

# Mastering Prompt Engineering

Unlock the full potential of AI with effective communication.

# The Foundation: Fundamental Prompting Techniques

Explore essential methods to guide AI responses, from direct questions to structured examples.

01

## Zero-Shot Prompting

Direct queries without examples for simple, clear tasks.

02

## One-Shot Prompting

A single example to define desired response format.

03

## Few-Shot Prompting

Multiple examples to establish complex patterns and nuanced outputs.

# Zero-Shot Prompting: The Direct Approach

The simplest way to interact: ask directly when the AI already possesses clear domain knowledge.

Classify this movie review as positive, negative, or neutral:  
"The film was visually stunning but the plot felt rushed."

## When to Use:

- Simple, well-defined tasks
- When the model has clear knowledge of the domain
- Quick, one-off requests



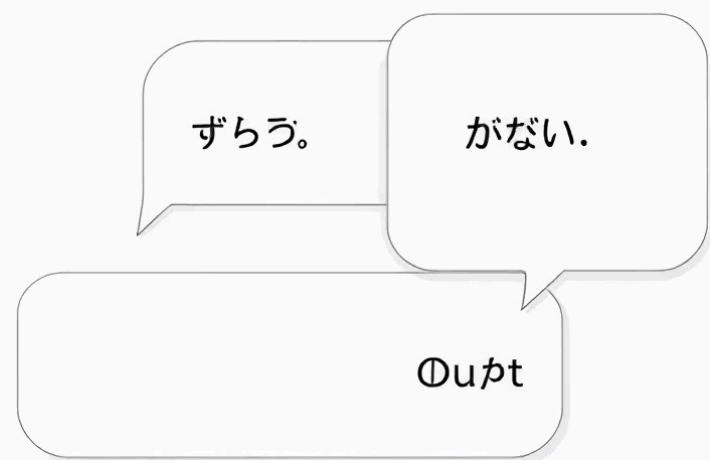
# One-Shot & Few-Shot Prompting: Learning from Examples

Guide the AI's understanding and response format by providing illustrative examples.

## One-Shot: Single Example Clarity

Provide one example to define the desired output format or task.

Translate English to French: English: "Hello, how are you?"  
French: "Bonjour, comment allez-vous?" English: "Where is  
the library?" French:

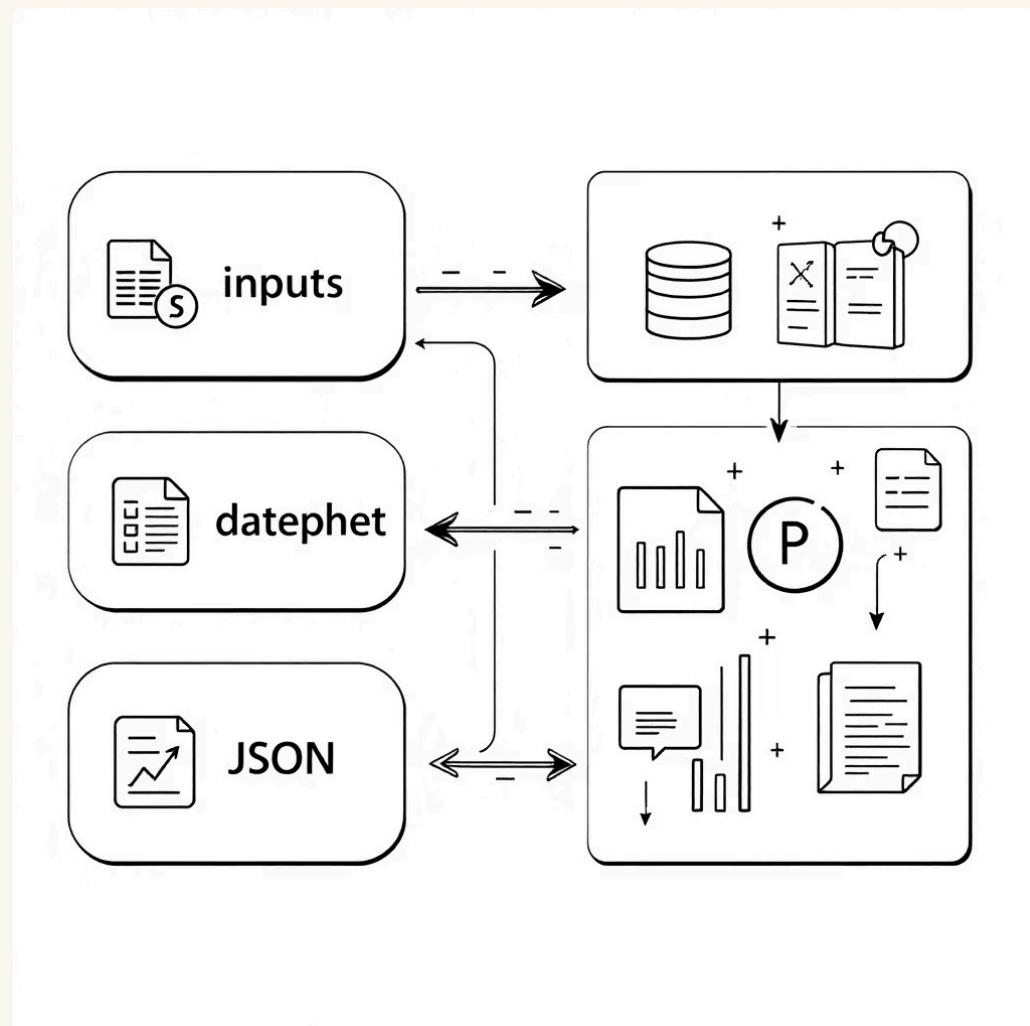


## Few-Shot: Pattern Recognition

Use multiple examples to establish a clear pattern for more complex tasks.

Convert customer feedback to structured data: Feedback:  
"Great service, but food was cold" JSON: {"service":  
"positive", "food": "negative", "overall": "mixed"} Feedback:  
"Terrible food and rude staff" JSON:

- Use 3-5 high-quality, diverse examples.
- Ensure consistency and mix up classes for classification.



# Shaping AI Behavior: System & Role Prompting

Define the AI's persona, overall context, and behavioral guidelines for consistent interactions.



## System Prompting

Set overall context and persistent behavior guidelines.

You are a helpful travel guide. Provide practical, accurate information about destinations.



## Role Prompting

Assign a specific character or expertise to the AI.

Act as an experienced software architect. I need help designing a scalable web application.

# Contextual Prompting: Guiding with Background

Provide specific background information to ensure the AI's response is relevant and tailored.



## Example Scenario:

Context: You're writing for a tech blog aimed at beginners who have never coded before. Write a 200-word explanation of what an API is, using simple language and practical examples.

This technique grounds the AI's output, making it highly applicable to the specified audience or situation.

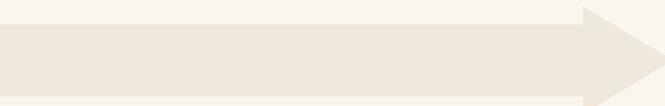
# Advanced Strategies: Reasoning for Complex Problems

Tackle intricate challenges by encouraging the AI to think step-by-step or explore multiple solutions.



## Chain of Thought (CoT)

Encourage step-by-step reasoning for math, logic, and multi-step processes.



## Self-Consistency

Generate multiple reasoning paths and select the most common answer for reliability.



## Step-Back Prompting

Ask a general question first to establish context, then specific questions.

# Chain of Thought (CoT): Thinking Step-by-Step

Break down complex problems, guiding the AI through logical progression for accurate solutions.

Solve this step by step: If I was 6 when my sister was half my age, how old is my sister when I'm 40? Let me think through this step by step:

## Best Practices:

- Use phrases like "Let's think step by step."
- Set temperature to 0 for consistent reasoning.
- Extract final answers separately from reasoning.



# ReAct & Tree of Thoughts: Combining Action and Exploration

These powerful strategies enable AI to reason, act on external information, and explore diverse solutions.

## ReAct (Reasoning + Acting)

Interleaves reasoning (Thought), actions (Action), and observations (Observation) to solve problems.

## Tree of Thoughts (ToT)

Explores multiple reasoning branches simultaneously, evaluating each for creative problem-solving.



## Action

Utilizes tools or external data (e.g., web search) based on reasoning.

## Observation

Processes the results from actions to refine subsequent steps.

# Prompt Engineering: Best Practices for Impact

Craft effective prompts to maximize AI utility and ensure precise, desirable outputs.



## Be Specific & Clear

Provide precise instructions, avoiding vague language.

## Provide Examples

Illustrate expectations with clear, consistent examples.

## Iterate & Document

Refine prompts based on results and keep a record of successful patterns.

## Use Action Verbs

Explicitly state the desired action (e.g., Analyze, Summarize, Generate).

## Structure Your Prompts

Use clear formatting: Task, Context, Format, Example.