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SER 316 – Assignment 4

Git

When we merge StaticAnalysis to Whitebox, nothing special should happen. In my opinion the deleted file will get restored in Whitebox. There should not be any conflicts or issues

GitHub Actions

Main, Blackbox, Review branches fail GitHub actions. The primary reason that all these branches fail is because GamePlay class is not implemented for the Whitebox test.

Task 1: Checkstyle

CheckStyle Audit

Designed for use with CheckStyle and Ant.

Summary	
Files	**Errors**
10	111

Files	
Name	**Errors**
D:\Git\ser316-spring2023B-ehakobya\src\main\java\GamePlay.java	82
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Character.java	15
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Main.java	8
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Barbarian.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Bard.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Druid.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Ranger.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Rogue.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Wizard.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\GamePlayInterface.java	0

File D:\Git\ser316-spring2023B-ehakobya\src\main\java\Barbarian.java	
Error Description	**Line**
Missing a Javadoc comment.	3

Back to top

File D:\Git\ser316-spring2023B-ehakobya\src\main\java\Bard.java	
Error Description	**Line**
Missing a Javadoc comment.	3

Back to top

File D:\Git\ser316-spring2023B-ehakobya\src\main\java\Character.java	
Error Description	**Line**
WhitespaceAround: '=' is not preceded with whitespace.	2
WhitespaceAround: '=' is not followed by whitespace. Empty blocks may only be represented as {} when not part of a multi-block statement (4.1.3)	2
WhitespaceAround: '=' is not preceded with whitespace.	3
WhitespaceAround: '=' is not followed by whitespace. Empty blocks may only be represented as {} when not part of a multi-block statement (4.1.3)	3
WhitespaceAround: '=' is not preceded with whitespace.	4
WhitespaceAround: '=' is not followed by whitespace. Empty blocks may only be represented as {} when not part of a multi-block statement (4.1.3)	4
WhitespaceAround: '=' is not preceded with whitespace.	5
WhitespaceAround: '=' is not followed by whitespace. Empty blocks may only be represented as {} when not part of a multi-block statement (4.1.3)	5
WhitespaceAround: '=' is not preceded with whitespace.	6
WhitespaceAround: '=' is not followed by whitespace. Empty blocks may only be represented as {} when not part of a multi-block statement (4.1.3)	6
WhitespaceAround: '=' is not preceded with whitespace.	7
WhitespaceAround: '=' is not followed by whitespace. Empty blocks may only be represented as {} when not part of a multi-block statement (4.1.3)	7
WhitespaceAround: '=' is not preceded with whitespace.	8
WhitespaceAround: '=' is not followed by whitespace. Empty blocks may only be represented as {} when not part of a multi-block statement (4.1.3)	8
Missing a Javadoc comment.	10

Back to top

File D:\Git\ser316-spring2023B-ehakobya\src\main\java\Druid.java	
Error Description	**Line**
Missing a Javadoc comment.	3

Back to top

File D:\Git\ser316-spring2023B-ehakobya\src\main\java\GamePlay.java	
Error Description	**Line**
Using the '.*' form of import should be avoided - java.util.*.	1
Member name 'Opponents' must match pattern '^[a-z][a-z0-9][a-zA-Z0-9]*$'.	6
'if' construct must use '{}'s.	53
'else' construct must use '{}'s.	54
'if' construct must use '{}'s.	65
'else' construct must use '{}'s.	67
Line is longer than 100 characters (found 118).	72
Line is longer than 100 characters (found 123).	73
Line is longer than 100 characters (found 118).	94
Line is longer than 100 characters (found 132).	96
Empty line should be followed by <p> tag on the next line.	98
Line is longer than 100 characters (found 158).	99
Empty line should be followed by <p> tag on the next line.	102
Empty line should be followed by <p> tag on the next line.	104

CheckStyle Audit

Designed for use with [CheckStyle](#) and [Ant](#).

Summary	
Files	**Errors**
3	40

Files	
Name	**Errors**
[D:\Git\ser316-spring2023B-ehakobya\src\test\java\BlackBoxGiven.java](#)	20
[D:\Git\ser316-spring2023B-ehakobya\src\test\java\TDD.java](#)	12
[D:\Git\ser316-spring2023B-ehakobya\src\test\java\WhiteBoxGiven.java](#)	8

File D:\Git\ser316-spring2023B-ehakobya\src\test\java\BlackBoxGiven.java	
Error Description	**Line**
Wrong lexicographical order for 'java.lang.reflect.Constructor' import. Should be before 'org.junit.runners.Parameterized'.	5
Wrong lexicographical order for 'java.util.Arrays' import. Should be before 'org.junit.runners.Parameterized'.	6
Wrong lexicographical order for 'java.util.Collection' import. Should be before 'org.junit.runners.Parameterized'.	7
Import statement for 'org.junit.Assert.*' is in the wrong order. Should be in the 'STATIC' group, expecting not assigned imports on this line.	9
Using the '.*' form of import should be avoided - org.junit.Assert.*.	9
Missing a Javadoc comment.	22
'(' is followed by whitespace.	64
'(' is followed by whitespace.	71
'(' is followed by whitespace.	78
Line is longer than 100 characters (found 104).	96
'(' is followed by whitespace.	102
'(' is followed by whitespace.	109
'(' is followed by whitespace.	116
'(' is followed by whitespace.	123
'(' is followed by whitespace.	138
'(' is followed by whitespace.	145
'(' is followed by whitespace.	152
Comment has incorrect indentation level 0, expected is 8, indentation should be the same level as line 207.	206
Line is longer than 100 characters (found 115).	293
'method def modifier' has incorrect indentation level 8, expected level should be 4.	313

Back to top

File D:\Git\ser316-spring2023B-ehakobya\src\test\java\TDD.java	
Error Description	**Line**
'import' should be separated from previous statement.	9
Import statement for 'org.junit.Assert.assertEquals' is in the wrong order. Should be in the 'STATIC' group, expecting not assigned imports on this line.	9
Abbreviation in name 'TDD' must contain no more than '2' consecutive capital letters.	15
First sentence of Javadoc is missing an ending period.	24
First sentence of Javadoc is missing an ending period.	70
First sentence of Javadoc is missing an ending period.	112
First sentence of Javadoc is missing an ending period.	147
First sentence of Javadoc is missing an ending period.	186
First sentence of Javadoc is missing an ending period.	218
First sentence of Javadoc is missing an ending period.	237
First sentence of Javadoc is missing an ending period.	255
First sentence of Javadoc is missing an ending period.	279

Back to top

File D:\Git\ser316-spring2023B-ehakobya\src\test\java\WhiteBoxGiven.java	
Error Description	**Line**
Import statement for 'org.junit.Assert.*' is in the wrong order. Should be in the 'STATIC' group, expecting not assigned imports on this line.	5
Using the '.*' form of import should be avoided - org.junit.Assert.*.	5
First sentence of Javadoc is missing an ending period.	18
Abbreviation in name 'equalDP' must contain no more than '2' consecutive capital letters.	26
WhitespaceAround: '{' is not preceded with whitespace.	96
WhitespaceAround: '{' is not preceded with whitespace.	124
WhitespaceAround: '{' is not preceded with whitespace.	144
Distance between variable 'c4' declaration and its first usage is 4, but allowed 3. Consider making that variable final if you still need to store its value in advance (before method calls that might have side effects on the original value).	167

Back to top

Q5:

In main checkstyle found **111 errors in main**, and **40 errors in test**.

Q7:

Number of violations did not change. IntelliJ was already configured not use tabs ("use tab character" toggle was already turned off in Settings -> Editor -> Code Style -> Java)

Also, applying conversion to spaces (From Edit-> Convert Indents -> To Spaces) results in a message "All lines already have requested indentation" for every java file.
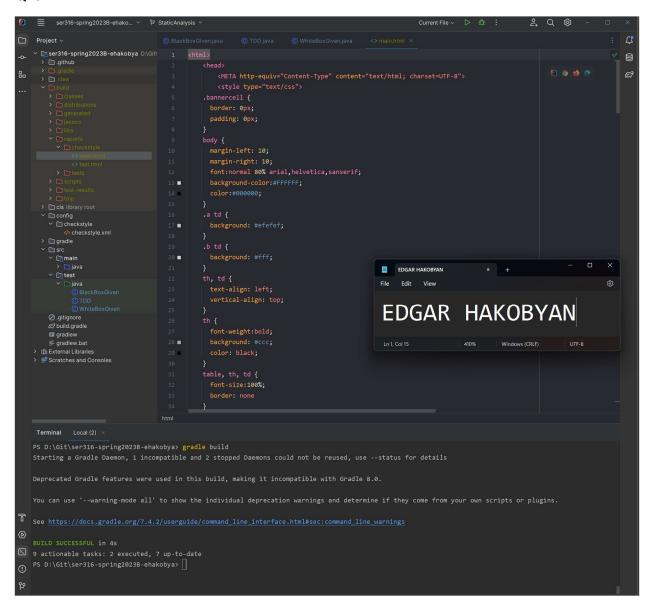
Q9:

Main

Summary	
Files	**Errors**
10	10

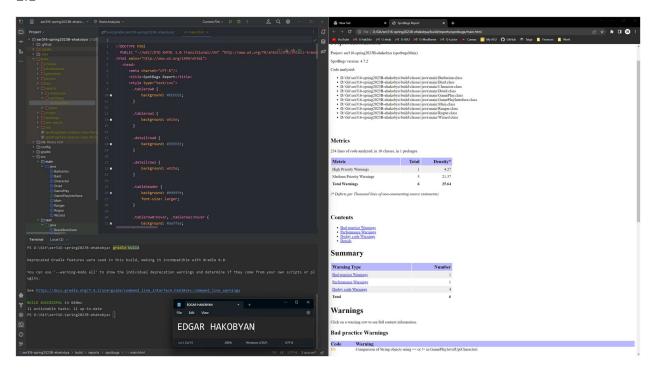| Files	
Name	**Errors**
D:\Git\ser316-spring2023B-ehakobya\src\main\java\GamePlay.java	2
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Barbarian.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Bard.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Character.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Druid.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Main.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Ranger.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Rogue.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\Wizard.java	1
D:\Git\ser316-spring2023B-ehakobya\src\main\java\GamePlayInterface.java	0

Test

Summary	
Files	**Errors**
3	7

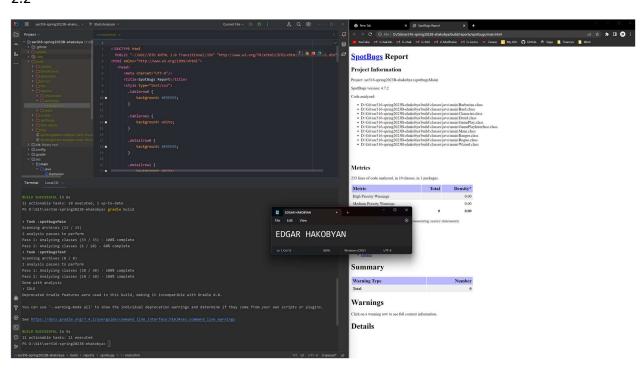| Files	
Name	**Errors**
D:\Git\ser316-spring2023B-ehakobya\src\test\java\BlackBoxGiven.java	3
D:\Git\ser316-spring2023B-ehakobya\src\test\java\WhiteBoxGiven.java	3
D:\Git\ser316-spring2023B-ehakobya\src\test\java\TDD.java	1

Q10:

Task2: Spotbugs

2.1

2.2

Task 3: Comparing

Comparison of initial checkstyle and spotbug reports

Branch	Checkstyle		Spotbugs
	Main	Test	
StaticAnalysis	111	40	6
Blackbox	111	23	4
Review	111	23	7

After StaticAnalysis fixes

Branch	Checkstyle		Spotbugs
	Main	Test	
StaticAnalysis	10	7	0

Reports clearly show improvement for StaticAnalysis before and after the fixes. Number of errors was reduced by at least 10 times. The only errors that were left were the JavaDoc comments.

Task 4

The report got a little worse but not by a lot. Only 7 more checkstyle issues in main and 0 more issues in Test. Spotbugs still shows 0 errors. Most of the changes that happened were in the whitebox branch (implementations) and corrections to bugs and checkstyles were done in StaticAnalysis. But static analysis was branched off whitebox. Therefore it contained the implementations in it, and we reduced and fixed errors on this branch. Therefore, it seams logical that after mergin all branches, dev would still have the best version of the code from staticanalysis.

I would fix first spotbugs errors since errors leading to potential bugs are more important that stylistic changes. Then I would apply checkstyle fixes.

Task 5: Final code review

No changes necessary