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Fikr: AI Chatbot Powered with Vector Search

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Abstract

Fikr is a cutting-edge chatbot designed to enhance access to Islamic knowledge by leveraging advanced AI technologies such as vector search and Large Language Models (LLMs), including GPT-3.5. Developed using a combination of Streamlit for the frontend, Flask for the backend, and Firebase for data storage and authentication, Fikr provides users with precise and reliable responses, complete with accurate citations from verified sources such as Hadiths and Quranic verses. A key feature of Fikr is its vector-based search capability, which allows for efficient retrieval of semantically relevant information, improving the accuracy of query responses compared to traditional keyword-based methods. The development process encountered challenges, particularly in data vectorization and ingestion, addressed through iterative troubleshooting and data cleaning methods, resulting in a refined dataset of 33,535 entries. Fikr's answer generation algorithm, incorporating vector database results and LLM -generated responses, ensures that users receive contextually appropriate and well-supported answers. Comparative testing with other AI models, including GPT-4 and Gemini, demonstrated Fikr's superior accuracy and source citation performance. © 2024 IEEE.

Author keywords

AI chatbot; data vectorization; Islamic knowledge; Large Language Models; vector search

Indexed keywords

Engineering controlled terms

Query languages

Engineering uncontrolled terms

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Engineering main heading

Chatbots

Abstract

Author keywords

Indexed keywords

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