### ****Final Report - Wordcount Tools in Java****

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### ****1. Abstract****

The Wordcount Tools in Java project focuses on creating a tool to count the number of lines, words, and characters in .txt, .docx, and .pdf files. The application is built using Java and utilizes Apache POI for .docx files, PDFBox for .pdf files, Swing for the graphical user interface (GUI) and utilized Gen AI for writing code and final submission report and Readme file compilation. This tool allows users to select a file, view word statistics, and save the results in a text file.

### ****2. Background****

In fields like writing, content analysis, and research, it is often essential to calculate the word count, line count, and character count of documents. This project was developed to provide a simple, user-friendly tool to analyze such statistics for common file types, including .txt, .docx, and .pdf.

### ****3. Problem Statement / Related Research / Related Work****

There are several tools available that can count words and characters in .txt files, but fewer tools are available for .docx or .pdf formats. This project solves that problem by creating a versatile word-counting tool that can handle these common document formats, saving users time in manual text analysis tasks.

### ****4. Research Questions (If any)****

* How can we create a tool that counts words in multiple file formats (.txt, .docx, .pdf)?
* How can we provide a GUI for non-technical users to use this tool easily?

### ****5. Aim and Objectives****

**Aim:**

* To develop a Java-based word-counting tool that supports .txt, .docx, and .pdf formats.

**Objectives:**

* + Implement functionality to read and parse .txt, .docx, and .pdf files.
  + Count the number of lines, words, and characters in the selected files.
  + Display results in a user-friendly GUI and save them to a text file.

### ****6. Significance of the Study****

This project contributes to simplifying document analysis for various users such as writers, students, and researchers by automating the word-count process across multiple file formats. It is especially useful for those who work with .docx and .pdf documents, which are not always supported by standard word-counting tools.

### ****7. Scope of the Study****

**This project focuses on:**

* Counting words, lines, and characters in .txt, .docx, and .pdf files.
* Providing a simple GUI interface using Java Swing.
* Saving the results in an output text file.

### ****8. Research Methodology****

The project was developed using Java with the following libraries:

* **Apache POI:** For reading .docx files.
* **PDFBox:** For reading .pdf files.
* **Swing:** For GUI components like file chooser dialogs and pop-up messages.

The development process involved creating a file-reading function, followed by the implementation of word-count logic and GUI integration.

### ****9. Required Resources****

* **Software:** Java JDK 17 or later, Apache POI (5.2.3), PDFBox (2.0.27), IntelliJ IDEA (for development), Maven (for dependency management).
* **Hardware:** Any standard PC or Mac with the capability to run Java applications.

### ****10. Research Plan****

* **Week 1:** Research and selection of libraries for reading .docx and .pdf files.
* **Week 2:** Implementing the file-reading functionality and word-count logic.
* **Week 3:** Developing the GUI interface and integrating the word-count feature.
* **Week 4:** Testing, debugging, and final adjustments.

### ****11. References****

* **Apache POI:** <https://poi.apache.org/>
* **PDFBox:** <https://pdfbox.apache.org/>
* **Java Swing Documentation:** <https://docs.oracle.com/javase/tutorial/uiswing/>