

Assignment -2 Cognizant GenSpark Prompt Engineering Module.

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Part 1: Techniques in Prompt Optimization

Concept Check (Multiple Choice Questions):

1. **Correct Answer: B)** Provide detailed instructions and examples.
2. **Correct Answer: B)** Guide the AI's tone and perspective by specifying a persona.

Application Task:

Step 1: Write a Basic Prompt

"Write a product description for a smartphone."

Step 2: Refine the Prompt

1. **Add Role-Based Instructions:**

"Act as a marketing expert and write a product description for a smartphone."

2. **Include an Example to Guide the AI:**

"Act as a marketing expert and write a product description for a smartphone. For example, describe the iPhone 15 as having a 6.1-inch Super Retina XDR display, an A16 Bionic chip, and a 48MP main camera."

3. **Specify Tone and Length:**

"Act as a marketing expert and write a concise, engaging product description for a smartphone in 50–75 words. Highlight key features like the display, processor, and camera. Use a professional yet approachable tone."

Reflection:

Prompt optimization can streamline tasks like writing emails by reducing ambiguity and improving output quality. For example, instead of writing *"Draft an email,"* a refined prompt like *"Write a polite email to a client requesting a meeting next week. Include availability for Tuesday and Thursday afternoons and keep the tone professional"* ensures the AI generates a relevant and actionable response. This saves time and reduces the need for revisions.

Part 2: Debugging Prompt Failures

Concept Check (True/False):

1. **True:** A vague prompt is more likely to produce irrelevant responses.
 2. **False:** Debugging involves refining the input (prompt), not the AI model.
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Application Task:

Step 1: Write a Vague Prompt

"Write a story about life."

Step 2: Analyze the AI's Response

- **Issues with Output:**
 1. The story lacks focus and direction.
 2. It doesn't address any specific theme or message.

Step 3: Refine the Prompt

"Write a 200-word story about the challenges and joys of life from the perspective of a young artist. Include themes like creativity, struggle, and hope."

Step 4: Compare Outputs

- The refined prompt produces a more focused and meaningful story.
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Case Study Activity:

Original Prompt:

"Describe a scientific concept in detail."

Issues:

- Too broad; no specific concept or context is provided.
- No guidance on tone, length, or audience.

Revised Prompt:

"Act as a science educator and explain the concept of photosynthesis to high school students. Use simple language, include the key steps, and limit the explanation to 150 words."

Reflection:

A poorly crafted prompt could cause problems in customer service chatbots. For example, a vague prompt like *"Answer the customer's question"* might lead to irrelevant or incomplete responses. Debugging techniques, such as adding context (*"Answer the customer's question about return policies in a friendly tone"*) and breaking the task into steps (*"1. Acknowledge the query, 2. Provide the return policy, 3. Offer assistance"*), can resolve this.

Part 3: Evaluating Prompt Effectiveness

Concept Check (Fill in the Blank):

1. **Answer:** relevance, clarity, completeness.
 2. **Answer:** relevance, completeness.
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Application Task:

Step 1: Create a Prompt

"Write a short email inviting coworkers to a weekend team-building event."

Step 2: Evaluate the AI's Response

- **Relevance:** 4/5 (focused on the event but missed some details).
- **Completeness:** 3/5 (didn't include date, time, or location).
- **Clarity:** 5/5 (clear and easy to understand).
- **Accuracy:** 4/5 (no factual errors but lacked specifics).
- **Creativity:** 3/5 (generic tone).
- **Efficiency:** 4/5 (concise but incomplete).

Step 3: Refine the Prompt

"Write a 100-word email inviting coworkers to a weekend team-building event. Include the date (Saturday, November 18), time (10 AM–4 PM), location (Central Park), and activities (team games and lunch). Use a friendly and enthusiastic tone."

Activity:

Original Prompt:

"Generate a summary of this document."

Issues:

- No specific instructions or context.
- No required length or focus.

Revised Prompt:

"Summarize this document in 150 words, focusing on the key findings and recommendations. Use a formal tone and avoid technical jargon."

Reflection:

Evaluating prompt effectiveness can improve productivity by ensuring AI outputs meet specific requirements. For example, in academic research, a poorly crafted prompt like *"Summarize this paper"* might miss key points. Refining it to *"Summarize the methodology and results of this paper in 200 words, focusing on the impact of the findings"* ensures the summary is relevant and complete. This reduces errors and saves time in reviewing and revising outputs.