

AIM

To evaluate and compare the effectiveness of different **prompting techniques—zero-shot, few-shot, chain-of-thought, and role-based prompting**—across multiple **AI platforms** (ChatGPT, Gemini, Claude, and Copilot) for the task of **text summarization**, focusing on **accuracy, coherence, simplicity, speed, and user experience**.

SCENARIO

You are part of a **content curation team** for an educational platform that provides **concise summaries of research papers** for undergraduate students.

The task is to summarize a **500-word technical article** titled:

“The Basics of Blockchain Technology”

The summaries should be:

- Easy to understand
- Technically accurate
- Suitable for undergraduate learners

AI PLATFORMS USED

1. **ChatGPT (OpenAI)**
2. **Google Gemini**
3. **Claude (Anthropic)**
4. **Microsoft Copilot**

PROMPTING TECHNIQUES USED

1. Zero-Shot Prompting

No examples or extra guidance are given.

Prompt:

“Summarize the following article on the basics of blockchain technology.”

2. Few-Shot Prompting

The model is shown an example before performing the task.

Prompt:

“Example Summary:

‘Cloud computing allows users to access computing resources over the internet without owning physical hardware.’

Now, summarize the following article on blockchain technology in a similar style.”

3. Chain-of-Thought Prompting

The model is asked to reason step-by-step before producing the final summary.

Prompt:

“First identify the key concepts of blockchain technology, then explain them briefly, and finally produce a clear summary suitable for undergraduate students.”

4. Role-Based Prompting

The model is assigned a specific role.

Prompt:

“Act as a university professor explaining blockchain technology. Summarize the article in simple terms for undergraduate students.”

EVALUATION CRITERIA

Each platform and prompting technique was evaluated based on:

- **Accuracy** – Correctness of technical content
- **Coherence** – Logical flow and structure
- **Simplicity** – Ease of understanding for undergraduates
- **Speed** – Response time
- **User Experience** – Readability and overall usefulness

OBSERVATIONS (QUALITATIVE SUMMARY)

Zero-Shot Prompting

- Fastest response across all platforms
- Content often **too generic**
- Missed some key blockchain concepts

Few-Shot Prompting

- Improved clarity and structure
- Consistent tone across summaries
- Slightly slower than zero-shot

Chain-of-Thought Prompting

- Most detailed and accurate summaries
- Better logical organization
- Slightly verbose for undergraduate use

Role-Based Prompting

- Best balance between **simplicity and accuracy**
- Friendly and educational tone
- Highly suitable for learning platforms

COMPARATIVE EVALUATION TABLE

Platform	Prompt Type	Accuracy	Coherence	Simplicity	Speed	User Experience
ChatGPT	Zero-shot	Medium	Medium	Medium	Very High	Medium
ChatGPT	Role-based	High	High	High	High	Very High
Gemini	Few-shot	High	Medium	High	High	High
Claude	Chain-of-thought	Very High	Very High	Medium	Medium	High
Copilot	Zero-shot	Medium	Medium	Medium	Very High	Medium

KEY FINDINGS

- **Best overall combination:**
👉 ChatGPT + Role-Based Prompting
- **Most accurate summaries:**
👉 Claude + Chain-of-Thought Prompting
- **Fastest responses:**
👉 Copilot + Zero-Shot Prompting
- **Best for undergraduate learning:**
👉 Role-Based Prompting across platforms

DISCUSSION

- Prompt structure significantly affects summary quality.
- Chain-of-thought improves accuracy but may reduce simplicity.
- Role-based prompts produce learner-friendly content.
- Few-shot prompting ensures consistency in tone and format.
- Platform strengths vary:
 - ChatGPT excels in balance
 - Claude in reasoning
 - Gemini in clarity
 - Copilot in speed

RESULT

The experiment successfully demonstrated that **both prompting technique and AI platform** influence the quality of AI-generated summaries. Role-based and chain-of-thought prompting produced the most effective results for educational summarization tasks.

CONCLUSION

This study shows that **carefully designed prompts**, combined with the **right AI platform**, can generate high-quality summaries suitable for undergraduate learners. For educational content curation, **role-based prompting on ChatGPT** offers the best balance of accuracy, clarity, simplicity, and user experience. The experiment highlights the importance of **prompt engineering** in optimizing AI-powered text summarization for real-world applications.