

### **Core Dependencies**

1. Python ( $\geq 3.8$ ) – Ensure compatibility with modern libraries.
2. NumPy ( $\geq 1.21$ ) – Efficient numerical operations.
3. Pandas ( $\geq 1.3$ ) – Data manipulation.
4. Scikit-learn ( $\geq 1.0$ ) – Machine learning models (SVM, GridSearchCV).
5. NLTK ( $\geq 3.6$ ) – Lemmatization and stemming.
6. Sentence-Transformers ( $\geq 2.2$ ) – SBERT embeddings.
7. VADER-Sentiment (Included in NLTK) – Sentiment analysis.
8. Matplotlib / Seaborn (Optional, for visualization).