CS 6375

ASSIGNMENT \_\_\_\_\_\_2\_\_\_\_\_\_\_

Names of students in your group:

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Number of free late days used: \_\_\_\_\_\_\_\_\_0\_\_\_\_\_\_\_\_\_\_\_   
Note: You are allowed a **total** of 4 free late days for the **entire semester**. You can use at most 2 for each assignment. After that, there will be a penalty of 10% for each late day.

Please list clearly all the sources/references that you have used in this assignment.

Report:

1. Data File Used

From the given data, we are using “gdnhealthcare.txt” file. The file has *2997* samples.

Format of file: <id>|<date time information>|<tweet>

The tweets contain URLs, hashtags, and user ids.

*Note: any other data file can be used in the same code via command line argument.*

1. Pre-Processing

For pre-processing the data we have used simple string functions like replace(), split() and strip(), as well as regular expressions for removing URLs and other symbols.

1. Remove the tweet id and timestamp.

**20 delim = lines[i].split("|")[2:]  
21 lines[i] = " | ".join(delim)**

1. Remove any word that starts with the symbol @ e.g. @AnnaMedaris.

**24 lines[i] = " ".join(filter(lambda x: x[0] != '@', lines[i].split()))**

1. Remove any hashtag symbols e.g. convert #depression to depression.

**27 lines[i] = lines[i].replace('#', '')**

1. Remove any URL.

**30 lines[i] = re.sub(r"http\S+", "", lines[i])  
31 lines[i] = re.sub(r"www\S+", "", lines[i])  
32 lines[i] = lines[i].strip()**

1. Convert every word to lowercase.

**35 lines[i] = lines[i].lower()**

1. Removed all punctuations and other symbols.

**38 lines[i] = re.sub('[^A-Za-z0-9 ]+', '', lines[i])  
39 lines[i] = " ".join(lines[i].split())**

1. Results

The results are generated on a single file.

Jaccard distance is used to calculate distance between two sentences:

**72 def jaccard\_distance(t1, t2):**

**73 return 1 - (len(set(t1).intersection(t2)) /**

**74 len(set().union(t1, t2)))**

For experiments, we have set value of k from 3 to 10. The SSE and cluster distribution is noted below:

A graph with red lines

Description automatically generated

