Sentiment App

Project Overview:

This project helps to predict sentiment of a given English text.The returned responses are “positive” or “negative”
Specifications:

- Model Used : BERT For Sequence Classification
- Cloud Support : Hosted on G-Cloud : https://foundry-6nmnvycfcq-uc.a.run.app/docs#/
- Swagger Documentation : Enabled
- Manual Training : Enabled
- Dockeriation : Fully Dockerized

Test Video For the API : video link

Machine Learning Module:

S.No	Model	F1 Score (weighted)
1	Bert + GRU	0.91452
2	BERT	0.92785
3	RNN	0.84964
4	Bert (With Scheduler) **Final Architecture	0.94205

The Final Model Experimentation can be accessed at : Notebook

I tried two architectures for the task .

- BERT
- RNN

The architecture of Bert + GRU was supposed to be the best performing model for this task : ref ,but the architecture didn't perform that well (probably because of overfitting).
The RNN architecture was inspired from reading the document on fine tuning with a linear scheduler the F1 score was around 0.84
The architecture is Bert Transformer that is imported from the transformers library with a F1 score of 0.94.

Various experimentation was done with the final architecture the details are as followed:

- The model was trained without a scheduler : Result -> Decreased F1 score
- The model was trained for 20 epochs : Result -> Decreased F1 score (overfitting)
- The model was trained for 5 epochs with scheduler : Result -> Best Performing Model

Model Training :

Custom training of the moel can be done easily using the train.py script , to use :
In a CMD console type:

```
python train.py
```

Note : The inference time on the cloud is a bit high because of using only on demand cpu such cpu’s comes online only when the request hence takes time loading up.