

Lab 2 Summary: Types of Prompts and Prompt Engineering Basics

Objective:

Learn about different prompt types—**instructional**, **interrogative**, **zero-shot**, and **few-shot**—and practice designing prompts with increasing complexity to optimize AI responses.

What is a Prompt?

A prompt is the input or instruction given to an AI model like ChatGPT to generate a meaningful response. It can be a simple question or a detailed scenario with constraints.

What is Prompt Engineering?

Prompt Engineering is the craft of designing prompts that lead to accurate, relevant, and useful AI outputs by:

- Providing clear context
 - Giving explicit instructions
 - Including examples (few-shot)
 - Using structured formatting (JSON, tables, bullet points)
 - Asking for step-by-step reasoning
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Types of Prompts with 5 Examples Each

1. Instructional Prompts

Direct commands or tasks for the AI to perform.

- Write a summary of the book *1984*.
- List five benefits of exercise.
- Translate this sentence to Spanish: "Good morning."
- Explain how photosynthesis works.
- Create a meal plan for a vegan diet.

2. Interrogative Prompts

Questions asked to obtain information.

- What is the capital of France?
- How does a car engine work?
- Why is the sky blue?
- When was the internet invented?
- Who wrote *Pride and Prejudice*?

3. Zero-Shot Prompts

No examples provided; the AI must generate the response based solely on the instruction.

- Summarize the theory of relativity.
- Generate a poem about autumn.
- List pros and cons of electric cars.
- Explain the importance of cybersecurity.
- Describe the process of making chocolate.

4. Few-Shot Prompts

Provide a few examples before the task to guide the AI.

- Example 1: Q: What is photosynthesis? A: It's the process plants use to convert sunlight into energy.
- Example 2: Q: What is evaporation? A: It's when liquid water turns into vapor.
- Now answer: What is condensation?
- Example 1: Translate "Hello" to French: "Bonjour"
- Example 2: Translate "Goodbye" to French: "Au revoir"
- Now translate "Thank you."
- Example 1: List fruits: Apple, Banana
- Example 2: List vegetables: Carrot, Spinach
- Now list grains.
- Example 1: Define "gravity": A force that pulls objects toward each other.
- Example 2: Define "friction": A force that resists motion.
- Now define "momentum."
- Example 1: Rewrite in passive voice: "The cat chased the mouse." -> "The mouse was chased by the cat."
- Example 2: Rewrite in passive voice: "The chef cooked the meal." -> "The meal was cooked by the chef."
- Now rewrite: "The teacher graded the exams."

Comparison: Zero-Shot vs Few-Shot Prompting

Aspect	Zero-Shot	Few-Shot
Examples Provided	None	Multiple examples included
Guidance Level	Low — AI relies on training data alone	High — AI learns task format from examples

Aspect	Zero-Shot	Few-Shot
Accuracy	Variable; may be generic or less precise	Typically more accurate and task-focused
Complexity	Best for straightforward or broad tasks	Better for nuanced or specialized tasks