

Prompt Engineering Exercises

2023-11-17

1 Exercise: Create a Basic Prompt

Using the general prompting template provided in the slides, create a prompt that asks the language model to act a personal tutor for you. Make the model explain to you what a transformer is. Specify the:

- ROLE,
- TASK_DESCRIPTION,
- TASK_SPECIFICATION,
- and FORMAT_OUTPUT.

1.1 try some variations

Try experimenting with some variations of this yourself. Change the role, task, and output format. How does the model respond to these changes?

2 Exercise: Order of Operations

2.1 Answer first

Give ChatGPT the task to multiply 3 numbers together, which are at least 3 digits in length. Specify the output such that ChatGPT first gives you the result of the multiplication, and only then it gives you the 3 numbers. What do you see happening?

2.2 Answer last

Do the same, but now reverse the order. Make sure ChatGPT first gives you the 3 numbers, and then make it calculate the multiplication. Is anything different, why?

3 Exercise: Order of Operations + room to think

3.1 Answer first

Let the model check the answer below. First, only allow the model to answer with the verdict correct or incorrect. Then ask for the explanation in the next message.

```
f"""
Determine if my answer below is correct.

I'm trying to figure out how expensive my prompting of the GPT4 API will be in total.
I'm going to run around 1000 prompts. For these prompts, the average prompt-length is 250 w
The average response length of the model for these prompts is 300 words.

The API pricing is as follows:
$0.03/1k prompt tokens.
$0.06/1k sampled tokens.

We can assume that 1 token is on average 3/4th of a single word.

I found the following answer:
18 dollars.
"""
```

3.2 Answer last

Now do the same, but instruct the model to first work through the problem itself. Ask it to think step by step.

3.3 Reflection

Why would it help language models to work step-by-step?

4 Exercise: Spelling

1. Ask the model the reverse the word: “congratulations”.
2. Ask the model to reverse the word and spell it out letter-by-letter. What do you see? Why do you think this happens.

4.1 A closer look

Use the [openai-tokenizer](#) to look at the words? What do you see?

4.2 Self-reflection

Ask the model whether the answer it gave was correct, what happens? Why do you think this is the case?

4.2.1 Self-reflection on the API-costs questions

If the answer given was incorrect, see how it responds if you ask it to reflect on the answer given.

5 (Optional) Few-shot prompting + Chain-of-thoughts

One simple but time consuming task you might often do is to take notes during a meeting, then type these out into a mail to send to the team. However, how you take notes is very specific to you, just like how you want and need the mail to look.

We can guide the model by giving it a few examples of our task, this is called *Few-shot prompting*. Also, I want you to take into consideration the order of operations and how to go from meeting notes to this email.

Please don't send any private or proprietary information to third parties.

You can use your notes for this Masterclass if you like.

6 (Optional) Generating movie reviews

One of the areas where these models really shine is content generation. Or at least, getting you started with written content.

For one of the later exercises we will use these models to analyse movie reviews. In preparation for this exercise, have the model generate a review of a movie of your own choice. Make use of the following rules:

- from the review, the sentiment regarding the movie should be slightly ambiguous.
- Make clear what the 'reviewer' liked about the movie, and what it didn't like.
- Begin the movie review with some general information about the movie: such as the director, star actors/actresses, runtime and other such information.

- Make sure the model mentions at least 3 other related movies in the review.
- Don't include a star rating or other numeric rating within this review.
- The review should be around 500 words long.