PROBLEM STATEMENT 04:



Introduction to GenAl and Simple LLM Inference on CPU and fine-tuning of LLM Model to create a Custom Chatbot

Category: Artificial Intelligence, Machine Learning, LLM, NLP

Participants: 1st-4th Semester Students

Prerequisites: • Understanding of Machine Learning Concepts

Programming Skills (Python, NLP Libraries, like: Hugging Face, Transformers)

 Experience with Natural Language Processing (NLP) and Text-based AI Models (e.g., Language Models, Chatbots)

Description:

This problem statement is designed to introduce beginners to the exciting field of Generative Artificial Intelligence (GenAI) through a series of hands-on exercises. Participants will learn the basics of GenAI, perform simple Large Language Model (LLM) inference on a CPU, and explore the process of fine-tuning an LLM model to create a custom Chatbots.

Major Challenges:

- 1. Pre-trained Language Models can have large file sizes, which may require significant storage space and memory to load and run.
- 2. Learn LLM inference on CPU.
- 3. Understanding the concept of fine-tuning and its importance in customizing LLMs.
- 4. Create a Custom Chatbot with fine-tuned pre-trained Large Language Models (LLMs) using Intel Al Tools.

Outcomes:

- 1. Participants will gain a foundational understanding of Generative AI and its applications.
- 2. Participants will be able to perform simple LLM inference on a CPU and understand the process of fine-tuning LLMs for custom applications.
- 3. Participants will have to create a 5-page report on Problem, Technical Approach and Results.

Note: This problem statement is designed for beginners with an interest in GenAl and LLMs, providing a solid foundation for further exploration and experimentation in the field of Artificial Intelligence.