

Configuration Manual

MSc Research Project
MSc Artificial Intelligence for Business

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MSc Project Submission Sheet
School of Computing



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Programme: MSc Artificial Intelligence of Business **Year:** 2023

Module:

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Project Title: Deep Learning Strategies for Next-Gen Sentiment Analysis with Green AI Practices

Word Count: **Page Count:**

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.

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Date:

16/09/2024

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1 Device Specification

This manual provides detailed information on the configurations used in our project, including specifications of the development device, the libraries and their versions, and the configuration details for running the project on the Google Colab platform. These details are essential to ensure that the project environment can be accurately replicated for consistency and reproducibility. The following sections present the hardware and software specifications of the primary development device used, offering crucial insight into the computational environment in which the project was developed.

Device Specifications

- Device Name: MarianaFerreira
- Processor: 12th Gen Intel(R) Core(TM) i7-1255U, 1.70 GHz
- Installed RAM: 16.0 GB (15.7 GB usable)
- Device ID: 55FD5830-184B-4B92-BB14-1CAFA500435E
- Product ID: 00342-22089-90781-AAOEM
- System Type: 64-bit operating system, x64-based processor
- Pen and Touch: No pen or touch input available for this display

Windows Specifications

- Edition: Windows 11 Home
- Version: 23H2
- Installed On: 06/08/2023
- OS Build: 22631.3880
- Experience: Windows Feature Experience Pack 1000.22700.1020.0

2 Google Colab Platform

This section outlines the configuration and setup used on the Google Colab platform to run the project. Google Colab provides a cloud-based environment, allowing for easy setup and execution of Python projects, making it a valuable tool for development and evaluation. The project utilized Google Colab's PRO upgraded T4 GPU during preprocessing and transitioned to a T4 High RAM environment for the RoBERTa model.

3 Python – Libraries Version

This section lists the Python libraries used in the project along with their respective versions. Knowing the exact versions is crucial for ensuring compatibility and reproducibility of project results. The libraries used include:

- Transformers
- Scipy
- Datasets
- Pandas
- Numpy
- Matplotlib
- Seaborn
- nltk
- Tqdm
- Sklearn
- Torch

The following table provides a summary of the libraries, and their versions used in sentiment analysis.

	Package	Version	Location \
0	transformers	4.42.4	/usr/local/lib/python3.10/dist-packages
1	scipy	1.13.1	/usr/local/lib/python3.10/dist-packages
2	datasets	Not installed	N/A
3	pandas	2.1.4	/usr/local/lib/python3.10/dist-packages
4	numpy	1.26.4	/usr/local/lib/python3.10/dist-packages
5	matplotlib	3.7.1	/usr/local/lib/python3.10/dist-packages
6	seaborn	0.13.1	/usr/local/lib/python3.10/dist-packages
7	nltk	3.8.1	/usr/local/lib/python3.10/dist-packages
8	tqdm	4.66.4	/usr/local/lib/python3.10/dist-packages
9	sklearn	Not installed	N/A
10	torch	2.3.1+cu121	/usr/local/lib/python3.10/dist-packages
	Author	License	
0	Unknown	Unknown	
1	Unknown	Unknown	
2	N/A	N/A	
3	Unknown	Unknown	
4	Unknown	Unknown	
5	Unknown	Unknown	
6	Unknown	Unknown	
7	NLTK Team	Apache License, Version 2.0	
8	Unknown	Unknown	
9	N/A	N/A	
10	Unknown	Unknown	

Figure 1: Libraries and Versions

References

- Naseem, U., Razzak, I., Musial, K., & Imran, M. (2020). Transformer-based deep intelligent contextual embedding for Twitter sentiment analysis. *Future Generation Computer Systems*, 113, 58-69.
- Pouransari, H., & Ghili, S. (2014). Deep learning for sentiment analysis of movie reviews. *CS224N Project*, 1-8.
- Wu, J., & Ji, T. (2016). Deep learning for Amazon food review sentiment analysis.

Sanh, V., Debut, L., Chaumond, J., & Wolf, T. (2019). DistilBERT, a distilled version of BERT: smaller, faster, cheaper, and lighter. *arXiv preprint arXiv:1910.01108*.