**Tool application report for CS 5103 Course Project: Software Engineering Practice: word statistics project**

**(spring 2023)**

The programming language used is python3 in vscode editor environment. So, I have used “pylint” tool for both code clone detection and static bug detection.

Below are the steps to invoke pylint in vscode.

Pylint is available as extension in vscode. Install it from there . after installation follow below steps :

1. Press Ctrl+Shift+P (or Cmd+Shift+P on a Mac) to open the VSCode command palette.
2. Type "Python: Select Linter" in the search box and select the option that appears.
3. Choose "pylint" from the list of linters that appears.
4. Press Ctrl+Shift+P (or Cmd+Shift+P on a Mac) to open the VSCode command palette again.
5. Type "Python: Run Linting" in the search box and select the option that appears.
6. Wait for pylint to analyze the code. Any clone detection warnings or errors will appear in the VSCode "Problems" panel.

The code doesn’t have any clone code so no specific results for that part, however the code has a few indentation problems , warnings etc which is reported by the pylint in problems panel also it is visible when you place the cursor on any part of code with colors in errors. Below are few examples of the said problems reported in the results of this automation tool.

**Unnecessary semicolon report :**

A screenshot of a computer

Description automatically generated

**Word “Hey” is typed in the code and is a bug , it’s been reported as an error :**

A screenshot of a computer

Description automatically generated with medium confidence

And the results of the code base is as follows:

Graphical user interface, text

Description automatically generated

Graphical user interface, text

Description automatically generated

Text

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated

Also a screenshot of the inline comments/problems popping up when the cursor is placed over the problem part of the code

A screenshot of a computer

Description automatically generated with medium confidence

The trailing spaces message is popped up in screenshot .

Experience of using the automated tool:

The automated tools are actually quite flexible , easy to use and learn. Self explanatory sometimes for an experienced programmer. They provide a fast pace of development as a developer could see the errors and warnings etc stuff right at the same time when coding before compiling or running the code, Which is a good time saving component. These kind of tools come handy when the project is quite big with thousands of lines of code and in extreme programing environments. Where a developer could identify the problems quickly without testing sometimes.

Overall it is satisfying to use the automated tools.