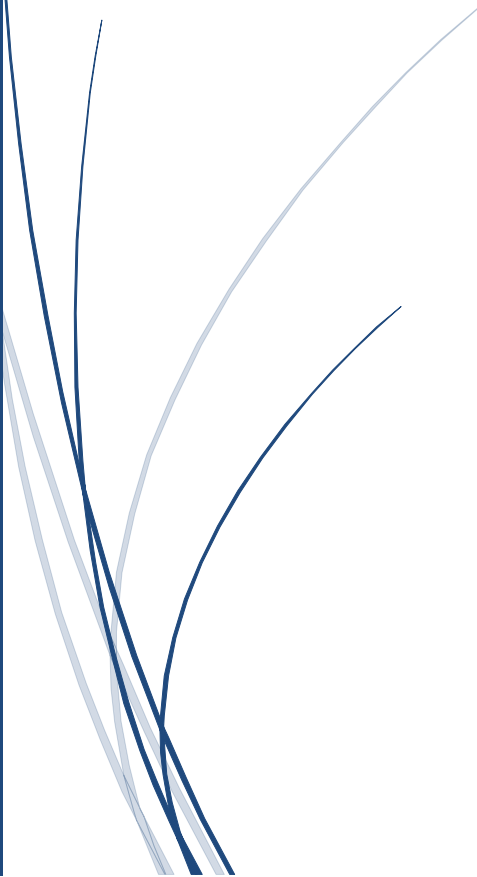11/4/2018

Docker - Twitter API

Team: The Seekers

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Abstract

The purpose of this project is to create a client application which implements 8 twitter API's using Docker container framework, on which various components and applications can be deployed. The application is built around the developer's Twitter account. The developer initially requests for the authentication key and token from the Twitter account to work with the APIs. Using the same, the developer can send request to any of the Twitter APIs and receive a response. An HTML page is designed as a part of user interface with CSS styling. The user interface contains a list of the APIs that are implemented by the team. Each of these APIs have a unique functionality. When the user clicks on any of these API's, it redirects to a new page which displays the response to the requested API. The website is hosted on Amazon EC2 server instance, which can be accessed publicly via below link:

http://ec2-54-183-31-112.us-west-1.compute.amazonaws.com:8000/TwitterApi/TheSeekers/

Prerequisites

1. Create a Twitter app (For the Twitter Display Name: @TheSeekers6 [Get the OAuth credentials to use in the application]
>   http://docs.inboundnow.com/guide/create-twitter-application/#toc-0

2. Set up the development environment - Install below software:
>   Python, Django, Docker, AWS EC2 and PyCharm CE (Community Edition)

Github Repository

The Seekers Group:
https://github.com/vidhishah22/CMPE-272-The-Seekers/tree/master/Docker_TwitterAPI_HW

Tools

- Docker Container
- Django Web Framework
- PyCharm Community Edition
- AWS EC2 Server
- Git Repository

Technologies

- Python
- HTML, CSS

Twitter API'S Used

1. Get Status User Timeline

https://developer.twitter.com/en/docs/tweets/timelines/api-reference/get-statuses-user_timeline.html

2. Get Status Mention Timeline

https://developer.twitter.com/en/docs/tweets/timelines/api-reference/get-statuses-

mentions_timeline.html

3. Get Account Settings

https://developer.twitter.com/en/docs/accounts-and-users/manage-account-settings/api-

reference/get-account-settings

4. Get Status based on Tweet Id

https://developer.twitter.com/en/docs/tweets/post-and-engage/api-reference/get-statuses-show-id

5. Get Friends list

https://developer.twitter.com/en/docs/accounts-and-users/follow-search-get-users/api-reference/get-

friends-list

6. Get Followers list

https://developer.twitter.com/en/docs/accounts-and-users/follow-search-get-users/api-reference/get-

followers-list

7. Get Twitter's Privacy Policy

https://developer.twitter.com/en/docs/developer-utilities/privacy-policy/api-reference/get-help-

privacy

8. Get Twitter's Terms of Service

https://developer.twitter.com/en/docs/developer-utilities/terms-of-service/api-reference/get-help-tos

Architecture Diagram
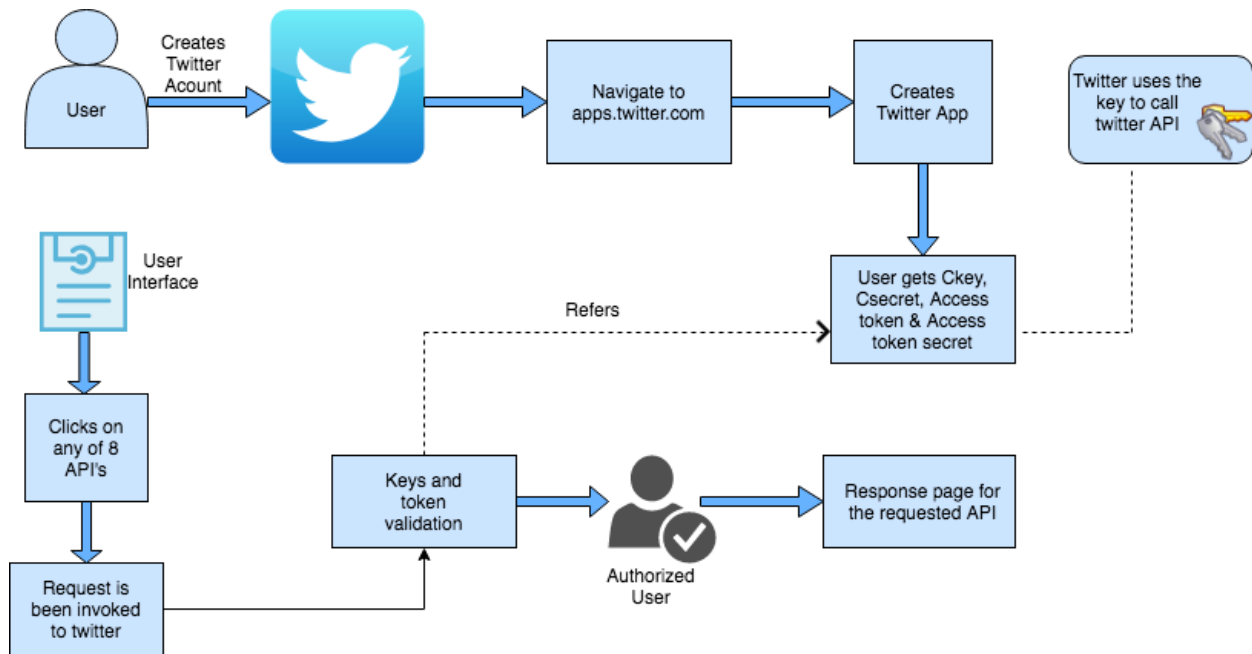
Technology Diagram
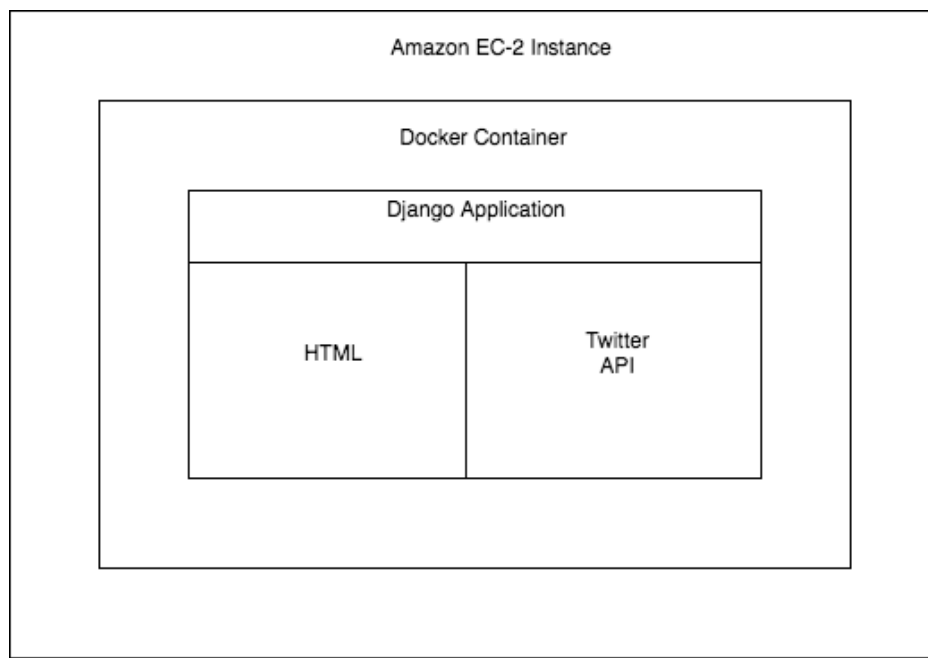
Use Case Diagrams

get_user_tweets: This returns the collection of tweets made by a particular user by screen-name. When the user clicks on 'Get User Tweets', the page redirects to get user tweets
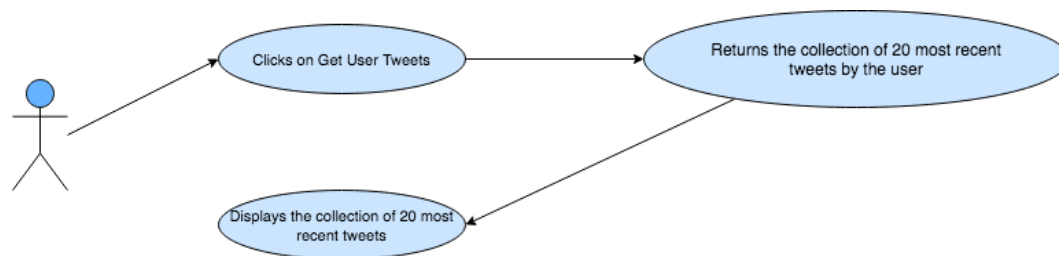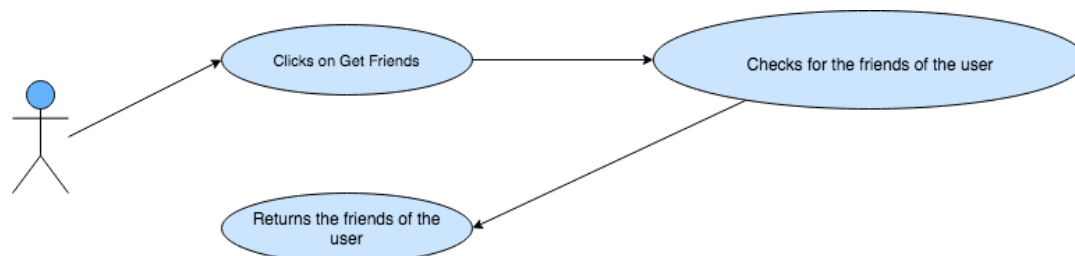

get_mention_tweets: This returns the collection of mentioned tweets for the user by screen-name. When the user clicks on 'Get Mention Tweets', the page redirects to get Mention Tweets
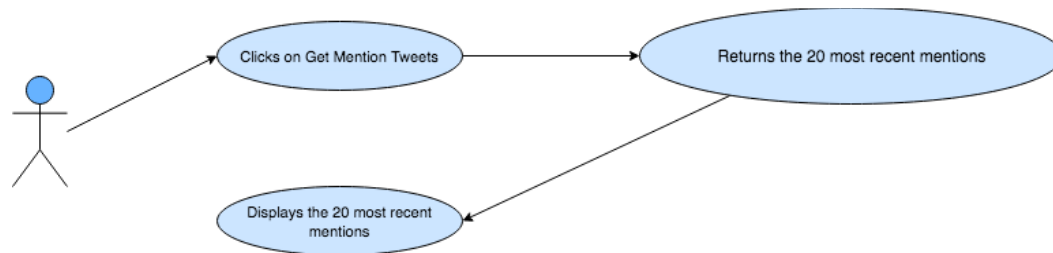

get_id_based_tweets: This returns the specific tweet for the user by screen-name. When the user clicks on 'Get id based Tweets', the page redirects to Get Id based Tweet
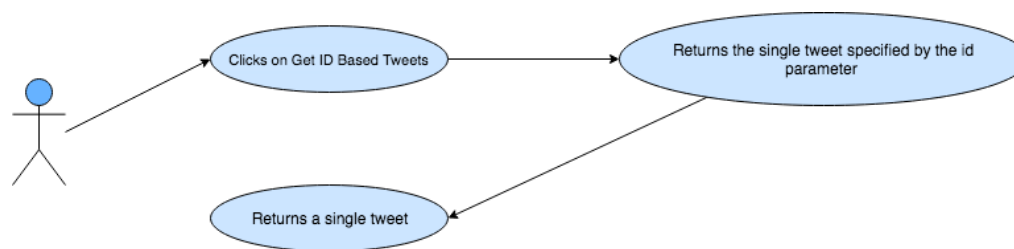
get_friends: This returns the collection of friends for the user by screen-name. When the user clicks on 'Get Friends List', the page redirects to Get Friends

get_followers: This returns the collection of followers for the user by screen-name. When the user clicks on 'Get Followers List', the page redirects to Get Followers
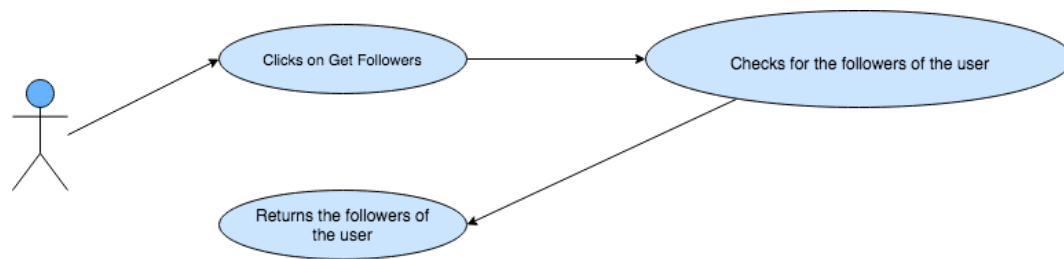
get_account_settings: This returns the account settings of the user by screen-name. When the user clicks on 'Get Account Settings', the page redirects to Account Settings
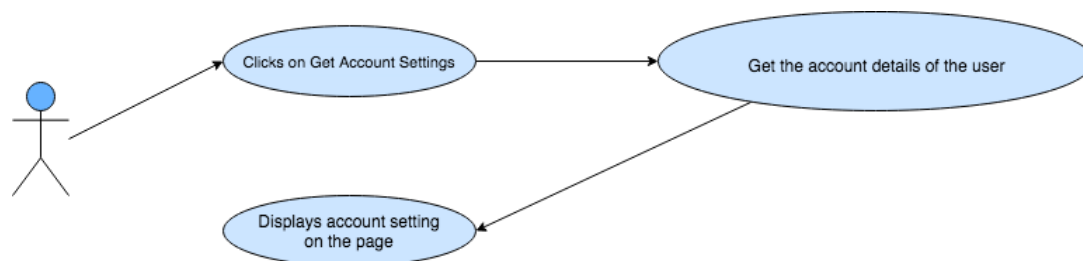
get_privacy_policy*:* This returns Twitter's Privacy policy. When the user clicks on 'Get Twitter Privacy Policy', the page redirects to Twitter Privacy Policy
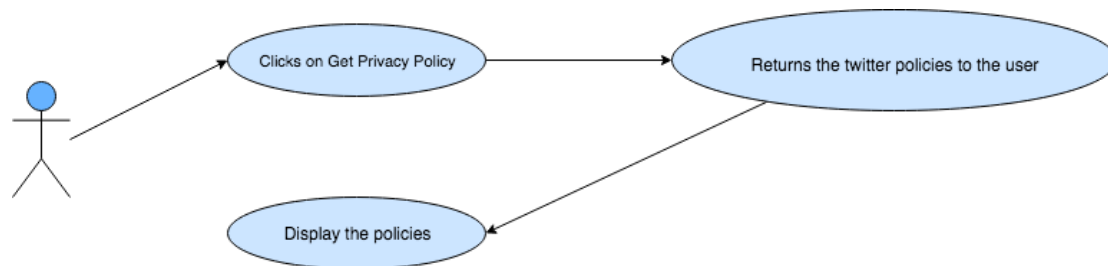
get_terms_of_service: This returns Twitter's Terms of Service. When the user clicks on 'Get Twitter Terms of Service', the page redirects to Twitter Terms of Service
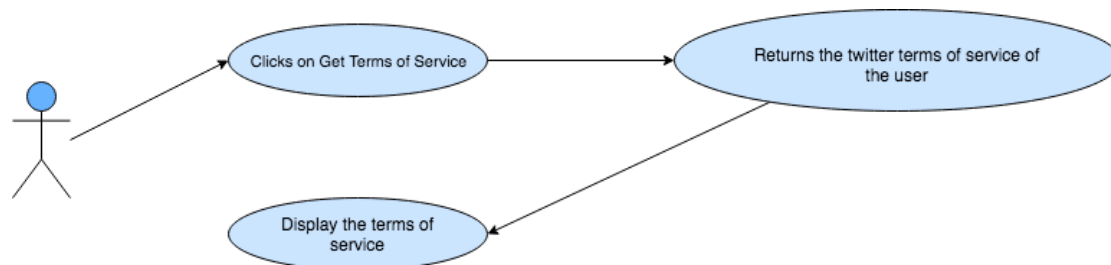
Test Cases

We have implemented **Django's in-build "UnitTest" framework** for development and execution of unit test cases involved within project.

Test Case No	Test Case Description	Status (Pass/Fail)
TC_1	Verify that get_user_tweets return a "status working get_user_tweet 200" response	PASSED
TC_2	Verify that get_mention_tweets return a "status working get_mention_tweets 200" response	PASSED
TC_3	Verify that get_id_based_tweets return a "status working get_id_based_tweets 200" response	PASSED
TC_4	Verify that get_friends return a "status working get_friends 200" response	PASSED
TC_5	Verify that get_followers return a "status working get_followers 200" response	PASSED
TC_6	Verify that get_account_settings return a "status working get_account_settings 200" response	PASSED
TC_7	Verify that get_privacy_policy return a "status working get_privacy_policy 200" response	PASSED
TC_8	Verify that get_terms_of_service return a "status working get_terms_of_service 200" response	PASSED

Test Case Execution Snapshot

Deployment

Create an AWS EC2 instance and ssh to it. Then follow the below steps to install Git, Docker and Docker-Compose on the Linux AWS server.

- Update the installed packages and package cache on your instance.
  $ sudo yum update -y

- Install Git
  $ sudo yum upgrade
  $ sudo yum install git

- Download the project code from GitHub
  $ Git clone https://github.com/vidhishah22/CMPE-272-The-Seekers.git

- Install the most recent Docker Community Edition package.
  $ sudo yum install -y docker

- Start the Docker service.
  $ sudo service docker start

- Add the ec2-user to the docker group so you can execute Docker commands without using sudo.
  $ sudo usermod -a -G docker ec2-user

- Log out and log back in again to pick up the new docker group permissions. You can accomplish this by closing your current SSH terminal window and reconnecting to your instance in a new one. Your new SSH session will have the appropriate docker group permissions.

- Verify that the ec2-user can run Docker commands without sudo.
  $ docker info

- Run this command to download the latest version of Docker Compose:
  $ sudo curl -L "https://github.com/docker/compose/releases/download/1.22.0/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose

- Apply executable permissions to the binary:
  $ sudo chmod +x /usr/local/bin/docker-compose

- Test the installation.
  $ docker-compose --version

- Once done with the installation, the project can be run on the AWS server using the following command:
  $ Docker-compose build
  $ Docker-compose up -d -- To keep the project running on the background.

Steps to create a Django project and application

- Create a Django project using the following command:

  $ django-admin startproject <projectname>

- Create an app within the project:

  $ python mange.py startapp <appname>

- To run the project:

  $ python manage.py runserver

- To run the project on a docker container, add the following files to the project.

  Docker-compose.yml

  Dockerfile

  requirements.txt

Docker Screenshots

Amazon EC2 Instance Snapshot

Website Screenshots

- Home Page

- Get User Tweets

- Get Mentions Tweets

Twitter
APIs

Home
Get User Tweets
Get Mention Tweets
Get Id based Tweet
Get Friends
Get Followers
Account Settings
Twitter Privacy Policy
Twitter Terms of Service

Implementation of 8 Twitter APIs

Get Status Mention Timeline

Returns the 20 most recent mentions for the user @TheSeekers6

https://developer.twitter.com/en/docs/tweets/timelines/api-reference/get-statuses-mentions_timeline.html

Tweet ID	User Mention Tweets
1049820799723425792	@TheSeekers6 Hello The Seekers group... We are in need of good developers.. hope you guys can help! :)
1049820539852705792	Chilling out with @TheSeekers6

- Get Id based Tweet

Twitter
APIs

Home
Get User Tweets
Get Mention Tweets
Get Id based Tweet
Get Friends
Get Followers
Account Settings
Twitter Privacy Policy
Twitter Terms of Service

Implementation of 8 Twitter APIs

Get Tweet Based On Id

Returns a single Tweet, specified by the id parameter. The Tweet's author will also be embedded within the Tweet.

https://developer.twitter.com/en/docs/tweets/post-and-engage/api-reference/get-statuses-show-id

Tweet ID	User Mention Tweets	Screen Name	Created At
1049869614321000448	RT @nytimesbusiness: Many long-serving Amazon workers are fuming that, based on what they've been told so far about the $15 an hour wage hi...	@TheSeekers6	Sat Sep 29 20:39:40 +0000 2018

- Get Friends

- Get Followers

- Account Settings

- Twitter Privacy Policy

- Twitter Terms of Service

Reference

- **https://developer.twitter.com**

- **https://www.draw.io**

- **http://docs.inboundnow.com/guide/create-twitter-application/#toc-0**

- **http://www.w3schools.com/w3css/w3css_colors.asp**

- **https://docs.aws.amazon.com/AmazonECR/latest/userguide/docker-basics.html**

- **https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AccessingInstancesLinux.html**

- **https://docs.docker.com/compose/install/#install-compose**