EAGER TEST SMELL DETECTION

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Introduction

Test smells are defined as poorly designed tests and their presence may negatively affect the quality of test suites and production code. Test smells are the subject of active discussions among practitioners and researchers, and various guidelines to handle smells are constantly offered for smell prevention, smell detection, and smell correction. Eager test smell is one of the smells found while writing test cases. This project is about detecting eager test smell.

Eager Test Smell

This smell represents a test method that exercises more methods of the object under test, thus being not cohesive and harder to read and understand. Furthermore, it makes tests more dependent on each other and harder to maintain.

Eager Smell Detection

To check whether there is eager smell or not in a project, the following steps are maintained:

- Separating Test files and production files
- Finding valid test methods from the test files
- Checking if the method is testing two or more of the production methods. There can be many cases like multiple method call in multiple assertion, multiple method call in same assertion etc.
- Method call can be done in various way like direct method call from the object, store result in a variable scope or Static method call and so on. So every case checking is obvious.
- If the value of eager count (represents the total number of different method calls in a test file) for a single test method crosses the margin of one, then eager test smell is considered as detected.

Requirements

To conduct the project implementation, following things are needed.

1. The project is implemented using Java. So 'Java Run time Environment' and 'Java Development Kit' are required.
2. Java Parser 3.2.4 is required.

Input

The project is implemented only to find eager test smell in Junit test cases. So the input of this detector is a java project containing Junit test cases.

Output

This project gives output of following entities:

- Test Smell Name
- Smelly file name
- Smelly method name
- Line number where the smell is found of the smelly file
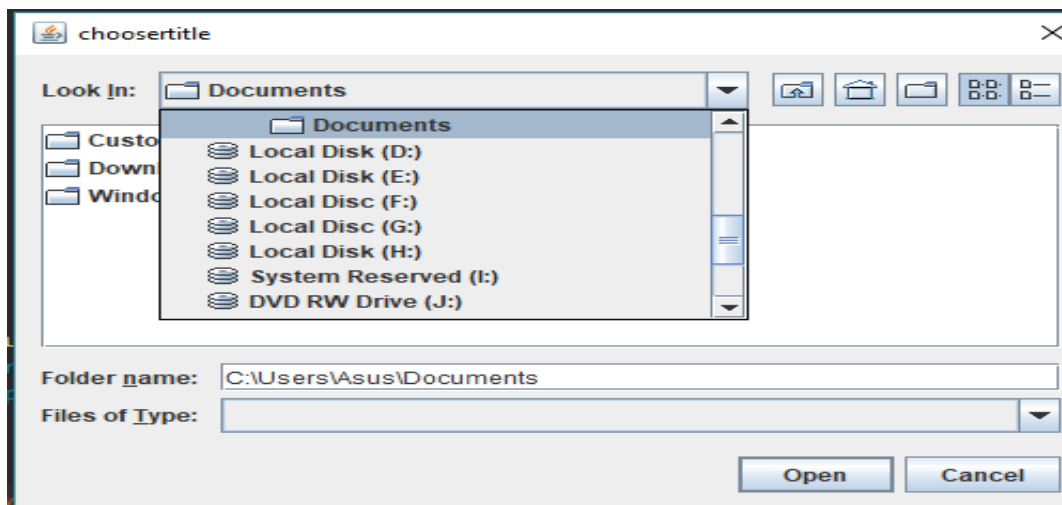- Smelly file path

User Manual

Running the project:

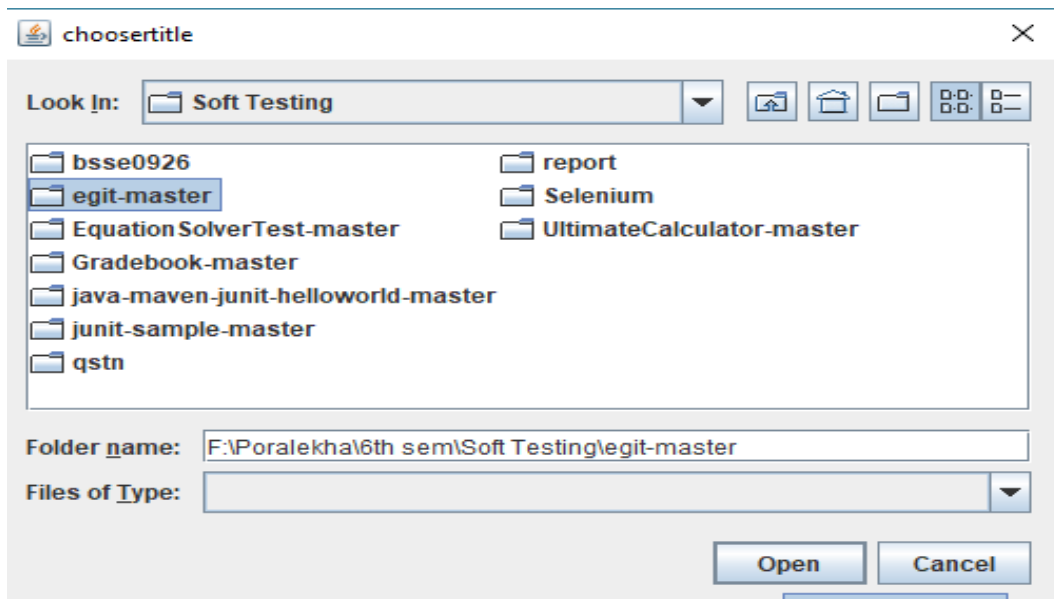A jar file has been made to run the project easily. Anyone can run it easily by double clicking.

There is another way to run the jar. Just open command prompt or terminal where the jar file is located and type

<div align="center">java –jar eagertest.jar</div>

Giving Input:

After running the project a directory chooser will appear. We need to select the java project directory to be tested and then click open. Here are demo screenshots:

Viewing Output:

After clicking open, a table will appear containing outputs. A demo screenshot is given below.

Smell	File Name	Method Name	Line No	Path
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	161	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	163	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	165	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	168	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	169	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	175	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	176	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	178	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	192	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	189	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	194	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	196	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	198	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFile	198	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFolder	206	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFolder	210	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFolder	211	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFolder	212	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFolder	216	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFolder	217	F:\Poralekha\6th sem\Soft Testing\eg...
Eager Test Smell	GitMoveDeleteHookTest.java	testDeleteFolder	219	F:\Poralekha\6th sem\Soft Testing\eg...