LLM Assignment

This section of the assignment focuses on Large Language Models (LLMs). You are expected to answer the following questions and provide insights based on your understanding.

# LLM Questions

**1. What is a Large Language Model (LLM)?**

* *Explain what an LLM is, and how it works in simple terms.*

**2. How do LLMs like GPT work?**

* *Describe the basic structure of a model like GPT. What is the role of training data, and how does the model generate text?*

**3. What are the advantages of using LLMs in real-world applications?**

* *Discuss the benefits of LLMs in applications such as customer service, content generation, and chatbots.*

**4. What are some common challenges or limitations of LLMs?**

* *List and explain any challenges associated with LLMs, such as biases, computational costs, or data privacy concerns.*

**5. What is Fine-tuning in LLMs?**

* *Explain what fine-tuning is in the context of LLMs and provide an example of how it can be applied.*

**6. What is the difference between training and inference in LLMs?**

* *Describe the difference between training and inference phases when working with an LLM.*

**7. How do LLMs handle long sequences of text or context?**

* *Explain how LLMs manage long inputs or multiple paragraphs of text during processing.*

**8. Give an example of a task where LLMs might fail or produce incorrect results.**

* *Describe a scenario where an LLM might not perform well or generate erroneous information.*

**9. What role do attention mechanisms play in LLMs?**

* *Describe the function of attention mechanisms and how they help LLMs understand context and relationships between words.*

**10. Explain how LLMs can be used for sentiment analysis.**

* *Discuss how LLMs can be trained or fine-tuned for tasks like sentiment analysis, and provide an example.*

**11. What is zero-shot learning in the context of LLMs?**

* *Explain the concept of zero-shot learning and how LLMs like GPT can perform tasks without being specifically trained on them.*

**12. What are some ethical considerations when using LLMs?**

* *Discuss ethical concerns such as biases, misinformation, and the potential misuse of LLMs.*