## **Dependencies & Environment**

This project requires the following software and packages:

## **Python Version:**

• Python 3.8 or later

## **Core Dependencies:**

- pandas  $\geq$  1.1.0
- numpy >= 1.19.0
- matplotlib  $\geq$  3.3.0
- seaborn  $\geq = 0.11.0$
- nltk >= 3.5
- scikit-learn  $\geq 0.24.0$
- xgboost >= 1.3.0
- transformers >= 4.0.0
- datasets  $\geq$  1.0.0
- torch >= 1.7.0
- sentence-transformers  $\geq$  2.0.0

## **Optional:**

- Google Colab or Jupyter Notebook for execution
- GPU (e.g., Colab GPU or CUDA-compatible hardware) recommended for BERT training