Day 1

Task Name : Collect the tweets using the tweepy module
Status : Completed
      Tweets that are related to COVID-19 and lockdown are collected using the Tweepy module. An API has been created inorder to collect the tweets.

API Route: {{BASE_URL}}/api/getTweets
The response for this route is shown in the image below.

Day 2

Task Name: Get Sentiment Levels
Status: Completed
      The processed tweets from the collected tweets are sent to the IBM Tone Analyser and the sentiment levels are obtained. This functionality is combined with the above API request.

Task Name: Get other information
Status: Completed
      The other informations such as the most mentioned person, top influencers, top tweets are calculated and stored in the database. This functinality is also combined with the getTweets API request.

Day 3

Task Name: Building the frontend
Status : Completed
      The basic layout for the user interface is done and the initial API requests are called inorder to fetch the data from the database.

Task Name: Search tweets
Status: Completed
      The UI and the functionality for searching the previous tweets and its sentiment levels are implemented.

Day 4

Task Name: Data Visualization
Status : Completed
       The analyzed tweets and its emotion levels are displayed in the UI and the overvall sentiment level for that day is also visualized in the form of a speedometer

Day 5

Task Name: Model for sentiment prediction
Status :Completed
       A custome model is built to find the overall sentiment level of all the tweets. Which can then be shown in visual board.

Day 6

Task Name: Prediction Model
Status :Completed
       A model to predict the sentiment level of the people if current situation continues or if a new news is released is made.

Day 7

Task Name: Integration with frontend
Status :Completed
       The results from the model and other backend info are formatted. Frontend React application is then to integrated to backend to fetch and display real time information.

1. INTRODUCTION

1.1 Overview

This is our solution for the problem statement **Sentiment Analysis Visualization Dashboard On Covid-19 Tweets.** Our solution is a web-based application that constantly collects the tweets that are related to lockdown and COVID-19. The collected tweets are analyzed and processed to get usefull informations like different emotions among people, trending hashtags (related to COVID-19) and many more. Those information are visualized in a user-friendly front end application.

1.2 Purpose

The primary purpose of this application is **to understand the response for a particular decision** that has been taken by the **government**. This will be useful for the government to know the response of the masses through their emotional levels. **For Exampl**e : India has been locked down for the past 3 months. If the government extends the lockdown, The government can use this application to know the response for the decision.

2. LITERATURE SURVEY

2.1 Existing Problem

There are many sentiment analysis applications, but most of them are not showing a proper visualization and other important information. Most of them are not real time applications, they are trained with predefined data. So there may be some miscalculations during the prediction.

2.2 Proposed Solution

Our solution is a web-based application, which constantly **collects tweets for every six hours (automatically)** and analyses the tweets. Many information are collected during the analysis. Those information are,

- Different emotions(Anger, Joy, Sad, Disgust, Fear)
- Location of the user
- Top Influencers
- Most Mentioned Person
- Overall Emotional Levels During The Specific Time Only
- Trending Hashtags (related to COVID-19 and lockdown)

These information are stored in the database with their respective timestamps. Then these data are visualized in the front end in the form of **Line Chart, Bar Chart, Maps, Radar Chart,** etc. The overall sentiment level is shown in the form of a **speedometer**. The **location of the tweets** with their sentiment level is shown in the **map**.

The emotional level of each timestamp is visualized by a **Radar Graph**. It can also compare the current timestamp data with other timestamp data.

The admin can also search for the old tweets and their analysis. The emotional level of each emotion is visualized separately in the form of a **Line Graph.**
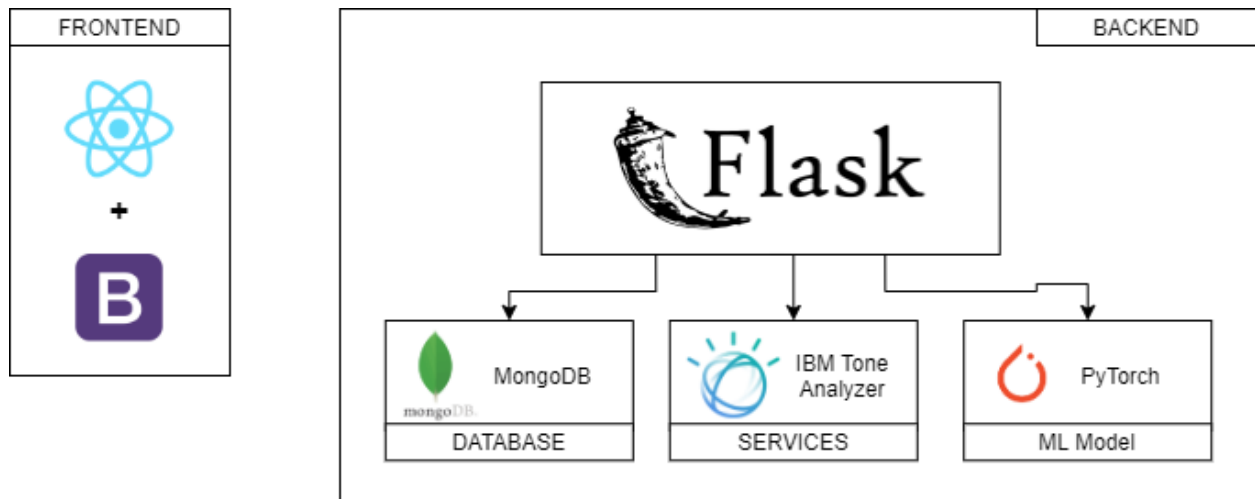
We have developed our **Machine Learning Model**, which predicts the future sentiment levels of the people. To build the model, we have used the ScikitLearn and PyTorch.

3. THEORITICAL ANALYSIS

3.1. Block Diagram
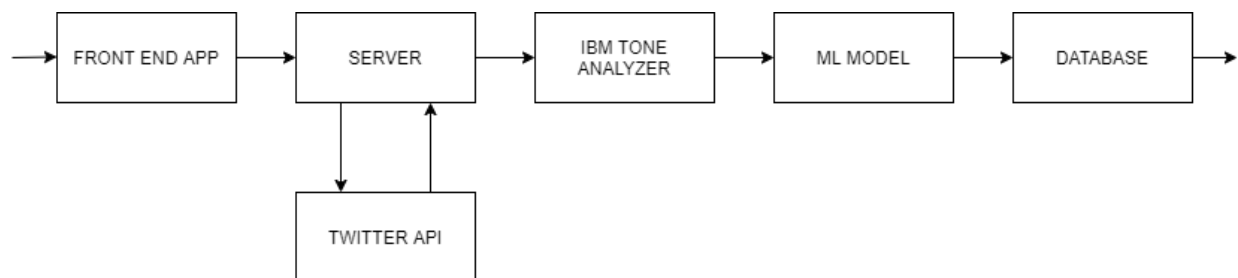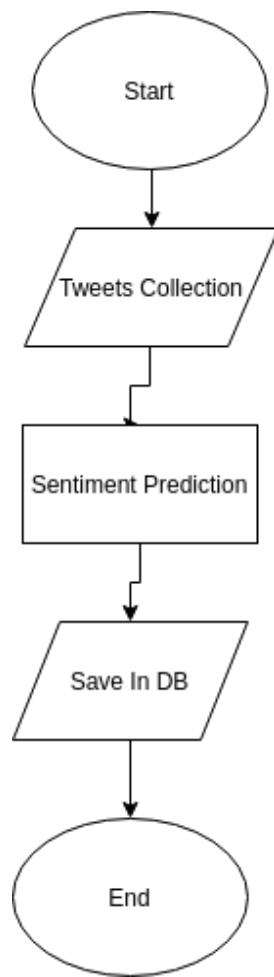

3.2 Software / Hardware Designing

4. EXPERIMENTAL INVESTIGATIONS

During the development of the application, we ran into lot of problems. Some of them are,

- Bulk amount of data cannot be sent to the IBM Tone Analyzer API.
- Collection of real time data
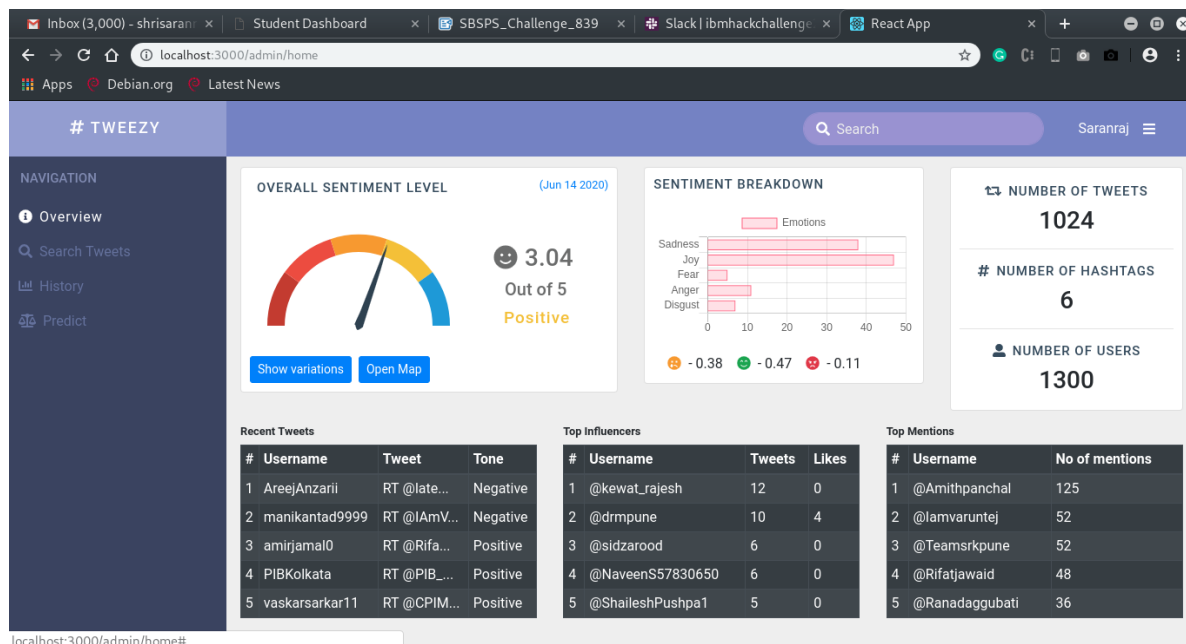- Invoking the API routes automatically

5. FLOWCHART

6. RESULT

      The application was developed successfully. The links to the source code and video are given below.

Source Code - https://github.com/SmartPracticeschool/SBSPS-Challenge-839-Sentiment-Analysis-Visualization-Dashboard-On-COVID---19-Tweets

Video Link -

Screenshots

7. ADVANTAGES AND DISADVANTAGES

Advantages

- Simple and user friendly visualization
- The information are shown detailed
- Search and view old records

Disadvantages

- Time duration for collecting tweets takes more than 30 seconds for each time period

8. APPLICATIONS

- To track the emotional level of the people in a country
- To easily understand the response for a particular decision

9. CONCLUSION

The proposed solution uses the tweepy API to get the realtime tweets for every 6 hours. The new tweets are processed and fed to Tone Analyzer to get the sentiments. The dashboard is used to display various information about tweets and sentiments of people. The ML modal is used to predict the emotions if government announces new news.

10. FUTURE SCOPE

The visual dashboard can be altered and used for differrent kind of applications. The application and same ML modal can be used to analyze the sentiment for people or customers in various field and industries.

11. BIBILOGRAPHY APPENDIX
A. Source Code

https://github.com/SmartPracticeschool/SBSPS-Challenge-839-Sentiment-Analysis-Visualization-Dashboard-On-COVID---19-Tweets