

NOTE: When working on retrieving the previously deleted GivenBlackbox.java file, I could not find the commit responsible for deleting the file. Here is a result of the log.

```
jakey@LAPTOP-2CJQVE4C MINGW64 /d/SER316Memoranda/ser316-spring2021-C-jhreshch (StaticAnalysis)
$ git log --diff-filter=D --summary
commit b27ac579c9d3ff6bf07f848ea4a911d774a4031d
Author: JakeHresh <jakeyhresh123@gmail.com>
Date: Sun Feb 21 12:27:45 2021 -0700

    Completed Task 3.1

    delete mode 100644 build/reports/tests/test/classes/GivenBlackBox.html
    delete mode 100644 build/test-results/test/TEST-GivenBlackBox.xml

commit 52261553d663b98ba1c0f3bd718994fed795b27b
Author: Jacob Hreshchyshyn <jhreshch@asu.edu>
Date: Tue Feb 9 14:22:43 2021 -0700

    Delete README.md

    delete mode 100644 README.md

commit 8dc55d41cb3b3a68f15656e08386a2f33db5e183
Author: Jacob Hreshchyshyn <jhreshch@asu.edu>
Date: Tue Feb 9 14:22:22 2021 -0700

    Delete .gitignore

























    delete mode 100644 .gitignore

jakey@LAPTOP-2CJQVE4C MINGW64 /d/SER316Memoranda/ser316-spring2021-C-jhreshch (StaticAnalysis)
$ git checkout b27ac579c9d3ff6bf07f848ea4a911d774a4031d src/test/java/GivenBlackBox.java
error: pathspec 'src/test/java/GivenBlackBox.java' did not match any file(s) known to git

jakey@LAPTOP-2CJQVE4C MINGW64 /d/SER316Memoranda/ser316-spring2021-C-jhreshch (StaticAnalysis)
```

I instead moved a copy of the GivenBlackBox tests from the Blackbox branch to StaticAnalysis.

Below is a list of the branches that passes and failed in Travis CI.

 main	Updated file permissions for gradlew Jacob Hreshchysyn	 #7 failed 253c6b4 	35 sec less than a minute ago	
 Whitebox	Updated file permissions for gradlew Jacob Hreshchysyn	 #6 passed cdaac4b 	37 sec 2 minutes ago	
 Review	Updated file permissions for gradlew Jacob Hreshchysyn	 #5 failed 893a713 	37 sec 6 minutes ago	
 Blackbox	Updated file permissions for gradlew Jacob Hreshchysyn	 #4 failed 5baecbc 	37 sec 10 minutes ago	
 StaticAnalysis	Updated file permissions for gradlew Jacob Hreshchysyn	 #3 passed c056639 	36 sec 12 minutes ago	
 StaticAnalysis	Update gradlew to run as executable Jacob Hreshchysyn	 #2 errored b53aaa3 	21 sec 17 minutes ago	

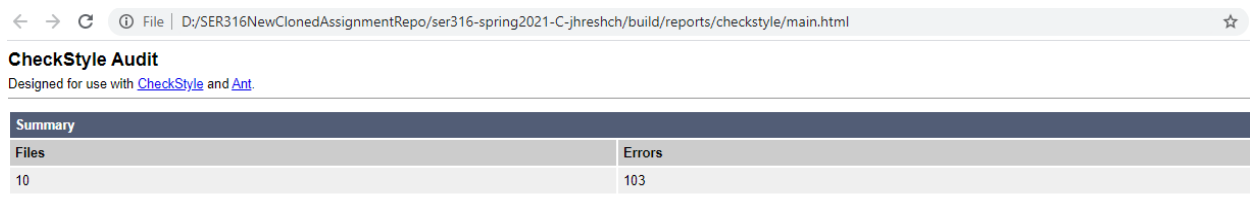
The main branch failed because it is the least up-to-date branch and includes the original unfinished GivenBlackBox tests. The branch also includes the classes that run against those black box tests, which are known to fail.

The Whitebox tests pass because the branch includes working white box tests and excludes the black box tests against which the given test classes run.

The Review tests and Blackbox tests both fail because they both include the updated black box tests against which the test classes fail. (NOTE: The Blackbox build should fail not because of the updated black box tests since the exclusion instruction is included in the Blackbox branch. Instead, the branch fails because of the failing white box test.)

The StaticAnalysis tests pass because the branch includes working white box tests and excludes the black box tests against which the given test classes run. The branch initially failed due to an error with the executable permissions of a gradlew file.

The following are screenshots of the checkstyle reports from the main and test packages.



The screenshot shows a web browser window with the address bar displaying the file path: D:/SER316NewClonedAssignmentRepo/ser316-spring2021-C-jhreshch/build/reports/checkstyle/main.html. The page title is "CheckStyle Audit" and it includes a subtitle "Designed for use with CheckStyle and Ant." Below this is a table with a dark blue header row labeled "Summary". The table has two columns: "Files" and "Errors". The "Files" column contains the value "10" and the "Errors" column contains the value "103".

Summary	
Files	Errors
10	103

There are 103 errors in the main packages.

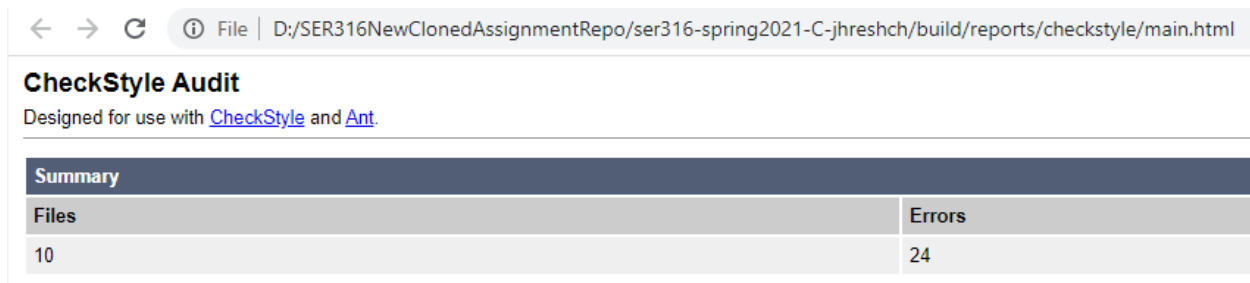


The screenshot shows a web browser window with the address bar displaying the file path: D:/SER316NewClonedAssignmentRepo/ser316-spring2021-C-jhreshch/build/reports/checkstyle/test.html. The page title is "CheckStyle Audit" and it includes a subtitle "Designed for use with CheckStyle and Ant." Below this is a table with a dark blue header row labeled "Summary". The table has two columns: "Files" and "Errors". The "Files" column contains the value "3" and the "Errors" column contains the value "933".

Summary	
Files	Errors
3	933

There are 933 errors in the test packages.

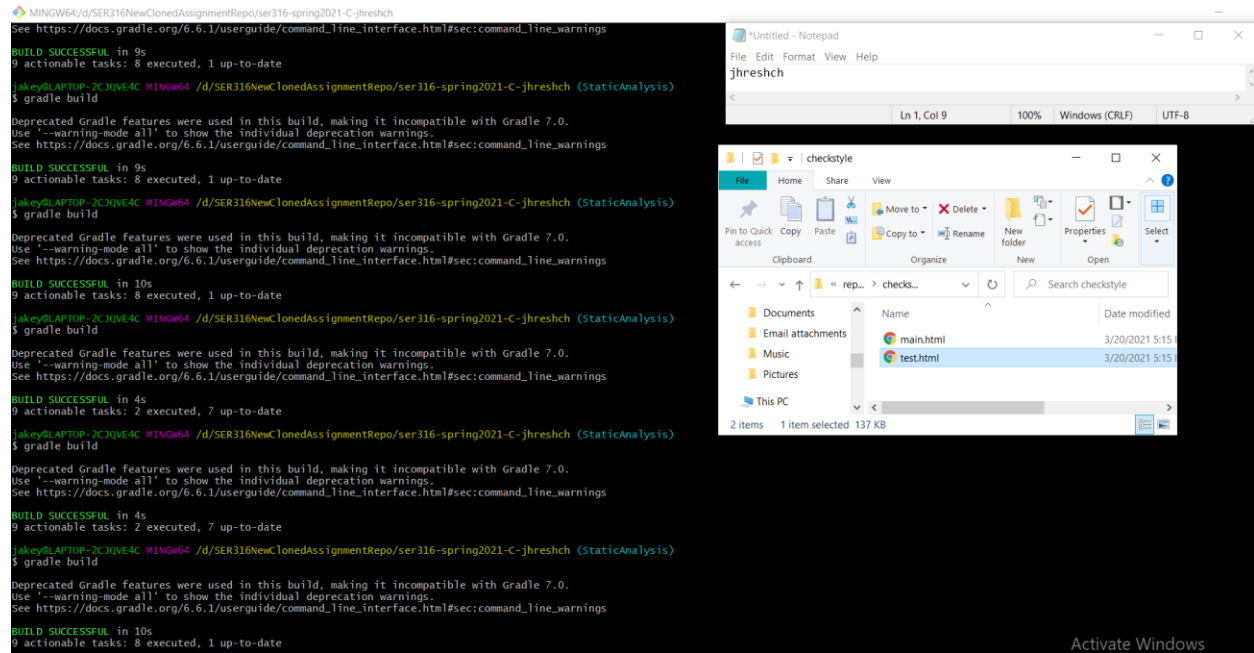
Below is the result of following the checkstyle guidelines in the main package.



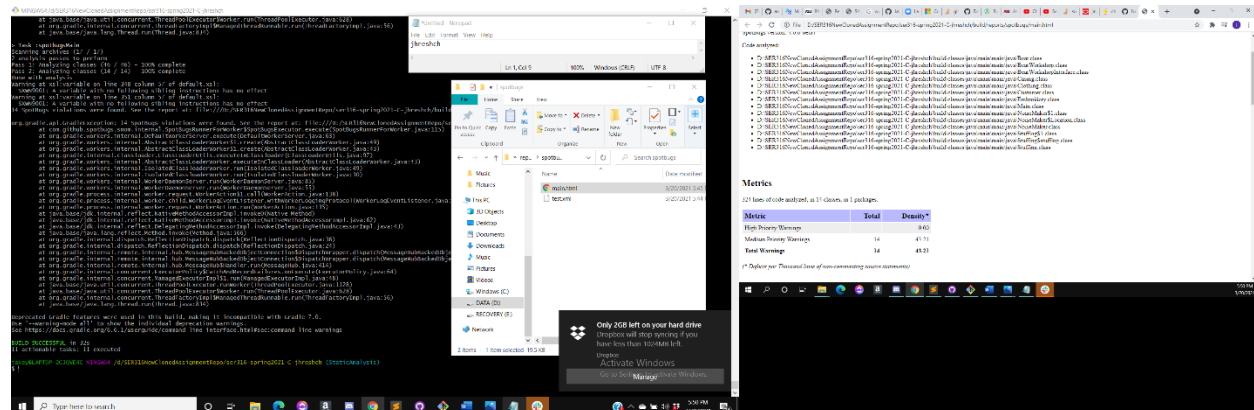
The screenshot shows a web browser window with the address bar displaying the file path: D:/SER316NewClonedAssignmentRepo/ser316-spring2021-C-jhreshch/build/reports/checkstyle/main.html. The page title is "CheckStyle Audit" and it includes a subtitle "Designed for use with CheckStyle and Ant." Below this is a table with a dark blue header row labeled "Summary". The table has two columns: "Files" and "Errors". The "Files" column contains the value "10" and the "Errors" column contains the value "24".

Summary	
Files	Errors
10	24

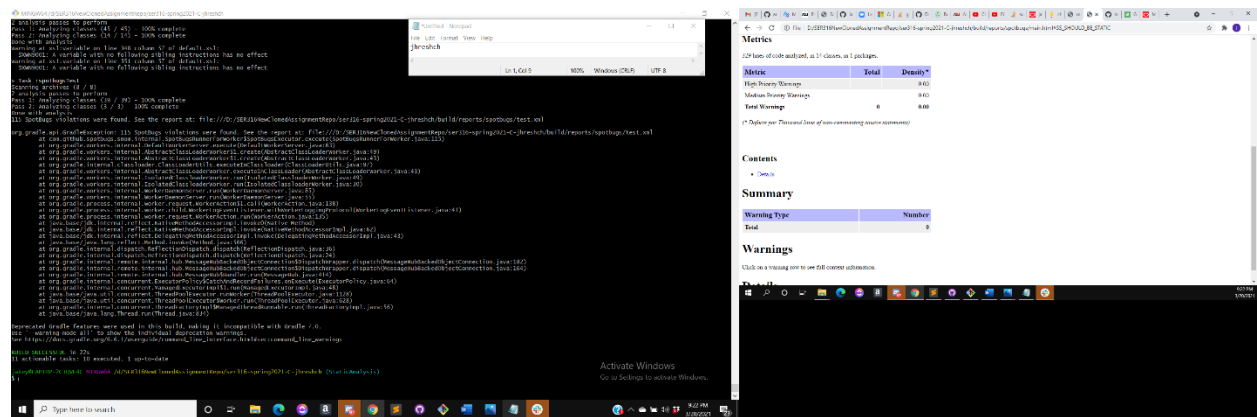
Below is the result of the gradle build, the two generated test reports, and my ASURITE.



Below is the result of the spotbugs report.



Below is the result of the spotbugs report after fixing errors.



Checkstyle Errors Before Changes

Blackbox: 66 in Main Package, 457 in Test Package

Review: 91 in Main Package, 457 in Test Package

StaticAnalysis: 103 in Main Package, 933 in Test Package

Checkstyle Errors After Changes

Blackbox: N/A

Review: N/A

StaticAnalysis: 24 in Main Package, 933 in Test Package

Spotbugs Errors Before Changes

Blackbox: 16

Review: 15

StaticAnalysis: 14

Spotbugs Errors After Changes

Blackbox: N/A

Review: N/A

StaticAnalysis: 0

As to whether the changes in StaticAnalysis made the code better or worse, the changes certainly helped in reducing the number of errors produced by checkstyle and spotbugs. In that sense, the code is better. However, only the structure of certain rules must be present in order to address the warnings, so while it does help standardize code and encourage best practices, it will not protect from unhelpful comments and the like.

Checkstyle Errors in Dev

41 in Main Package, 917 in Test Package

Spotbugs Errors in Dev

0

The result is slightly worse after merging everything into Dev. While the Spotbugs errors remained at 0, the Checkstyle errors in the main package went up to 41. This is likely because of the inconsistent formatting that resulted from merging everything into a single branch. However, because the functionality of the code improved in killing Spotbugs errors, there were no increases in Spotbugs errors.

After reducing the Checkstyle errors again, I got just 21 errors.

Final Travis CI Build of Dev

 JakeHresh / ser316-spring2021-C-jhreshch  build failing

Current

Branches

Build History

Pull Requests

> Build #17

Job #17.1

More options 

 **Dev** Reduced Checkstyle errors to 21

 #17.1 passed

 Restart job

 Commit efeba70 

 Compare 7af76e4...efeba70 

 Branch Dev 

 Jacob Hreshchyshyn

 `</>` JDK: openjdk11 Java

 AMD64

 Ran for 1 min 9 sec
 less than a minute ago

 Debug job