Concordia University

Problem 4

SOEN 6011 - Software Engineering Process

ETERNITY: FUNCTION (σ)

Pragya Tomar

Student ID : 40197757

Repository Address:
https://github.com/pragya231/SOEN6011

Contents

1 Debugger

1.1 Description

Debugging is a method to detect various errors in the source code and removing all the errors from the software code that is causing problem in the implementation of the code. Eclipse debugger gives us the various potential functions to help in running the code step by step while debugging the code. The source code can be debugged by just right clicking on the Java editor class file from Package explorer.
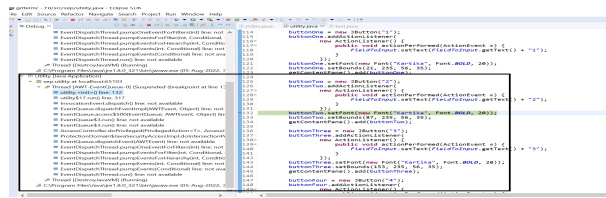

Figure 1: Debugger snapshot

1.2 Advantages

- There is an option of event based breakpoints.

- We can modify the program by using debugger to make it more efficient and make it free from errors.

- The variables value can be changed at any time while debugging the code.

1.3 Disadvantages

- It is a difficult task to debug real time programs as it is involving huge lines of code.

- Debugging can be time taking as it is testing each line of code.

2 Quality Attributes for the source code

2.1 Correctness

Here the results are correct and more accurate as the values are precise. The source code for the function is tested with all the possible values.

2.2 Maintainablity

The program is split into several functions which make it more easier to maintain the source code. In addition to this, necessary comments have been addded to make it more maintainable.

2.3 Robustness

The program is handling various errors and exceptions which can occur while users are entering inputs and taking out results.

2.4 Time-efficient

Suitable breakpoints have been chosen for debugging the code which results in time-efficiency.

2.5 Usability

The program is user-friendly as we have used the "Graphical user-interface" for taking inputs from the user.

3 Checkstyle

3.1 Description

Checkstyle is a tool that automatically checks the Java source code against a configurable set of rules. It helps the programmers to write Java code that sticks and follows a coding standard.
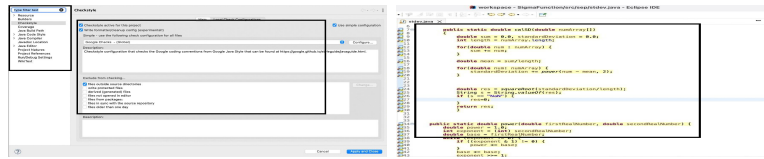

Figure 2: Checkstyle Activation and Application

3.2 Advantages

- Checkstyle can check many things in the Java source code. From checking the code layout to the code formatting, it is handling everything.

- It has ability to create own rules for handling Java source code. Also, it can support any coding standard.

- Checkstyle is portable as it is easy to switch between different IDEs. In addition to this, it can find class design problems and method design problems.

3.3 Disadvantages

- It does not support any auto correct features to check any invalid coding standards.

- All the identifiers and keywords should be written in ASCII format only.

- Checkstyle tool is used only to check the format of the code and not the correctness of the code.

Bibliography

[1] Debugger
https://www.techtarget.com/searchsoftwarequality/definition/debugging

[2] Checkstyle
https://checkstyle.sourceforge.io/