VSISTANT - VIRTUAL RESEARCH ASSISTANT CHATBOT

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Abstract

With the continuous evolution of learning trends, students are encouraged to carry out research and development-based projects all by themselves. It requires credible resources from research databases like IEEEXplore, Science Direct, and Google Scholar. For a young researcher starting, the usage of such research databases to find accurate information can be very time-consuming. Hence this project aims to resolve this issue by developing a virtual research assistant chatbot.

A chatbot is an interactive conversational program that carries out conversations with humans in a friendly way, much like a human assistant. Chatbot applications are developed to facilitate information-gathering about products and services across several fields. However, there have been no reports or findings related to the development of chatbots in the research sector.

Therefore, a prototype of a virtual research assistant chatbot has been developed in this project. It aims at bridging this research gap between young researchers and research databases. It focuses on integrating the chat interface with a python based ranking model. Dialogflow is the considered chatbot framework, and the fulfilment feature facilitates communication to the ranking model. The model developed should make calls to the Scopus database to retrieve research articles, according to the identified research field or author name extracted from the conversation by matching it to the trained intents and entities. Additionally, it intends to rank the research content using the TF-IDF algorithm for relevancy, thereby significantly influencing the efficiency of researchers.

Based on their evaluation, it was found that the performance level was good and the accuracy of the results obtained was satisfactory. The response time is really low compared to other ways of finding research materials. Therefore, this qualitative research-based project has enabled in initiating the development of a research-based chatbot application for professional researchers. This can pave the way for many more relevant opportunities and future enhancements for chatbot in research.

Keywords

Chatbots, Application Programming Interfaces, Python Programming, Inverted Indexing, TF-IDF