Module 8: Portfolio Project

NLP Chatbot

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CSC 525

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5 June 2025

NLP Chatty Chatbot

Our chatty Python powered chatbot exemplifies a closed domain chatbot, designed to converse on predefined random topics rather than open ended, unrestricted subjects. Closed domain chatbots focus on specific areas, offering precise and contextually relevant responses within predefined boundaries (Jurafsky & Martin, 2020).

The chatbot utilizes various Python libraries and tools, notably openai, random, and inputimeout. The openai library facilitates communication with OpenAI's GPT API, enabling the chatbot to generate responses. The random library is used to randomly select predefined informational bits to initiate conversations, while inputimeout manages user inputs, providing a timeout feature to ensure active engagement (Python Software Foundation, 2022).

The NLP model powering the chatbot is OpenAI’s GPT-3.5 Turbo, an advanced transformer based generative model capable of producing contextually coherent and natural sounding text responses. Transformer models, especially GPT architectures, have revolutionized NLP through their ability to understand and generate language based on extensive training on diverse internet text sources (Radford et al., 2019).

Additionally, an API key from OpenAI must be acquired and included in a separate module (api\_key.py). To execute the chatbot script, users should navigate to the script's directory and run: python chatty\_chatbot.py.

In summary, this Python based chatbot is a closed domain application leveraging transformer based NLP models, integrating user interaction mechanisms to maintain engaging, controlled conversations.

References

Jurafsky, D., & Martin, J. H. (2020). Speech and language processing: An introduction to natural language processing, computational linguistics, and speech recognition (3rd ed.). Prentice Hall.

Radford, A., Wu, J., Child, R., Luan, D., Amodei, D., & Sutskever, I. (2019). Language models are unsupervised multitask learners. OpenAI. <https://cdn.openai.com/better-language-models/language_models_are_unsupervised_multitask_learners.pdf>

Python Software Foundation. (2022). Python Standard Library. https://docs.python.org/3/library/