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Sentiment Analysis of Indian Citizens' Perception towards COVID-19 Vaccine: Advanced Natural Language Processing Approach

Background and Aims: Since, till now we do not have proper treatment of this deadly Coronavirus therefore vaccination is the only choice for living beings to get over of this pandemic meanwhile central government has started the program of covid-19 vaccination. Concerned government authority encourage people to get vaccine free of cost at nearest hospitals. Therefore, lots of fake news/messages are circulating regarding the vaccine on social media without any evidence which affects the willingness of citizens to get vaccinated, for this situation, we collected data related covid-19 vaccine through Twitter API Tweepy. Primary aim of this study, is show the real facts related to covid-19 vaccine.

Methods: in this article, we used Natural Language Processing packages, TextBlob, VADER & Stanza for analyzing the tweets sentiment and Topic Modeling technique Latent Dirichlet Allocation for extracting the keywords from tweets. Stanza is an NLP Library which is created by Stanford NLP Group which can analyze more than 70 human languages text. TextBlob, is a text processing Python library which uses NLTK to perform classification. VADER, is a rule/lexicon based fully open source library protected under the MIT license.

Results: as per findings, after applying these libraries on 1432 tweets dataset, TextBlob results are 1054 out of 1432 are positive, 109 are negative and rest are neutral, whereas VADER results are 1046 positive and 163 negative and Stanza results are 884 positive and 269 are Negative.

Conclusion: After reviewing manually 150 tweets, we found that TextBlob results are quite interesting which are around our manually findings whereas Stanza results are not accurate showing bit overly negative. Hence, as per the findings most of people 'opinion is Positive and Neutral therefore having vaccine will not affect the health, Indian government should spread the awareness about vaccine through various program especially in rural areas and also take care of fake news related to Covid-19 vaccine.

Biography

Sumit Mohan, Assistant Professor in autonomous state government college and has completed his PhD at the age of 28 years from AKTU, LUKNOW. He has published more than 15 papers in reputed journals. and has been serving as reviewer member of reputed journals.

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