

Edgar Hakobyan

SER 316 : Assignment 3

Date: 04/03/2023

Task 1: Code Review

Code Review Defect List

Reviewer: Edgar Hakobyan

GH Repo: <https://github.com/ehakobya/ser316-spring2023B-ehakobya/tree/main>

ID#	Location (File - Line #)	Problem Description	Problem (Category - Severity)
1	Main.java - Line #7	Usage of magic numbers	CS - LOW
2	Character.java	No setter/getter methods	CS - MJ
3	Character.java - Line #2	Public class attributes	CS - MJ
4	GamePlay.java - Line #1	Usage of '*' to import libraries	CS - LOW
5	GamePlay.java - Line #1	No header	CS - LOW
6	GamePlay.java - Line #117	Usage of magic numbers	CS - LOW
7	GamePlay.java - Line #126	Usage of '==' instead of .equals	FD - MJ

Category:

CS - Code Smell defect.

CG - Violation of a coding guideline. Provide the guideline number.

FD - Functional defect. Code will not produce the expected result.

MD - Miscellaneous defect, for all other defects.

Severity:

BR - Blocker, must be fixed asap.

MJ - Major, of high importance but not a Blocker

LOW Low.

Task 2: Fixing the defects

GitHub issues

<https://github.com/ehakobya/ser316-spring2023B-ehakobya/issues/6>

<https://github.com/ehakobya/ser316-spring2023B-ehakobya/issues/7>

<https://github.com/ehakobya/ser316-spring2023B-ehakobya/issues/8>

Issue fixes

<https://github.com/ehakobya/ser316-spring2023B-ehakobya/commit/2e41a47dbd363a8e40c0d29eee2233ba2b20b9e9>

<https://github.com/ehakobya/ser316-spring2023B-ehakobya/commit/811c2b253de9e3b41d3ae4a4e532f1de39806bae>

<https://github.com/ehakobya/ser316-spring2023B-ehakobya/commit/bb64d1ab40da80adcafb9cd54939e81f5d9e7c06>

Task 3: Whitebox testing

Class TDD

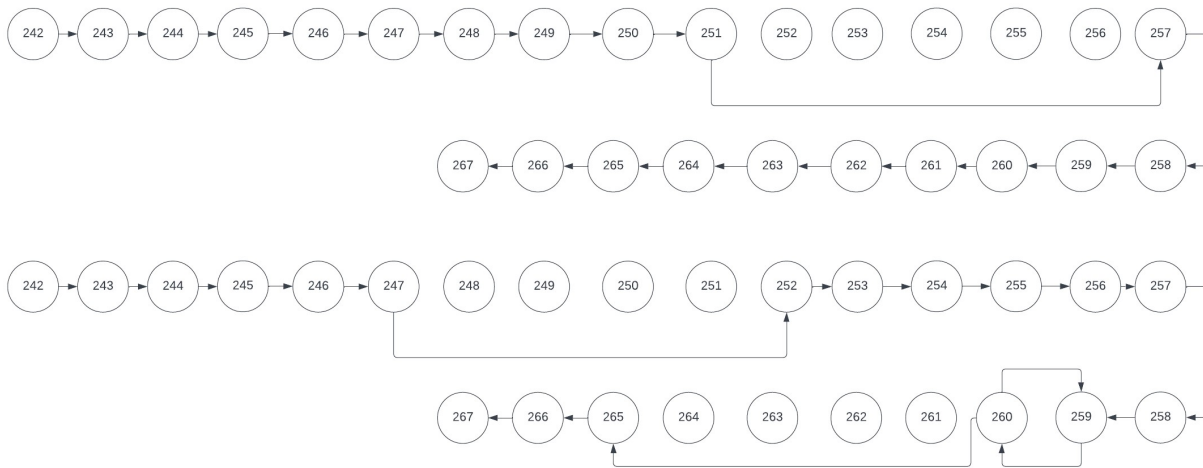
[all](#) > [default-package](#) > TDD

9	0	0	0.004s	100%
tests	failures	ignored	duration	successful

Tests

Test	Duration	Result
attackAttackerFullOpponentZeroHealth	0s	passed
attackNormalHealth	0s	passed
attackZeroHealth	0s	passed
dealtDamageNoExperienceNoDamage	0s	passed
dealtDamageNormalExperience	0s	passed
dealtDamageNormalExperienceDoubleDamage	0s	passed
takenDamageHealthBelowZero	0s	passed
takenDamageProtectionGreaterThanDamage	0s	passed
takenDamageProtectionLessThanDamage	0.004s	passed

Control flow graphs



{ < 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267 > } – `playAttackerSpeedGreaterThanOrEqualToOpponent()`

{ < 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267 > } – `playAttackerSpeedLessThanOpponent()`

Explanation:

The test cases mentioned above were used to achieve 92% code coverage for the `GamePlay` class. The methods were tested to ensure they functioned correctly to some extent. The `attack()`, `dealDamage()`, and `takeDamage()` methods were tested using newly added implementations in the TDD class through blackbox testing. All test cases passed with the correct implementations.

Two test cases, `playAttackerSpeedGreaterThanOrEqualToOpponent ()` and `playAttackerSpeedLessThanOpponent ()`, achieved complete node and edge coverage, confirming the expected functionality of the `attack()`, `dealDamage()`, and `takeDamage()` methods. Additional test cases were added to ensure the `play()` method awarded bonus experience to the character with greater speed as specified. The remaining methods for adding/removing character opponents, as well as `levelup()`, were also tested with their respective test cases and found to be working correctly.

Task 4: Gradle

```
ser316-spring2023B-ehakobya Whitebox ?1 ~3 | ? -1

hakedo > gradle test

Deprecated Gradle features were used in this build, making it incompatible with Gradle 8.0.

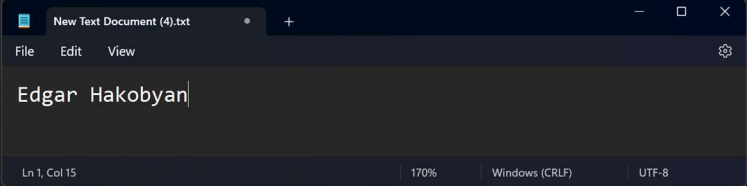
You can use '--warning-mode all' to show the individual deprecation warnings and determine if they come from your own scripts or plugins.

See https://docs.gradle.org/7.4.2/userguide/command\_line\_interface.html#sec:command\_line\_warnings

BUILD SUCCESSFUL in 674ms
3 actionable tasks: 3 up-to-date

ser316-spring2023B-ehakobya Whitebox ?1 ~3 | ? -1

1.267s hakedo > 
```



The screenshot shows a text editor window with the title 'New Text Document (4).txt'. The editor contains the text 'Edgar Hakobyan'. The status bar at the bottom indicates 'Ln 1, Col 15', '170%', 'Windows (CRLF)', and 'UTF-8'.

```
ser316-spring2023B-ehakobya Whitebox ?1 ~3 | ? -1

1.267s hakedo > gradle jacocoTestReport

Deprecated Gradle features were used in this build, making it incompatible with Gradle 8.0.

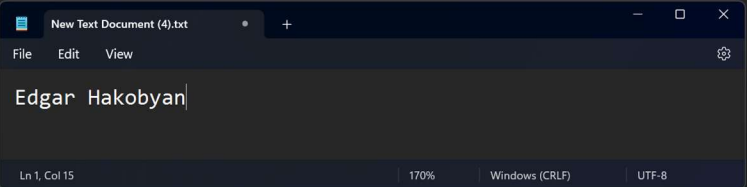
You can use '--warning-mode all' to show the individual deprecation warnings and determine if they come from your own scripts or plugins.

See https://docs.gradle.org/7.4.2/userguide/command\_line\_interface.html#sec:command\_line\_warnings

BUILD SUCCESSFUL in 588ms
4 actionable tasks: 4 up-to-date

ser316-spring2023B-ehakobya Whitebox ?1 ~3 | ? -1

1.17s hakedo > 
```























The screenshot shows a text editor window with the title 'New Text Document (4).txt'. The editor contains the text 'Edgar Hakobyan'. The status bar at the bottom indicates 'Ln 1, Col 15', '170%', 'Windows (CRLF)', and 'UTF-8'.

Test Coverage Results

1. Code coverage not including main is 87%
2. 92% for GamePlay

 ser316-spring2023B-ehakobya >  default

default

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
 Main		0%		0%	11	11	31	31	2	2	1	1
 GamePlay		92%		85%	7	34	8	101	0	10	0	1
 Character		34%		n/a	1	2	10	18	1	2	0	1
 Druid		100%		n/a	0	1	0	6	0	1	0	1
 Barbarian		100%		n/a	0	1	0	6	0	1	0	1
 Ranger		100%		n/a	0	1	0	6	0	1	0	1
 Rogue		100%		n/a	0	1	0	6	0	1	0	1
 Wizard		100%		n/a	0	1	0	6	0	1	0	1
 Bard		100%		n/a	0	1	0	6	0	1	0	1
Total	219 of 859	74%	25 of 66	62%	19	53	49	186	3	20	1	9