CSE648- Privacy and Security on Online Social Media
Homework 3 (70 marks)
Deadline: 20 March 2020

Instructions :

- Languages allowed: Python/Java
- You are free to use API documentation but if referring to any other sources, please cite them
- Please write your own code. All codes will be tested for Plagiarism and if found, institute policy for plagiarism will be followed.
- If you are using Python, it will be good to use Jupyter notebook, to show analysis, graphs, and code.
- Document your code properly.
- You can use any database for storing the data but it will be tested at the time of demo.
- Write all the analysis along with graphs, charts, etc in **analysis.pdf**
- Make a readme.txt file with instructions on how to run the code. All libraries, sources, etc used should be properly mentioned in it.
- Do the Assignment in groups of at most 3.
- Zip all your code files along with analysis and readme file in RollNo_Name_Homework3.zip format. Example 201402230_Swati_Homework3.zip

Que1: We all are aware of rumors about riots in Delhi recently. Collect all the Tweets containing mention of screen names of any of the Delhi City police verified Twitter handles. (@Delhi Police, @DCP South Delhi, @CP Delhi, etc.) and locality name (filled in sheet) in tweet content. Choose any locality (Ex: Dwarka Mor, Govind puri, etc.). Fill your distinct choices here.

a) Collect data for duration 1 Feb 2020 - 6 march 2020. (5 marks)
   i) Analyze the tweets, pre-process and extract different types of information (textual and non-textual features, different hashtags mentions, phone number, address, any PII, location, person name, vehicle no., etc.) from tweets using regular expressions or any method you find suitable. (10 marks)
   ii) Categorize all these tweets into different topics (challan related, action-related, chaos related, help-related, rumors related, etc.) for annotation of data. (10 marks)

   Deliverables: Code and annotated dataset (obtained after i and ii) in a structured format (CSV, tables, any DB, etc.). Simply add “NaN” in columns that are missing in the data.

b) Let’s assume that you have been recruited by Delhi Police to identify, reduce, and deter the effect of rumors through Twitter. Given this context and with the data collected from above and the annotations done as rumors.
   i) Build a simple model to evaluate whether the given tweet is a rumor or not; given a tweet ID, your model should provide a score for the rumor spread. (10 marks)
   ii) Please run the model on 100 tweets to find the efficacy of the model; showcase the efficiency of the model through metrics. (10 marks)

iii) With the metrics and results, look at the tweets where the algorithm did well, and where it failed, enumerate at least 5 examples tweets where it did well and 5 where it failed, and give reasons for the same. (10 marks)

iv) If you were to improve the model and make it better, what would you do, list 3 things you will do to make the model better. (5 marks)

v) If Delhi Police shows interest in using what you build, what do they need to do to set this up? Enumerate the steps. (10 marks)

Deliverables: code, working model, and analysis from i) to v)

Reference for using API:
https://developer.twitter.com/en/docs/tweets/timelines/api-reference/get-statuses-mentions_timeline