Phase C – Implementation
Team – 22

Application Name: Plagiarism Detector
Source Code Language: Java
Application UI: Java Swing
Testing: JUnit
Target Language: Java

Assumptions:

- This application works only with file/directories containing '.java' files
- The plagiarism threshold used is 55%.

Features implemented:

- Choose file/directory path to be compared
- Compare the two inputs provided for plagiarism
- Save the uploaded files/directories for later use (Files will be saved in 'phaseC/Saved_Files')
- Choose files/directories from the saved folder to compare with new files
- Validation for the type of input provided (accepts only non-empty '.java' files)
- Display plagiarism result and save plagiarism report (Report can be saved at a location of your choice)

High Level Algorithm:

- Parse the file inputs to generate AST using Eclipse JDT parser
- Compare the two ASTs using the algorithms (Edit Distance, Hashing) and use greater of the two code similarity percentages generated by the algorithm
- Compare the comments in two ASTs separately with Longest Common Subsequence and generate a comment similarity percentage
- Return a report object containing code similarity percentage, comment similarity percentage and plagiarism conclusion text, to be used in the UI

Installation Instructions:

1. **To run the JAR file of the application**
    - Navigate to the folder on your system you want to clone the application to
    - Run the command 'git clone https://github.ccs.neu.edu/cs5500/team-22.git'
    - Navigate to the 'phaseC' folder
    - Double click on the file 'PlagiarismDetector.jar'

- If you are on a Linux machine, right click on the jar and open with Jar Launcher

2. **To run the application from an IDE**
    - Navigate to the folder on your system you want to clone the application to
    - Run the command 'git clone https://github.ccs.neu.edu/cs5500/team-22.git'
    - Open the 'phaseC /PlagiarismDetector' folder in the cloned repository with your IDE, as a Java Project
    - You will need to add some jar files for the JDT parser and Java Swing classes to run
    - You can find all the above required jar files in the folder 'phaseC/jars'
    - In the build path of this project, add all the jars from the folder 'phaseC/jars'
    - You will also have to add the JUnit libraries according to your IDE.
    - Now, in the IDE navigate to package 'phaseC/PlagiarismDetector/src/plagiarismdetectorui' and run the file 'PlagiarismDetectorUI.java'

Tests:

Back-End Tests: package 'phaseC/PlagiarismDetector/src/tests'
To run all the tests run 'AllTests.java'.

Front-End Test: package 'phaseC/PlagiarismDetector/src/guitests'
Note: After speaking to professor, he mentioned that we do not need to have tests for the Java Swing UI. However, we do have some test cases for testing validations in the UI.

Points to consider:

- This application does not work for inputs having size greater than 512KB.
- Comparisons between files that vary in code length considerably will result in high code similarity values.
- Similarity of comments is calculated only for line ("//") and block comment ("/* */"). The code does not work for Java Docs ("/** **/").