

Key Elements of a Prompt

Instructor

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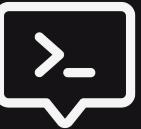
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Key Elements of a Prompt

-  Persona
-  Context
-  Instructions
-  Examples
-  Format
-  Constraints
-  Tone
-  Delimiters
-  Data
-  Prompt Patterns

Key Elements of a Prompt - Persona

- The persona provides background information by specifying a role that the LLM has to adopt while generating the response
- Makes the LLM more grounded towards that domain when generating responses



Persona

Key Elements of a Prompt - Persona

Example:

- Consider the prompt, “**Act an expert in Physics**, explain the definition of stress with clear examples”
- Here the prompt assigns the role of “an expert in Physics” to the LLM so that it adopts that persona when answering questions



Persona

Key Elements of a Prompt - Persona

Act as an expert financial analyst and tell me briefly the best investment options in general when starting out.



When starting out as an investor, it's essential to prioritize diversification, risk management, and learning. Here are some of the best investment options for beginners:

1. Index Funds/ETFs:

- Low-cost, diversified funds that track market indexes like the S&P 500.
- Ideal for beginners due to simplicity and lower risk compared to individual stocks.

2. Robo-Advisors:

- Automated platforms that create and manage diversified portfolios based on your risk tolerance.
- Affordable and beginner-friendly.

3. High-Yield Savings Accounts or CDs:

- Safe options to grow emergency funds while earning interest.
- Useful for short-term savings.



Key Elements of a Prompt - Context

- The context provides the necessary background information and details by specifying the situation or the scenario in which the LLM has to generate the response.
- Makes the LLM generate more relevant and contextual responses



Context

Key Elements of a Prompt - Context

Example:

- Consider the prompt, “**I’m already proficient in python and data science.** Suggest me a roadmap to learn Generative AI”. Here the context is “I’m already proficient in python and data science”.
- Without the context, the LLM may generate a roadmap to learn Generative AI which may not be suitable for someone who already knows Data Science



Context

Key Elements of a Prompt - Context

I'm already proficient in python and data science. Suggest me a roadmap to learn Generative AI, be brief and concise.



Here's a concise roadmap to learn Generative AI:

- 1. Foundation (1-2 Weeks)**
 - Understand the basics of deep learning: Neural networks, backpropagation, optimization.
 - Study Autoencoders and Variational Autoencoders (VAEs).
- 2. Generative Models (3-4 Weeks)**
 - Learn key generative models:
 - GANs (Generative Adversarial Networks)
 - Diffusion Models
 - Study architectures like Transformer, GPT, and BERT.
- 3. Prompt Engineering (1-2 Weeks)**
 - Master crafting effective prompts for LLMs.

Key Elements of a Prompt - Instructions

- The instructions are probably the most important aspect of a prompt. This element specifies what the LLM has to do. It can be answering a query or performing a complex task.
- Gives the LLM directions on what to do exactly when generating responses



Instructions

Key Elements of a Prompt - Instructions

Example:

- Consider the prompt, “**Generate a bullet list** of pros and cons of Generative AI”. Here the instruction is clear in mentioning the LLM to perform the task of generating a list of pros and cons.
- Other examples could be “Summarize....”, “Extract the following....” and so on.



Instructions

Key Elements of a Prompt - Instructions

Generate a bullet list of pros and cons of Generative AI (max 3)



Pros of Generative AI

- **Creativity and Innovation:** Enables the creation of unique content, designs, and ideas, driving innovation across industries.
- **Efficiency:** Automates repetitive tasks like content generation, coding, and prototyping, saving time and resources.
- **Personalization:** Enhances user experiences by creating tailored recommendations, responses, or products.

Cons of Generative AI

- **Ethical Concerns:** Risk of misuse for generating misinformation, deepfakes, or biased content.
- **Resource-Intensive:** High computational costs and energy consumption can limit accessibility.
- **Accuracy and Control:** Outputs can sometimes be unpredictable, inaccurate, or lack explainability.

Key Elements of a Prompt - Examples

- The examples element provides directions in the form of sample input and output examples to the LLM for desired output generation. Often called Few-shot generation.
- Here examples are the samples for the desired output to be generated, given certain input data. By providing the examples, the LLM generates the output which resembles the examples in terms of format, style and content.



Examples

Key Elements of a Prompt - Examples

Example:

- Consider the prompt,
 - “Given the following reviews and sentiment, generate sentiment of future reviews in the same format,

Review: Movie was Great

Sentiment: 😊

Review: Movie was Bad

Sentiment: 😡

Review: Hated this Movie

”.

- Here the instruction is clear mentioning the LLM how it should classify sentiment with some examples



Examples

Key Elements of a Prompt - Example

WITHOUT EXAMPLES →

Given the following reviews and sentiment, generate sentiment

Review: Hated this Movie

The sentiment for the review "Hated this Movie" is **negative**.

WITH EXAMPLES →

Given the following reviews and sentiment, generate sentiment of future reviews in the same format,

Review: Movie was Great
Sentiment: 😊

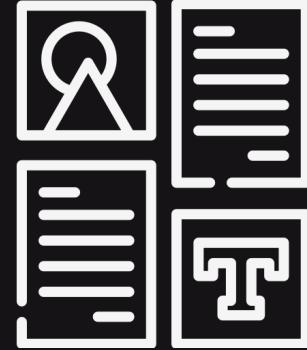
Review: Movie was Bad
Sentiment: 😥

Review: Hated this Movie

Review: Hated this Movie
Sentiment: 😥

Key Elements of a Prompt - Format

- The format element defines the layout and structure of the LLM response. This is an optional element.
- When the format element is included in the prompt, the LLM will try to generate the output according to the formatting instructions specified in the format element.

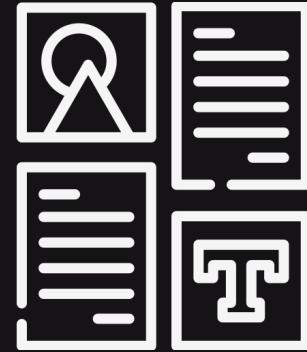


Format

Key Elements of a Prompt - Format

Example:

- Consider the prompt “Talk about pros and cons of Generative AI. **Use a markdown table** with two columns to show the output”.
- Here, “Use a markdown table with two columns” is the format element.



Format

Key Elements of a Prompt - Format

Talk about pros and cons of Generative AI. Use a markdown table with two columns to show the output

Pros and Cons of Generative AI

Pros	Cons
Creativity and Innovation: Generates novel ideas, designs, and content, enhancing creativity.	Ethical Concerns: Risks of creating harmful, biased, or misleading content.
Efficiency Gains: Automates repetitive tasks, saving time and resources.	Intellectual Property Issues: Challenges in copyright and ownership of generated content.
Personalization: Tailors experiences and recommendations for users.	Quality and Accuracy: Outputs can contain errors or factual inaccuracies.
Improved Accessibility: Bridges language barriers and aids those with disabilities.	Economic Displacement: Automation may lead to job losses in certain sectors.
New Business Opportunities: Enables virtual asset creation, storytelling, and synthetic media.	Resource-Intensive Development: Requires significant computational power and energy.
Enhanced Problem-Solving: Assists in complex problem-solving, e.g., drug discovery.	Dependence on Data Quality: Biased or insufficient training data can lead to flawed results.
Cost-Effective Prototyping: Facilitates quick iterations in product and solution development.	Over-Reliance on AI: May erode human creativity and critical thinking skills.

Key Elements of a Prompt - Constraints

- The constraints element specifies the restrictions on the output to be generated by the LLM. This is an optional element.
- Here the restrictions can be a limit on the word count, a limit on the character count, words to exclude, words to include, a number of bullet points, etc



Constraints

Key Elements of a Prompt - Constraints

Example:

- Consider the prompt “Generate pros and cons of Generative AI as bullet points. **Make sure to limit the number of pros and cons to 3 each**”.
- Here, “**Make sure to limit the number of pros and cons to 3 each**” is the constraint element.



Constraints

Key Elements of a Prompt - Constraints

Generate pros and cons of Generative AI as bullet points. Make sure to limit the number of pros and cons to 3 each



Pros of Generative AI

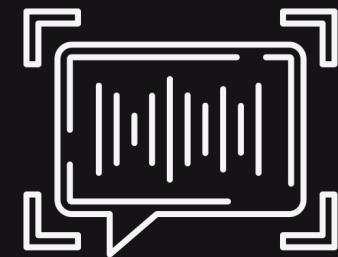
- **Enhanced Creativity:** Produces innovative content and designs, fueling creativity across industries like art, writing, and product design.
- **Efficiency Boost:** Automates repetitive tasks, enabling faster and more cost-effective workflows.
- **Personalized Solutions:** Tailors user experiences, such as personalized learning, product recommendations, and marketing strategies.

Cons of Generative AI

- **Ethical Risks:** Potential misuse for creating deepfakes, misinformation, or biased outputs.
- **Accuracy Concerns:** Generated content may include factual errors or hallucinations.
- **Job Displacement:** Automation of creative or repetitive tasks can lead to workforce challenges in certain sectors.

Key Elements of a Prompt - Tone

- The tone element specifies the style in which the output should be generated by the LLM. This is an optional element.
- Here the tone can be formal, friendly, instructive, casual, serious, etc. Suppose, you are writing an email to your friend, the tone can be friendly or informal. In the case of writing an email to your professor, the tone has to be formal.

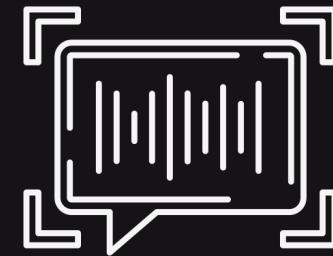


Tone

Key Elements of a Prompt - Tone

Example:

- Consider the prompt “Write an email in a **formal tone** to the hiring manager thanking him for hiring you into the new role”.
- Here the tone element “formal tone” asks the LLM to write the email in a formal tone.



Tone

Key Elements of a Prompt - Tone

Write an email in a formal tone to the hiring manager thanking him for hiring you into the new role

 Subject: Thank You for the Opportunity

Dear [Hiring Manager's Name],

I hope this email finds you well. I am writing to express my sincere gratitude for selecting me for the [specific role title] position at [Company Name]. I deeply appreciate the trust you have placed in me, and I am honored to join such a reputable organization.

I am truly excited about the opportunity to contribute to the team and to support the company's mission and goals. I am eager to bring my skills and experience to this role and look forward to collaborating with the talented individuals in the organization.

Thank you once again for this incredible opportunity. Please let me know if there are any specific steps or preparations I should complete before my start date. I am happy to assist in any way I can to ensure a smooth transition.

Looking forward to starting this new chapter with [Company Name].

Best regards,
[Your Full Name]
[Your Contact Information]

Key Elements of a Prompt - Delimiters

- The delimiter element is used to define the syntax of the prompt by using special characters or words to structure the different elements of the prompt, especially to separate the data elements from the instructions in the prompt
- The delimiters (characters or symbols) help the LLM to understand which part is the data and which part is the instructions. Usually not needed in more powerful LLMs, but recommended as a good practice.



Delimiters

Key Elements of a Prompt - Delimiters

Example:

- Consider the prompt
 - “Translate the given **text in triple backticks** from English to Spanish
- Text:
```Hello, how are you?```.
- Here the delimiter is ``` and it helps separating the instructions from the input data.



## Delimiters

# Key Elements of a Prompt - Data

- The data element specifies the input data which is to be processed by the LLM to generate a response based on the given instructions. In many prompts data is optional.
- Like in the case of text translation, the input data is the text in the source language. The data element is often put as placeholder variables in prompts and supplied at runtime



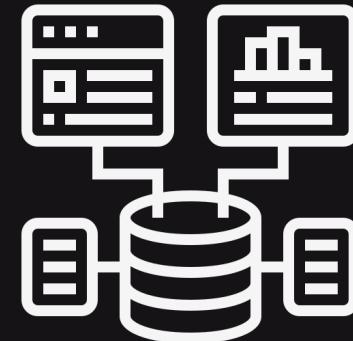
Data

# Key Elements of a Prompt - Data

Example:

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- Consider the prompt:
  - “Translate the given text in triple backticks from English to Spanish
- Text:  
```Hello, how are you?```.
- Here the input data is:
 - Hello, how are you?



Data

Key Elements of a Prompt - Delimiters & Data

Translate the given text below in <data> </data> delimiters, from English to Spanish

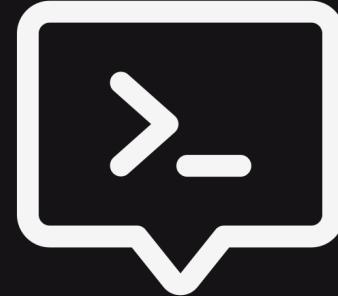
Text:
<data>
Hello, how are you?
</data>

< 2/2 >

 <data> Hola, ¿cómo estás? </data>

Key Elements of a Prompt - Prompt Patterns

- The prompt pattern element specifies the approach or technique the LLM can use to generate the response.
- Prompt patterns are more of conventions used to structure prompts in a better way and are not a compulsion. There is no single way to design a prompt pattern, it is flexible as long as the key principles are adhered to



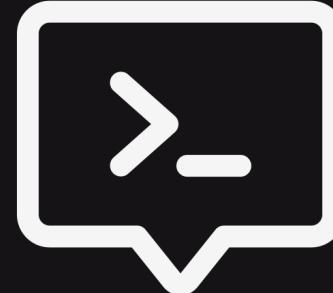
Prompt Patterns

Key Elements of a Prompt - Prompt Patterns

Example:

- Consider the prompt:
 - Given the following reviews and sentiment, generate sentiment of future reviews in the same format,
Review: Movie was Great
Sentiment: 😊
Review: Movie was Bad
Sentiment: 😡

Review: Hated this Movie
".
- Here this pattern is called the few-shot prompting pattern



Prompt Patterns

Thank You
