

Take-Home Exercise: LLM-Powered Quiz Question Generator

Objective: Develop a simple tool (command-line or web-based) that generates quiz questions using a large language model and effective prompt engineering techniques.

Instructions:

1. Choose a general knowledge topic for the quiz questions (e.g., world history, science, literature, or geography).
2. Select an open-source or proprietary LLM that you believe is well-suited for generating quiz questions.
3. Develop a set of 3-5 prompts that will be used to generate quiz questions on the chosen topic. The prompts should:
 - Be carefully crafted to elicit accurate, diverse, and engaging quiz questions from the LLM.
 - Incorporate at least one technique such as few-shot learning, role-playing, or context-setting to improve the quality and consistency of the generated questions.
 - Be optimized for efficiency, requiring minimal post-processing or manual intervention.
4. Create a simple tool (choose one):
 - Command-line tool:
 - Accepts user input for the number of quiz questions to generate.
 - Utilizes the developed prompts and the selected LLM to generate the specified number of quiz questions.
 - Displays the generated quiz questions in a readable format.
 - Web-based application:
 - Provides a user interface for inputting the desired number of quiz questions.
 - Utilizes the developed prompts and the selected LLM to generate the specified number of quiz questions.
 - Displays the generated quiz questions on a web page.

- (Optional) Allows users to select the quiz topic or difficulty level.
5. Prepare a brief summary document (1-2 pages) that includes:
 - An overview of the selected LLM and the rationale behind your choice.
 - A description of the prompt engineering techniques used and how they contribute to generating high-quality quiz questions.
 - Instructions for running the tool (command-line or web-based) and any dependencies required.
 - Potential ideas for further enhancing the prompts or expanding the tool's capabilities.
 6. Submit the developed prompts, the tool's source code, and the summary document.

Evaluation Criteria:

- Effectiveness and creativity of the prompt engineering techniques used
- Appropriateness of the selected LLM for generating quiz questions
- Functionality and usability of the developed tool (command-line or web-based)
- Quality, accuracy, and diversity of the generated quiz questions
- Clarity and completeness of the summary document, including instructions for running the tool
- (Bonus) Additional features or enhancements implemented in the web-based application