Day 2 — Prompt Engineering Basics

What is Prompt Engineering?

Prompt Engineering = the skill of writing clear, structured, and intentional instructions so that an AI model gives the best possible output.

Same model + different prompt = completely different result

-----**_Why Prompt Engineering is Important_**-----

Bad prompt

-------"Explain AI"

Good prompt

--------"Explain AI in simple words for a 10-year-old in 5 bullet points"

The model didn't change — your instruction did.

⌄ Core Prompt Patterns

1 Zero-Shot Prompting

No example, just instruction.

Explain what Generative AI is.

2 Few-Shot Prompting

Give examples, then ask.

Example: Input: AI Output: Artificial Intelligence

Input: ML Output: Machine Learning

Now: Input: NLP Output:

3 Role Prompting

Tell the AI who it is.

You are a career mentor. Explain how a computer engineering student should start learning AI.

4 Constraint-Based Prompting

Add rules.

Explain LLMs in under 50 words using simple English.

5️⃣ Step-by-Step Prompting

Force reasoning.

Explain how ChatGPT works step by step.

```
!pip install transformers --quiet

from transformers import pipeline
generator = pipeline("text-generation", model="distilgpt2")
```

```
WARNING:torchao.kernel.intmm:Warning: Detected no triton, on systems without Tri
/usr/local/lib/python3.12/dist-packages/huggingface_hub/utils/_auth.py:94: UserW
The secret `HF_TOKEN` does not exist in your Colab secrets.
To authenticate with the Hugging Face Hub, create a token in your settings tab (
You will be able to reuse this secret in all of your notebooks.
Please note that authentication is recommended but still optional to access publ
  warnings.warn(
```

config.json: 100%	762/762 [00:00<00:00, 68.4kB/s]
model.safetensors: 100%	353M/353M [00:02<00:00, 190MB/s]
generation_config.json: 100%	124/124 [00:00<00:00, 12.3kB/s]
tokenizer_config.json: 100%	26.0/26.0 [00:00<00:00, 2.19kB/s]
vocab.json: 100%	1.04M/1.04M [00:00<00:00, 15.6MB/s]
merges.txt: 100%	456k/456k [00:00<00:00, 25.2MB/s]
tokenizer.json: 100%	1.36M/1.36M [00:00<00:00, 32.4MB/s]

```
Device set to use cpu
```

```
prompts = [
    "Explain Generative AI.",
    "Explain Generative AI in simple words.",
    "Explain Generative AI as if I am a 10-year-old.",
    "You are a teacher. Explain Generative AI in 3 bullet points."
]

for p in prompts:
    print("\nPROMPT:", p)
    result = generator(p, max_new_tokens=60, temperature=0.9)
    print(result[0]["generated_text"])
```

```
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.
```

```
PROMPT: Explain Generative AI.
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.
Explain Generative AI. The original concept was quite successful and has since b


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PROMPT: Explain Generative AI in simple words.
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.
Explain Generative AI in simple words. Not just in the human brain, but in the b


Why?
It is because the human brain is the brain's only logical system for determining

PROMPT: Explain Generative AI as if I am a 10-year-old.
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.
Explain Generative AI as if I am a 10-year-old. I am a young boy and I love my l

The latest research at the University of Florida shows that many youngsters who

PROMPT: You are a teacher. Explain Generative AI in 3 bullet points.
You are a teacher. Explain Generative AI in 3 bullet points.

It is a simple story. It's about a computer with computers with computers that u
```

```python
prompt = """
You are a software engineer and AI mentor.
Explain why prompt engineering is important for GenAI.
"""

result = generator(prompt, max_new_tokens=80, temperature=0.8)
print(result[0]["generated_text"])
```

```
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.

You are a software engineer and AI mentor.
Explain why prompt engineering is important for GenAI.
Explain why you should use C# as your programming language for AI training.
Explain why it is faster than Python and Java
Explain why it is more powerful
Explain why it's better to use Python as your programming language instead of Ja
Explain why it's faster then Python
Explain why it's faster then Python
Explain why it's faster then Python
```

```python
print("""
Day 2 Learning Summary:
- Prompt engineering controls AI behavior
- Clear instructions give better results
```

```
    - Role + constraints dramatically improve outputs
    """)
```

```
    Day 2 Learning Summary:
    - Prompt engineering controls AI behavior
    - Clear instructions give better results
    - Role + constraints dramatically improve outputs
```