**Automated Chat Response System**

**MSDS692 – Data Science Practicum 1**

**Progress Report for Week 5**

**Project Details:**  
This phase of the project focused on the automated chat response system. The focus was on deep diving into the "topical\_chat.csv" dataset, developing data preprocessing, and initiating the model's foundational training.

**Project Timeline:**

* Week 5: Successfully completed initial project setup, data sourcing, preprocessing, and began model training.
* Week 6-8: Aim to refine model training, conduct extensive testing, and finalize the project documentation.

**Planned Work for the Week:**

The goal was to widely preprocess the "topical\_chat.csv" dataset and commence the training of a sequence-to-sequence model for generating contextually relevant chat responses.

**Progress for the Week:**

* Conducted thorough EDA on the "topical\_chat.csv" dataset, identifying key conversational patterns and sentiments.
* Implemented advanced data preprocessing steps including tokenization and sequence padding, preparing the dataset for model training.
* Selected a sequence-to-sequence model architecture and began preliminary training, focusing on LSTM networks to handle the conversational dynamics.

**Roadblocks/Issues:**

* Adapting preprocessing techniques to optimize the dataset for sequence modeling proved challenging but was overcome with targeted approaches.
* Initial model training shows up the need for further tuning to improve response relevance and consistency.

**Plan for Next Week:**

* Continue refining the model initiation, focusing on improving the accuracy and contextuality of the generated responses.
* Evaluate model performance using metrics suited for natural language generation tasks.
* Finalize the project documentation.

**Resources for the Week:**

Used TensorFlow and Keras for model development, also NLTK for natural language processing tasks, and Matplotlib for visualization of EDA findings.

**Project Timeline:**

Week 6: Iwill continue the model initiation, execution and push toward optimizing the model's performance.

Week7-8: Prepare for the project presentation and project writing.