

Experiment No. : 2

Title: Implementation of Advanced Prompting Techniques using Chain-of-Thought and Few-Shot Learning.

Objectives:

1. To study advanced prompting techniques in Large Language Models (LLMs).
2. To implement Chain-of-Thought prompting for reasoning-based tasks.
3. To implement Few-Shot learning for classification problems.

Key Concepts: Chain-of-Thought, Few-Shot Learning.

Theory:

Large Language Models (LLMs)

Large Language Models are AI models trained on large text datasets to understand and generate natural language responses.

Chain-of-Thought Prompting

Chain-of-Thought prompting encourages the model to generate intermediate reasoning steps before producing the final answer. This improves performance on:

- Mathematical problems
- Logical reasoning
- Multi-step decision-making

Few-Shot Learning

Few-shot learning provides the model with a small number of examples before the actual task, enabling it to learn patterns without retraining.

Algorithm

1. Install required Python libraries.
2. Configure the OpenAI API key securely.
3. Initialize the GPT-4o-mini client.
4. Implement Chain-of-Thought prompting.
5. Implement Few-Shot learning.
6. Observe and analyze outputs.