Software Tools and Libraries Used

This project utilized several open-source libraries, frameworks, and services for natural language processing, plagiarism detection, and web application development. The following table summarizes the key tools and their purposes:

Tool / Library	Purpose	Link
Python 3.x	Programming language for backend, text processing, and AI.	https://www.python.org/downloads/release/python-3100/
Flask	Lightweight web framework for building REST APIs and web apps.	https://flask.palletsprojects.com/
NLTK	Natural Language Toolkit for preprocessing text data.	https://www.nltk.org/
sentence-transformers	Pre-trained models for semantic similarity and sentence embeddings.	https://www.sbert.net/
PyPDF2	Library to extract text from PDF files.	https://pypi.org/project/PyPDF2/
python-docx	Library to extract text from DOCX files.	https://pypi.org/project/python-docx/
Requests	Python library to perform HTTP requests for Google Search API.	https://docs.python-requests.org/
scikit-learn	Machine learning library for similarity metrics like cosine similarity.	https://scikit-learn.org/
textdistance	Library to calculate various text similarity metrics like Levenshtein distance.	https://pypi.org/project/textdistance/
spaCy	Industrial-strength NLP toolkit used for dependency parsing (subject/object extraction).	https://spacy.io/
Postman	API development and testing platform for testing backend routes.	https://www.postman.com/
Visual Studio Code	Source code editor for Python, Flask, and HTML/CSS.	https://code.visualstudio.com/