

# Social Media Analysis

## Introduction

This data science project aims to provide an easy-to-use web application for visualizing sentiment analysis of social media posts during the Olympics. By analyzing the sentiment of tweets related to the Tokyo Olympics 2020, this web app allows users to gain insights into public sentiments.

## Try it Out

You can experience the Sentiment Analysis Web App live at the following URL:

<https://olympic-sentiment-analysis-gdgyrsntw-thenaivekid.vercel.app/>

## Demo Video

Watch the demo video showcasing the features and functionality of the Sentiment Analysis Web App: <https://youtu.be/5lwiuEWD7ko>

## Source Code

The complete source code for this project is available on GitHub:

<https://github.com/thenaivekid/olympic-sentiment-analysis>

## Working with Data

To demonstrate the app, we utilized data related to the Tokyo Olympics 2020, sourced from Kaggle: [Tokyo Olympics 2021 Tweets Dataset](#). Instead of fetching live posts from social media APIs, this dataset served as a representative sample.

Exploratory Data Analysis (EDA) was performed, and sentiments were predicted using a pretrained model from the Hugging Face library. Specifically, the `finiteautomata/bertweet-base-sentiment-analysis` model was employed, providing sentiment and sentiment score for input text, for example: ('NEG', 0.7984506487846375).

To expedite data access and scalability, precomputed sentiment and score columns were added to the dataset, making the data ready for consumption by the web app.

## Web App - Backend

The backend of the web app was developed using FastAPI to ensure optimal performance. Three API endpoints were created:

- /overall: This endpoint accepts a GET request and returns the title, total number of posts, and a list with the number of posts categorized by negative, neutral, and positive sentiments, respectively.
- /sentiments: This endpoint accepts a keyword and filters all the rows with the given keyword. It also returns the title, total number of posts, and a list with the number of posts categorized by negative, neutral, and positive sentiments, respectively.
- /tweets: This endpoint takes a keyword, number of posts, and sentiment of the posts, and returns the filtered posts.

## Web App - Frontend

The frontend of the web app was built using React.js, with Chart.js used for data visualization. Several components were developed, including:

- BarGraph: A component to render a bar graph for sentiment visualization.
- PieChart: A component to render a pie chart for sentiment distribution visualization.
- Plots: A component that combines and displays the charts together.
- Sent: A component to create a card for an individual keyword query.
- Sents: A component that contains all the Sent items.
- Tweets: A component to display actual posts from social media.
- Search: A component with an input field to take the keyword and a submit button to call the API for the keyword.
- AppRemake.jsx: The main component that renders all the components in the correct order and calls the APIs.

## Usage

To run the web app locally, follow these steps:

- Clone the repository.
- To run the backend, navigate to the backend directory, install the required dependencies using `pip3 install -r requirements.txt`, and then run the FastAPI server using `uvicorn main:app`.
- To run the frontend, navigate to the frontend directory, install the required dependencies using `npm install`, and then start the development server using `npm run dev`.

## Live Deployment

The web app is live and accessible at the following URLs:

- Backend: <https://social-media-ashok.onrender.com/greet/>
- Frontend: <https://olympic-sentiment-analysis-gdgysntw-thenaivekid.vercel.app/>

We hope you find the Social Media Analysis Sentiment Analysis Web App insightful and valuable for understanding public sentiments during the Olympics.