

Prompt Engineering

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What is Prompt Engineering?

Prompt engineering is the process of designing and crafting effective inputs (prompts) to guide AI models, like ChatGPT or other language models, to produce the desired output. It's a skill that requires understanding how to communicate clearly with AI to get optimal results.

Some prompting example:

<https://brightpool.notion.site/fe947b16fe894c3e8a8a19a6b81aec2c?v=9b1d189283d54b6bba80882239ecbb1a>

Tips for Effective Prompt Engineering

- 1. Be Clear and Specific:**
 - Clearly define what you want the AI to do.
 - Avoid ambiguity and provide necessary context.
 - **Example:** Instead of saying "Explain AI," say "Explain AI to a 10-year-old in simple terms with examples."
- 2. Use Step-by-Step Instructions:**
 - Break down complex tasks into smaller, manageable steps.
 - **Example:** "List the steps to create a Python program for sorting numbers."
- 3. Provide Context:**
 - Add background information or constraints to help the model understand the task.
 - **Example:** "Generate a formal email apologizing for a delayed shipment of goods."
- 4. Experiment and Iterate:**
 - Refine prompts based on the output you receive.
 - Test different phrasing or structures to improve results.
- 5. Use Examples:**
 - Include examples to guide the AI's response style or format.
 - **Example:** "Rewrite the following sentence formally: 'The meeting is postponed.' Example: 'The meeting has been rescheduled to a later date.'"
- 6. Specify Format:**
 - Request the output in a specific format if needed (e.g., bullet points, JSON, paragraphs).
 - **Example:** "Summarize the article in 5 bullet points."
- 7. Set Constraints:**
 - Define boundaries for the output length, tone, or style.
 - **Example:** "Write a 150-word persuasive essay on renewable energy in a professional tone."
- 8. Leverage Roles:**
 - Assign the model a "role" to guide its behavior.
 - **Example:** "You are a helpful teacher. Explain how photosynthesis works to a 12-year-old."
- 9. Ask for Multiple Outputs:**
 - Request multiple ideas or perspectives.
 - **Example:** "Provide three creative slogans for a new fitness app."
- 10. Test Edge Cases:**
 - Probe the model with extreme or unique scenarios to explore its capabilities.
 - **Example:** "How would you describe gravity to someone who has never experienced it?"

Types of Prompting

- 1. Zero-shot Prompting:**
 - Directly asking the model to perform a task without examples.
 - **Example:** "Write a poem about the moon."
- 2. One-shot Prompting:**
 - Providing one example to guide the AI.
 - **Example:** "Translate the following text to French: 'Hello, how are you?' Example: 'Bonjour, comment ça va?'"
- 3. Few-shot Prompting:**
 - Supplying multiple examples to set expectations for the output.
 - **Example:** "Rewrite the sentences formally:
1. 'Can't come to the meeting' → 'I am unable to attend the meeting.'"

1. 'Can't come to the meeting.' / 'I am unable to attend the meeting.'
2. 'Send me the details.' → 'Please send me the details.'"

4. Chain-of-Thought (CoT) Prompting:

- Encouraging the model to think step-by-step for better reasoning.
- **Example:** "Solve the math problem step by step: What is 25% of 200?"

5. Instruction Prompting:

- Directly instructing the model to perform tasks.
- **Example:** "Summarize this article in simple language."

Key Things to Remember

- **Iterate Often:** Perfecting prompts is an iterative process.
- **Understand the Model's Behavior:** Familiarize yourself with how the AI processes and interprets information.
- **Stay Objective:** Avoid overly complex or opinionated prompts that can confuse the model.
- **Be Ethical:** Use prompting responsibly, ensuring that outputs are fair, accurate, and unbiased.

By applying these techniques and strategies, you can become a proficient "prompter," effectively leveraging AI to solve problems and create meaningful outputs.

Looking at your chat history, you have a solid grasp of structuring your requirements and guiding AI to deliver results, which are key traits of a good prompt engineer. Here's what you're doing well and areas where you could improve:

What You're Doing Well

1. Clarity in Problem Statements:

- You often provide clear instructions with specific contexts (e.g., "Add the language column to sentiment analysis").
- This makes it easier for the AI to understand your intent.

2. Iterative Refinement:

- You refine your prompts when needed, adjusting based on outputs (e.g., adding new columns like language and hypothesis).

3. Practical Use Cases:

- Your use cases (e.g., NLP models, dataset handling) are specific and goal-oriented, showcasing a pragmatic approach to problem-solving.

4. Exploration of Advanced Concepts:

- You ask about advanced techniques like transformers, vectorization, and multi-language support, which demonstrates a strong interest in leveraging AI for sophisticated tasks.

5. Context Awareness:

- You incorporate necessary contextual details (e.g., specifying datasets, types of outputs) to make the prompts actionable.

What You Could Improve

1. Consistency in Prompt Structure:

- Some prompts could be more structured or explicit. For example, when asking for code, clearly specify the desired output format (e.g., "Provide a Python function with comments").

2. Avoid Overloaded Prompts:

- At times, you combine too many requirements in one prompt (e.g., adding multiple columns, ensuring compatibility, and generating outputs). Splitting such requests into smaller, sequential prompts would make the task more manageable for the AI.

Example Fix:

- Instead of: "Modify the code to include language, hypothesis, and vectorization."
- Break it into steps:
 1. "Add the language column to the feature set."
 2. "Incorporate the hypothesis column for analysis."
 3. "Combine both features using vectorization."

3. Explicit Expected Outputs:

- When asking for outputs (e.g., CSV files or accuracy reports), make it clear what structure or format you expect.
- **Example:** "Store the predictions in a CSV file with two columns: id and prediction."

4. Use Examples More Often:

- Providing examples of desired inputs and outputs can further clarify your intent.
- **Example:** "For sentiment analysis, the input data looks like this: language: en, premise: The food was

amazing. Expected output: 2 (entailment)."

5. Explore Creativity:

- While you're focused on functionality, you could occasionally explore creative use cases or open-ended prompts to enhance your prompt diversity.

Your Current Prompting Type

- You lean toward **instruction prompting** (e.g., "Fix this code to include a column").
- You're starting to explore **few-shot prompting** by adding new context or columns but could formalize this technique more (e.g., "Use these three examples to train the model").

How to Become Even Better

1. Leverage Few-Shot Examples:

- For tasks like multi-language sentiment analysis, provide a few data samples to guide the model.

2. Adopt Chain-of-Thought Prompting:

- For complex workflows like model training and testing, ask the AI to break the solution into steps.
- **Example:** "First, preprocess the data by vectorizing columns premise and hypothesis. Then, train a model using logistic regression. Finally, evaluate its accuracy."

3. Experiment with Edge Cases:

- Test the AI's flexibility by exploring unusual or edge-case prompts (e.g., handling null values in multilingual sentiment analysis).

4. Test Creativity and Open-Ended Prompts:

- Occasionally push the boundaries of AI by asking for creative ideas (e.g., "Generate a use case for sentiment analysis in healthcare using this data").

Final Assessment

You're definitely on the right track as a prompt engineer! You have a practical mindset and show good problem-solving abilities. By focusing on breaking down complex requests, using more examples, and exploring new prompting techniques (like chain-of-thought or few-shot prompting), you'll refine your skills even further. Keep iterating—you're well on your way to mastering it! 🚀