Project Proposal: Multi-model Q&A Mechanism for Textual Data

Team Members: Rotem Kashani 209073352, Gal Ein Dor 209070671, David Koplev 208870279

**Project Goal:** Our project aims to create a smart system that can answer questions or provide relevant information from written text, we're going to use two different methods to do this: one by training a seq2seq LSTM model using a dataset found called AG News Classification Dataset, the dataset is about 4 different types of topics:  
1-World, 2-Sports, 3-Business, 4-Sci/Tech  
And we aim to accurately answer questions about those topics using the model.  
The second method is by fine-tuning ChatGPT using the dataset , we believe that this method will provide better accuracy and we wish to be able to use OpenAI API models to accurately answer questions.

**Relevant Work:**  We are going to explore various techniques to implement the seq2seq LSTM model and train it using the dataset we found. This includes investigating attention mechanisms, beam search decoding, and methods for handling out-of-vocabulary words. Additionally, we will examine recent research on transfer learning and domain adaptation to enhance the model's performance on specific topics within the AG News Classification Dataset.

**Plan:**

1. **Data Collection and Preprocessing:** Gather a diverse dataset of texts/article and preprocess the data by cleaning, tokenizing, and annotating questions and answers

2. **Seq2Seq LSTM Model:** Train a seq2seq LSTM model to map questions to answers for Q&A and experiment with architectures and hyperparameters for optimal performance.

3. **Fine-tuning ChatGPT for Q&A:** Fine-tune ChatGPT on the dataset for Q&A and implement mechanisms to quote relevant passages from the dataset.

4. **Integration and Evaluation:** Compare the seq2seq LSTM model and ChatGPT results and evaluate the systems performances using accuracy metrics.

**Final Outcome:** This project will deliver a multi-model Q&A mechanism capable of accurately answering questions from textual data. Users will be able to interact with the models by querying questions and receiving responses from both models, by combining seq2seq LSTM and ChatGPT, this project demonstrates a flexible and powerful approach to Q&A tasks.