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COVID-19 CHATBOT: A NATURAL LANGUAGE PROCESSING AND ARTIFICIAL INTELLIGENCE POWERED INTELLIGENT VIRTUAL ASSISTANT TO CREATE AWARENESS DURING PANDEMIC

With the continued increase of COVID-19 variants of concern, ramping up the vaccination programs is not sufficient enough to prevent the rapid acceleration of the epidemic. Technology could prevent the complete lockdown due to possible third wave of COVID-19 by adopting suitable public health measures and individual precautions which is crucial to reducing infection rates and its severe outcomes, including hospitalization and deaths. The Machine Learning (ML) based digital assistant would facilitate rapid self-assessment of the individual using present physical symptoms, pre-existing medical condition, travel history, and neighbourhood corona map.

Chatbot Graphical User Interface (GUI) has been developed by python tkinter. Natural Language Processing (NLP) helps provide context and meaning to text-based user inputs so that Artificial Intelligence (AI) can come up with the best response. Proposed chatbot offers advanced NLP capabilities which enables to identify spelling and grammatical errors and allow the chatbot to interpret intended messages

despite the mistakes. NLP components of the COVID-19 chatbot include tokenization, lemmatization, and Bag-of-Words (BoW).

This AI based digital assistant would not only be useful to respond COVID-19, it would build the infrastructures and processes to ensure that things flow more quickly and efficiently for other infectious diseases and in the wake of the next possible pandemic. Architectural design of the chatbot has been carefully developed to leverage its usability, reusability of components, flexibility, maintainability, and portability. The current version of the chatbot use keyword matching, and ML to retrieve the best answer or response from a pre-built question-answer bank. In future, we would like to enhance its computational capabilities which would enable to generate new dialogue based on the conversation training data using sophisticated AI based techniques such as deep reinforcement and adversarial learning.

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