slept because some boy precisely slept down

#### d. Subscribe

The screenshot shows a web browser window for the 'Tweety' application at localhost:4000. The header includes the Tweety logo, the text 'Welcome, black-haze-9446', and a 'Logout' button. Below the header is a navigation bar with links: Home, Tweet, Subscribe (which is highlighted), Notifications, Mentions, and Explore. The main content area displays a list of user profiles with a 'SUBSCRIBE' button next to each. The profiles listed are: autumn-breeze-8145, black-star-5193, cool-sky-1448, misty-bush-8875, throbbing-field-6094, proud-sun-2963, wispy-pine-2297, morning-darkness-6367, and wispy-frost-4382.

#### e. Notifications

The screenshot shows a web browser window for the 'Tweety' application at localhost:4000. The header includes the Tweety logo, the text 'Welcome, black-haze-9446', and a 'Logout' button. Below the header is a navigation bar with links: Home, Tweet, Subscribe, Notifications (which is highlighted), Mentions, and Explore. The main content area displays a list of notification messages. Each message is preceded by a small blue bird icon and a 'D' icon indicating it's a direct message. The messages are as follows:

- User @black-haze-9446 has mentioned you in tweet < [#diedforgood](#) [@frosty-dream-9001](#) [#dodgedabullet](#) [@black-haze-9446](#) [@small-cloud-78](#) The professor professional professor passionately rolled because some professor passionately rolled down into up upon below above through across towards a professional professor which, became a professional professor [@late-field-9926](#) [@small-forest-1908](#) >
- User @black-haze-9446 has mentioned you in tweet < [@solitary-fire-4608](#) [@small-cloud-78](#) [@black-haze-9446](#) [@black-haze-9446](#) The clock slimy clock shockingly killed because some clock shockingly killed down into up upon below above through across towards a slimy clock which, became a slimy clock [@twilight-hill-3917](#) >
- User @black-haze-9446 has mentioned you in tweet < [@solitary-fire-4608](#) [@small-cloud-78](#) [@black-haze-9446](#) [@black-haze-9446](#) The clock slimy clock shockingly killed because some clock shockingly killed down into up upon below above through across towards a slimy clock which, became a slimy clock [@twilight-hill-3917](#) >
- User @blue-sky-7112 >
- User @black-haze-9446 has mentioned you in tweet < [@solitary-fire-4608](#) [@small-cloud-78](#) [@black-haze-9446](#) [@black-haze-9446](#) The clock slimy clock shockingly killed because some clock shockingly killed down into up upon below above through across towards a slimy clock which, became a slimy clock [@twilight-hill-3917](#) >
- User @blue-sky-7112 >
- User @polished-meadow-6573 has mentioned you in tweet < [@black-haze-9446](#) [@still-paper-7576](#) The dog hot dog elegantly dodged because some dog elegantly dodged down into up upon below above through across towards a hot dog which, became a hot dog [@autumn-sun-180](#) [@still-moon-5719](#) [#dodgedabullet](#) [@icy-water-946](#) [@morning-feather-4813](#) >
- User @polished-meadow-6573 has tweeted < [@black-haze-9446](#) [@still-paper-7576](#) The dog hot dog elegantly dodged because some dog elegantly dodged down into up upon below above through across towards a hot dog which, became a hot dog [@autumn-sun-180](#) [@still-moon-5719](#) [#dodgedabullet](#) [@icy-water-946](#) [@morning-feather-4813](#) >
- User @solitary-fire-483 has mentioned you in tweet < [@empty-tree-635](#) [@black-haze-9446](#) [@frosty-dream-9001](#) [@divine-shape-1894](#) The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy [@purple-haze-1442](#) [@damp-lake-4414](#) >
- User @solitary-fire-483 has tweeted < [@empty-tree-635](#) [@black-haze-9446](#) [@frosty-dream-9001](#) [@divine-shape-1894](#) The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy [@purple-haze-1442](#) [@damp-lake-4414](#) >

## f. Mentions

The screenshot shows the Tweety web application interface. At the top, there is a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions (which is currently selected), and Explore. The main content area displays a list of mentions from other users:

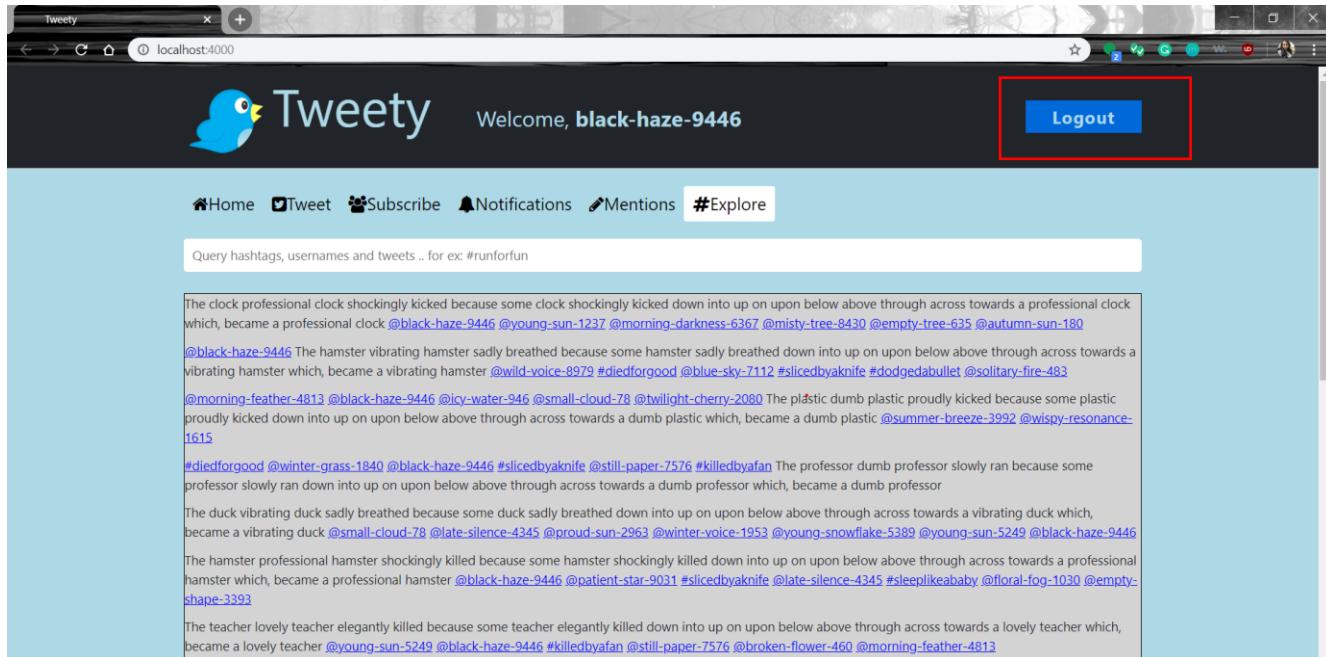
- User @black-haze-9446 has mentioned you in tweet < [#diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78](#) The professor professional professor passionately rolled because some professor passionately rolled down into up upon below above through across towards a professional professor which, became a professional professor [@late-field-9926 @small-forest-1908](#) >
- User @black-haze-9446 has mentioned you in tweet < [@solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446](#) The clock slimy clock shockingly killed because some clock shockingly killed down into up upon below above through across towards a slimy clock which, became a slimy clock [@twilight-hill-3917 @blue-sky-7112](#) >
- User @black-haze-9446 has mentioned you in tweet < [@solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446](#) The clock slimy clock shockingly killed because some clock shockingly killed down into up upon below above through across towards a slimy clock which, became a slimy clock [@twilight-hill-3917 @blue-sky-7112](#) >
- User @polished-meadow-6573 has mentioned you in tweet < [@black-haze-9446 @still-paper-7576](#) The dog hot dog elegantly dodged because some dog elegantly dodged down into up upon below above through across towards a hot dog which, became a hot dog [@autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813](#) >
- User @solitary-fire-483 has mentioned you in tweet < [@empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894](#) The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy [@purple-haze-1442 @damp-lake-4414](#) >
- User @black-haze-9446 has mentioned you in tweet < [@black-haze-9446 #diedforgood #dodgedabullet #sleeplikeababy](#) The boy beautiful boy precisely killed because some boy precisely killed down into up upon below above through across towards a beautiful boy which, became a beautiful boy [@old-dream-1988 #runforfun @wisp-y-frost-4382](#) >
- User @polished-meadow-6573 has mentioned you in tweet < [The dog lovely dog shockingly slept because some dog shockingly slept down into up upon below above through across towards a lovely dog which, became a lovely dog @twilight-hill-3917 @blue-sky-7112 @spring-forest-2603 #sleeplikeababy #runforfun @black-haze-9446 @green-night-7783](#) >

## g. Explore

The screenshot shows the Tweety web application interface. At the top, there is a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions, and Explore (which is currently selected). Below the navigation bar is a search bar with placeholder text "Query hashtags, usernames and tweets .. for ex: #runforfun". The main content area displays a list of tweets containing various hashtags and user handles:

- The clock professional clock shockingly kicked because some clock shockingly kicked down into up upon below above through across towards a professional clock which, became a professional clock [@black-haze-9446 @young-sun-1237 @morning-darkness-6367 @misty-tree-8430 @empty-tree-635 @autumn-sun-180 @black-haze-9446](#) The hamster vibrating hamster sadly breathed because some hamster sadly breathed down into up upon below above through across towards a vibrating hamster which, became a vibrating hamster [@wild-voice-8979 #diedforgood @blue-sky-7112 #slicedbyaknife #dodgedabullet @solitary-fire-483 @morning-feather-4813 @black-haze-9446 @icy-water-946 @small-cloud-78 @twilight-cherry-2080](#) The plastic dumb plastic proudly kicked because some plastic proudly kicked down into up upon below above through across towards a dumb plastic which, became a dumb plastic [@summer-breeze-3992 @wisp-y-resonance-1615 #diedforgood @winter-grass-1840 @black-haze-9446 #slicedbyaknife @still-paper-7576 #killedbyafan](#) The professor dumb professor slowly ran because some professor slowly ran down into up upon below above through across towards a dumb professor which, became a dumb professor The duck vibrating duck sadly breathed because some duck sadly breathed down into up upon below above through across towards a vibrating duck which, became a vibrating duck [@small-cloud-78 @late-silence-4345 @proud-sun-2963 @winter-voice-1953 @young-snowflake-5389 @young-sun-5249 @black-haze-9446](#) The hamster professional hamster shockingly killed because some hamster shockingly killed down into up upon below above through across towards a professional hamster which, became a professional hamster [@black-haze-9446 @patient-star-9031 #slicedbyaknife @late-silence-4345 #sleeplikeababy @floral-fog-1030 @empty-shape-3393](#) The teacher lovely teacher elegantly killed because some teacher elegantly killed down into up upon below above through across towards a lovely teacher which, became a lovely teacher [@young-sun-5249 @black-haze-9446 #killedbyafan @still-paper-7576 @broken-flower-460 @morning-feather-4813 @black-haze-9446 @young-sun-5249](#) The teacher professional teacher shockingly breathed because some teacher shockingly breathed down into up upon below above through across towards a professional teacher which, became a professional teacher [@silent-night-8336 @proud-sun-2963 @autumn-breeze-8145 @rough-fog-1689 @broken-flower-460](#)

## h. Logout



The screenshot shows a web browser window for 'Tweety' at localhost:4000. The interface includes a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions, and Explore. A search bar at the top allows users to query hashtags, usernames, and tweets. The main content area displays a single, extremely long and repetitive tweet from a user named 'black-haze-9446'. The tweet consists of multiple lines of nonsensical text, likely a loop or a placeholder. A prominent blue 'Logout' button is located in the top right corner of the main content area, which has a red box drawn around it to indicate it as a target for interaction.

## 2.3. Functionalities Demonstration

### Step 8: Go to "Notifications"

a. It consists of all the tweets posted by the current user's subscribers along with the tweets in which the current logged in user was mentioned.

b. Every tweet in "Notifications" tab having the following format-

"User @xyz has tweeted <--tweet-->"

Here, for example:

User @polished-meadow-6573 has tweeted <-- tweet -->

Is posted by @polished-meadow-6573, who is subscribed by the current user @black-haze-9446

The screenshot shows the Tweety application interface. At the top, there is a dark header bar with the 'Tweety' logo on the left, a 'Logout' button on the right, and the text 'Welcome, black-haze-9446'. Below the header, there is a navigation bar with links: Home, Tweet, Subscribe, Notifications (which is highlighted in white), Mentions, and Explore. The main content area displays a list of tweets from various users. Two specific tweets are highlighted with red boxes:

- User @black-haze-9446 has mentioned you in tweet < @diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @ate-field-9926 @small-forest-1908 >
- User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 >
- User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 >
- User @polished-meadow-6573 has mentioned you in tweet < @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813 >
- User @polished-meadow-6573 has tweeted < @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813 >
- User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >
- User @solitary-fire-483 has tweeted < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >

c. Above (b) can be checked by navigating to the "Subscribe" tab-

the @black-haze-9446 user will have "UNSUBSCRIBE" button, which means that the current user is subscribed to @polished-meadow-6573 and @solitary-fire-483

throbbing-frog-5186	<b>UNSUBSCRIBE</b>
empty-tree-635	<b>UNSUBSCRIBE</b>
still-paper-7576	<b>UNSUBSCRIBE</b>
green-forest-6240	<b>UNSUBSCRIBE</b>
dawn-leaf-8035	<b>UNSUBSCRIBE</b>
rough-fog-1689	<b>UNSUBSCRIBE</b>
sparkling-silence-8766	<b>UNSUBSCRIBE</b>
blue-cloud-4374	<b>UNSUBSCRIBE</b>
solitary-fire-483	<b>UNSUBSCRIBE</b>
polished-meadow-6573	<b>UNSUBSCRIBE</b>
crimson-paper-9317	<b>SUBSCRIBE</b>
black-haze-9446	<b>SUBSCRIBE</b>

d. Every tweet in "Notifications" tab having the following format-

"User @user has mentioned you in tweet <-- tweet -->"

Here,

"User @solitary-fire-483 has mentioned you in tweet <-- tweet -->", posted by @black-haze-9446 user, who has mentioned the current user(@black-haze-9446) in their tweets.

Same tweet can be viewed under "Mentions" tab.

The screenshot shows a web browser window titled "Tweety" at the URL "localhost:4000". The interface includes a header with the Tweety logo, the text "Welcome, black-haze-9446", and a "Logout" button. Below the header is a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions, and Explore. The main content area displays a list of mentions from other users:

- User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >
- User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112 >
- User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112 >
- User @polished-meadow-6573 has mentioned you in tweet < @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813 >
- User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >
- User @black-haze-9446 has mentioned you in tweet < @black-haze-9446 #diedforgood #dodgedabullet #sleeplikeababy The boy beautiful boy precisely killed because some boy precisely killed down into up on upon below above through across towards a beautiful boy which, became a beautiful boy @old-dream-1988 #runforfun @wispys-frost-4382 >
- User @polished-meadow-6573 has mentioned you in tweet < The dog lovely dog shockingly slept because some dog shockingly slept down into up on upon below above through across towards a lovely dog which, became a lovely dog @twilight-hill-3917 @blue-sky-7112 @spring-forest-2603 #sleeplikeababy #runforfun @black-haze-9446 @green-night-7783 >

The screenshot shows a second instance of the Tweety web application with a similar layout. It features a header with the Tweety logo, the text "Welcome, black-haze-9446", and a "Logout" button. Below the header is a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions, and Explore. The main content area displays a list of mentions from other users:

- User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >
- User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112 >
- User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112 >
- User @polished-meadow-6573 has mentioned you in tweet < @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813 >
- User @polished-meadow-6573 has tweeted < @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813 >
- User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >

## Step 9: Go to "Mentions"

a. It consists of all the tweets mentioning the current user, every tweet has below format-

"User @abc has mentioned you in tweet <-- tweet -->"

pick up tweet by user @abc in which the current user is mentioned, press on retweet icon <placed towards left side of every tweet> ->

you will see an alert "Successfully retweeted" and the color of the retweet icon changes to "Green".

b. Upon receiving "Successfully retweeted" alert, go to "Tweet" tab -

The retweet is added to the current user's list and its icon's color is set to "Green" for identification.

Both the tabs display same tweet. <It can be cross checked>

User @black-haze-9446 has mentioned you in tweet < #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up on upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908 >

User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112 >

User @black-haze-9446 has mentioned you in tweet < @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up on upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112 >

User @polished-meadow-6573 has mentioned you in tweet < @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813 >

User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >

User @polished-meadow-6573 has mentioned you in tweet < @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up on upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813 >

User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >

User @black-haze-9446 has mentioned you in tweet < @black-haze-9446 #diedforgood #dodgedabullet #sleeplikeababy The boy beautiful boy precisely killed because some boy precisely killed down into up on upon below above through across towards a beautiful boy which, became a beautiful boy @old-dream-1988 #runforfun @wispy-frost-4382 >

User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >

Tweety

Welcome, **black-haze-9446**

Logout

Home Tweet Subscribe Notifications Mentions Explore

@empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414

#diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908

@solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112

@black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up upon below above through across towards a hot dog, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813

@empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414

@black-haze-9446 #diedforgood #dodgedabullet #sleeplikeababy The boy beautiful boy precisely killed because some boy precisely killed down into up upon below above through across towards a beautiful boy which, became a beautiful boy @old-dream-1988 #runforfun @wisp-frost-4382

The dog lovely dog shockingly slept because some dog shockingly slept down into up upon below above through across towards a lovely dog which, became a lovely dog @twilight-hill-3917 @blue-sky-7112 @spring-forest-2603 #sleeplikeababy #runforfun @black-haze-9446 @green-night-7783

@empty-sound-6299 @cool-darkness-9580 @black-haze-9446 @solitary-fire-4608 The clock slimy clock calmly ran because some clock calmly ran down into up upon below above through across towards a slimy clock which, became a slimy clock @autumn-breeze-8145 @old-bush-8954

#killedbyafan @black-haze-9446 #slicedbyaknife @misty-cloud-9704 The duck beautiful duck shockingly slept because some duck shockingly slept down into up upon below above through across towards a beautiful duck which, became a beautiful duck #sleeplikeababy @young-snowflake-5389

@black-haze-9446 @crimson-paper-9317 @throbbing-snow-3664 The boy professional boy shockingly slept because some boy shockingly slept down into up on

Tweety

Welcome, **black-haze-9446**

Logout

Home Tweet Subscribe Notifications Mentions Explore

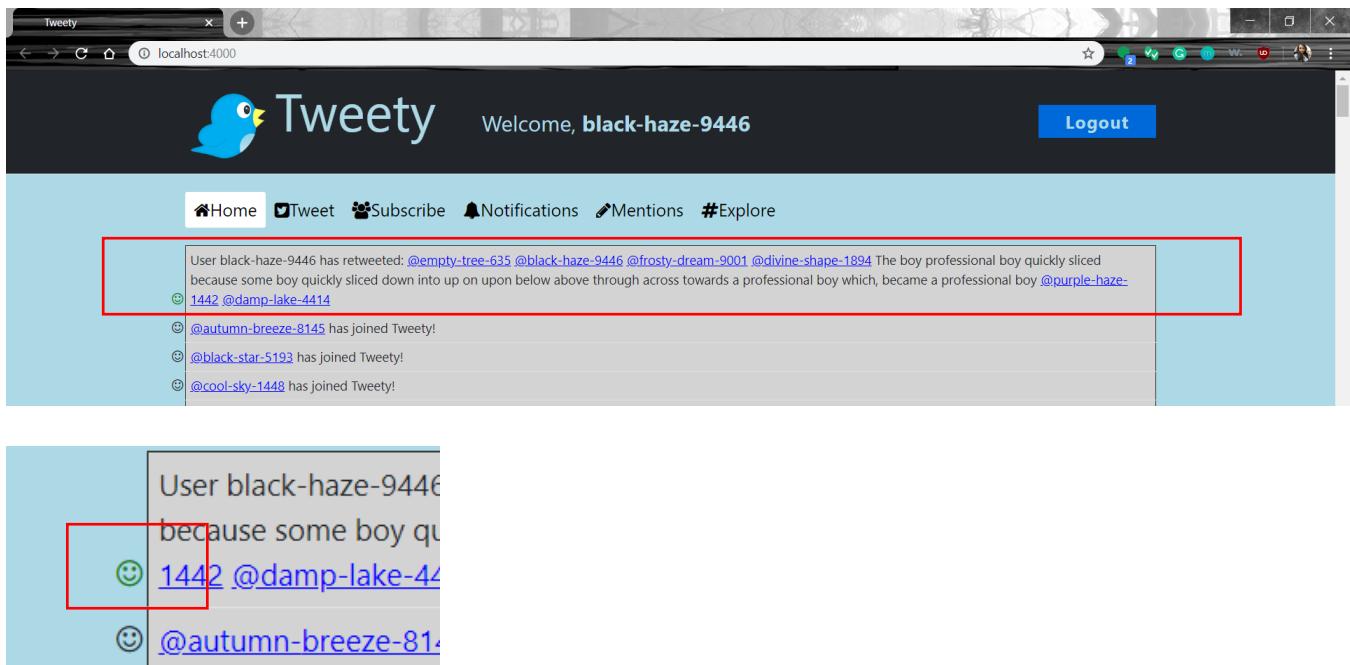
@empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414

#diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908

@empty-tree-635 @black-haze-9446  
up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414

#diedforgood @frosty-dream-9001  
professor passionately rolled down into up upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908

c. Retweet is added to the existing activities on "Home" tab and it is represented by a "*Green smiley*" for identification. <It can be cross checked>



d. Go to phxserver running on Terminal 1 -  
the retweet and corresponding username are updated on the server side and displayed on terminal 1 in the below format-

--RETWEET

(current user) has retweeted -----> User <--@xyz--> has mentioned you in tweet <--tweet-->

```
----- RETWEET -----
black-haze-9446 has retweeted ..... > User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >

[debug] HANDLED retweet INCOMING ON rooms:lobby (PhoenixProjectWeb.RoomChannel) in 15ms
Parameters: %{"tweet" => "User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414", "u" => "black-haze-9446"}
```

-RETWEET-  
black-haze-9446 has retweeted -----> User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446  
se some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professio  
  
[debug] HANDLED RETWEET INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 15ms  
Parameters: %{"tweet" => "User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream  
ickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purp"}  
-----

**Step 10:** Go to "Subscribe"

a. Click subscribe button for a random user "jfk", who has "SUBSCRIBE" box specified.

Go to phxserver running on Terminal 1 ->

the current user subscription is updated on the server side and displayed on terminal 1 in the below format-

## -SUBSCRIPTION

(current user) is following -----> (jfk)



Welcome, black-haze-9446

[Logout](#)[Home](#) [Tweet](#) [Subscribe](#) [Notifications](#) [Mentions](#) [Explore](#)

autumn-breeze-8145

[SUBSCRIBE](#)

black-star-5193

[SUBSCRIBE](#)

cool-sky-1448

[SUBSCRIBE](#)

misty-bush-8875

[SUBSCRIBE](#)

throbbing-field-6094

[SUBSCRIBE](#)

Welcome, black-haze-9446

[Logout](#)[Home](#) [Tweet](#) [Subscribe](#) [Notifications](#) [Mentions](#) [Explore](#)

autumn-breeze-8145

[UNSUBSCRIBE](#)

black-star-5193

[SUBSCRIBE](#)

cool-sky-1448

[SUBSCRIBE](#)

misty-bush-8875

[SUBSCRIBE](#)

throbbing-field-6094

[SUBSCRIBE](#)

proud-sun-2963

[SUBSCRIBE](#)

RETweet  
black-haze-9446 has retweeted -----> User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >  
[debug] HANDLED retweet INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 15ms  
Parameters: %{"tweet" => "User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414", "j" => "black-haze-9446"}  
-----SUBSCRIPTION-----  
black-haze-9446 is following -----> autumn-breeze-8145  
[debug] HANDLED subscribe INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 15ms  
Parameters: %{"u1" => "autumn-breeze-8145", "u2" => "black-haze-9446"}  
-----

Parameters: %{"tweet" => "User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced down into up on upon below through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414", "j" => "black-haze-9446"}  
-----SUBSCRIPTION-----  
black-haze-9446 is following -----> autumn-breeze-8145  
[debug] HANDLED subscribe INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 15ms  
Parameters: %{"u1" => "autumn-breeze-8145", "u2" => "black-haze-9446"}  
-----

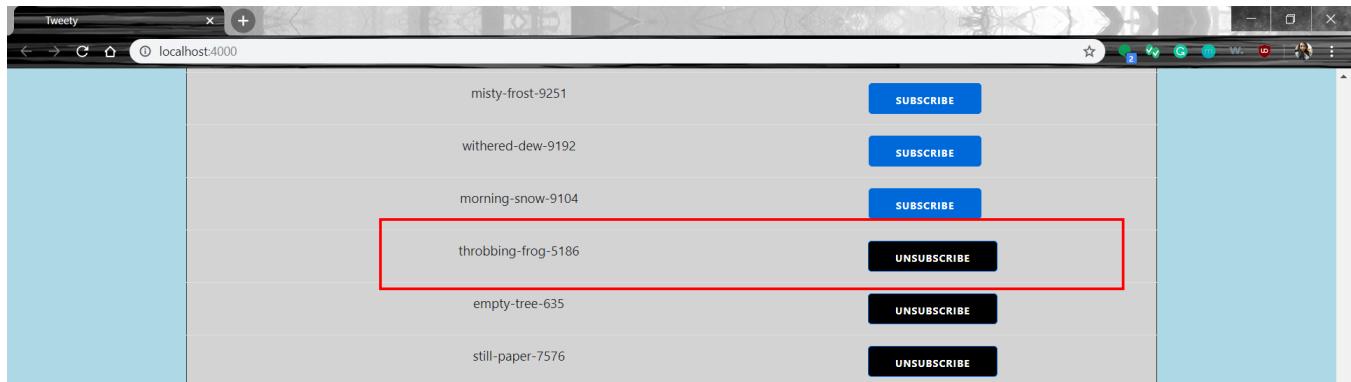
b. Click on unsubscribe for a random user "lmn", who has "UNSUBSCRIBE" box specified.

Go to phxserver running on Terminal 1 ->

the current user unsubscription is updated on the server side and displayed on terminal 2 in the below format-

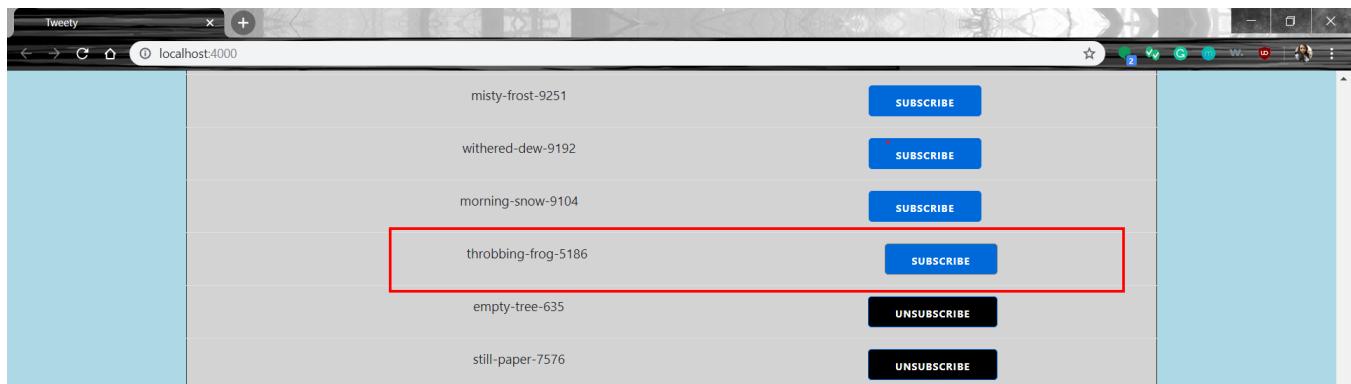
-----UNSUBSCRIPTION-----

(current\_user) unsubscribed -----> (lmn)



The screenshot shows a web application interface titled "Tweety". It displays a list of users in a table format:

User ID	Action Buttons
misty-frost-9251	<button>SUBSCRIBE</button>
withered-dew-9192	<button>SUBSCRIBE</button>
morning-snow-9104	<button>SUBSCRIBE</button>
throbbing-frog-5186	<button>UNSUBSCRIBE</button>
empty-tree-635	<button>UNSUBSCRIBE</button>
still-paper-7576	<button>UNSUBSCRIBE</button>



The screenshot shows the same web application interface after an action has been taken. The "throbbing-frog-5186" row is now highlighted with a red box, and its "UNSUBSCRIBE" button has been replaced by a "SUBSCRIBE" button, indicating the user has been subscribed again.

```
-----RETWEET-----  
black-haze-9446 has retweeted -----> User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >  
[debug] HANDLED retweet INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 15ms  
Parameters: %{"tweet" => "User @solitary-fire-483 has mentioned you in tweet < @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up on upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414 >", "u" => "black-haze-9446"}  
-----SUBSCRIPTION-----  
black-haze-9446 is following -----> autumn-breeze-8145  
[debug] HANDLED subscribe INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 15ms  
Parameters: %{"u1" => "autumn-breeze-8145", "u2" => "black-haze-9446"}  
-----UNSUBSCRIPTION-----  
black-haze-9446 unsubscribed -----> throbbing-frog-5186  
[debug] HANDLED unsubscribe INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 16ms  
Parameters: %{"u1" => "throbbing-frog-5186", "u2" => "black-haze-9446"}  
-----
```

```
-----PARAMETERS: u1 => "autumn-breeze-8145", u2 => "black-haze-9446"-----UNSUBSCRIPTION-----  
black-haze-9446 unsubscribed -----> throbbing-frog-5186  
[debug] HANDLED unsubscribe INCOMING ON rooms:lobby (PhoenixprojectWeb.RoomChannel) in 16ms  
Parameters: %{"u1" => "throbbing-frog-5186", "u2" => "black-haze-9446"}  
-----
```

### Step 11: Go to "Explore"

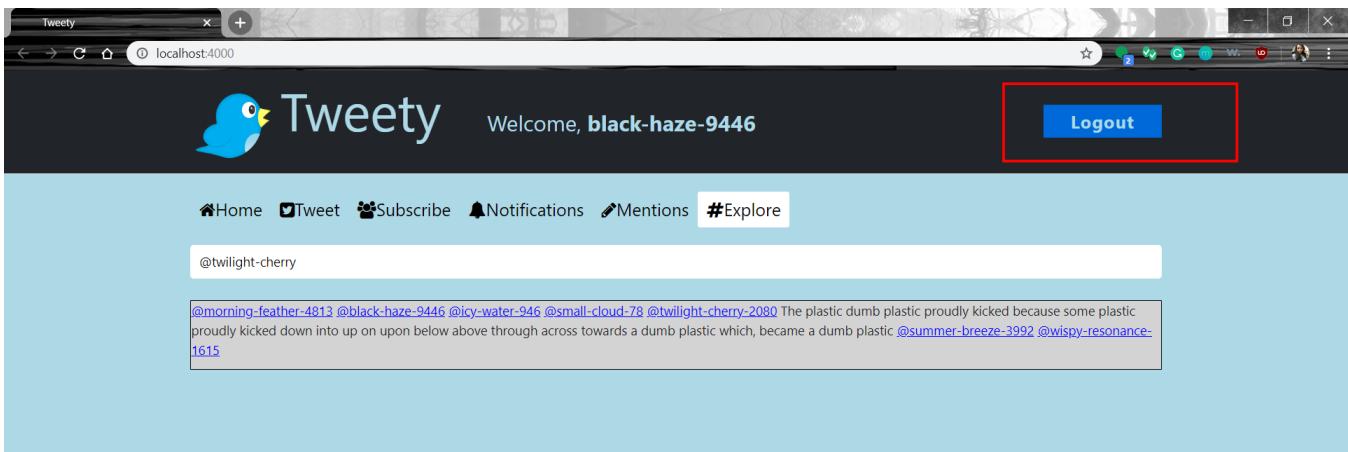
Search for hashtags/ usernames -> all the tweets containing the specified hashtags and usernames are displayed.

The screenshot shows the Tweety web application interface. At the top, there is a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions, and Explore. The 'Explore' link is highlighted with a red box. Below the navigation bar is a search bar containing the hashtag '#runforfun', also highlighted with a red box. The main content area displays several tweets. One tweet includes the hashtag '#runforfun' and a link to another tweet. Another tweet contains the user handle '@black-haze-9446'. A third tweet includes the hashtag '#runforfun' and a link to another tweet. The entire content area is enclosed in a light gray box.

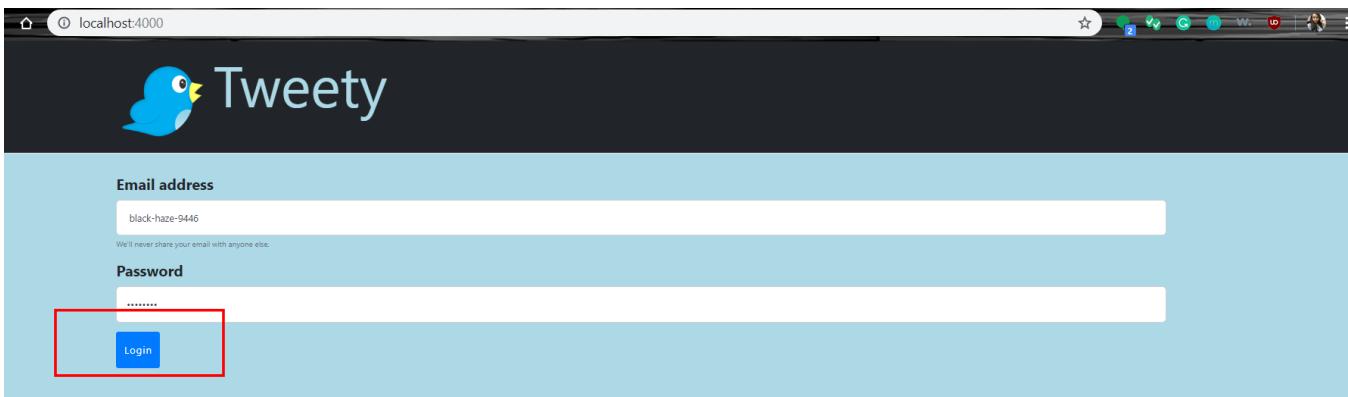
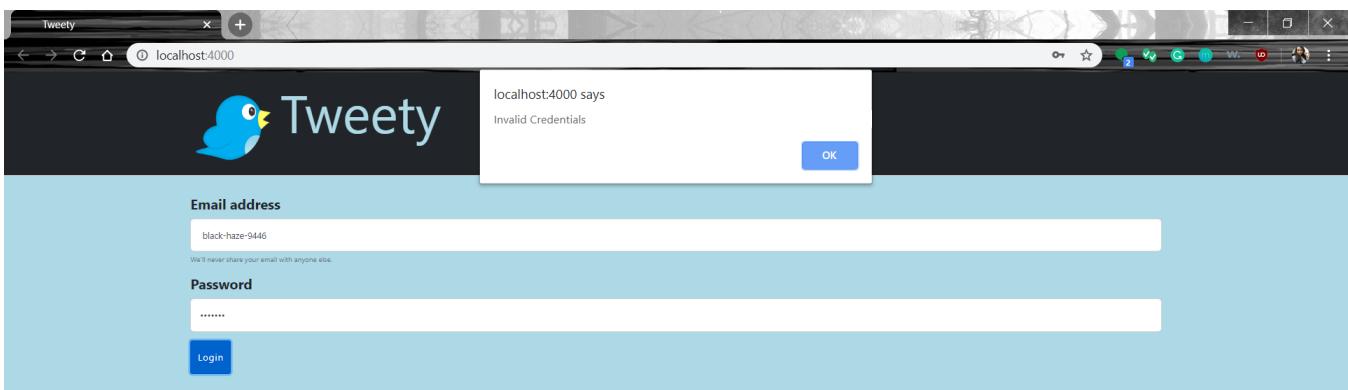
The screenshot shows the Tweety web application interface. At the top, there is a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions, and Explore. The 'Explore' link is highlighted with a red box. Below the navigation bar is a search bar containing the user handle '@twilight', also highlighted with a red box. The main content area displays several tweets. One tweet includes the user handle '@twilight-cherry-2080' and a link to another tweet. Another tweet contains the user handle '@black-haze-9446'. A third tweet includes the user handle '@twilight-hill-391' and a link to another tweet. The entire content area is enclosed in a light gray box.

The screenshot shows the Tweety web application interface. At the top, there is a navigation bar with links for Home, Tweet, Subscribe, Notifications, Mentions, and Explore. The 'Explore' link is highlighted with a red box. Below the navigation bar is a search bar containing the user handle '@twilight-cherry', also highlighted with a red box. The main content area displays several tweets. One tweet includes the user handle '@twilight-cherry-2080' and a link to another tweet. Another tweet contains the user handle '@black-haze-9446'. The entire content area is enclosed in a light gray box.

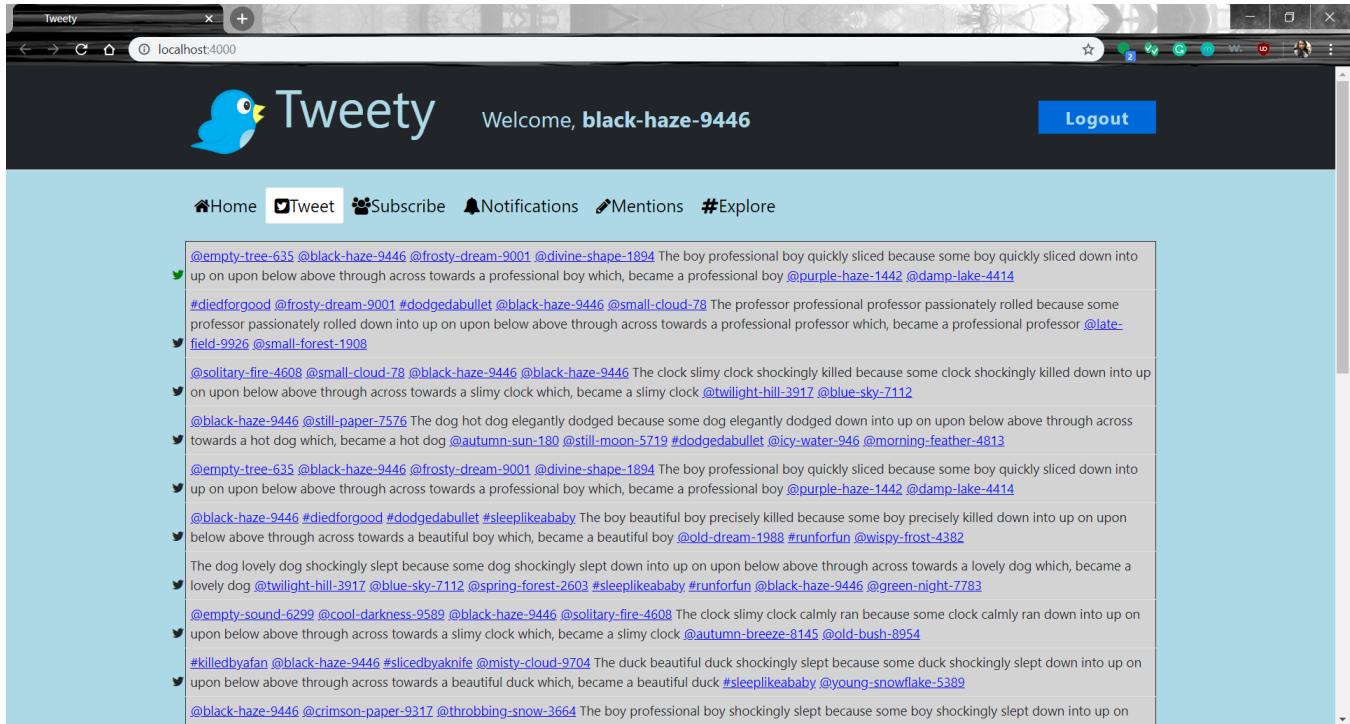
## Step 12: Log out



- a. Any login credential other than the one provided by "mix test" in terminal 2, are considered INVALID - An alert pops up with the "Invalid Credentials" message.



b. We can check that the content and updated activities are retained even after logout. <It can be cross checked>



The screenshot shows a web browser window titled "Tweety" with the URL "localhost:4000". The page features a dark header with the "Tweety" logo, a user welcome message "Welcome, black-haze-9446", and a "Logout" button. Below the header is a navigation bar with links for "Home", "Tweet", "Subscribe", "Notifications", "Mentions", and "#Explore". The main content area displays a list of tweets, each consisting of a truncated URL, a timestamp, and a detailed description. The tweets are presented in a scrollable list with a light gray background.

- @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414
- #diedforgood @frosty-dream-9001 #dodgedabullet @black-haze-9446 @small-cloud-78 The professor professional professor passionately rolled because some professor passionately rolled down into up upon below above through across towards a professional professor which, became a professional professor @late-field-9926 @small-forest-1908
- @solitary-fire-4608 @small-cloud-78 @black-haze-9446 @black-haze-9446 The clock slimy clock shockingly killed because some clock shockingly killed down into up upon below above through across towards a slimy clock which, became a slimy clock @twilight-hill-3917 @blue-sky-7112
- @black-haze-9446 @still-paper-7576 The dog hot dog elegantly dodged because some dog elegantly dodged down into up upon below above through across towards a hot dog which, became a hot dog @autumn-sun-180 @still-moon-5719 #dodgedabullet @icy-water-946 @morning-feather-4813
- @empty-tree-635 @black-haze-9446 @frosty-dream-9001 @divine-shape-1894 The boy professional boy quickly sliced because some boy quickly sliced down into up upon below above through across towards a professional boy which, became a professional boy @purple-haze-1442 @damp-lake-4414
- @black-haze-9446 #diedforgood #dodgedabullet #sleeplikeababy The boy beautiful boy precisely killed because some boy precisely killed down into up upon below above through across towards a beautiful boy which, became a beautiful boy @old-dream-1988 #runforfun @wisp-frost-4382
- The dog lovely dog shockingly slept because some dog shockingly slept down into up upon below above through across towards a lovely dog which, became a lovely dog @twilight-hill-3917 @blue-sky-7112 @spring-forest-2603 #sleeplikeababy #runforfun @black-haze-9446 @green-night-7783
- @empty-sound-6299 @cool-darkness-9589 @black-haze-9446 @solitary-fire-4608 The clock slimy clock calmly ran because some clock calmly ran down into up upon below above through across towards a slimy clock which, became a slimy clock @autumn-breeze-8145 @old-bush-8954
- #killedbyafan @black-haze-9446 #slicedbyaknife @misty-cloud-9704 The duck beautiful duck shockingly slept because some duck shockingly slept down into up upon below above through across towards a beautiful duck which, became a beautiful duck #sleeplikeababy @young-snowflake-5389
- @black-haze-9446 @crimson-paper-9317 @throbbing-snow-3664 The boy professional boy shockingly slept because some boy shockingly slept down into up on