LLM Take-home assignment round

Programmatically solve for these questions. Try to answer as many questions as possible. Try to complete in 48 hours. Some of these may require exploration, so do try.

1. Use a pre-trained google/flan-t5-small as the model.
2. Verify if the summarization task works.
3. Verify if the Q&A task works.
4. Verify if English to French translation task works.

5. Programmatically print the names of all the model layers and their dimensions.
6. Programmatically print the total number of parameters/weights in this model.
7. Set the tensor in final layer (decoder.final_layer_norm.weight) to all zeros.
8. Verify if the Q&A task works after resetting the weights of the above layer.
9. Replace the decoder.final_layer_norm.weight with a layer of smaller dimensions and adjust all the dependent layers to match the dimension

10. Reload the original google/flan-t5-small model.
11. Train the model for a Q&A task that takes a context as additional input along with the question. You can use SQuAD dataset (https://rajpurkar.github.io/SQuAD-explorer/) or the smaller Topioca dataset (https://mcgill-nlp.github.io/topiocqa/) . Choose an appropriate task prefix/trigger word and justify the choice.
12. Evaluate the quality of the model

    Next discussion will be around the solution and getting deeper into certain algorithms