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Problem-Solving with Artificial Intelligence

## **Project Overview and Planning**

Within the financial sector, a primary challenge is meeting and keeping up with evolving members' financial literacy requirements, particularly in the younger segments. Elevations Credit Union, like other financial institutions, wants to attract this group with targeted, educational information that resonates with them. Generative AI platforms, specifically large language models (LLMs) with GPT architecture, can be utilized to generate tailored content, such as blog posts, social media nuggets, and FAQs, centered on a specific financial issue of concern to young adults (e.g., personal budgeting, student loan management, first-time home buying). This is on the strength of the LLM's capacity to process and integrate high amounts of information and adapt its output to fit specific tones and styles.

Prompt engineering is crucial in this context. The quality and relevance of the AI-generated content depend heavily on the precision and clarity of the prompts provided. A well-crafted prompt ensures that the AI understands the desired tone, target audience, and specific information to be conveyed. Without effective prompts, the output may be generic, inaccurate, or irrelevant to the intended audience, diminishing the value of the AI's contribution (Brown et al., 2020).

## Initial Prompt Development and Analysis

For our initial prompt, we'll use a straightforward approach, focusing on specificity and context.

- Base Prompt: "Generate a blog post outline on budgeting for college students, tailored to members of Elevations Credit Union. Include sections on tracking expenses, setting financial goals, and utilizing Elevations Credit Union's resources."
- AI Output: The AI provided a basic outline with sections like "Introduction," "Tracking Expenses," "Setting Financial Goals," "Elevations Credit Union Resources," and "Conclusion."
- Analysis: This prompt was effective in eliciting a relevant outline. However, it lacked depth and specificity. The output was generic and didn't include specific examples or actionable advice. The strength was its general relevancy, but its limitation was its lack of detailed, practical information.

## Iterative Prompt Refinement

We will refine the prompt through three iterations to improve its specificity and relevance.

### A. Iteration 1:

- a. Refined Prompt: "Generate a blog post outline on budgeting for college students at Colorado universities, specifically for Elevations Credit Union members. Include sections on tracking expenses using mobile apps, setting short-term and long-term financial goals, and highlighting

Elevations Credit Union's online budgeting tools and student checking accounts. Provide specific examples of budgeting challenges faced by college students."

- b. AI Output: The outline now includes specific examples of budgeting challenges, such as managing food costs and textbook expenses, and mentions specific tools offered by Elevations.
- c. Analysis: This iteration improved specificity by adding context about Colorado universities and specific Elevations Credit Union resources. The output was more detailed and relevant.

#### B. Iteration 2:

- a. Refined Prompt: "Write a detailed blog post outline on budgeting for college students in Colorado, focusing on Elevations Credit Union members. Include sections on using mobile budgeting apps (mentioning specific examples), setting SMART financial goals, and highlighting Elevations Credit Union's online budgeting tools and student checking accounts. Include a section on managing student loan debt and finding part-time jobs. Use a friendly and encouraging tone."
- b. AI Output: The outline included more detailed sections with specific examples of budgeting apps and strategies for managing student loan debt. The tone was more engaging.
- c. Analysis: This iteration further improved the output by specifying the tone and adding a section on student loan debt, which is highly relevant to the target audience.

### C. Iteration 3:

- a. Refined Prompt: "Create a detailed blog post outline for Elevations Credit Union members who are college students in Colorado, focusing on budgeting and financial planning. Include sections on: First, Practical mobile budgeting app recommendations (mention specific app names and how they help). Second, Set SMART financial goals with realistic examples. Third, Detailed instructions on using Elevations Credit Union's online budgeting tools and student checking accounts. Fourth, Strategies for managing student loan debt, with links to relevant resources. Fifth, Tips for finding part-time jobs and internships in the Boulder area. Sixth, A conclusion that encourages students to seek personalized financial advice from Elevations Credit Union. Write in a conversational and encouraging tone."
- b. AI Output: The outline was highly detailed, with specific app recommendations, actionable advice, and clear instructions for using Elevations Credit Union's resources. The tone was conversational and engaging.
- c. Analysis: This final iteration produced a highly refined outline that met all the specified criteria, demonstrating the power of iterative prompt refinement.

## Evaluation of Prompt Medium

We will now apply the final refined prompt to two different output types: text and social media snippets.

### A. Text (Blog Post Outline):

- a. Prompt: (Same as Iteration 3)
- b. AI Output: As previously described, a detailed blog post outline.
- c. Adaptation: No adaptation needed; the prompt was designed for a text output.

### B. Social Media Snippets (X.com):

- a. Prompt: "Create 5 short, engaging X.com snippets based on the following blog post outline for Elevations Credit Union: [Insert Final Refined Prompt]. Each snippet should be 280 characters or less and encourage college students to learn more about budgeting."
- b. AI Output: (Google, 2025)
  - i. "College student? Track expenses easily with these mobile apps!  
Learn more with Elevations Credit Union's budgeting tips!  
#CollegeBudget #ElevationsCU"
  - ii. "SMART goals for your finances! Elevations Credit Union helps you set and achieve them. Check out our student checking accounts!  
#FinancialGoals #ElevationsCU"
  - iii. "Student loan debt got you stressed? Get strategies and resources from Elevations Credit Union! #StudentLoans #ElevationsCU"

- iv. "Looking for a part-time job in Boulder? Find tips and opportunities with Elevations Credit Union! #BoulderJobs #ElevationsCU"
- v. "Budgeting made easy! Use Elevations Credit Union's online tools and get personalized advice. Start today! #BudgetingTips #ElevationsCU"
- c. Adaptation: The prompt was adapted to specify the desired output format (X.com snippets) and length (280 characters or less).
- d. Analysis: The social media snippets were concise, engaging, and relevant to the target audience. They effectively summarized key points from the blog post outline and encouraged interaction. The adaptation was successful in optimizing the prompt for a different output medium.

## **Final Analysis and Reflection**

The iterative prompt refinement process significantly improved the quality and relevance of the AI-generated output. Starting with a basic prompt and progressively adding specificity, context, and tone resulted in a highly detailed and actionable outline. Employing the previous prompt with different output formats demonstrated the versatility of prompt engineering and its adaptability to function in numerous formats.

Prompt engineering plays a pivotal role in banking in the development of targeted content, customer insights, and customer engagement. For Elevations Credit Union, prompt engineering can be utilized to develop tailored financial education content, create impactful social media campaigns, and provide tailored customer service.

Through mastery of prompt engineering, financial experts can leverage AI to improve their services and better serve their members.

## References

- Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., ... & Amodei, D. (2020). Language models are few-shot learners. *Advances in neural information processing systems*, 33, 1877-1901.
- Google. (2024). Gemini [Large language model].