Chapter 17
Sentiment Analysis of COVID-19 Tweets Through Flair PyTorch, Emojis, and TextBlob

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ABSTRACT

In the current decade, the economy and health have been significantly impacted globally by the pandemic disease named Coronavirus Disease 2019 (COVID-19). People need to stay indoors at this time, which causes them to grow more dependent on social media and use these online channels to communicate their feelings and sympathies. Twitter is one of the familiar social media and micro-blogging platforms in which people post tweets, retweet tweets, and communicate regularly, offering an immense amount of data. Popular social media have evolved into an abundant information source for sentiment analysis (SA) on COVID-19-related issues. Hence, SA is used to predict the public opinion polarity that underlies various factors from Twitter during lockdown phases. Natural language processing (NLP) has been utilised in this study to manage the SA and employ specific tools to codify human language and its means of transmitting information to beneficial findings. This proposed method for Twitter SA is concentrated on all aspects by considering the emoji provided and leveraging the Flair Pytorch (FP) technology. Since extracting emojis and text is implanted with sentiment awareness, it surpasses cutting-edge algorithms. In this research, the 'en-sentiment' module is introduced in the FP method for tokenisation and text classification that assists in diverging the sentence with respect to words, namely positive or negative as sentiment status for the tweets. Thus, it is evaluated by the confidence score of the FP method and compared with the existing textblob method.

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INTRODUCTION

People's daily lives from all over the world have been impacted severely by COVID-19 (Naseem et al., 2021). The usage of social media worldwide has shared their feedback and viewpoints in which the basic emotions considered this state of the art are spread all over the world like a storm (Iwendi et al., 2022; Regin et al., 2023c). In the case of the Twitter platform, social media has experienced exponential growth of tweets associated with the pandemic situation within a short span (Mansoor et al., 2020). In general, Twitter is a kind of social media performed as a social networking site that briefly provides actual information associated with current situations as well as seizures people's emotions from all over the world (Anand et al., 2023). The use of the Twitter platform as social media during the pandemic situation for expressing emotions, opinions, and sympathy associated with the global COVID-19 pandemic (Chauhan et al., 2021). This gets spread rapidly throughout the world through incremental coronavirus cases within a short while (Angeline et al., 2023). Thus, the pandemic disease has influenced various countries even if the people are hardly affected by pandemic diseases or have no infection due to some people being close enough to another person (Bin Sulaiman et al., 2023). If one gets affected, there is a chance of undoubted while they get impacted (Ayoub et al., 2021).

Social media's 3.8 billion active users from a variety of geographical regions throughout the world have made it a significantly valuable resource of data for research across several fields, including health (Boopathy, 2023). For instance, researchers examined feedback from users gathered from social media platforms to learn more about health-related issues, business-related issues and political issues (Robinson et al., 2019; Ma et al., 2019). Regarding COVID-19, the comments from social media have influenced insight into the public's government perceptions as well as health organisations' reactions to the pandemic (Hasan Talukder et al., 2023). Moreover, the social, political, physical, psychological, economic and health-based effects of COVID-19 on populations around the world depend on the factors that influence the endeavours to stop the disease's spread (Kothuru, 2023; Rajest et al., 2023a). In order to identify difficulties concerning the pandemic in accordance with public perceptions, NLP is utilised to examine COVID-19-associated tweets from Twitter platforms (Dai et al., 2019). Thus, NLP is an approach that is frequently used to glean understanding from texts of unstructured data such as Twitter data as well as clinical works (Tissot et al., 2020; Rajest et al., 2023b).

In today's advanced technological world, SA plays a significant role in gathering public opinion from blog postings and social media (Kurniasari & Setyanto, 2020). Web-based technologies now facilitate the huge interchange of knowledge, and Internet users use social media and other online platforms to express their emotions (Jeba et al., 2023). SA is an extremely crucial method for categorising people's opinions and feelings in order to ascertain if the specific outlook is positive or negative feedback on specific problems such as political opinions, movie reviews, global pandemics and economic crises (Ciftci & Apaydin, 2018). COVID-19 is a worldwide pandemic that has caused social unrest and economic loss in a number of industries, including finance, entertainment and transportation, with more than 2 million fatalities as a result of this fatal virus (Jasper et al., 2023). Because of these issues, users from many social media platforms have utilised platforms like Facebook and Twitter to communicate their opinions, emotions, and ideas during this global pandemic (Krishna Vaddy, 2023). For many researchers, the most crucial data sources for doing research in the setting of the explosive rise of the data and technology period are social media and open-source platforms (Regin et al., 2023b).

Many recent techniques have combined conventional word embeddings using character-level characteristics developed from task data (Lample et al., 2016). The task has been obtained, and it employs an