

# Sentiment Analysis Tool

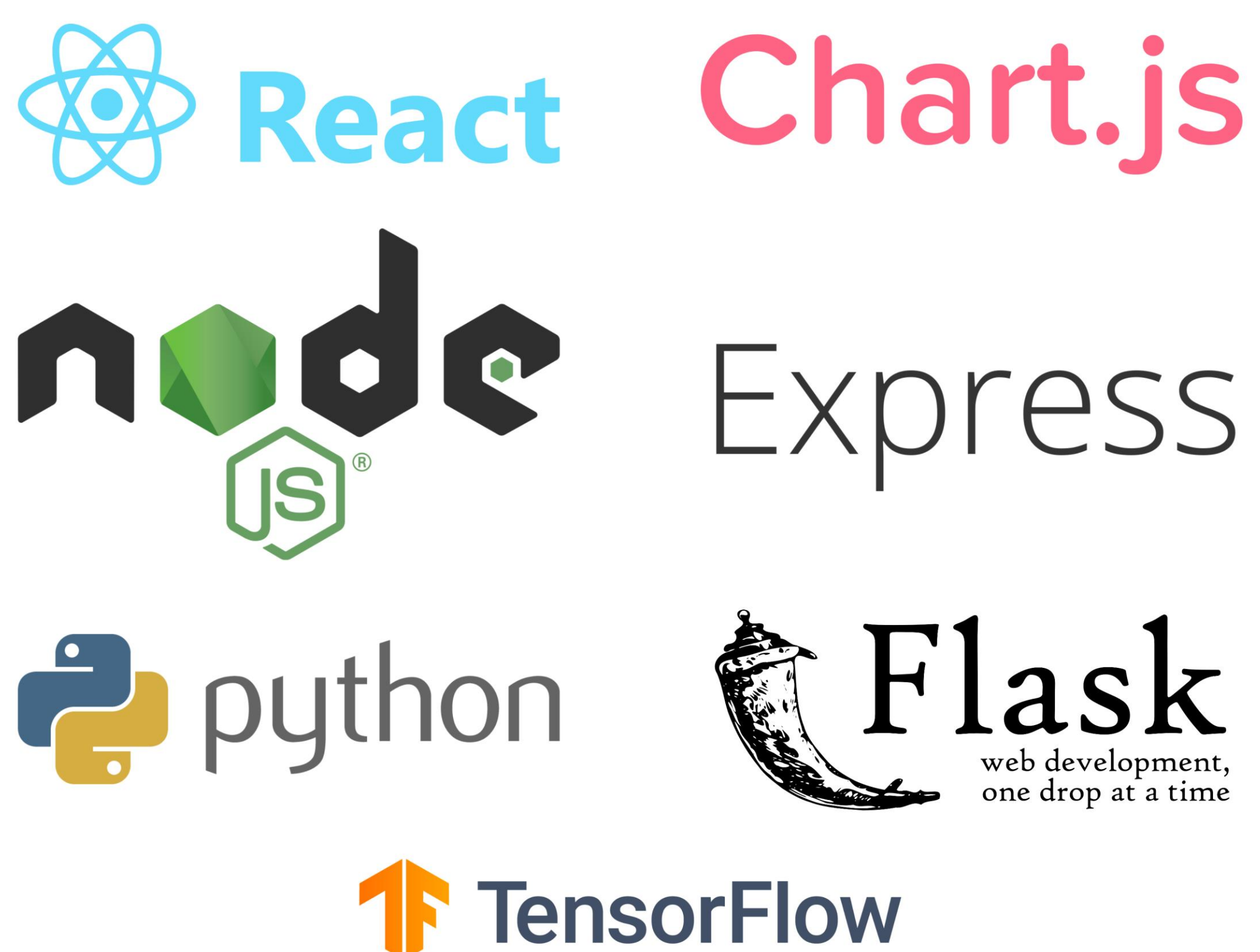
## Background

There are plenty of tools that allow users to assess the amount of interest in a topic over time but provide no insight as to how people feel about that topic. To Google Trends, there is no difference between a spike of excitement and a spike of anger. As a consumer, brand manager, or investor, gauging sentiment can be as important as gauging interest, so this is a crucial lack of information.

## Our Platform

This project is a sentiment analysis and aggregation web application. Users can search for any set of keywords (e.g. a brand name or topic) and they will see a graph of public opinion regarding their search. The result data presented to the user is constructed from social media posts that are processed through a natural language processing engine. Users will see public sentiment changes over time and can break down results by social media platform.

## Technologies



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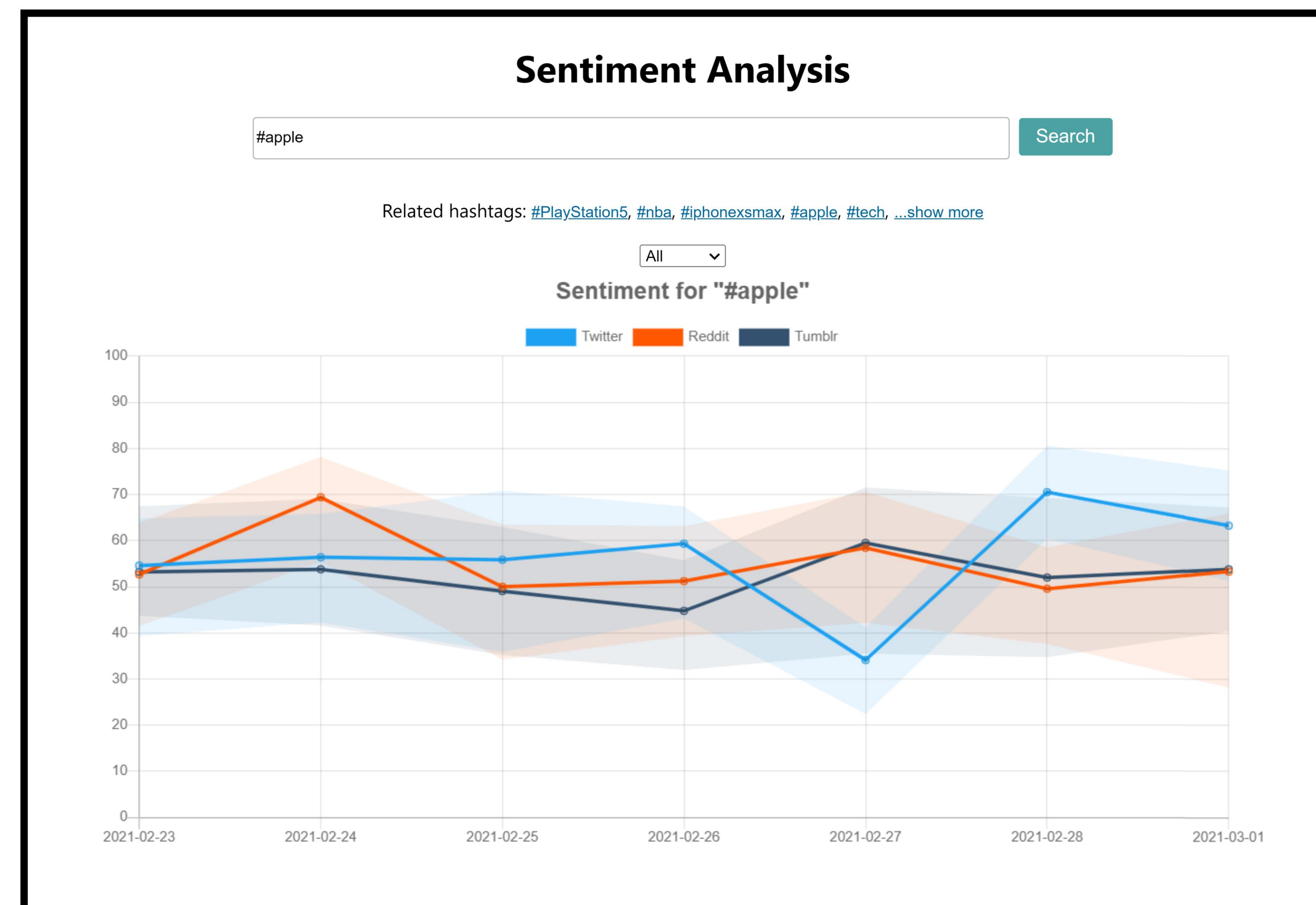


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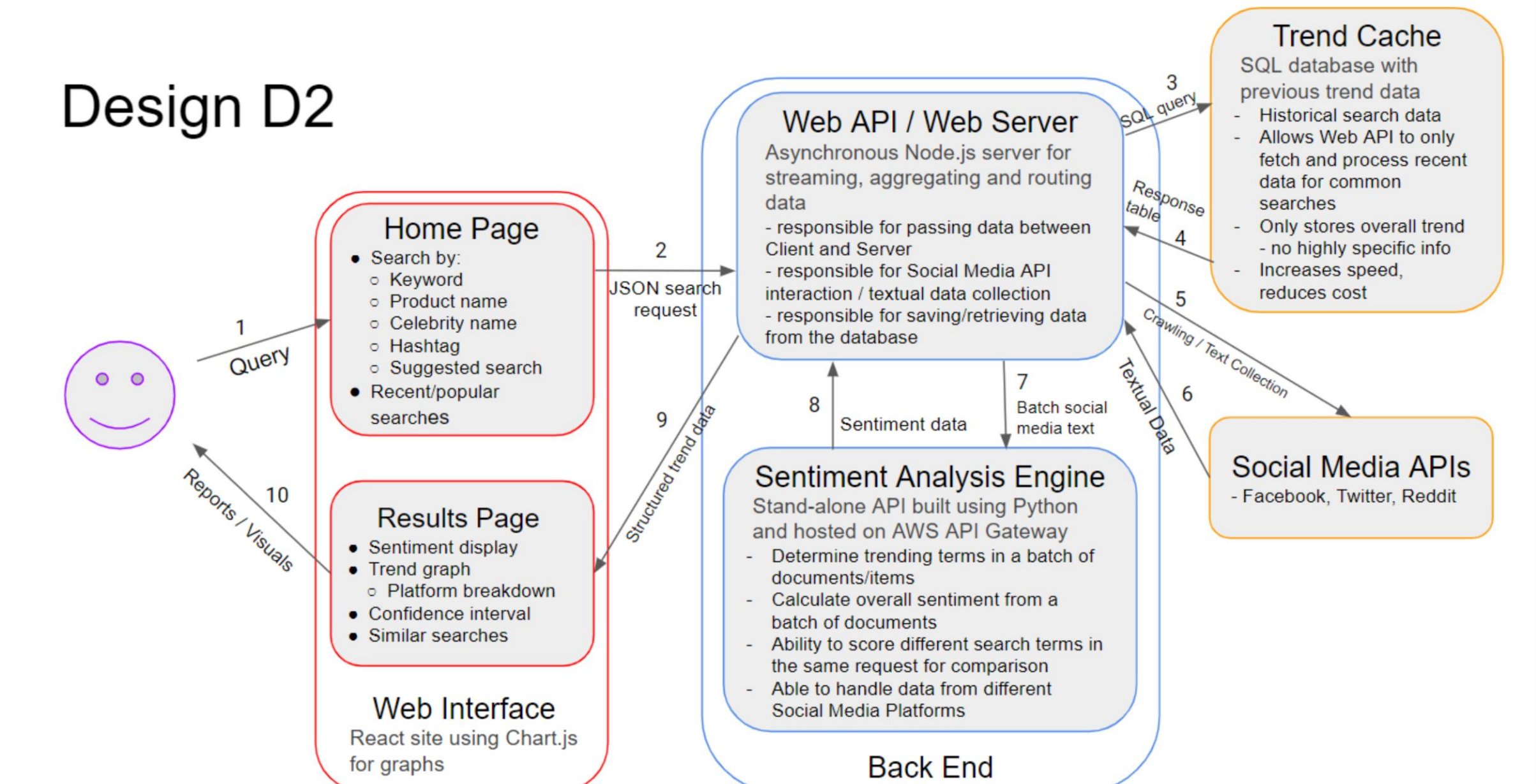
A screenshot of the tool in action

## Technical Design

The React web interface handles user interaction and formats the data on the fly based on the user's selections. The Node routing server manages communication between the web interface, social media platforms, and the sentiment analysis engine, concurrently making requests to different servers to minimize delay. The Python engine API receives all of the social media data, schedules it for analysis by the sentiment analysis engine, and aggregates the results. The Python sentiment analysis engine interprets the sentiment of social media posts and generates a score for each one based on how positive or negative it is.

## Design Diagram

### Design D2



## Achievements

- Realtime, concurrent data aggregation and processing from three different social media platforms
- A robust Sentiment Analysis API that allows the analysis part of our application to run standalone without the need for a frontend
- Successfully utilized Google's Universal Sentence Encoder along with a Recurrent Neural Network to build a classifier with nearly 80% sentiment accuracy. Classifier was trained using 1.6 million record data set

## Future Goals

- Create a customizable date range for the sentiment graph. This will allow users to view trends over a longer period of time.
- Show users more statistical analysis of the sentiment data. This will help differentiate between a change in sentiment and statistical noise.
- Add a homepage with popular search results pre-populated. This will engage users and show them how others are using the platform.
- Implement targeted sentiment analysis. This will enable our engine to assess the sentiment of text with respect to the search terms.