Analytics Vidhya

Best Practices for Constructing Prompts

Instructor

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Use Latest and Task Appropriate LLMs

- Latest LLMs are usually trained on more diverse tasks and data and are also more up-to-date
- Models like GPT-4o, Gemini 1.5, Claude 3.5, Llama 3.2, Qwen2, Mistral are quite popular
- Use LLMs based on tasks:
  - Agentic flows usually need more powerful reasoning LLMs like GPT-4o
  - Coding tasks might be more appropriate for LLMs like Claude 3.5 which is powerful
  - Generation tasks can also be done using SLMs like Gemma, Llama 3.2, Phi 3.5 mini

Be Specific, Descriptive and Detailed

- Be as specific as possible when creating your prompt and provide the following with specific details:
  - Contextual or background information
  - Relevant Outcomes
  - Constraints
  - Length
  - Format
  - Style, and more...

Less Effective ❌:

"Generate a marketing strategy for our new product."

Better ✅:

"Develop a 2-page marketing strategy for the launch of our AI-powered task management app targeted at remote workers. Focus on increasing user engagement and retention within the first 90 days. The strategy should include:

1. Key messaging that highlights features like smart scheduling and real-time collaboration.
2. A digital ad campaign plan (budget under $10,000) leveraging social media platforms popular with professionals like LinkedIn and Twitter.
3. Suggestions for content formats (e.g., blogs, videos, infographics) to educate users.
4. Metrics to measure campaign success, such as app downloads and active users.

Ensure the tone is professional yet relatable, appealing to remote workers balancing productivity and flexibility."

Articulate Desired Output Format with Few-Shot Examples

- Express detailed output formats using patterns like the template pattern
- Also improve the prompt by providing few-shot examples

Less Effective ❌:

"Give me a summary of this research paper."

Better ✅:

"Provide a structured summary of this research paper in the following format:

1. **Title**: [Paper title]
2. **Objective**: The main research goal in 2-3 sentences.
3. **Methodology**: Key methods or experiments used, summarized in 3-4 sentences.
4. **Findings**: The primary results or conclusions in 3 bullet points.
5. **Implications**: How these findings can be applied in real-world scenarios, explained in 2 sentences.

Example:
Title: Neural Networks for Image Recognition
Objective: To explore how deep learning techniques can improve accuracy in image classification tasks.
Methodology: The authors trained a convolutional neural network (CNN) on the ImageNet dataset using a novel optimization algorithm.
Findings:

- Achieved 90% accuracy on the validation set.
- Outperformed traditional SVM-based methods by 20%.
- Required 50% less training time due to the optimized algorithm.
  Implications: These findings suggest that CNNs with optimized algorithms can revolutionize image recognition in fields like healthcare and autonomous driving.

Now, apply this structure to the provided paper."

Try Prompting, RAG, Agents and Fine-tuning

Address any complex problem that presents itself as a Generative AI challenge by employing one or a combination of the following methods, arranged in increasing order of complexity:

1. Simple Zero-shot prompting
2. Prompting with specific patterns as necessary
3. Few-shot examples in the prompt
4. Retrieval Augmented Generation if you have custom data and knowledge
5. Agentic AI Systems for complex reasoning and automation-based workflows
6. Fine-tuning if all the above fails and you need really custom responses

Uses of Instructions and Delimiters

Put instructions at the beginning of the prompt and use delimiters to separate instructions and data

- Try to put instructions at the start of the prompt
- Separate the data supplied to the prompt with appropriate delimiters

Less Effective ❌:

"Analyze the text below and extract:

1. Key issues (2-3 points).
2. Positive feedback (1-2 points).

Text:
"Customers praised the durability of the product but mentioned that the packaging was often damaged during delivery. They also appreciated the affordable price."

Better ✅:

Instructions:
Analyze the text below in `<data>` delimiters and extract:

1. Key issues (2-3 points).
2. Positive feedback (1-2 points).

Data:
<data>
"Customers praised the durability of the product but mentioned that the packaging was often damaged during delivery. They also appreciated the affordable price."
</data>

Use Positive Instructions

Instead of just saying what not to do, say what to do instead

- Use positive instructions to guide the LLM toward the desired action, as this reduces ambiguity and ensures focus on constructive outcomes.
- Avoid negative instructions, which require the LLM to interpret and invert them, increasing the chance of errors and confusion.
- Clearly state what you want the LLM to do, improving response accuracy and efficiency.

Less Effective ❌:

"DO NOT USE JARGON when explaining technical issues to customers."

Better ✅:

Instructions:

When explaining technical issues to customers:

1. Use simple and clear language, avoiding technical jargon.
2. Provide examples or analogies to make complex concepts easier to understand.
3. Confirm the customer's understanding by asking if the explanation makes sense or if they have any questions.

Example:

Customer: "Why is my internet so slow?"

Agent: "It looks like there might be too many devices connected to your network, which is like a road with too many cars—everything slows down. Try disconnecting a few devices or restarting your router to clear up the 'traffic.' Does that help clarify?"

Thank You

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