

Business Case

- * A **vaccine** works by training the **immune** system to recognize and combat pathogens, either viruses or bacteria.
- The sentiment towards having vaccine has been always a mixed and Vaccine sentiment has too not dramatically changed
- * Though the tweeting community can play a great role in changing but the question is are they doing enough?

The Data

- * Used twint to collect tweets
- * Total tweets:
 - * From 25774
 - * Reduced To 24934
- * 6 Search Words = "vaccine" "vaccination"
 "immunization" "Pfizer" "Moderna" "Johnson"
- * Dates:
 - * All 2013-02-17 2021-05-02
 - * Analysis 2020-01-01-2021-05-02

NEWS channel tweet handle within collected data

- * @nytimes (49.9m followers) has only 86 tweets regarding Vaccine
- * @cnnbrk* (60.2m followers) has only 47 tweets regarding Vaccine * most popular tweeter news account
- @usnews (158.1k followers) has no tweets regarding
 Vaccine

Tweets by Month since Jan 2020

Month	1	2	3	4	5	6	7	8	9	10	11	12
year												
2020	42	110	580	596	505	280	539	435	619	456	1785	3778
2021	3124	2369	3923	5463	330	0	0	0	O	0	0	0

Clearly the number of tweets with regards to vaccine has been the highest month of April 2021

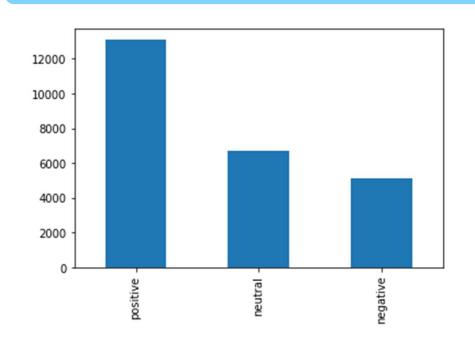
Jan 2021 & Feb 2021 had a dip in the number of tweets after taking off in Dec 2020

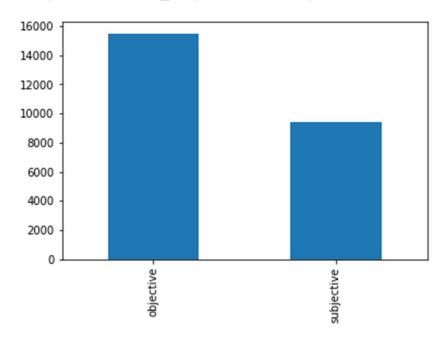
Adding sentiment through TextBlob

- Polarity For positive-negativeneutral Sentiment
- * Subjectivity- quantifies the amount of personal opinion and factual information contained in the text. The higher subjectivity means that the text contains personal opinion rather than factual information

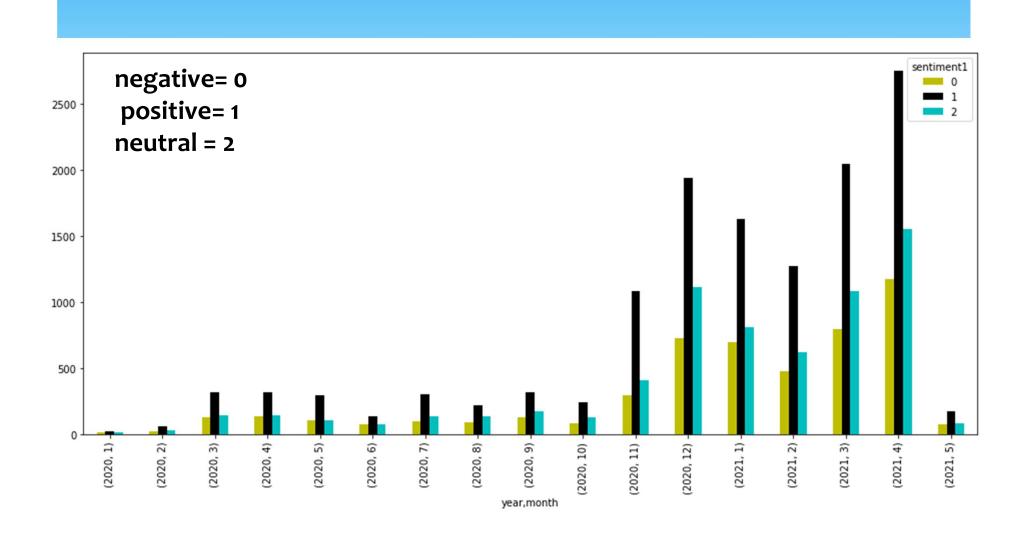
Algorithm	Accuracy				
Textblob	56%				
VADER	56%				
Flair	50%				
USE model	0.775				

Sentiment Overall

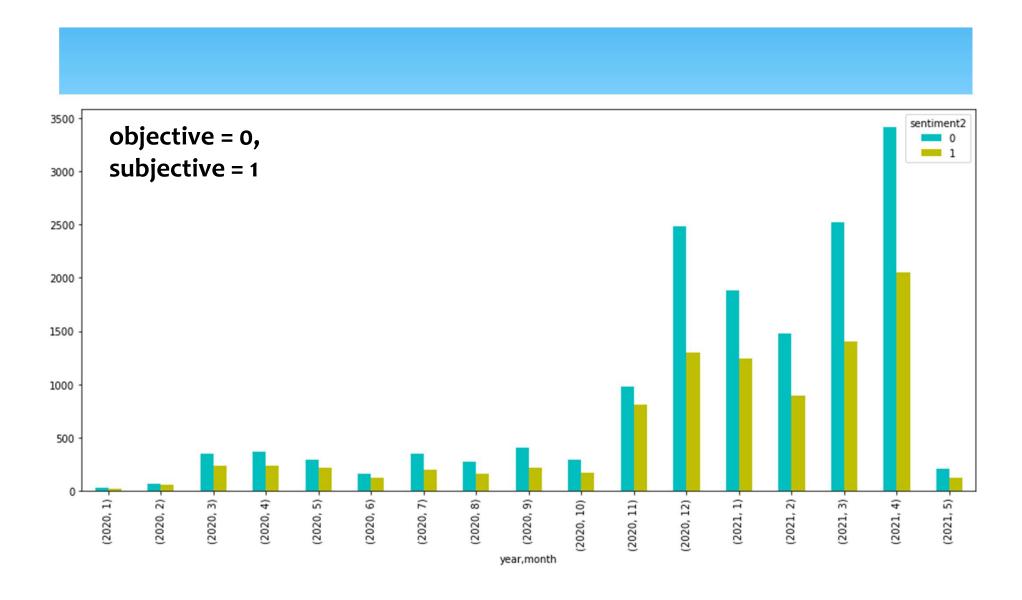




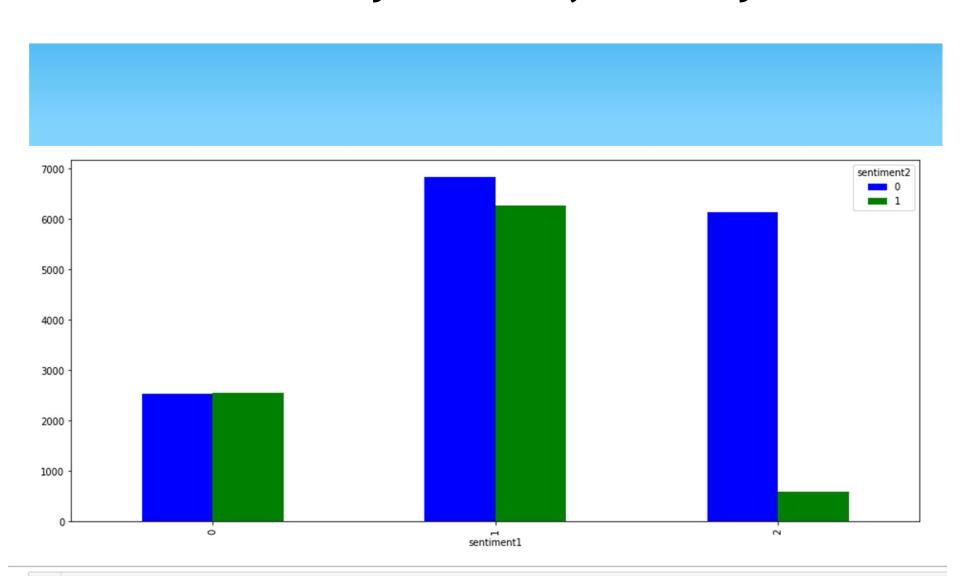
Sentiment Polarity

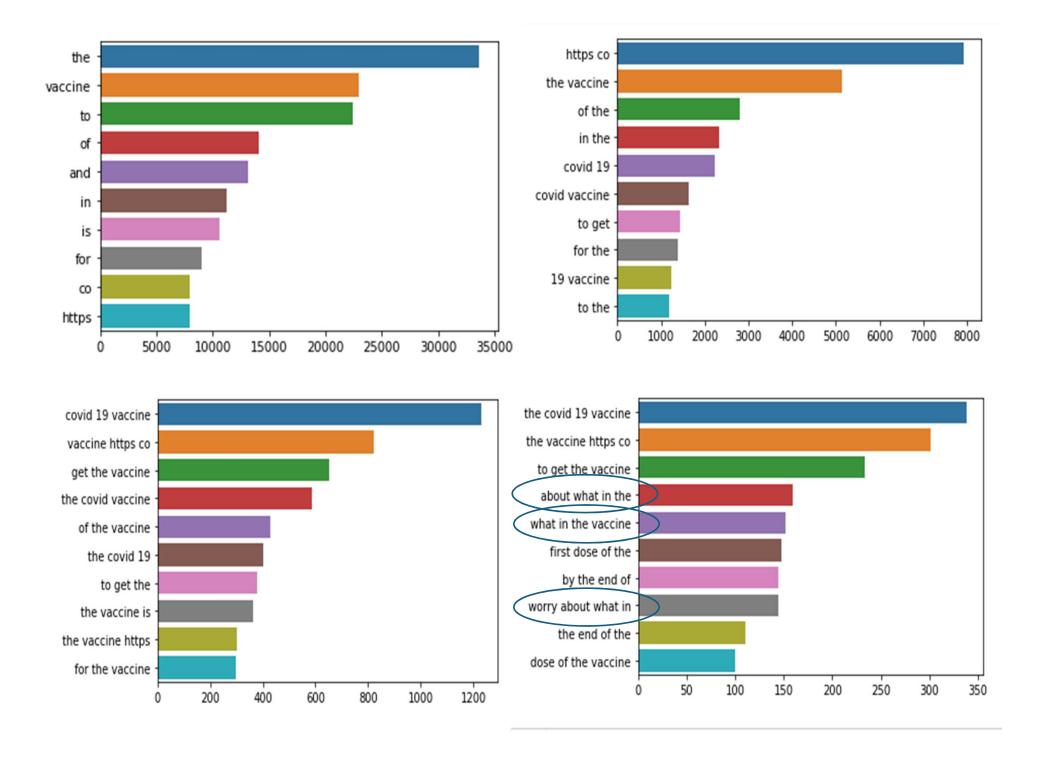


Sentiment Subjectivity

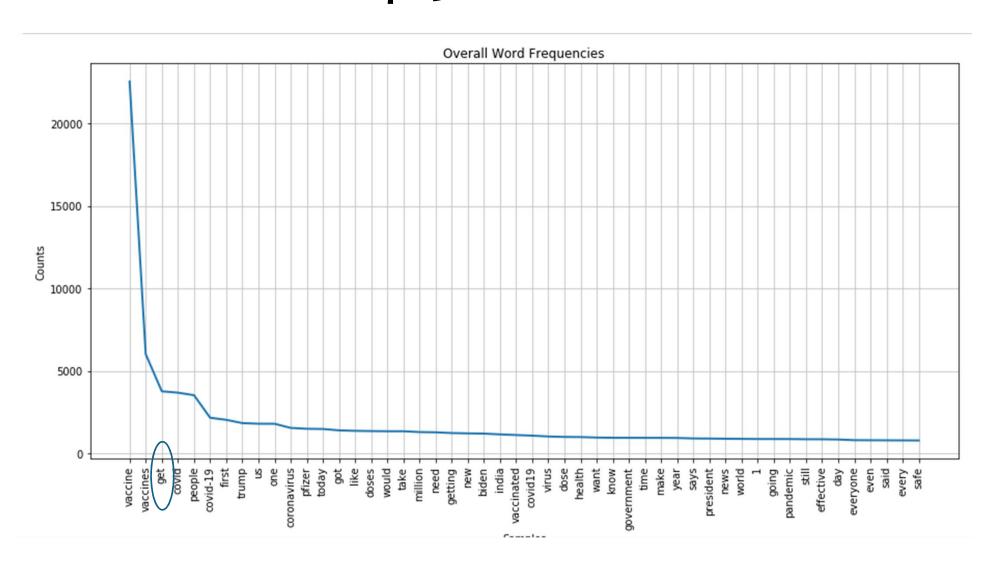


Polarity to Subjectivity





Top 50 words



Wordcloud

```
president_covid-19
Vaccine trial mask good sa received ever government could india could india stodaytime world let news world let please work todaytime backdos and doseget health thinkavai.
 rollout give biden
                                                         said
               trump american take second want case need coror public...
help effective many first last woul
```

Modelling

- * Logistic Regression:
 - * Test accuracy = 0.8001283285210138
 - * Fit time: 5.354361057281494
 - * Predict time: 0.001001596450805664
- Multinomial Naive Bayes
 - * Test accuracy = 0.6013795316008983
 - * Fit time: 0.012993574142456055
 - * Predict time: 0.002000570297241211

The Conclusion & Future Work

- * The news handle should tweet more often
- * The regular tweeters should tag more prominent & popular handles in order to have more reach
- * Combine the Sentiment Analysis to the number of Cases and create a dashboard

Thank you

- Github project link:
- https://github.com/ksis1st/NLP_Vaccine_SentimentAnalysis_Tweets
- Linkedin:
- https://www.linkedin.com/in/kishor-shankaranarayan-bab2a311/