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GOOD

General Opinion Online Detector

Introduction

The internet offers many diverse perspectives, which can be difficult to navigate when indulging in the use of social media. However, understanding the differences in viewpoints can facilitate opportunities for learning as well as personal growth and thoughtful opinion formation. Given how overwhelming websites like X and news articles (short and long text respectively) can be, we sought to develop a solution to this prevalent issue.

Novelty

Although many models and language processing tools exist to resolve the internet's abundance of information, we innovated by developing a system to search and compile text from various sources and apply aspect based sentiment analysis to be more user friendly. This allows people without proficient technological expertise to still gain value from these models, which contributes to a growing diversity of online opinions.

Fig. 2: Graphical Output

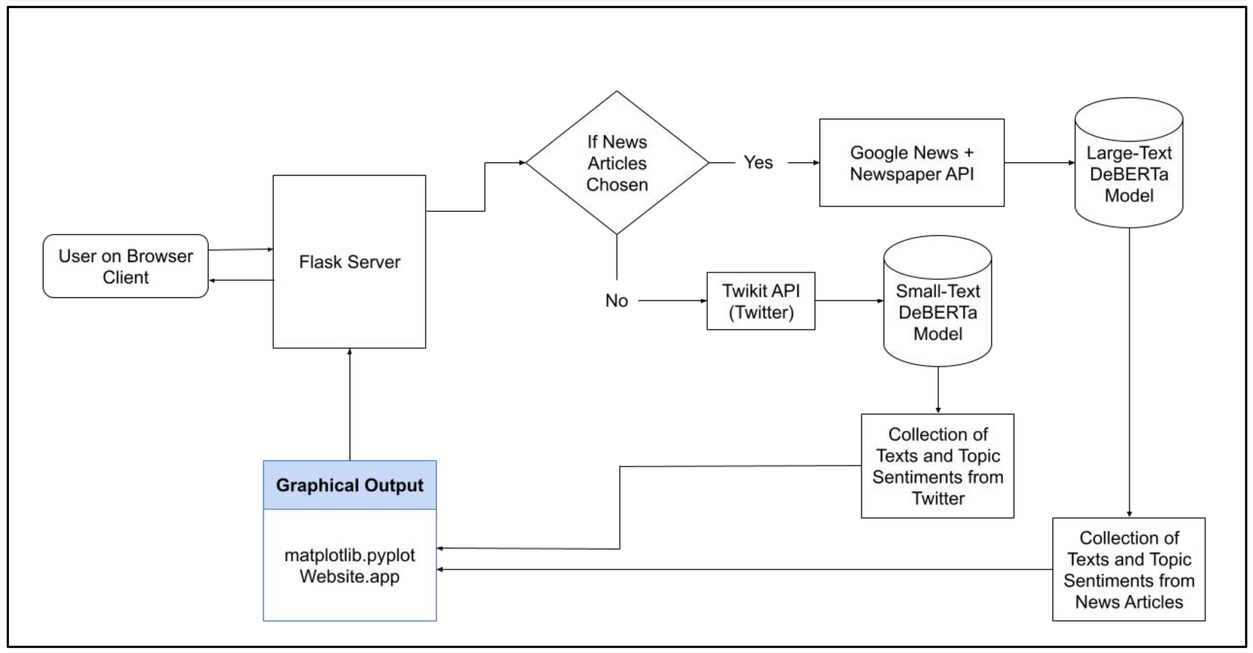

Fig. 1: Systems Architecture

Methods

As shown in *Fig. 1*, the website takes a topic as a input and finds multiple articles relating to that topic through google's search engine. Our backend program then web scrapes the text from articles and detects the opinions of the articles on the topic through Aspect-Based Sentiment Analysis (ABSA), completed by a DeBERTa model. Our models are pretrained on Wikipedia and BooksCorpus. As we employ transfer learning, we further trained the short text and long text models on Yelp reviews and a political sentiment analysis datasets. Finally, the website displays each articles' opinion on a graph (*Fig. 2*).

Results

Our program consists of two models capable of handling short and long amounts of text, reaching ~85% and ~80% accuracy on their datasets respectively, which each contained roughly 1000 entries. Finally, a cumulative output is displayed on our website (see *Fig. 3)*, allowing users to view and read a list of summaries of the information compiled and analyzed for overall sentiment. A graph of the sentiments is displayed for the user to assist in visualization, as shown in *Fig. 2*.

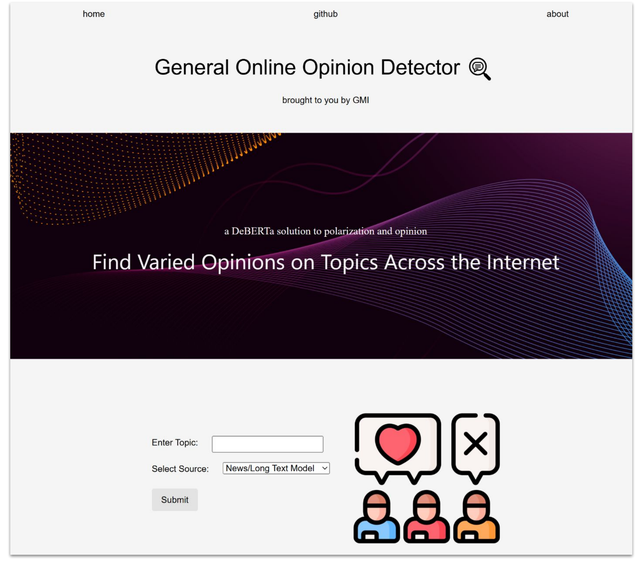

Fig. 3: Website Appearance

Impact & Future Work

Our website allows for readers to understand diverse perspectives and an overall opinion of a subject based on the sources. This allows for users to detect if they are in an echo chamber; an environment where a person only encounters beliefs that coincide with their own. In the future, we would like to add more varied social media sources for data, including YouTube, TikTok, and Instagram, because more sources would contribute to a nuanced and greater understanding of a subject. We would use a speech to text model to process the text, then do a sentiment analysis on it. Additionally, we would like to reduce time limitations on our ABSA model, improve our article fetching times, and increase the amount of articles used, to enhance the user experience.