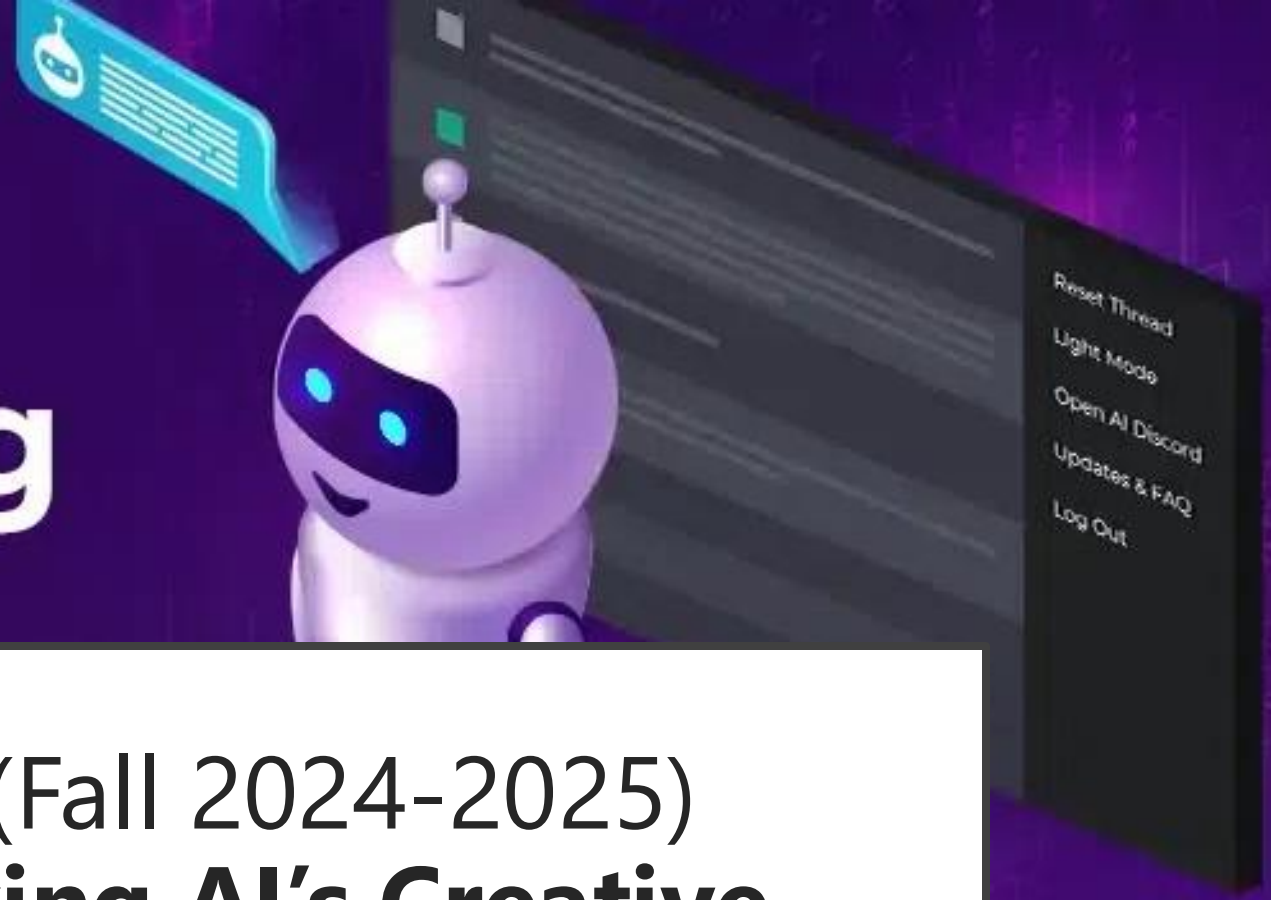


# Prompt Engineering



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AI PE Course (Fall 2024-2025)  
Week4: **Unlocking AI's Creative Potential for IT Applications.**

Google Classroom code: [d5hsxq3](#)

3d Grade IT Students

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# Introduction

- **Objective** Enhance skills in crafting effective prompts.
- **Approach:** We'll delve into techniques for structuring prompts, understanding AI capabilities and limitations, and tailoring AI responses to fit specific creative and informational needs.
- **Outcome:** Leverage AI for creative writing and precise question answering.



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## Optimizing ChatGPT or any other generative AI Usage: Key Strategies

1. **Personalize ChatGPT's Role:** Instruct ChatGPT to assume specific roles based on your needs,  
e.g "Help debug a Python script with error logs provided."  
"Draft documentation for a REST API service."
1. **Clarify Your Goals:** Clearly state your objectives for more tailored responses.
2. **Set Boundaries for Your Prompt:** Define parameters like response length and format to guide ChatGPT's output.
3. **Implement Structured Guidelines:** Ask ChatGPT to use established **storytelling** or **copywriting** techniques.
4. **Fine-Tune Through Dialogue:** Utilize ChatGPT's context memory for precise follow-up questions.
5. **Comprehensive Engineered Prompts:** Leverage a wide range of crafted prompts for various applications like SEO-optimized article generation and text analysis.
6. **Key Tips for Prompt Crafting:** Be specific, concise, and action-oriented to maximize AI's potential.

# Personalize ChatGPT's Role

## Overview

- ChatGPT can simulate specific IT roles to generate tailored and accurate responses.
- For example, you can instruct **ChatGPT** to be a, a *senior developer*, or a *customer service representative*.

## Benefits

- Personalized responses for IT scenarios.
- Improved relevance and creativity in technical problem-solving.

## Examples

- **Technical Support Specialist:**  
"Troubleshoot a network connectivity issue with step-by-step instructions."
- **Junior Developer:**  
"Write a Python function to calculate the factorial of a number."
- **API Documenter:**  
"Create a guide for using a REST API."
- **"Customer service representative:** "Help me resolve an issue with my internet service."

## Suggested activity

- As a students draft your own IT-related prompts and share them for discussion.

# Clarify Your Goals

## Benefits

- **Improved Response Quality:** Clearly defined goals enable ChatGPT to focus its efforts on addressing the specific aspects of your query or prompt, leading to more accurate and informative responses.
- **Enhanced Relevance:** By understanding your objectives, ChatGPT can tailor its responses to be directly relevant to your needs, avoiding unnecessary or irrelevant information.

## Examples

- **Providing Specific Instructions:** Instead of simply asking "Can you write a dart code?", specify the desired style, theme, or length to guide **ChatGPT's** creative process.
- **Articulating Research Needs:** When seeking information, clearly outline the specific aspects you're interested in to narrow down **ChatGPT's** search and provide more targeted results.
- **Defining Task Requirements:** When assigning tasks, clearly state the expectations, objectives, and deliverables to ensure **ChatGPT** understands the desired outcome.

## Practical Example

"Create a user guide for setting up a database on MySQL for beginners."

# GOOD PROMPT VS BAD PROMPT



## Bad Prompt

Create a social media post for Skincare products"



## Good Prompt

Create a visually stunning social media post promoting our new line of vegan skincare products to millennial women who are passionate about sustainability and eco-friendly living. The post should be written in a fun, witty, and relatable tone that speaks directly to young women.

# Good & Bad Prompts for ChatGPT Inputs

## Good Examples

- ✓ What are the most acute debatable topics in politics?
- ✓ Shorten this text to 200 words.
- ✓ Give definition, types, and examples of social issues.
- ✓ What are the consequences of using pirate streaming sites?
- ✓ Give the best productivity tips for students.

## Bad Examples

- ✗ What are five most interesting essay topics?
- ✗ Make a summary of this text.
- ✗ What do you know about social issues?
- ✗ Is using pirate streaming sites bad?
- ✗ How to become productive quickly?

# Set Boundaries for Your Prompt: Define parameters like response length and format to guide ChatGPT's output.

## Overview

- Effectively interacting with ChatGPT involves providing clear instructions and defining parameters to guide its responses.
- By setting boundaries for your prompt, you can ensure that ChatGPT produces output that aligns with your specific needs and expectations.

## Benefits

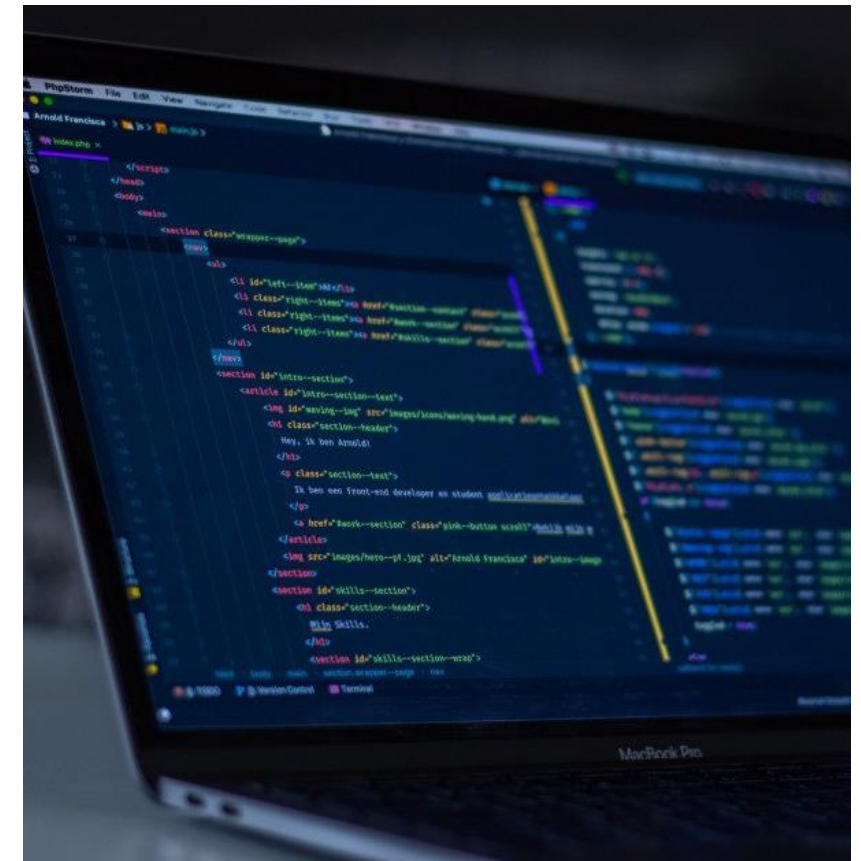
- **Controlled Response Length:** Specify the desired length of the response, whether it's a concise summary, a detailed explanation, or a creative piece of a particular word count.
- **Structured Response Format:** Indicate the preferred format, such as a bullet-point list, a numbered sequence, or a specific writing style, to organize the information effectively.
- **Targeted Response Content:** Provide relevant context and background information to help ChatGPT focus its response on the specific aspects you're interested in.

## Examples

- **Limiting Response Length:** "Please provide a brief summary of the topic in no more than 150 characters."
- **Dictating Response Format:** "Provide a concise summary of the differences between NTFS and FAT32." and "Generate a list of best practices for secure coding in Java."
- **Guiding Response Content:** "Please discuss the advantages and disadvantages of AR/VR technology from the perspective of a user."

## Conclusion

- By setting clear boundaries for your prompt, you can steer ChatGPT's output towards the desired length, format, and content, ensuring that the generated responses are tailored to your specific requirements and preferences.





# Implement Structured Guidelines: Fine-Tune Through Dialogue

## Overview

- Achieving the desired output from ChatGPT or whatever generative AI often involves an iterative process of providing structured guidelines and refining the generated content through dialogue.
- By engaging in a back-and-forth conversation, you can guide ChatGPT to produce content that aligns with your specific needs and expectations.

## Benefits

- **Collaborative Content Creation:** The dialogue-based approach fosters a collaborative process, allowing you to actively shape the content to your liking.
- **Adaptive Fine-Tuning:** By providing feedback and suggestions, you can guide ChatGPT's learning process, enabling it to adapt to your preferences and improve its output over time.
- **Enhanced Quality and Relevance:** The iterative nature of the process ensures that the final output is tailored to your specific needs and expectations, resulting in higher quality and relevance.

## Examples

- **Storytelling:** Provide feedback on character development, plot pacing, and emotional resonance to ensure a captivating and engaging narrative.

Practical example: "**Explain network security issues through the analogy of a locked house.**"

- **Copywriting:** Suggest revisions to headlines, calls to action, and benefit-driven language to enhance persuasiveness and impact of a website or app content.
- **Research:** Request additional information, clarifications, or alternative perspectives to refine the research output and ensure comprehensive coverage.



Generate an image for **network security** issues through the analogy of a locked house

# Comprehensive Engineered Prompts: Unleashing ChatGPT's Potential

## Overview

- Engineered prompts are carefully crafted instructions that provide ChatGPT with the necessary context and guidance to generate high-quality, relevant, and engaging content for a wide range of applications.

## SEO-Optimized Article Generation (Search Engine Optimization)

- **Keyword-Focused Prompts:** Provide ChatGPT with a target keyword and instruct it to write an SEO-optimized article around that keyword, incorporating relevant keywords, phrases, and synonyms throughout the content.
- **Audience-Targeted Prompts:** Specify the target audience for the article, considering factors like age, interests, and level of expertise, to ensure the content is tailored to their needs and preferences.

## Text Analysis

- **Summarization Prompts:** Instruct ChatGPT to provide a concise summary of a lengthy text, capturing the key points and essential information while maintaining coherence and accuracy.
- **Sentiment Analysis Prompts:** Ask ChatGPT to analyze the sentiment of a text, identifying whether it expresses positive, negative, or neutral emotions, and providing supporting evidence.
- **Topic Modeling Prompts:** Request ChatGPT to identify the underlying topics and themes within a text, extracting the main ideas and categorizing them into relevant groups.

## Lab Examples

*"Generate a troubleshooting guide for common network issues."*

*"Create an FAQ for a software application."*

# Key Tips for Prompt Crafting

Here are some repeated key tips for prompt crafting:

- *Be specific, concise, and action-oriented.*
- *Provide examples and context.*
- *Break complex tasks into smaller steps.*

By following these tips, you can craft prompts that will help you get the most out of AI-powered tools like **Gemini and ChatGPT**.

# Conclusion

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## Key Takeaways and ethics

- **Structured Guidelines:** Provide clear instructions and parameters to guide ChatGPT's output and ensure it meets your expectations.
- **Fine-Tune Through Dialogue:** Engage in an iterative process of feedback and refinement to refine the generated content and achieve the desired outcome.
- **Leverage Comprehensive Prompts:** Craft prompts that are specific, concise, and action-oriented to maximize ChatGPT's potential.
- **Embrace Collaboration: View ChatGPT** as a collaborative partner, working together to produce high-quality content.
- Ensure AI outputs are accurate and unbiased.
- Critically evaluate AI suggestions to maintain academic integrity.

By adopting these principles, you can transform ChatGPT, Gemini and any LLM application, into a powerful tool **for content creation, research, and creative exploration.**

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