

# CHAT GPT:

## 1 Zero-Shot Prompting

- ◆ **Meaning:**

Zero-shot prompting means giving the AI a task **without providing any examples**. The model answers based only on the instruction.

- ◆ **Example:**

**Prompt:**

Translate "Good morning" into French.

**Output:**

Good morning in French is *Bonjour*.

## 2 Few-Shot Prompting

- ◆ **Meaning:**

Few-shot prompting means giving the AI **a few examples first**, then asking it to perform a similar task.

- ◆ **Example:**

**Prompt:**

Apple → Fruit

Carrot → Vegetable

Salmon → Fish

Mango → ?

**Output:**

Mango → Fruit

## 3 Chain-of-Thought Prompting

- ◆ **Meaning:**

Chain-of-thought prompting encourages the AI to **show step-by-step reasoning** before giving the final answer.

- ◆ **Example:**

**Prompt:**

If a book costs ₹50 and you buy 4 books, how much do you pay? Explain step by step.

**Output:**

One book costs ₹50.

4 books cost  $50 \times 4 = ₹200$ .

So, the total cost is ₹200.

## 4 Role-Based Prompting

- ◆ **Meaning:**

Role-based prompting tells the AI to **act as a specific role or expert** before answering.

- ◆ **Example:**

**Prompt:**

Act as a science teacher and explain photosynthesis to a 10-year-old student.

**Output:**

Photosynthesis is how plants make their own food using sunlight, water, and air. It helps plants grow and gives us oxygen to breathe.

<b>Criteria</b>	<b>Meaning</b>	<b>Importance</b>
<b>accuracy</b>	Correctness of the response generated by the AI	Ensures reliable and trustworthy answers
<b>Coherence</b>	Logical flow and clarity of the response	Makes the answer easy to understand
<b>Simplicity</b>	How simple and easy the response is	Helps users quickly grasp the information
<b>Speed</b>	Time taken to generate the response	Important for quick problem-solving
<b>User Experience</b>	Overall satisfaction and ease of interaction	Improves usability and engagement

# **GEMINI:**

## **1. Zero-Shot Prompting**

This is the "just do it" approach. You give the AI a task with no examples and expect it to understand the context based on its training.

- **Best for:** Common tasks, simple summaries, or quick translations.
- **Example:** "Translate 'The cat is on the mat' into French."

## **2. Few-Shot Prompting**

Here, you provide a few examples (shots) to show the AI the pattern, tone, or format you want before asking it to perform the task.

- **Best for:** Formatting data, mimicking a specific writing style, or sentiment analysis.
- **Example:**
  - "Great movie! // Positive"
  - "It was okay, but a bit long. // Neutral"
  - "Absolute waste of time. // Negative"

- **"The acting was superb but the plot was thin. //"**  
**(The AI then completes the pattern).**

### **3. Chain-of-Thought (CoT)**

**This forces the AI to show its work. By asking it to "think step-by-step," you significantly reduce logic errors in complex reasoning or math.**

- **Best for: Math problems, symbolic logic, or complex decision-making.**
- **Example: "I have 5 apples. I give 2 to Bob. Bob gives 1 back to me and keeps 1. How many apples do I have? Let's think step-by-step."**

### **4. Role-Based Prompting**

**You assign the AI a specific persona. This sets the tone, expertise level, and boundaries for the conversation.**

- **Best for: Professional advice, creative writing, or technical troubleshooting.**
- **Example: "Act as a senior software architect with 20 years of experience. Review this Python code for security vulnerabilities."**

Metric	Zero-Shot	Few-Shot	Chain-of-Thought	Role-Based
Accuracy	Moderate; prone to "hallucinations" on complex tasks.	High; examples provide a clear roadmap for the AI.	<b>Highest</b> ; forced logic reduces calculation/logic errors.	High for tone/context; varies for factual data.
Coherence	Generally high, but can drift if the prompt is vague.	Very High; follows the structural pattern of your examples.	High, though the "thought process" can sometimes get wordy.	Consistent; maintains a specific "voice" throughout.
Simplicity	<b>Highest</b> ; just ask and go.	Low-Moderate; requires you to provide quality examples.	Moderate; requires asking for "step-by-step" logic.	Simple; requires a clear persona description.
Speed	<b>Fastest</b> ; minimal input and immediate output.	Moderate; longer prompts take slightly longer to process.	Slowest; the model takes time to "think" through steps.	Fast; negligible impact on processing time.
User Experience	Great for quick wins and simple queries.	Best for developers or users needing specific formats.	Best for students, researchers, or complex problem-solving.	Best for coaching, creative writing, or professional advice.

## Copilot:

## ◆ Zero-shot

- **Definition:** The model is asked to perform a task without being given any examples.
- **Example:** Asking, “*Translate ‘Hello’ into French*” without showing any prior translation examples.
- **Use case:** Quick tasks where the model is expected to generalize from its training.

## ◆ Few-shot

- **Definition:** The model is given a handful of examples before being asked to perform the task.
- **Example:** Showing a few English-to-French translations, then asking it to translate a new sentence.
- **Use case:** Helps the model understand the format, tone, or style you want.

## ◆ Chain-of-thought

- **Definition:** The model is encouraged to “think aloud” by breaking down reasoning step by step before giving the final answer.
- **Example:** Instead of just saying “42” to “*What is  $6 \times 7$ ?*”, the model might respond: “ *$6 \times 7$  means adding 6 seven times.  $6 + 6 + 6 + 6 + 6 + 6 + 6 = 42$ . So the answer is 42.*”
- **Use case:** Complex reasoning tasks like math, logic puzzles, or multi-step problem solving.

## ◆ Role-based

- **Definition:** The model is asked to adopt a specific persona or role to guide its responses.
- **Example:** “*You are a history professor. Explain the causes of World War I to your students.*”
- **Use case:** Useful for tailoring tone, perspective, or expertise in responses



<b>Approach</b>	<b>Accuracy</b>	<b>Coherence</b>	<b>Simplicity</b>	<b>Speed</b>	<b>User Experience</b>
<b>Zero-shot</b>	<b>Moderate — depends on model's training</b>	<b>Variable — may miss context</b>	<b>Very simple (no examples needed)</b>	<b>Fast — minimal setup</b>	<b>Quick but sometimes unpredictable</b>
<b>Few-shot</b>	<b>Higher — guided by examples</b>	<b>Stronger — follows demonstrated patterns</b>	<b>Slightly less simple (requires examples)</b>	<b>Slower — examples add overhead</b>	<b>More reliable and tailored</b>
<b>Chain-of-thought</b>	<b>High for reasoning tasks</b>	<b>Very coherent — step-by-step logic</b>	<b>Less simple — verbose reasoning</b>	<b>Slower — longer outputs</b>	<b>Transparent, builds user trust</b>
<b>Role-based</b>	<b>Moderate to high — depends on role clarity</b>	<b>Coherent — consistent persona</b>	<b>Simple once role is defined</b>	<b>Fast — role sets tone quickly</b>	<b>Engaging, personalized, immersive</b>