IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, May 2024

Integrating NLP Chatbot into Career Guidance Web Application

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Abstract: *Artificial Intelligence (AI) is the development of computer systems that can perform tasks that typically require human intelligence. The development of an advanced web-based chatbot system involves the integration of various technologies and methodologies to create a seamless conversational interface. Leveraging HTML, CSS, and JavaScript for frontend development, alongside Python Flask framework for backend functionality, the project aims to deliver a robust and intuitive user experience. Key to the system's operation is the incorporation of PyTorch for machine learning, allowing for the implementation of sophisticated natural language processing (NLP) techniques. Through tokenization and stemming using NLTK (Natural Language Toolkit), the system enhances its understanding of user queries, enabling it to provide relevant and contextually appropriate responses. At the core of the system lies a supervised learning model trained on a custom dataset compiled from user interactions. This model utilizes bag-of-words representations and neural network architectures to predict responses based on input text. By continuously refining its predictions through feedback mechanisms, the system improves its accuracy and responsiveness over time, ensuring a more tailored and effective user experience. Voice input functionality, facilitated by speech recognition technology, further enhances user interaction by allowing users to communicate with the chatbot using spoken commands.*

This feature expands the accessibility and convenience of the system, catering to a broader range of users with varying preferences and abilities. In addition to its conversational capabilities, the system prioritizes security and privacy, implementing robust user authentication mechanisms and secure data storage practices. By adhering to industry best practices and standards, the project aims to instill trust and confidence in users regarding the confidentiality and integrity of their data.User interface design and usability are also key considerations in the development process, with careful attention given to creating an intuitive and visually appealing interface. Through thoughtful design choices and user feedback, the system seeks to optimize the user experience and streamline the interaction flow, ensuring that users can easily navigate and utilize its features. Overall, the project endeavors to create an intelligent and user-friendly chatbot system that enhances communication and interaction between users and technology. By leveraging advanced technologies and methodologies, the system aims to provide personalized assistance and support to users, ultimately improving productivity, efficiency, and satisfaction in various domains and applications

Keywords: Neural network, Chabot, PyTorch and TensorFlow

DOI: 10.48175/IJARSCT-18035