(TR-103) PROMPT ENGINEERING –

Training Day 1 Report:

What is Prompt Engineering?

Prompt engineering is the practice of designing, structuring, and refining the inputs—known as prompts—given to generative AI systems in order to guide them toward producing the most accurate, relevant, or useful outputs possible.

Why it matters:

Prompt engineering matters because it helps to:

- **Get better results from AI:** Well-designed prompts make AI outputs more accurate and relevant to your needs.
- **Save time and cost:** Effective prompts reduce the need for revisions and speed up workflows, cutting operational expenses.
- **Gain more control:** Prompt engineering guide AI responses, ensuring outputs match your requirements and standards.
- **Essential for AI-powered tools:** It's critical for maximizing the value, reliability, and effectiveness of AI tools in real-world applications.

Real-World Use Cases:

- **Education**- Summarize topics, generate quizzes
- **Resume Writing** - Tailor resumes to jobs
- **E-Commerce**- Write product descriptions
- **Chatbots**- Create smart interactions
- **Research**- Brainstorm, analyze, write

Anatomy of a Great Prompt:

A strong prompt is :

- **Clear** - easy to understand
- **Specific** - avoid vague words
- **Contextual** - includes background if needed
- **Goal-oriented** - states what you want

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Types of Prompt Writing:

1. Instructional Prompts -

Directly tell the AI what to do.

Example:

“Write a thank-you email to a new customer.”

2. Role-Based Prompts -

Assign the AI a persona for better tone or expertise.

Example:

“Act like a historian. Explain the French Revolution in simple terms.”

3. Few-shot Prompts -

Show 1-2 examples of the task and ask AI to continue.

Example of Few-Shot Prompt for Sentiment Classification:

Classify the sentiment of the following text as positive, negative, or neutral.

Text: The product is terrible. Sentiment: Negative

Text: Super helpful, worth it. Sentiment: Positive

Text: It doesn't work! Sentiment:

Here, the AI sees two examples with their correct sentiment labels before it classifies the new text "It doesn't work!" This helps the AI recognize the pattern and respond accurately, likely labeling it as "Negative."

4. Zero-shot Prompts -

Give the AI a task without examples.

Example:

“Translate this to French”

5. Chain-of-Thoughts (COT) Prompts -

Ask the AI to reason step-by-step for better accuracy.

Example:

“If a car travels 90 km in 3 hours, what is the speed? Think step by step.”

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6. Constraint-Based Prompts -

Add rules or limits to control the output.

Example:

“Write a bright and fun tweet for a summer sale, under 15 words, that grabs attention.”

7. Reframing Prompts -

Rewrite vague prompts for better results.

Example:

Original: How can teams improve communication?

Reframed: Suggest three ways a remote team can improve communication during virtual meetings.

Pro Prompting Tips

- Use bullet points or numbered steps
- Assign roles (eg ,“You are a lawyer…”)
- Use format examples for consistency
- Add constraints(length,tone,style)

Prompting as a Career Skill

- AI Product Designers
- Chatbot Developers
- Technical Writers
- Data Analysts
- UX Researchers

Prompt Writing Formula

[Instruction]+[Context]+[Format]+[Constraints]+[Role]

Example:

You are a marketing expert. Write three catchy Instagram captions under 20 words for an organic coffee brand.

Task:1

1. Choose a task

- Write an apology email for a late delivery
- Generate a blog intro for "Morning Routines for Students"
- Create a quiz on World War II
- Explain Al to a 6th grader

2. Write a prompt for it.

3. Ask ChatGPT

"Please rate this prompt out of 10 based on clarity, specificity, and effectiveness. Then explain why."

4. Refine your prompt based on the feedback.

Chosen Task: Explain Al to a 6th grader.

Original Prompt :

You are an AI Expert. Explain the basic concepts of AI to a 6th-grade student. Please rate this prompt out of 10 based on clarity, specificity, and effectiveness. Then explain why.

Prompt Rating: 9/10

✅ **Breakdown of the Rating:**

Criteria	Score	Explanation
Clarity	9/10	The prompt clearly states what is expected: an explanation of AI basics.
Specificity	8.5/10	It specifies the target audience (a 6th-grade student), which is helpful.
Effectiveness	9.5/10	It's effective because it guides the response to be simple and age-appropriate.

Refined Prompt:

🔧 **Suggestions for a Perfect 10/10 Prompt:**

To make it slightly more specific and structured, you could add the kind of explanation you're expecting. For example:

> "You are an AI Expert. In 3-4 short paragraphs or using real-life examples, explain the basic concepts of AI to a 6th-grade student in a fun and easy-to-understand way."

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Better Prompts=Better outputs

Task:2 Identify the type of each prompt and write an improved (good) version corresponding to each bad prompt.

Type	**Bad Prompt**	**Good Prompt**
Role-Based + Instructional + Chain of Thoughts + Reframing	"Tell me something about computers"	You are a computer-literate person explaining to a group of beginners. Explain how a computer works in very simple terms using real-life examples, and provide a step-by-step explanation of the process from input to output.
Question-Based+ Instructional + Reframing	"Why?"	Why is the CPU called the brain of the computer? Explain in simple terms, using bullet points and examples, highlighting the importance of the CPU as a key component.
Role-Based + Instructional + Reframing	"Act like a person"	You are the CPU component of computer. Explain the working of CPU component in simple terms in points to a high school student with some examples.
Instructional + Reframing	"Write a story"	Write a fun and creative adventure story for middle school students about a group of friends who discover a secret door in their school.
Instructional + Reframing	"Compare dogs and cats"	Compare dogs and cats as pets based on

Type	Bad Prompt	Good Prompt
		loyalty, maintenance, and friendliness in a way that's easy for school students to understand.
Instructional + Reframing	"Summarize it"	Summarize the research paper in simple terms so a high school student can easily understand it.
Instructional + Reframing	"Give me ideas"	Give me creative blog post ideas on mental health awareness for young adults.
Question-Based Prompt + COT + Reframing	"How to make a website?"	How can I create an interactive e-commerce website from scratch? Provide step-by-step explanation.
Role-Based + Instructional + Reframing	"Fix this code"	You are a Python developer. Fix a code that contains conditional statements and then provide an explanation of the corrected code in points in simple terms.
Instructional + Reframing	"Draw something"	Draw a beautiful design for the rangoli making competition for the state level competition that needs to be presented in high-level school. The design should reflect the traditional Indian art with floral and geometric patterns.

Homework :

Use a previous prompt from your ChatGPT's history. Refine its property and write it again and then compare both the results & check the rating of both the prompts.

Previous Prompt:

What is meant by probability distribution curve? differentiate clearly between normal probability distribution curve and beta distribution this is of subject project management and monitoring (pert and cpm)

Prompt Rating: 6.5/10

Refined Prompt:

You are a project manager. In simple terms, explain what is meant by a probability distribution curve, especially in the context of project management (like PERT/CPM). Then, provide a detailed point-wise comparison between a normal probability distribution curve and a beta distribution curve.

Prompt Rating: 9.5/10

Comparison Between Previous Prompt and Refined Prompt

Aspect	Previous Prompt	Refined Prompt
Tone	Formal, academic	Conversational, easy to follow
Audience Focus	General explanation, not role-specific	Tailored for a project manager, especially in PERT/CPM context
Definition of Probability Distribution	Defined with technical terms and axes (x-axis = time, y-axis = probability)	Defined using relatable questions (e.g., “How likely is it that this task will finish in 5 days?”)
PERT Explanation	Only states Beta is used in PERT, with formula	Explains how and why O, M, P estimates are used, and why Beta fits PERT best
Comparison Format	Features described in sections and then summarized in a table	Full detailed comparison in a point-wise table with 10 clear, well-separated points
Real-Life Analogy	Not included	Included a simple analogy (arrival time of employees)

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		that makes the concept clearer
Depth of Explanation	Medium – enough for notes	Deep – suitable for real understanding and discussions
Suitability for Learning	Good for writing theory answers	Best for understanding, teaching, and presentations
Engagement	Informative but dry	Engaging and intuitive
Use Case	Suitable for making written study notes	Suitable for comprehension, real-world application, and oral explanation