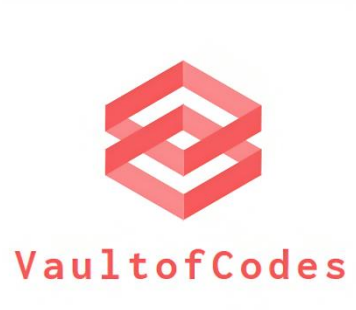

Week 2 Assignment for Prompt Engineering: "Exploring Prompt Variability"

Objective:

The goal of this assignment is to help you understand how different types of prompts can influence the responses of AI models. You'll practice crafting effective prompts and analyzing the outcomes.

Assignment: Craft and Experiment with Prompts

You will experiment with writing different types of prompts and analyze the variations in responses to see how prompt structure, length, and wording affect results.

Steps:

1. **Choose a Task**:
    - Select one task you want the AI model to perform. For example:
        - Summarizing a news article.
        - Generating a creative story.
        - Answering a factual question.
        - Providing advice or solutions to a problem.
2. **Design 3 Different Prompts**:
    - Create **three distinct prompts** for the same task. Try to vary:
        - **Length** (one concise, one medium, and one detailed prompt).
        - **Tone** (e.g., formal vs. casual).
        - **Instructions** (specific vs. open-ended).
    - Example for the task "Generate a creative story":
        1. **Concise**: "Tell me a short story about a robot."
        2. **Medium**: "Write a story about a robot who tries to learn human emotions."
        3. **Detailed**: "Generate a detailed story about a futuristic robot living in a world where robots are programmed not to feel, but this robot starts to develop feelings and has to navigate a world where emotions are forbidden."
3. **Analyze Responses**:
    - For each prompt, analyze the responses generated by the AI.
        - How does the length, tone, or clarity of your prompt affect the quality or style of the response?
        - Did a more detailed prompt generate a more elaborate response?

        - Were there any surprises in how the model interpreted your instructions?
4. **Submit**:
    - Submit the three prompts you designed and the corresponding AI responses.
    - Write a brief reflection (150-200 words) on how the changes in your prompt design influenced the output. Discuss what worked well and what could be improved.

Bonus (Optional):

- Create a **challenging prompt** that forces the AI model to think creatively or solve a difficult problem (e.g., "Generate a mystery story with a plot twist").

Python Assignment: "Basic Calculator with Error Handling"

Objective:

Build a **basic calculator** that performs addition, subtraction, multiplication, and division while handling potential errors like invalid inputs or division by zero. This will help you practice **functions**, **conditionals**, **error handling**, and **user input**.

Requirements:

1. **Calculator Functions**:
    - Implement four functions to handle the basic operations:
        - **Addition** (`add()`).
        - **Subtraction** (`subtract()`).
        - **Multiplication** (`multiply()`).
        - **Division** (`divide()`).
2. **User Input**:
    - Ask the user to input:
        - Two numbers.
        - The operation they want to perform (+, -, *, /).
3. **Error Handling**:
    - Handle **invalid inputs** (e.g., if the user inputs a string instead of a number).
    - Handle **division by zero** by displaying an appropriate error message.
4. **User Menu**:
    - Create a simple menu that allows the user to:
        - Perform a calculation.
        - Exit the program.

Bonus (Optional):

- Implement a **power function** (e.g., `2^3`).
- Allow the user to perform **multiple calculations** without restarting the program.

Instructions:

- Submit your Python file as a `pdf file with screenshot of output(Copy code, paste in ms word, save as pdf, submit in app)`
- Ensure the program gracefully handles **errors** and gives meaningful feedback to the user.

Additional Tasks:
Task 1: Advanced Prompt Engineering Techniques
Research and Summarize in a ppt:
Explore advanced prompt engineering techniques such as zero-shot, few-shot, and chain-of-thought prompting. Describe each technique and its applications.

Task 2: Design and Experiment
Prompt Design Experiment:
-Select an AI model available to you for experimentation (e.g., GPT-3.5 or newer versions, if accessible).
-Design a set of prompts that illustrate zero-shot, few-shot, and chain-of-thought techniques. Choose a complex topic or task for these prompts (e.g., solving a math problem, explaining a scientific concept, or providing advice on a niche topic).
-Document the AI's responses to each prompt type and analyze the effectiveness and limitations observed in each approach.\

Hint: Pay special attention to how the amount and type of information provided in each prompt type affect the AI's performance on the given task.