

# System and User prompt

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Day – 3

## What is a System Prompt?

System prompts serve as the foundational instructions that dictate an AI's behavior. They establish the framework for how the AI will interact and respond, similar to a job description for an employee. These prompts define the AI's role, its area of expertise, and the overall tone it should adopt.

### Key elements of system prompts include:

- **Behavioral Framing:** Defining the AI's role, personality, or expertise.
- **Constraint Setting:** Establishing limitations or rules for the AI's responses.
- **Context Provision:** Providing background information or situational context.
- **Ethical Guidance:** Incorporating ethical guidelines or value alignments.

**Example :** "You are a helpful and informative AI assistant that specializes in technology."

## What is a User Prompt?

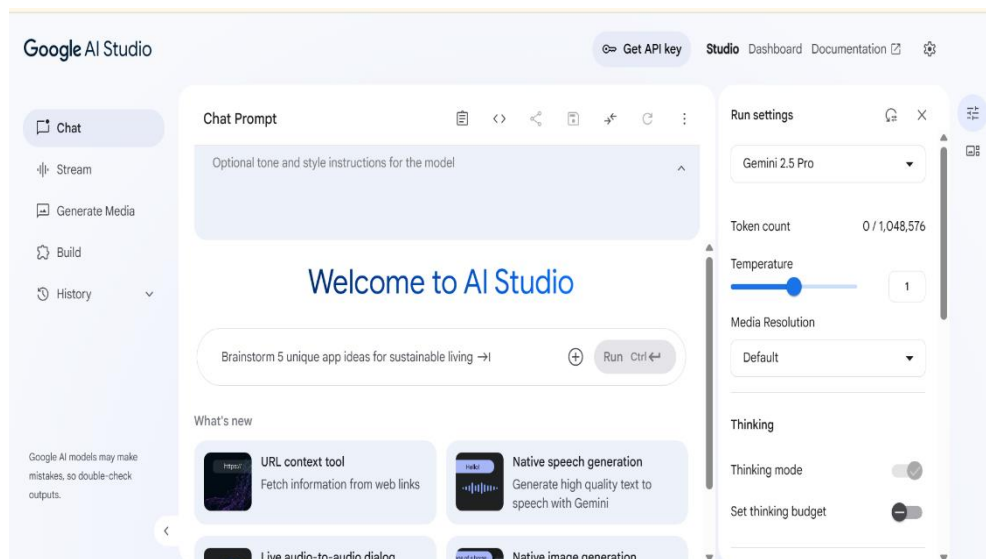
User prompts are the specific instructions or questions a user provides to an AI system to elicit a desired response. These prompts are dynamic and vary with each interaction, reflecting the user's immediate needs and goals. They can range from simple requests for information to complex instructions for generating creative content.

### User prompts can be many things, but here are some of the most common types:

- **Generation Prompts:** These prompts instruct the AI to generate new content, such as text, images, or code. For example, a user might ask the AI to write a short story or generate a code snippet for a specific function.
- **Conversation Prompts:** These prompts initiate or continue a conversation with the AI, allowing for more interactive and dynamic exchanges. For example, a user might ask the AI a question and then follow up with clarifying questions or requests for more information.
- **Classification Prompts:** These prompts ask the AI to categorize input data based on predefined labels or categories. For example, a user might ask the AI to classify a product review as positive or negative.

- **Extraction Prompts:** These prompts ask the AI to extract specific information from a given text or dataset. For example, a user might ask the AI to extract all the names of people mentioned in a news article.

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## Key Terms:

### 1. Prompt

- The instruction or input you give the model.
- Example: *"Summarize this paragraph in simple language."*

### 2. Response

- The output generated by the model based on the prompt.

### 3. Model

- The AI engine (like **Gemini 1.5 Pro**, **Gemini 1.5 Flash**) that processes input and generates output.

### 4. Temperature

- Controls creativity/randomness of output.
- Low value = more focused/deterministic. High value = more creative.

### 5. Top-k

- Limits output to top k most likely next tokens (for better control over randomness).

## 6. Token

- A chunk of text (word or subword) used by the model.
- Example: *"ChatGPT is smart."* → 4 tokens.

## 7. Context Window

- The memory size of the model in tokens (Gemini 1.5 Pro: ~1 million tokens).

## 8. Multimodal

- The model can handle **text, images, code**, etc., as input/output.

## 9. System Instruction

- A hidden directive that sets model behavior (e.g., *"You are a friendly assistant."*).

## 10. Safety Settings

- Filters and controls to block harmful, toxic, or inappropriate content.

## 11. API Key

- A unique secret key to access Gemini API in your code.

## 12. Prompt Engineering

- The art of designing effective prompts to get better AI responses.

## 13. Gemini Pro vs Flash

- **Gemini Pro**: More powerful, best for deep tasks.
- **Gemini Flash**: Faster and cheaper, best for short, fast outputs.