PROBLEM STATEMENT 04:

Introduction to GenAI 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 AI 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 GenAI and LLMs, providing a solid foundation for further exploration and experimentation in the field of Artificial Intelligence.