

Title: Multihead Text Mining from COVID-19 Feedback Using Machine Learning, Deep Learning, and Hybrid Deep Learning Approaches

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Abstract: This study examines the impact of the COVID-19 epidemic on students in Bangladesh through text classification using various machine learning (ML) algorithms and deep learning (DL) models. The pandemic led to emergency crisis protocols in the country, including self-quarantine and the closure of educational and governmental institutions, resulting in significant negative impacts on individuals' physical and mental health, including anxiety, sadness, and terror. To better understand the psychological effects of the epidemic, the authors collected survey data from 400 students in various divisions of Bangladesh using self-administered questionnaires through Google Forms. Preprocessing techniques such as tokenization, filtering, and n-gram modeling were used in the analysis. The study deployed eight different ML algorithms and DL models, including LSTM, BiLSTM, and CNN, to classify the effects on students' academic, mental, and social lives. The results show that the ML classifier algorithms were highly effective, achieving accuracies of 95.00%, 93.75%, and 95.00% for academic, mental, and social life impact, respectively. Furthermore, hybrid DL models, such as CNN-LSTM and CNN-BiLSTM, produced good scores in predicting the impacts on students' lives. Overall, this study provides valuable insights into the impacts of the COVID-19 epidemic on students' academic, mental, and social well-being in Bangladesh.

Keywords: COVID-19 epidemic, Machine learning (ML), Deep learning (DL), LSTM, BiLSTM, CNN, Hybrid models

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