Fine tuning

1. full tuning and PEFT(Parameter efficient fine tuning) with prompt instructions – modify the weight of the model for ad hoc dataset and task
2. evaluate library- rouge, transformer, Trainer, Generation Config
3. Instruction fine tuning of flan t5 model with our specific dataset, particularly the summarization task and later use ROUGE metric to compare the original model and the instruction fine-tuned model.
4. Model size close to 1 GB
5. Finetuning 125 prompts (zero shot learning). 80% train 5% validation 15% test
6. Rouge comparison flan-t5 vs instruction fine tuned flan-t5  
    on an average (Rouge1, Rouge2 ... RougeL) shows 11% improvement.
7. PEFT- used when memory constraints.
8. Here rank used=32
9. Full fine tuning we fine tune all trainable parameters (ie. 250 million), whereas in PEFT we fine-tune only 1.4 % of trainable parameters. Highly efficient!  
   (model size trainable using PEFT – 14 MB)
10. Used PEDT library.
11. Interesting advantage  
    we can use the same base LLM and used different PEFT adapters which are task specific.
12. Considering a large dataset for fine tuning, PEFT just drops performance by around 1.5 percent compared to the full fine tuning(LORA), which seems efficient- preserving memory footprint