Prompt Engineering
Structure

1. Delimiters – Separating Data Clearly

What are Delimiters?
Delimiters are **special symbols or characters used to separate different parts of a prompt**. They help AI clearly distinguish between instructions, data, and examples.

Common delimiters include:
- Triple quotes (""")
- <<<   >>>
- XML or JSON tags

Example Without Delimiters

Prompt:
Summarize the following text Explain how climate change affects agriculture Climate change is causing unpredictable rainfall and crop damage.

This prompt is confusing because **instructions and data are mixed.**

Example With Delimiters

Prompt:
Summarize the text below.

Text:
###
Climate change is causing unpredictable rainfall and crop damage.
###

Now AI clearly understands where the text starts and ends.
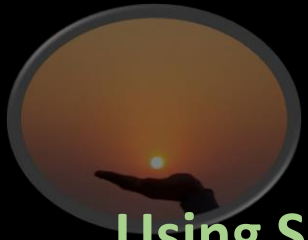
Using Triple Quotes

Prompt:
Summarize the text inside triple quotes.

"""

Artificial Intelligence is transforming healthcare through automation and predictive analytics. It is shaping the world in a way that is making positive difference in people lives.
"""

Here triple quotes separates instructions from text

Using Separator Lines

Prompt:
Analyze the data below and identify key trends.

Sales increased by 20% in Q1.
Sales dropped by 5% in Q2.
Sales remained same in Q3.

Using tags

Prompt:
Explain the following code

```python
a=2
b=3
print(a+b)
```

Why Delimiters are Important

Without delimiters, AI may get confused between:
- Instructions
- Input data

Using delimiters improves clarity, accuracy and parsing reliability

When to Use Delimiters

Delimiters are especially useful when:
- Working with long text inputs
- Handling structured data
- Passing code snippets
- Providing multiple examples
- Preventing instruction mixing

2. Format Constraint – Forcing Structured Output

What is Format Constraint?
Format Constraint is a prompting technique where we **force AI to provide output in a specific structure or format**.

Common formats include:
- JSON
- Markdown
- Tables
- Bullet Points
- XML
- Code Blocks

Example Without Format Constraint

Prompt:
I have uploaded a csv file. The file contains student data.
Provide student information for John, Age 20, Course AI.

AI might respond in random format.

Example With JSON Format Constraint

Prompt:
I have uploaded a csv file. The file contains student data.
Provide student information in JSON format.
Student Details:
Name: John
Age: 20
Course: AI

Expected Output From AI:
```
{
  "name": "John",
  "age": 20,
  "course": "AI"
}
```

Example With Markdown Format

Prompt:

Explain Machine Learning in markdown format using **headings and bullet points**.

Example Output:

Machine Learning

What is Machine Learning?
- Machine Learning (ML) is a branch of Artificial Intelligence (AI).
- It allows computers to learn patterns from data.
- ML models make predictions or decisions based on input data.

Why is Machine Learning Important?
- Helps automate complex decision-making.
- Used in real-world applications such as:
  - Recommendation systems (Netflix, Amazon)
  - Fraud detection in banking
  - Speech recognition (Alexa, Siri)

Example With Table Format

Prompt:
Provide comparison of Python and Java in table format.

Here is a **clear comparison between Python and Java** in table format:

Feature	Python	Java
Type of Language	Interpreted, High-level, Dynamically Typed	Compiled + Interpreted (Bytecode), Statically Typed
Syntax	Simple, readable, beginner-friendly	More verbose and structured
Learning Curve	Easy to learn	Moderate to difficult for beginners

Why Format Constraint is Important

Structured output helps:
- Integrate AI output into applications
- Automate workflows
- Make data machine-readable

When to Use Format Constraint

Use this technique when:
- Building APIs
- Exporting structured data
- Automating reports
- Developing AI applications
- Generating code

3: Persona Adoption – Maintaining Consistent Tone and Style

What is Persona Adoption?
Persona Adoption is a technique where we instruct AI to **maintain a consistent personality, tone, or communication style** throughout the response.

It focuses on **how AI communicates**, not just what it communicates.

Example Without Persona Adoption

Prompt:
Explain data science.

AI tone may be inconsistent or generic.

Example With Persona Adoption

Prompt:
You are a **friendly teacher** explaining concepts to high school students. Explain data science.

Now the tone becomes simpler and more approachable.

Different Persona Examples

- Professional Persona:

Act as a Senior Business Consultant.

- Friendly Persona:

Act as a supportive mentor.

- Technical Persona:

Act as an experienced software engineer.

- Motivational Persona:

Act as a career coach.

Why Persona Adoption is Important

Persona adoption helps:
- Maintain consistent tone
- Improve user experience and improve engagement
- Match audience expectations
- Create brand voice

When to Use Persona Adoption

- Creating chatbots, virtual assistants
- Providing customer support
- Writing educational content

Combining All Three Techniques
These techniques work best when combined.

Example Combined Prompt
You are a professional data analyst who explains concepts clearly and formally.

Analyze the dataset below.

###
Sales increased by 15% in January.
Sales decreased by 3% in February.
Sales decreased by 1% in March.
###

Provide output in JSON format with fields:
- Trend
- Insight
- Recommendation