**Few-Shot Prompting in Large Language Models**

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1. **Overview**

Few-shot prompting is a method in prompt engineering used to improve the performance of Large Language Models (LLMs) by providing a few input-output examples (called *demonstrations*) before asking the model to perform a task. This technique enables **in-context learning**, where the model identifies the pattern from examples and applies it to generate new responses.

1. **What is Few-Shot Prompting?**

* **Few-shot prompting** provides multiple task demonstrations to the model before a new query.
* It helps the model identify the correct response format and content by learning from patterns in the given examples.
* Acts as a guide without requiring explicit training or weight updates.

1. **Example: Using a New Word in Context**

**A screenshot of a computer screen

AI-generated content may be incorrect.**

1. **Example: Sentiment Classification with Random Labels**

**A screenshot of a computer screen

AI-generated content may be incorrect.**

1. **Example: Inconsistent Format Still Works**

**A screenshot of a computer

AI-generated content may be incorrect.**

1. **Limitations of Few-Shot Prompting**

**Few-shot prompting struggles with tasks requiring multi-step reasoning or arithmetic.**

1. **Summary Points**

* **Few-shot prompting** is effective for improving model performance with a few examples.
* **Demonstration quality and structure** are critical — labels may be incorrect, but format matters.
* **Modern LLMs can often infer correct answers even with random or inconsistent prompts.**
* **Few-shot prompting struggles** with multi-step logical and mathematical reasoning.
* When few-shot fails, consider using **Chain-of-Thought prompting or fine-tuning**.