Prompt Engineering

What is prompt engineering ?

prompt engineering sounds super technical right but it's really just about asking your AI the right questions so it doesn't spit out total nonsense you're basically telling the AI what you want in a way that it actually understands it's like speaking the ai's language so it doesn't get confused and give you some random answers the goal is to make sure the AI gives you useful and relevant answers instead of bunch of words that don't make any sense.

Bad question = useless/wrong answers

Prompt Engineering Use Cases

1. You are a story writer, write a comedy story which starts like there was a man working in a office.
2. When we make help assistant chatbots which proper prompts it sounds like a human is talking instead of a robot.
3. Helps to write or find errors in a code
4. Summarizing large research papers, your college question answers

Basic Prompt Techniques

Simple direct prompts

This prompt involves some of the very straightforward questions that you can ask to an AI for example you can ask what is the capital of India what is the capital of France so it is expected that the AI will only answer for that part so let's try out practically now if you prompt

what is the capital of France

so it is going to respond something like this now let's try out another example let's ask

list three benefits of regular exercise

so it is exactly going to give you only three benefits of regular exercise not more than that so when should you use Simple prompts simple prompts should be only used when you want to obtain quick factual or direct answers so what are the limitations with the simple direct prompt when you use a simple direct prompt it won't give you big answers or answers with explanation the AI will only give you what you have asked for so that was about simple direct prompts let's move on to a prompt technique called instructional prompt.

Instructional Prompt

what do you do in instructional prompt as a name suggest you instruct AI step by step to do some task let me just show you an example so that you can understand it clearly so instead of writing write an introduction about renewable energy you can use something like this

write an engaging introduction for an article about renewable energy focusing on benefits and why is it important for future Generations if you break down the question there are three parts to generate

write an engaging introduction on an article and

it should focus on its benefits and

it should also say why is it important for the future generation

so it involves three steps or three instructions fed to it so it will try to answer these three topics

Another example

You can instruct it to explain the steps. You can write

explain step by step how to solve the equation 5x + 3 = 18

it will show you all the intermediate steps required to solve this problem so when should you use these types of prompt these types of prompt should be only used when you want a structured detailed output and if there is any interpretation needed in the question like the one we did in math now that was about instructional prompts.

Open Ended vs Close ended prompts

As the name suggests, open and close are two ends, so let's start off with close-ended prompts. In the close-ended prompts, you will ask ChatGPT in such a way that it will only answer your question and it should not think anything creatively. For example, if you say,

"Is the sky blue?"

the response would be yes or no. So these prompts are called close-ended prompts. Even when you're trying to build AI applications, there will be times that you need to return these things as JSON. Now let's say you're building an AI application that needs to find if there is a certain word in a sentence or not. In those times, you need to prompt in such a way that it would return yes or no as a response. When should you use such types of prompts? When you want an exact answer from your AI, like yes or no, like true or false. These kinds of situations are really good for using such types of prompts.

Now let's see what open-ended prompts are. As the name suggests, you might have already guessed that you're not going to limit ChatGPT to what you have asked. You will give some topic, and it will use its creativeness to generate more. Let me just show you an example. So, we can ask,

"What are the impacts of climate change on ocean ecosystems?"

When you type such a prompt, ChatGPT will collect all the information that it has, and it will generate creatively. Every time you try to give the same prompt, it does not have a fixed answer like yes or no. When should you use these kinds of prompts? These kinds of prompts should only be used when you are trying to explore and learn something new about the topic or about the content. So that was the difference between open-ended and close-ended prompts. It is a very important thing to know because when you try to build AI applications, most of the time, you will be working with close-ended prompts and open-ended prompts. So that was about basic prompt engineering techniques. Now we will learn some of the advanced prompt engineering techniques.

Advanced Prompting Techniques.  
  
1. Few Shot Learning

in this type of prompt you will give the prompt obviously but along with it you will give more examples so that AI can generate similar type of content that you have given as a reference let me just explain you with an example now the prompt goes like this here are some examples of metaphors happiness is the sun breaking through clouds anger is a fire burning out of control now create a more metaphor for sadness so in this way you giving one or two examples to make AI understand what you need and after that it will generate something very similar to it

2. Zero shot learning prompts

in these kinds of prompts we will not give any prior examples instead we will just give the instruction and wait for the AI to generate whatever it can but it will generate differently every time let me just explain with an example now I have a very huge paragraph with me now I wanted to summarize it so I use a prompt something like this summarize the following article in two sentences so the expected summary is going to be under two lines but every time you try to regenerate it the combination of words that you get are different so to perform task like summarization zero short prompts are the best way to do it.

3. Chain of Thought prompts

Sometimes when you have a huge code, it cannot understand all the parts and cannot grasp all the context in the code. Instead, what we do is send instruction by instruction to make it understand what is there in the code. Let me just explain with an example. When you try to make changes in a huge piece of code like this, the AI is not going to be able to understand and grasp all the context in the code. So, first, give the code and ask it to understand this code and wait for your instructions so the AI understands what is there in the code at a high level. After that, you need to work on a specific section. To do that, just copy the specific section and ask,

"Please understand this and wait for my instructions."

Then, if you try to change something in this part of the code, it is not going to confuse itself. You can ask the change to do something that you want in this code. Then, after changing it, just prompt the AI to make these above changes in the full code and give the full code again to it, so it will make the changes in the full code and give you a copy-paste version. When there is a huge problem, you need to break it down and use the Chain of Thought prompt technique. This comes in very handy when you're trying to debug your code.

4. Role Based prompts

An AI model can behave as anything you want. By default, it is set as something very polite, but if you want your AI to behave very rudely, you can ask your AI,

"You are an AI assistant who behaves rude when any question is asked."

Now try to prompt anything; it will give you answers in a rude way. This prompting technique is mostly used in building your AI applications. Most of the time, we prompt this AI to be a customer support chatbot, a supportive healthcare assistant, or a mental health assistant. So the AI model can behave as you want in this type of prompt technique.

5. Least to Most Prompting

Let's say you're looking for a marketing strategy for a new tech product. If you try to prompt in a single go, it will give you a very high-level overview of what it knows. Instead of doing this, we can go step by step, like asking,

"What are the things to consider when launching a new product?"

It will give you a broad response for it. Then, ask,

"How would you conduct market research for a new tech product?"

You become more specific when you ask about the market research of the new product, so the AI knows that you're going to launch a product and you're searching for a market research technique. Now, under market research, you need to go more specific, like asking,

"What should the marketing strategy include for a new tech product targeting young adults?"

This is how you filter out content and get what you require. This prompting technique works like a funnel. On the top layer, the content is broad, and the question is broad. Then, as you go down, it becomes narrower and narrower.

6. dual prompt technique

Now, sometimes when one of these five prompting techniques doesn’t work well for you, you can try to combine any two of those prompting techniques to get your results. Let me just show you an example. Now, let's start with a few-shot prompting:

"Here are examples of business outlines: executive summary, market analysis, etc. Now create an outline for a sustainable fashion startup."

You have given the starting point of the business plan outline, so after that, it will give you whatever it knows other than what you have fed in. This was using few-shot prompting. After few-shot prompting, you can use the chaining method. Now you can ask,

"Explain step by step how to write the market analysis section."

By doing this, you are trying to mix two types of prompting techniques and get the right solution for you.

So that was about all the advanced prompt techniques that you need to know to survive in this AI world.