2023.12.21 – homework 5

27 December 2023

1 Prompt engineering | homework 5

You have two options to do this homework:

1.1 Option 1

Create a Python implementation for the *food-for-thought* generating prompts strategy presented by Prof. Gottlob in his lecture. Refer to his slide 60 for details.

The program will accept an original user query as an input and return two answers of a large language model as an output:

1. The original answer of the model without any further prompting.
2. The answer of the model after it was primed using Gottlob‘s food-for-thought method.

The program can be submitted either as a single runnable .py with example input and outputs of an actual run as comments, or in the form of a Jupyter notebook including that information.

1.1.1 Selection of LLM

You can use any LLM you can access and we encourage you to do so. If you otherwise do not have access to a decent model, you can use `https://huggingface.co/HuggingFaceH4/zephyr-7b-beta?inference_api=true` for your implementation, which is free to use in the cloud with an—also free—HuggingFace account.

1.1.2 Remembering chat history

Keep in mind that the model is stateless, which means that you have to provide the context of what has been talked before in every call as the model "forgets" everything said immediately. Different models were trained using different prompts, therefore require different formats. You will have to send the full chat history in each request.

This is the prompt template for Zephyr:

```
<|system|>\n{{preprompt}}</s>\n
{{#each messages}}
{{#ifUser}}<|user|>\n{{content}}</s>\n<|assistant|>\n{{/ifUser}}
{{#ifAssistant}}{{content}}</s>\n{{/ifAssistant}}
{{/each}}
```

For example:

```
<|system|>
Your system prompt</s>
<|user|>
First question</s>
<|assistant|>
First answer</s>
<|user|>
Second question</s>
<|assistant|>
Second answer</s>
...
```

See `https://github.com/huggingface/chat-ui/blob/main/PROMPTS.md` for an overview of prompt templates for other popular models.

1.2 Option 2

Experiment with the *food-for-thought* generating prompts strategy and create a short PDF report about it. The report should (1) describe the setup used, e.g. which model(s) you chose and how you accessed them; (2) it should contain the transcripts of some of your interactions; and (3) your conclusion, e.g. why you think the method works well or not under certain circumstances and how any changes you experimented with were successful or not.

1.3 Submission

Submissions should be uploaded to TUWEL by 10 January 2024.