Requirements analysis

UI component

It will consist of a web application and it will have two main pages, related to the main functionalities of the Twitter API component. One page for displaying the current trends. The current idea is to display each top trend as a card, similar to how a tweet looks. Once such a card is clicked, it will be expanded and related information and statistics will be shown about the respective trend.

The second page will be used for a user to search for a specific topic himself. After entering his topic into a search bar and pressing enter, a call will be made to the Twitter API component. It will return information about the current topic and it will be displayed in a similar fashion to the expanded version of trends mentioned previously.

It will also provide an interface for logging in. Once logged in, a user will have access to a new page, which will display their past searches. Here they will be able to look at what topics they looked at in the past and the statistics they had at that moment in time.

Twitter API component

Will receive an input from the UI component, which consists of the topic that the user wants to find more information about. It will make calls to the Twitter API in order to receive some of the latest tweets. In the dataset created, we are looking for those tweets that are likely to be related to our topic based on the appearance of certain words. After filtering, it will pass the result to the clustering component.

Making use of the Twitter API that provides trends, it will gather the topics that currently garner the most attention. Again, a dataset is created and it is passed to the clustering component. As this dataset already contains tweets concerning our topic, filtering might be skipped.

Clustering component

Will receive input from the API component. Over the dataset that it receives, it will run a clustering algorithm to determine exactly how closely related are the tweets in the dataset related to the topic. Once this process ends and some metrics are calculated, it will return these statistics to the Twitter API, which will send them back to the UI component.

User service component

Users can log in to their account, while new users can create new accounts. To add purpose to this component, we plan on recording a user's searches in a database, registering the information they are shown about a certain topic, so that he can look back at them at any point in time.