Summary of the Assignment:

Classification:

- Finetuned Llama3.2 model of 1.2 Billion parameters for classification task on SST-2 dataset.

- Achieved accuracy of 13% for zero shot classification and 95% for finetuned model after training for 2 epochs.

- Accuracy score for finetuned model is more than zero shot classification on Llama model, because:
    - in zero shot classification, it relies on its pre-trained knowledge and general understanding of tasks.
    - during fine-tuning, the model learns directly from task-relevant labeled data, aligning its representations more closely to the specific requirements of the classification task.

- In pretraining the **entire model** is trained, which includes all its parameters (1.2 billion in our case).

- Unlike pretraining, we have used LoRA (Low-Rank Adaptation) adaptor to train on few parameters (5.6 million) instead of all (1.2 billion) parameters since the approach significantly reduces memory requirements and computational overhead, making it feasible to fine-tune LLMs on smaller hardware setups while retaining comparable performance.

Question-Answering task:

- Achieved accuracy of 13% for zero shot classification and for 95% for finetuned model after training for 2 epochs.
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