Part 1 – Techniques in Prompt Optimization

In 150 – 200 words, explain how prompt engineering could streamline a task you perform frequently (e.g., generating report, writing emails, brainstorming)

Prompt Engineering is a way LLM models generate text based on specified instructions. For instance, if one wants to generate cooking recipe, the user can input ingredient names and prompt the model to generate three recipes based on those three ingredients. Therefore, prompt engineering can be used to simplify daily tasks such as writing emails, generating reports and brainstorming. For instance, brainstorming can be simplified using LLM models. Therefore, to streamline the process, I will input a prompt that specifies the topic and prompt the model to generate a list of ideas pertaining to that topic. Based on the results generated, I will refine the results to be as specific as possible. Once the desired results have been achieved, I will save the result as a sample for all other brainstorming ideas. Since I now have a sample, I can change the topic and then prompt the model to generate the result based on the sample prompt. As a result, I will not have to modify my result(s) every time I insert a prompt into the model.

Part 2- Debugging Prompt Failures

Describe a real-world situation where a poorly crafted prompt could cause problems. How would you apply debugging techniques to resolve this issue?

For instance, I would like to determine what the definition of cells is in biology. In general, cells can have multiple definitions and examples, depending on context. Therefore, if a model is asked to define a cell, it may list the various definitions of cell, used in biology, physics, excel and so on. The result generated is noise, since there are various ways the word 'cell' can be defined. Consequently, to debug the result, it is important to state the specific definition that should be generated. Rather than prompting the LLM model to define a cell, it can be refined to state, 'Define a cell as used in biology'. This prompt narrows the definition and the result generated is now specific to biology. Based on the generated result, it will be easier to refine the result to a specific sample.

Part 3 – Evaluating Prompt Effectiveness

In 150 – 200 words, describe how evaluating prompt effectiveness can improve productivity or reduce error in your work or studies.

Prompt effectiveness can improve productivity and reduce error through the usage of sample templates as guide on various topics. For example, a user has a sample template on various topics such as brainstorming, cooking recipes, and task outline stored on a local drive. Then the user can now use the template on those topics as a guide for similar tasks. As a result, the amount of time required to fine-tune the result on the new topic is significantly reduced. For instance, the user wants to generate an output on cell definition used in electrochemistry. Rather than refine the result of the generated output, the user can use a sample text template as a guide for the desired result. In this manner, the amount of time spent on fine-tuning is reduced. In addition, the amount of error generated is reduced, for the result generated will be similar to the template provided. Using such techniques means that the user spends less time fine-tuning results and correcting errors.