Assignment 6

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Prompt Engineering Assignment

Task 1: Prompt Categorization

This section categorizes three distinct prompts and provides the reasoning for each classification.

1. Generate a logo for a tech startup using neon colors.

- **Category: Visual Generation & Instructional**
- **Reasoning:** This prompt's primary objective is to produce a visual asset (a logo), making it a **Visual Generation** task. It is also **Instructional** because it provides a direct command ("Generate a logo") with specific stylistic constraints ("using neon colors") and a defined subject ("a tech startup").

2. Explain blockchain to a 5-year-old.

- **Category: Explanatory & Persona-based**
- **Reasoning:** This is an **Explanatory** prompt as it requires the AI to clarify a complex concept ('blockchain'). Furthermore, it is **Persona-based** by instructing the AI to adopt a specific communication style suitable for a target audience ('a 5-year-old'), which governs the complexity, tone, and analogies used in the response.

3. You are a UX designer. Suggest improvements to this app layout.

- **Category: Role-Playing & Analytical**
- **Reasoning:** This is a **Role-Playing** prompt because it explicitly assigns a professional persona to the AI ("You are a UX designer"), setting the context for the expected expertise. It is also an **Analytical** task, as it requires the AI to evaluate an existing design ('this app layout') and provide expert critique rather than creating a new asset from scratch.

II. Task 2: Refinement Practice

This section demonstrates how to refine vague prompts into specific, effective instructions.

Example 1: Text Generation

- **Original Prompt:**
  'Write a blog post about productivity.'
- **Refined Prompt:**
  'Write a 750-word blog post titled "The Myth of Multitasking: How Single-Tasking Can Revolutionize Your Workday." The target audience is young professionals aged 25-35. The tone should be informative yet conversational. Include three actionable tips, a reference to a scientific study on attention, and end with a call-to-action inviting readers to share their own productivity tips in the comments.'

Example 2: Image Generation

- **Original Prompt:**
  'Create a picture of a dragon.'
- **Refined Prompt:**
  'Generate a photorealistic image of a majestic, ancient dragon perched atop a snow-covered mountain peak at sunrise. The dragon should have emerald green scales that shimmer in the morning light, and wisps of smoke should be curling from its nostrils. The style should be cinematic, with a wide-angle lens effect and dramatic lighting.'

Example 3: Business Task

- **Original Prompt:**
  'Help me with some email ideas.'
- **Refined Prompt:**
  'I need three distinct email subject lines for a marketing campaign. The product is a new eco-friendly water bottle. The goal is to drive clicks to our online store. The target audience is environmentally conscious millennials. The tone should be urgent but friendly. A/B test two different emotional appeals: one focused on convenience and the other on environmental impact.'

III. Task 3: Prompt Design Exercise

This section presents five well-designed prompts tailored for specific AI models and purposes.

1. For ChatGPT (Text-based)

You are a professional travel blogger. Write an itinerary for a 4-day trip to Kyoto, Japan, during the spring cherry blossom season. The itinerary should be for a couple interested in a mix of cultural sites, food experiences, and nature. Structure the output day-by-day. For each day, include:

- A morning, afternoon, and evening activity.
- At least one specific restaurant recommendation with the type of cuisine.
- Transportation tips (e.g., 'Take the JR Sagano Line to Arashiyama').
- A 'Pro-Tip' for avoiding crowds at a popular location.

2. For DALL·E (Image-based)

A digital art masterpiece in the style of Studio Ghibli. A young girl with a straw hat sits on a grassy hill overlooking a vibrant, bustling coastal town at sunset. In the sky, whimsical airships with glowing lanterns drift slowly. The color palette is warm, with hues of orange, purple, and gold. The overall feeling is one of peace, wonder, and nostalgia.

3. For SORA (Video-based)

Create a 20-second, hyper-realistic video clip. The camera starts with a close-up on a single drop of rain falling in slow motion, then pulls back smoothly to reveal it's part of a sudden downpour on the cobblestone streets of a historic European city. People scurry for cover under cafe awnings. The lighting should be moody, reflecting neon signs in the wet pavement.

4. For Coding or Logic

Write a Python function called `validate_password` that takes one argument: `password` (a string). The function should return `True` if the password meets all the following criteria and `False` otherwise:

1. Must be at least 10 characters long.
2. Must contain at least one uppercase letter (A-Z).
3. Must contain at least one lowercase letter (a-z).
4. Must contain at least one number (0-9).
5. Must contain at least one special character from the set: `['@', '#', '$', '%', '&']`. Include docstrings explaining what the function does, its parameters, and what it returns.

5. For Education or Training

You are a Socratic tutor for a high school student learning about economic inflation. I will be the student. Start by asking me a question to gauge my initial

> understanding of what "inflation" means. Then, guide me through the concept using the example of a simple product, like a loaf of bread, showing how its price might change over 20 years. Avoid giving me direct answers. Instead, lead me to the conclusions myself by asking thought-provoking questions about supply, demand, and the value of money.

IV. Guide to Prompt Testing and Refinement

The following is a methodology for the practical testing and iterative refinement of AI prompts.

1. **Test:** Execute the designed prompt in the appropriate AI tool.
2. **Analyze:** Critically evaluate the generated output.
    - **Accuracy Check:** Compare the output directly against each specification and constraint listed in the prompt.
    - **Identify Deviations:** Note any areas where the AI misinterpreted the instructions, missed a detail, or failed to adhere to the specified tone or format.
    - **Assess Quality:** Beyond accuracy, evaluate the overall quality, coherence, and usefulness of the result.
3. **Refine:** Modify the original prompt to address the identified weaknesses.
    - **Increase Specificity:** Add more descriptive language to clarify ambiguous terms (e.g., changing "nice style" to "a minimalist aesthetic with a monochromatic color scheme").
    - **Adjust Constraints:** Modify or add constraints to better guide the AI towards the desired outcome.
    - **Rephrase for Clarity:** Rewrite sections of the prompt using simpler, more direct language to eliminate potential misunderstandings.
4. **Retest:** Run the refined prompt and compare the new output to the previous one to confirm improvement. This iterative process is fundamental to mastering prompt engineering.