

Autonomous Agents
Course Project Report
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Problem - Topic

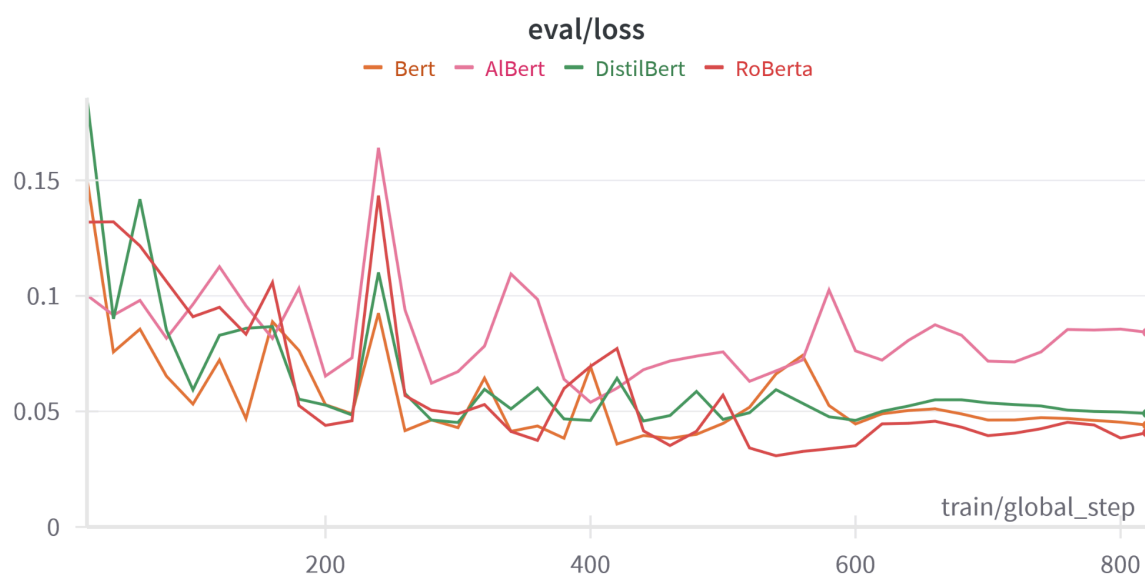
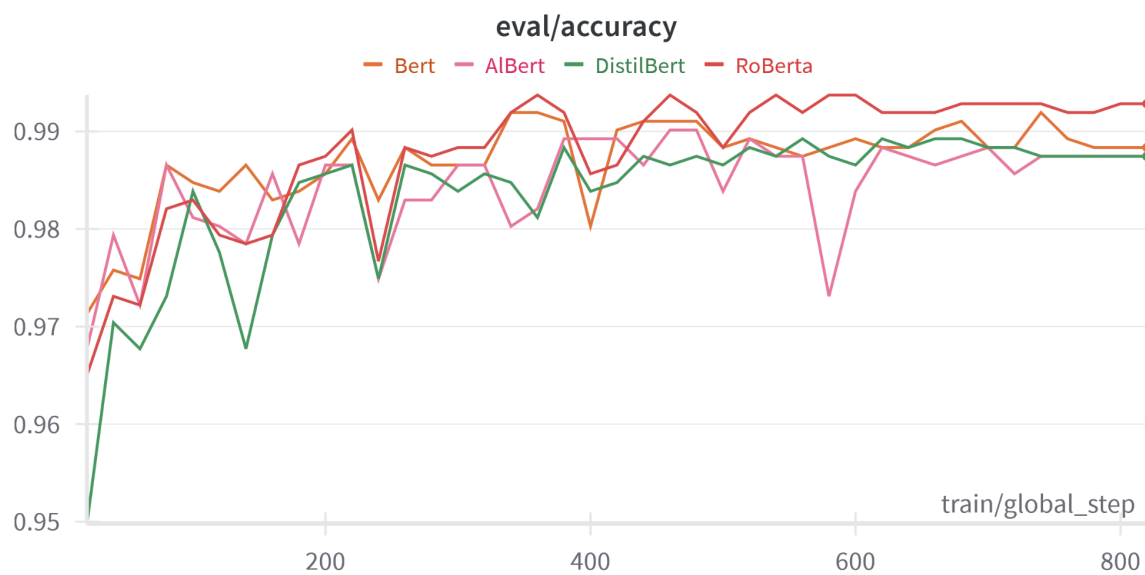
The objective of this project was to develop an SMS spam detector using Large Language Models (LLMs) and subsequently conducting a comparison of these models. The models utilized were Bert, RoBert, DistilBert, and AlBert. The dataset employed can be found [here](#). Additionally, Hugging Face served as the primary framework for the implementation of this project. The programming language was Python.

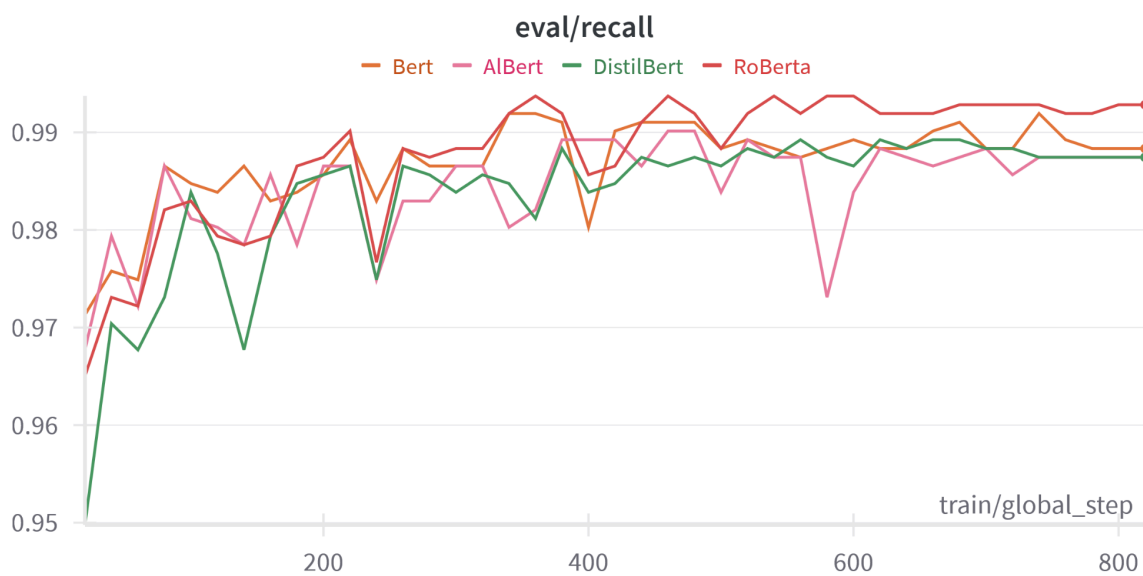
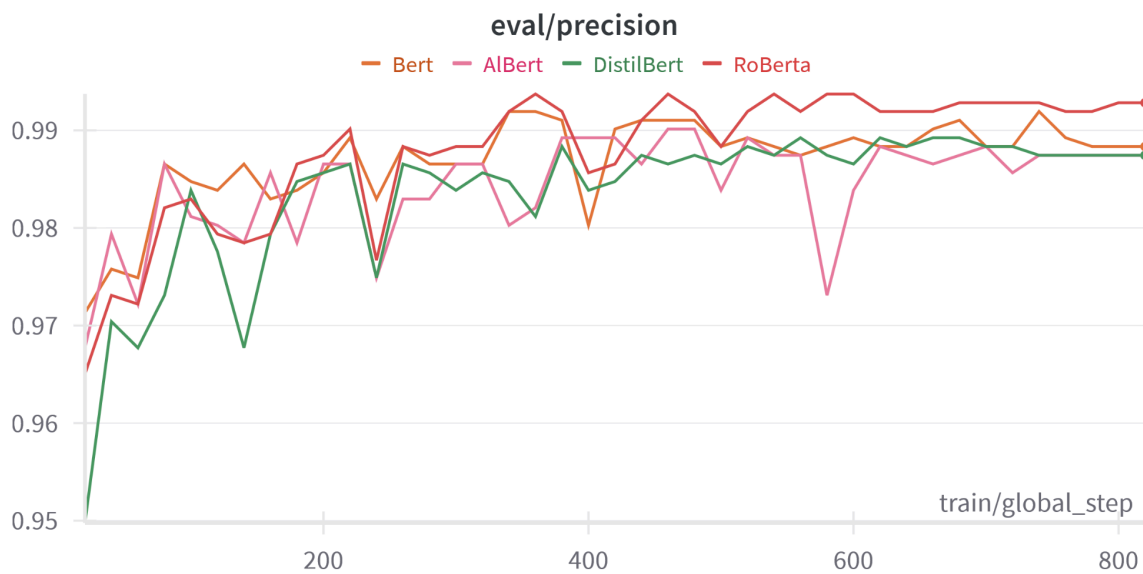
Approach - Solution

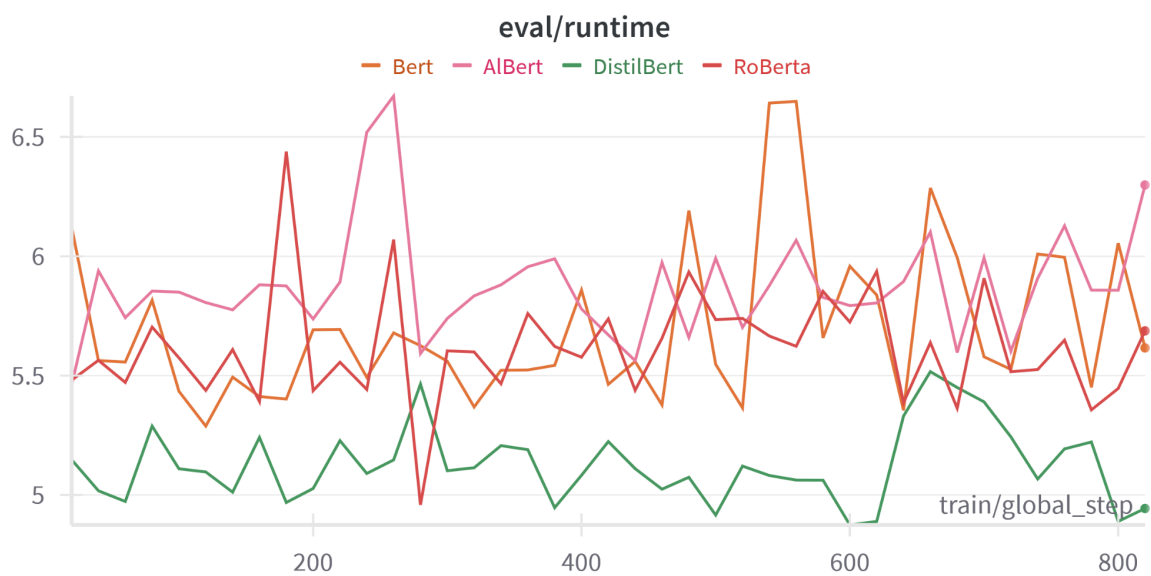
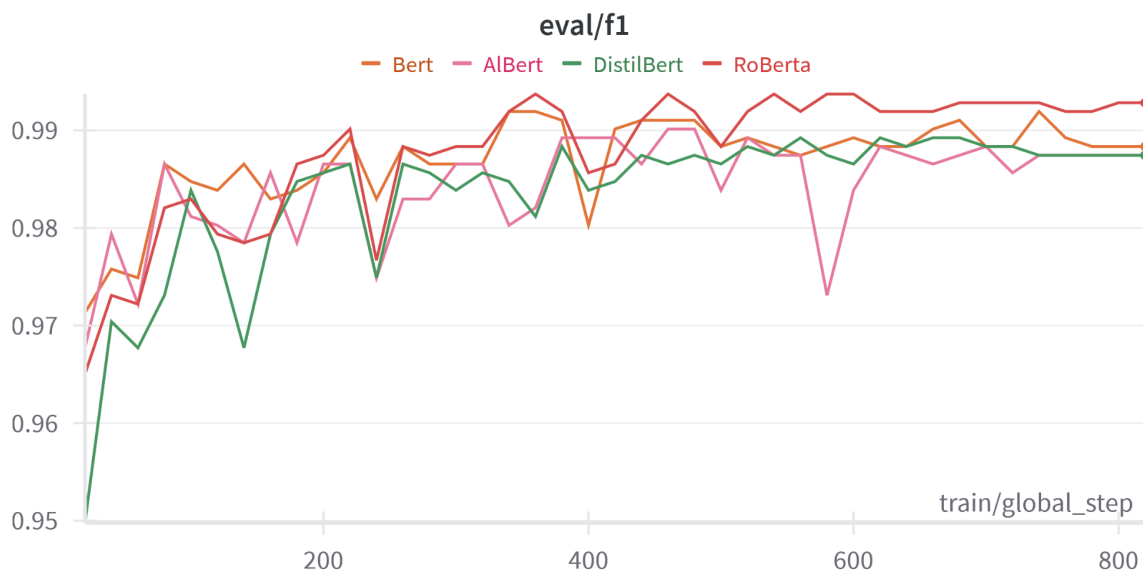
Two modules were used called, `data_module.py` and `trainer_module.py`. The first module, is used to load, reformat and clean the dataset from special characters or links that might confuse the model. The second module is used to load the models, train them and compute the needed metrics. The main metrics used are precision, recall, f1, accuracy. Weights & Biases (WandB) was used track and visualize various aspects of their model training process in real-time. Below are main training parameters used

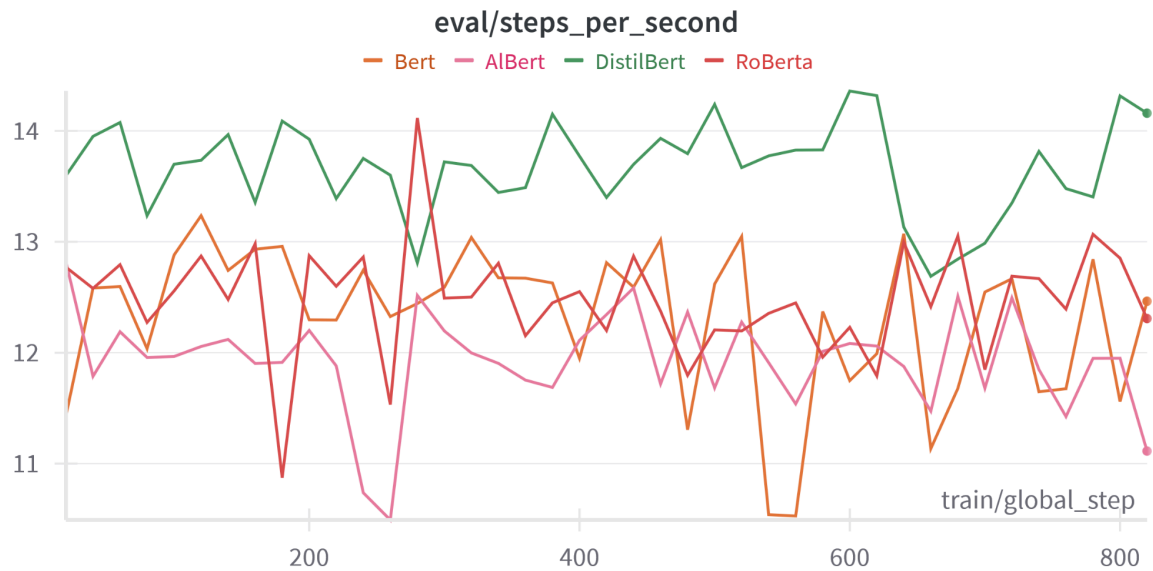
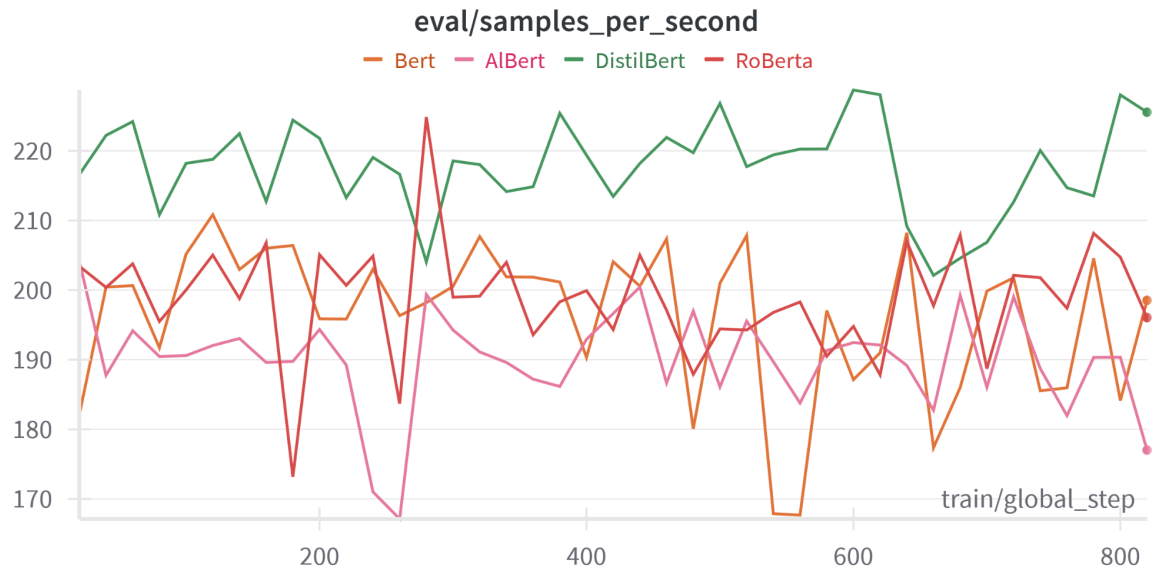
1. `per_device_train_batch_size=16`
2. `per_device_eval_batch_size=16`
3. `num_train_epochs=3`
4. `weight_decay=0.01`
5. `eval_steps=20`
6. `save_steps = 800`
7. `learning_rate = 2e-5`

Results - Demonstration









Overall, the results indicate that the best model for the task is RoBERTa. Although, the differences between the models tend to be really small. The fastest model seems to be DistilBert.

The specifications of the PC that was used to run the project are:

1. Intel(R) Core(TM) i7-8700K CPU @ 3.70GHz
2. NVIDIA GeForce RTX 3080 Ti
3. 32GB RAM