

# PROMPT ENGINEERING

AI : It is the science and engineering of creating intelligent machines that can perform tasks which typically require human intelligence.

## Goals of AI :

- 1.Perceive the environment like see,hear,and sense the surroundings.
- 2.Reason and make Decisions.
- 3.Learn from past experience.

Realworld Examples : siri , Alexa , Gemini , etc...

Here AI is mainly categorised into 3 waves :

### 1.ML Model :

We can use ml models like supervised and unsupervised learning concepts.

Historical Data ———> Feature Engineering ———> ML model  
————> Output.

### 2.Generative AI :

We have to generate the input to AI.so it is called as generative AI.

Data input ----> Tokenisation & preprocessing ----> Neural network process ----> output.

### 3. Agentic AI :

It refers to AI systems that can actions proactively achieving goals. The AI can act as Think , plan and act on its own.

User input ----> Query Data Base ----> LLM Decision making ----> Action ----> continuous learning.

### Prompt :

To give text to AI and it generates output based on text.

### Prompting :

Giving directions to AI the action of creating and giving that sentence.

There are mainly four types of prompting become a good prompt.

1. Be clear about you want.
2. Explain the context or background.
3. Set boundaries.
4. Tell them the role.

Mainly prompting techniques are of two types :

**Unimodal prompting**

**Multimodal prompting**

## Unimodel prompting

Single type (only text)

Limited to one form of input

Text based tasks (writing)

## Multimodel prompting

Multi type (text + image)

Richer context from combined inputs

Complex tasks (image analysis)

## Large Language model (LLM) :

It is a type of AI that has been trained on huge amounts of text so it can understand and generate human like responses.

Ex : Chatgpt(open AI)

Gemini(google)

## LLM Settings :

- 1.Model : Like chatgpt , gemini , meta AI.
- 2.Temperature : If the temperature is maximum the answers will generate more accuracy. If minimum it will generates past answers again and again.
3. Maximum Length : How long they can talk.
- 4.Stop sequence : Tells the model to stop generating when it sees a specific word or symbol.
- 5.Top p : Whether they stick to safe words or mix in unusual ones.
6. Frequency penalty : It reduces the same words in the prompt.
7. Presence penalty : The model bring up new topics instead of sticking to the same ideas.
- 8.Output : It gives output in Json.

## Prompting Techniques :

Zero shot :

It gives only instruction to the AI without any examples.

One shot :

We have to give one example before the task.

Few shot :

You give a few examples before the actual task.

## Neural Network :

A neural network is a type of computer program inspired by the way the human brain works.

It's made up of layers of tiny units called neurons, which process information and pass it to each other.

We know about Neural networks you will gain about how chatgpt works.

**Neurons:** Small processing units.

**Layers:** Neurons are arranged in layers: