

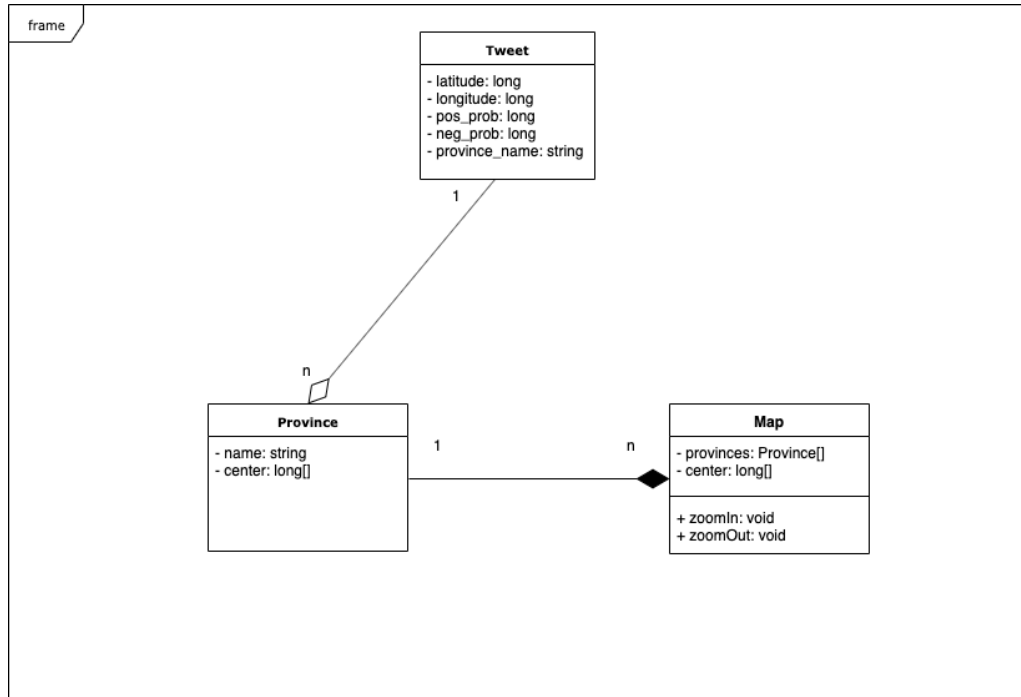
Bi-weekly report# 2

(Primary Implementation)

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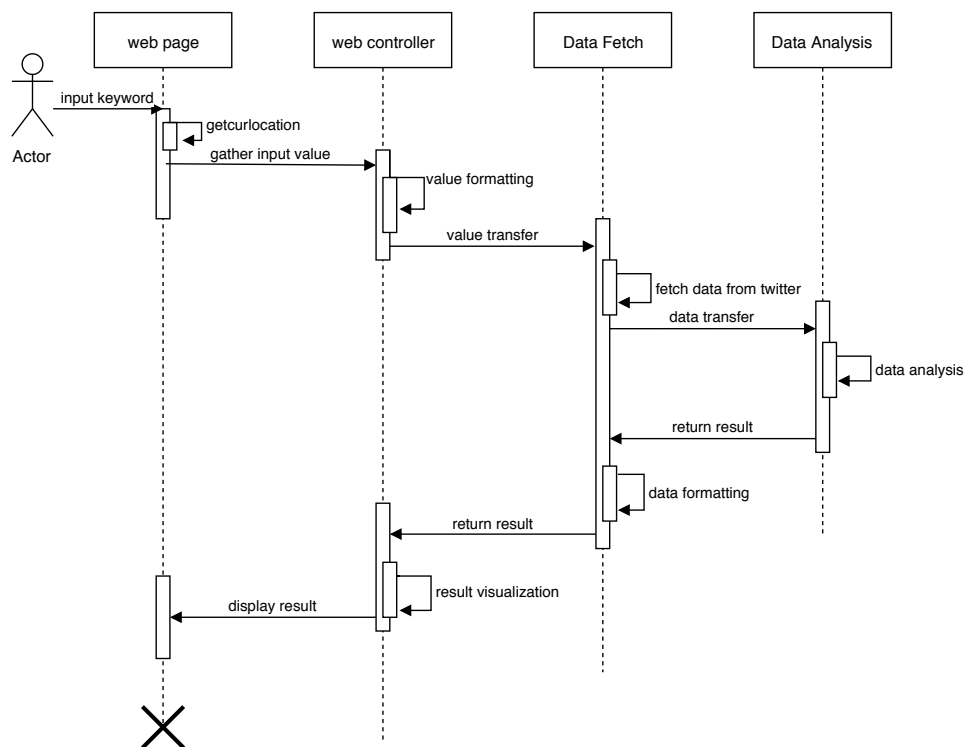
Date: 8th.Nov
To: Dr.Pooya

I. Class diagram



II. Interfaces between back-end and front-end

Users type a keyword in search bar in webpage, and backend will automatically generate current location and bundle (keyword, location) pass to data fetch module. The Data Fetch module is responsible for fetching data from Twitter based on provided value. After data clustering, Data Fetch module passes data to Data Analysis module. Once the data analysis is done, Data Analysis pass the raw data to Data Fetch to do the data formatting to pass to Web module for displaying in Map.



III. API research

a. Social media data extraction

1. Set up application in Twitter Developer platform for accessToken and accessSecretKey

2. Research Tweepy, which is the official API framework of Twitter

3. Design interfaces for data transformation of visualization

4. Implement the demo version of classes, objects, parameters and functions
(The pictures shows the testing data while the key word is #unitedAIRLINES)

```

2019-11-01 12:44:47 RT @MainPilot: #Unitedairlines watched all the United pilots "employees" barge in front of the paying customers on UA4370 this morning. A-
2019-11-01 12:26:14 UA1953 (8772): #MUC (Munich) to #ORD (Chicago, IL). 0.4 mi away @ 34800 ft, heading NW @ 443.0kts / time 13:25:55.. https://t.co/02sz2lykhk
2019-11-01 11:06:15 @CERN@BerkeleyLab: #NUCLEXperiment that's brave. Considering the reputation that #UnitedAirlines has earned for th... https://t.co/7R8SxKcJHVT
2019-11-01 10:49:53 #Unitedairlines watched all the United pilots "employees" barge in front of the paying customers on UA4370 this mor... https://t.co/6nGXd4dRdX
2019-11-01 10:48:24 United at Newark is a mess. 1890s are missing their flights. Travesty 1#UnitedAirlines.
2019-11-01 10:48:24 @GregBathwater: Stunning shot of a BUnited #737 at @flytpa this morning. Low clouds over @flytpa are from a cold front moving by...
2019-11-01 09:44:07 Stupid shot of a United #737 at @flytpa this morning. Low clouds over @flytpa are from a cold front moving... https://t.co/H3YSYlbtic
2019-11-01 09:34:29 If I would've known my #UnitedAirlines flight would be this cold I would've put on 3 hooded sweatshirts. I can't even get comfortable.
2019-11-01 09:14:04 RT @Az_Cheetah: Waiting for Boarding. Travel to #Orlando via #NewYorkCity for #MSignite with #lufthansa and #Unitedairlines #travel orangen...
2019-11-01 09:08:51 Waiting for Boarding. Travel to #Orlando via #NewYorkCity for #MSignite with #lufthansa and #Unitedairlines #travel... https://t.co/heips9Dzg
2019-11-01 08:57:35 Yes it's #noseshots today. #notmyflight #Unitedairlines #heathrowairport https://t.co/c7WmBqXxyg
2019-11-01 08:55:56 The new inflight video fit United features Star Wars 🌟 #Unitedairlines #travelinghome #travelinglife... https://t.co/L5gt004Zbp
2019-11-01 07:06:15 NJUC:RT GebhardFoodLaw: If you have unused #Unitedairlines MileagePlus miles, please consider donating them to... https://t.co/qoXnFYb8tSdY
2019-11-01 06:46:40 #UnitedAIRLINES I can't believe the fees you charge to transfer points to another rewards member. $1,000 to transf... https://t.co/gWvRqTKcad
2019-11-01 04:28:46 #Unitedairlines Flight to Dayton Cancelled. Sleep @ airport-no hotel comp. Flight 80mi from destination. concert shortly after arrival. 🙄
2019-11-01 04:16:36 #UnitedAirlines is a trash ass airlines! Do not fly with them. They will lose your bags and provide you with horrib... https://t.co/JE2pqt7tTC
2019-11-01 04:13:53 #UnitedAIRLINES You know if the inbound flight took off or not an hour ago, but don't tell us! You just cost me 6... https://t.co/behkU1FC94
2019-11-01 01:20:02 RT @buss32: #UnitedAIRLINES what the heck happened with first class service? Grateful for the upgrade but I guess you no longer ask what...
2019-11-01 01:18:18 United Airlines has the worst service. No offers of assistance to get me to my destination in reasonable time frame... https://t.co/eUHT75Sh81H
2019-11-01 01:15:47 @Sweet10000 BUnited The fact that #UnitedAirlines took the time to reach out... Only to give a weak ass apology. N... https://t.co/XW5Sv0E2H
2019-11-01 00:58:59 So. I flew to Miami a couple of weeks ago out of Presque Isle, Maine, when I arrived to check in, I was handed a p... https://t.co/iYhmbGRkQp
2019-11-01 00:55:49 #UnitedAIRLINES what the heck happened with first class service? Grateful for the upgrade but I guess you no long... https://t.co/Gp58v19Z8t
2019-11-01 00:22:45 I bought my family once in a lifetime first class seats to Hawaii 26k total cost &mp; United Airlines flew them coach... https://t.co/vnQzMBE7KF
2019-11-01 00:12:19 @UnitedAirlines is the WORST. They are going to charge me $600 to change flights, when they are going to turn aroun... https://t.co/1BtE7j9s7
2019-11-01 00:05:11 #Unitedairlines flight 238. Very disappointed. The cleaning crew refused to come back and clean up a seat that was... https://t.co/EvYLbDHD8h
2019-10-31 23:36:25 BUnited @marclairaire Awesome! 🙄 Do all female crews take off on time Every flight I take on #UnitedAirlines is del... https://t.co/INnMYKXcp
2019-10-31 23:12:46 @Sweet_Vivaya_Kay @Sweet10000 BUnited I'm more so annoyed that I then after I take the lady I'm going to miss the fun... https://t.co/gBX1PDJqqt
2019-10-31 23:12:46 #Unitedairlines are they really doing planes https://t.co/0Vt0G5G6G
2019-10-31 23:12:44 WFLA: Florida, that's all #000 #guns #airport #fortlauderdale #fl #onlyinFlorida #packthefun... https://t.co/sQoKNbEzY1
2019-10-31 07:07:56 Even though yesterday was a cloudy day, this beauty was headed to EWR out of gate C43 and I needed to get some pict... https://t.co/1Ay0gTmwc
2019-10-31 02:08:01 United Chases Premium Flyers With Spacious New Regional Jets https://t.co/YL5HG9rWb #skift #UnitedAIRLINES #travel https://t.co/0vko0GfRrh
2019-10-31 01:04:15 Very inspiring! I appreciate all of the hard working women that are such outstanding examples! #womeninbusiness... https://t.co/pXqVL8B6v
2019-10-31 01:21:43 Halloween day at Greater Rochester Airport
2019-10-31 00:48:49 #southwestairlines #roc @ Rochester, New York https://t.co/jE1rPdFdy
2019-10-31 00:51:44 RT @GebhardFoodLaw: If you have unused #Unitedairlines MileagePlus miles, please consider donating them to the National Immigrant Justice...
2019-10-31 00:48:40 Worst experience ever in an airport. #Unitedairlines
2019-10-31 00:45:49 Feelin' pretty fly today! ✈️

```

[illegible]

b. Text analysis

1. TextBlob is a popular python package for processing nature language. It's based on the NLTK library, which is a very strong and powerful library to deal with natural language. There are many APIs in TextBlob for analyzing and handling text data, you can even build your own text classifier based on TextBlob built-in materials.

```
(base) WeiweiCao-MacBook-Pro:~ caoweiwei$ python
Python 3.7.3 (default, Mar 27 2019, 16:54:48)
[Clang 4.0.1 (tags/RELEASE_401/final)] :: Anaconda, Inc. on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> from textblob import TextBlob
>>> from textblob.sentiments import NaiveBayesAnalyzer
>>> tweet = "I fight for the Constitution, individual liberty and the freedoms that make this country great."
>>> tweet_tb = TextBlob(tweet)
>>> tweet_tb.sentiment
Sentiment(polarity=0.4, subjectivity=0.575)
>>> tweet_tb.tags
[('I', 'PRP'), ('fight', 'VBP'), ('for', 'IN'), ('the', 'DT'), ('Constitution', 'NNP'), ('individual', 'JJ'), ('liberty', 'NN'), ('and', 'CC'), ('the', 'DT'), ('freedoms', 'NNS'), ('that', 'WDT'), ('make', 'VBP'), ('this', 'DT'), ('country', 'NN'), ('great', 'JJ')]
>>>
```

2. For this project, we can use `TextBlob.sentiment` method for getting the sentiment polarity and subjective results. For further usage, there is a classification model using Bayes algorithm. It can classify the tweets into different clusters.

```
>>>
>>> text = "Thrilled to tell you @NASA will contribute the CASE instrument to @ESA's @ARIELTelescope. Together we'll watch starlight streaming through the atmospheres of planets outside our solar system, to understand what they are made of, and how they came to be: https://go.nasa.gov/2Cr9uy8"
>>> text_tb = TextBlob(text, analyzer=NaiveBayesAnalyzer())
>>> text_tb.sentiment
Sentiment(classification='pos', p_pos=0.9821915837049848, p_neg=0.017808416295010582)
>>> text_tb.sentiment.classification
'pos'
>>> text_tb.sentiment.p_pos
0.9821915837049848
```

IV. Reference

Tutorial: Quickstart¶. (n.d.). Retrieved from <https://textblob.readthedocs.io/en/latest/quickstart.html#quickstart>.

API Reference¶. (n.d.). Retrieved from https://textblob.readthedocs.io/en/dev/api_reference.html.

Tweepy. (n.d.). Retrieved from <https://www.tweepy.org/>.

Apply for access – Twitter Developers. (n.d.). Retrieved from <https://developer.twitter.com/en/apply-for-access.html>.

V. Appendix — Team discussion records

