

**FAST-NUCES**  
**Department of Computer Science**  
**BSCS**



**What's Trending?**

**Project Proposal**  
**Project-1 CS 4091**

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## Contents

1. Abstract.....	1
2. Introduction .....	1
2.1 Motivation .....	1
2.2 Problem Statement .....	2
3. Project Type .....	2
4. Project Description .....	2
4.1 Features .....	3
5. High-Level Diagram.....	4
6. Methodology.....	5
6.1 Techniques:.....	5
6.2 Challenges:.....	5
7. Related Work: .....	5
8. Data Acquisition .....	6
9. Future Work .....	6
10. Timeline:.....	6
11. Tools: .....	6
12. References:.....	7



## **1. Abstract**

The aim of what's trending is to help educate users to differentiate between what they are consuming on Twitter. The web platform deals with trending keywords. Users will be able to identify organic trends from the forced or paid trends before they form an opinion hopefully. The Application will provide the user with an interface to view trending keywords, further he can manually add any keyword and check on them if the data is available for that specific word. Also, if the user wants to view statistical analysis on some Twitter account or trending keyword or the sentiments related to that trending keyword.

## **2. Introduction**

### **2.1 Motivation**

According to a study, A chosen topic or keyword is artificially promoted through these attacks via what they call inauthentic activity. When successful, the topic appears to be popular, and the perpetrators remove their activity.

The researchers from the Swiss university chose the social media platform Twitter as their test field and observed over 19,000 unique fake trends promoted by over 108,000 accounts. These included fake and compromised accounts, which are accounts of people whose credentials have been stolen. [1]

According to a study, A new type of astroturfing attack accounts for at least 20% of Twitter's global "Top 10" trends, most of the time generated by automated bots. One critical point that the study touches upon is that Twitter's algorithm counts the use of the hashtag whether the tweet is later deleted, a loophole that these attacks abuse frequently.

These researchers found that 47% of local trends in Turkey and 20% of global trends are fake, created from scratch by bots. [2]

Nearly half of the Twitter accounts spreading messages on the social media platform about the coronavirus pandemic are likely bots, researched at Carnegie Mellon University.

Researchers picked through more than 200 million tweets discussing the COVID since January and found that about 45% were sent by accounts that behave more like computerized robots than humans. Researchers identified more than 100 false narratives about COVID-19 that are proliferating on Twitter by accounts controlled by bots.

Twitter was alerted to this methodology of attacks twice by the researchers, but the social media giant either declined to change its "Trends" algorithm or refused to respond, according to the University's piece. [3]

## **2.2 Problem Statement**

Twitter is a significant source of information, a widely used and very influential platform for any political/social movement. The movements from Twitter are run with the help of Twitter trends. The problem is that nowadays most Twitter trends are not authentic which results in fake actions that are supported by millions of people causing unrest in society.

## **3. Project Type**

It is a development project.

## **4. Project Description**

What's trending is a web-based application to eliminate and identify bot accounts and fake trending keywords with the help of a trained model. Currently, Twitter does not implement any such system that details if the trending keyword is forced, up reached by bot/spam accounts, or paid unless paid directly to Twitter. We will be authenticating users to reduce spam requests. Analysis of trending keywords along with the sentiments and quality related to that keyword will be provided to the user. The analysis will also be made for

any Twitter account requested by the user. What's Trending? will facilitate the user in making a better opinion once he is on our web platform.

## **4.1 Features**

In this project, we have these features which are as follows:

- **User Authentication**

A graphical interface will be provided to the user for login. New users will sign up for an account. Each user will be provided with a recommendation according to his added keyword.

- **Trend Quality**

The Keywords provided by the user system will predict Trend quality based on factors i.e., unique account participation, unique message, analysing trend starter accounts, checking bot accounts participation, and some other factors by using AI, and ML techniques.

- **Trend Analysis**

The keyword entered by the user for statistical analysis will predict the trend timeline, growth rate, growth region, activity graph, popular tweet, and popular retweet.

- **Sentiment Analysis**

The keyword will be entered by the user for sentimental analysis, the system will extract the public sentiments positively or negatively using NLP.

- **Bot Account recognition**

The username will be provided by the user; The system will identify whether the participating account was operated by a fake, bot, or authentic account.

- **Data Visualization**

The system will provide frequency analysis and visualize data. It will include the frequency of total account participating, real account, bot account, total tweets made, unique tweets, unique accounts participating in the keyword, number of times the keyword is used, same message retweet, gender ratio, age ratio, and platform ratio.

- **Statistical analysis of Twitter account**

The username will be provided by the user; the system will provide a detailed overview of that Twitter account.

## 5. High-Level Diagram

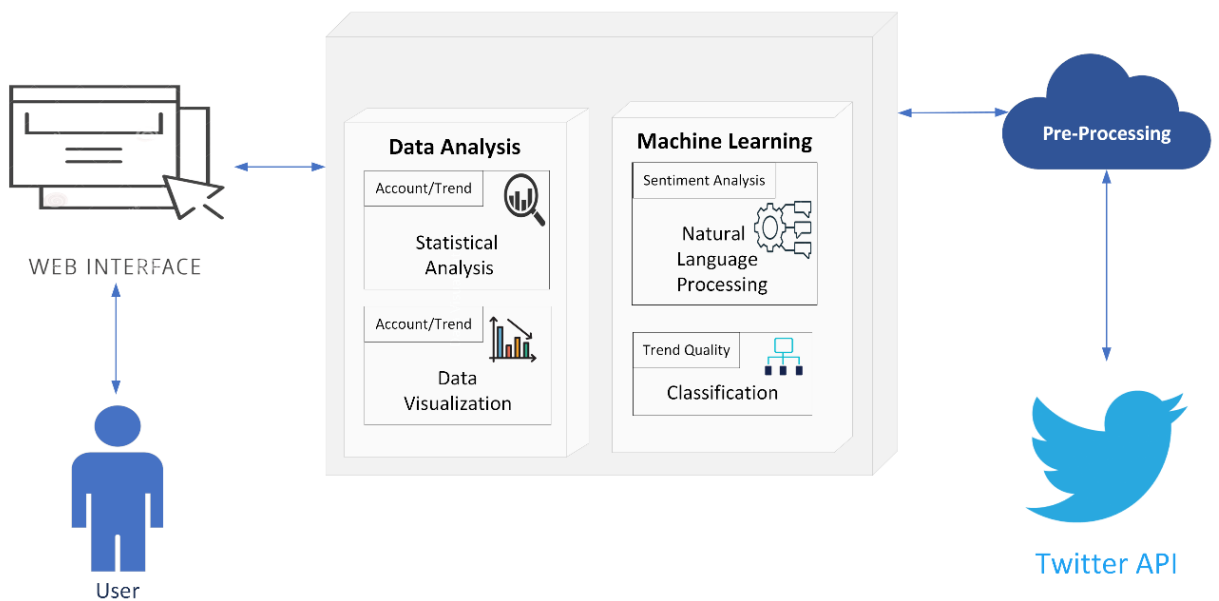


Figure 1, High Level Diagram



## 6. Methodology

### 6.1 Techniques:

- **Machine Learning:**

The Machine Learning is required to perform synthetic trend recognition and bot/fake account recognition.

- **Natural language processing:**

Natural Language Processing is required to process and understand the text and analyze diversification of the content.

### 6.2 Challenges:

The main challenge is recognizing synthetic trends produced by big companies where fake accounts are taking part rather than bot accounts. Natural Language Processing may be required to perform content and diversification analysis of the content.

## 7. Related Work:

- **Sentweet:** Data Sentiment analysis of Twitter.

Final Year Project: Muhammad Usman, Jahanzaib Yousaf - (FAST CFD, 2016)

- **Foller:** Twitter analytics web application that provides rich insights on public profiles.

- **Bot Sentinel:** This platform uses machine learning and artificial intelligence to classify Twitter accounts and add the accounts to a publicly available database that anyone can browse.

## 8. Data Acquisition

Data will be acquired from Twitter API to provide users with effective recommendations and analysis.

## 9. Future Work

Same project can be extended to make a browser extension to provide the user with real-time information and ease of access.

## 10. Timeline:

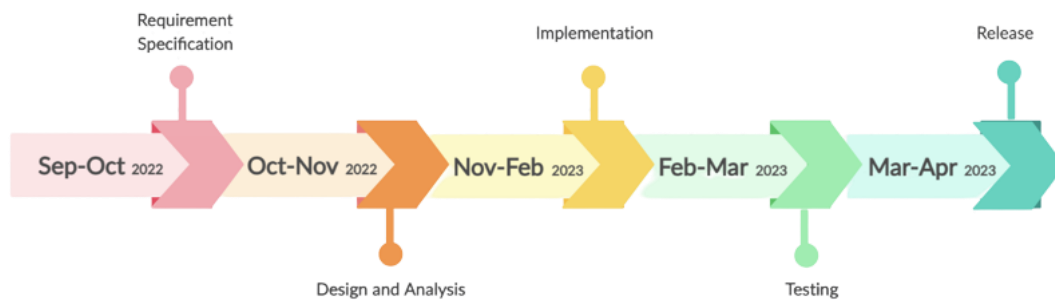


Figure 2, What's Trending? Timeline

## 11. Tools:

Tools/Software	Purpose
React.js	Front end development
MongoDB	Store Information
Node.js	Back-end development
TensorFlow, scikit-learn	Machine learning
Python, R	Data Analytics

## 12. References:

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