# Sentiment Analysis for Social Media-Lifting Rod

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## Background

This repository folder is made for the my EC601 class, Project2. The intention of this project is to help students form a basis impression of the whole process of making a product. The first step is to learn how a certain product is defined based on user stories. The next step, is to design a MVP (minimum value product).

To achieve the certain goal, prof separated the whole process into two steps. The first is to write some test programs to learn about the certain usages of Twitter API and Google NLP. And the other is to define a certain user story of my own and accomplish it by using the above tools.

From my own personal perspective, I want to make some more sentiment analysis on the twitter, especially on certain user, in order to see the what consists of the most emotional component of his twitters. Also, if we do the same thing for a topic, we can learn what people usually respond to it. As during the trial of the Google NLP I have had several problems, in this term I choose to use the sentiment analysis made by Twitter instead.

## Introduction

The emotion of human beings shows up and disappear much quicker than the rainfall and strong wind, which makes it difficult to recognize, and most people calm down before they even realized it. Applications such as Twitter offers people with a suitable way for sending their fleeting feelings. It can be written and sent so easily, and often happens when people have strong feelings over something, so analysis a certain user's behavior, or how people always react to some hot topics can show many things. Finally, I would like to call this little tool Lifting-Rod because it describes the changing motion of the people since most people, including me, have moods up and down several times within a day.

Lifting Rod is a twitter sentiment analysis program using Twi API to provide analysis for the certain users or a topic. Through this, we can go through a large number of twits of a certain people, see the proportion of how much time of a certain people have positive, negative or neutral sentiments. After getting touch with the twits, the calculation of the certain sentiment is given by the Twi sentiment analysis. To make the results easier to read and comprehend, I made a user interface.

A future consideration can be improved by comparing several similar channels or users and see what the difference between their contents.

## Prerequisites

Tkinter (graphical development interface)

Numpy, Pandas, Matplotlib, Textblob (for array calculation, data structures, making plots, text processing)

Tweepy (modules for processing Twi info)

## API

To get access to Twitter API v1.1, every user need to get the auth key. (From the personal safety perspective, my personal auth key is not shown in the codes)

To generate an Access Token you have to pick what type of access your application requires and then do one of the following:

https://developer.twitter.com/en/docs/authentication/oauth-1-0a/obtaining-user-access-tokens

https://developer.twitter.com/en/docs/authentication/oauth-1-0a/pin-based-oauth

To create an instance of the twitter.Api with login credentials (Twitter now requires an OAuth Access Token for all API calls):

```
>>> import twitter
>>> api = twitter.Api(consumer_key='consumer_key',
                      consumer_secret='consumer_secret',
                      access_token_key='access_token',
```

access_token_secret='access_token_secret')

## Target User

Anyone who want to do sentiment analysis to one twitter account, and also holds an Twitter API token/ Twitter Development account.

## User Stories

1. I, the user, should be able to access a large number (set as 500 in the program) of the twits from a certain user or a hotspot topic.
2. I, the user, should be able to get a sentiment analysis (average of score & magnitude and categorical label of whether it is positive, negative or neutral) of the user.
3. I, the user, should be able to see the analysis be shown in a graph so that I can get a full comprehensive recognition of it.
4. I, user, in case of I type in some users or topics that do not exist, I want to receive the feedback from the program that it is wrong.

## MVP (Minimum Valualbe Product)

1. Access to a certain user's Twitter or a given topic's
2. Use Twitter sentiment analysis to calculate the point of the twits
3. Use Tkinter to make a user interface to show the graphical result

## Modular design

**User-defined-input**

Specify certain Twitter account or topic

**Twitter API**

Sending user-defined-input as a query to Twitter API

Retrieve raw tweets data (Report error if did not exist)

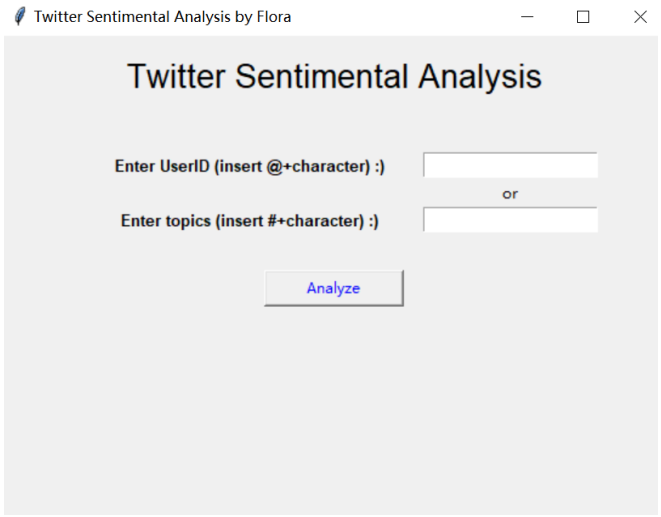
Make sentimental analysis

**Present data**

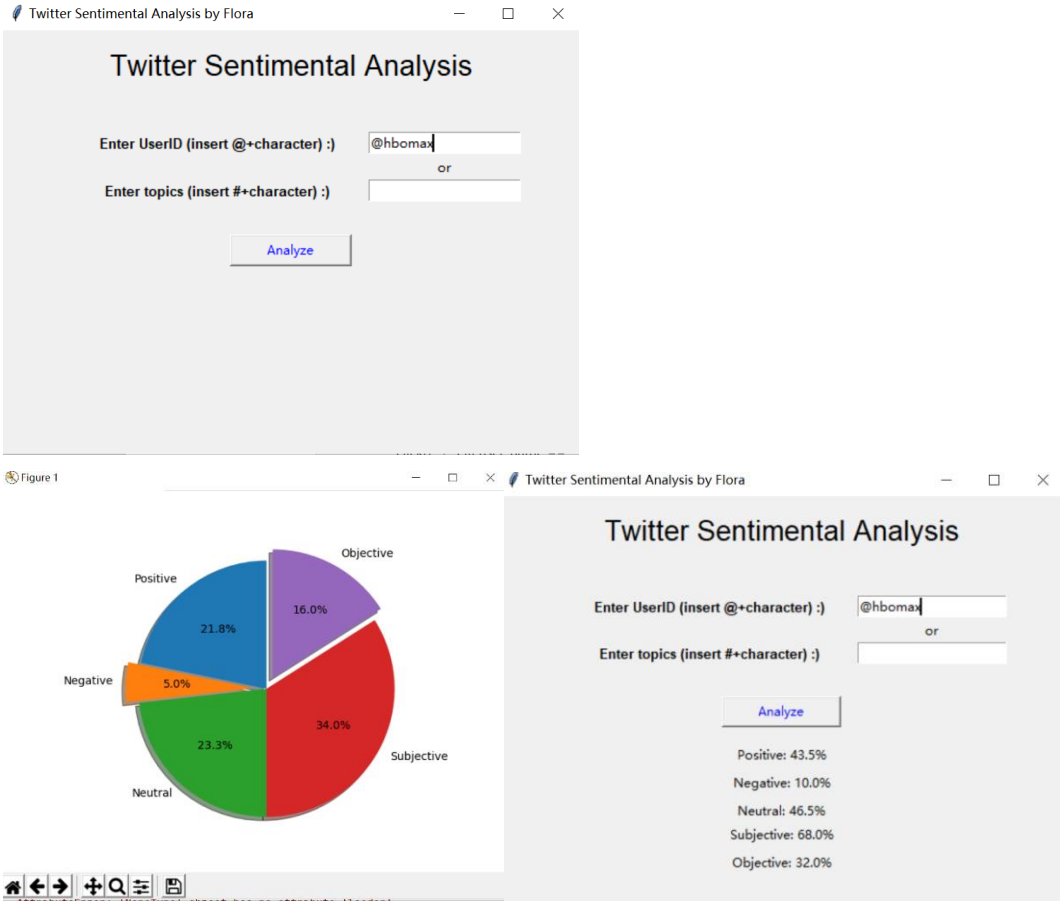
Present the sentiment analysis result in a graph/chart

## Result display for UI connection

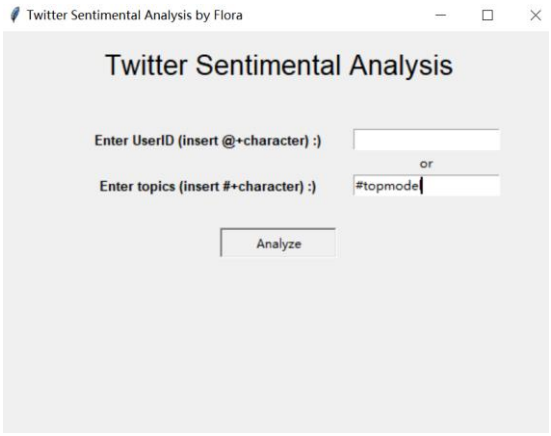
1. For users of this tool to see the result analysis more easily, I design a user interface to show the graphs in pie chart.

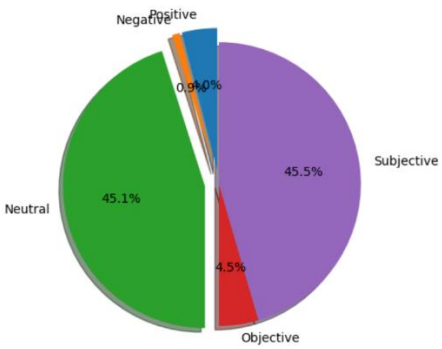


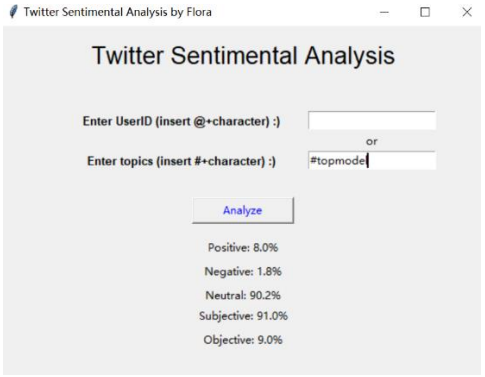

2. In this interface, the user can type in the userID in twitter and receive a graph of their sentiment analysis.



3. It is the same thing with the topic's name.




4. Also, when user type something wrong or type nothing, the program will report an error.