GraphDot Project - CSE 464

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Repo: https://github.com/btflahar/CSE-464-btflahar-graph.git

mvn package command works and will properly build

There should be a total of 14 Tests that run when package is run

I used the Maven Sideboard and did Lifecycle -> Package but mvn package is the same so it should work. Fixed expected.txt issue so mvn package does work.

Java 17
Apache Maven
GraphViz

Is required

mvn clean package to start

Place DOT file in the root (input.dot)

Run the following command:
java -cp target/classes btflahar.asu.edu.graphDot.GraphApp input.dot output.png

It should produce graph-report.txt, input.dot and output.png (the graphViz image)

The example input.dot given is very simple

```
Digraph G {
        A-> B;
        B->C;
        D;
}
```

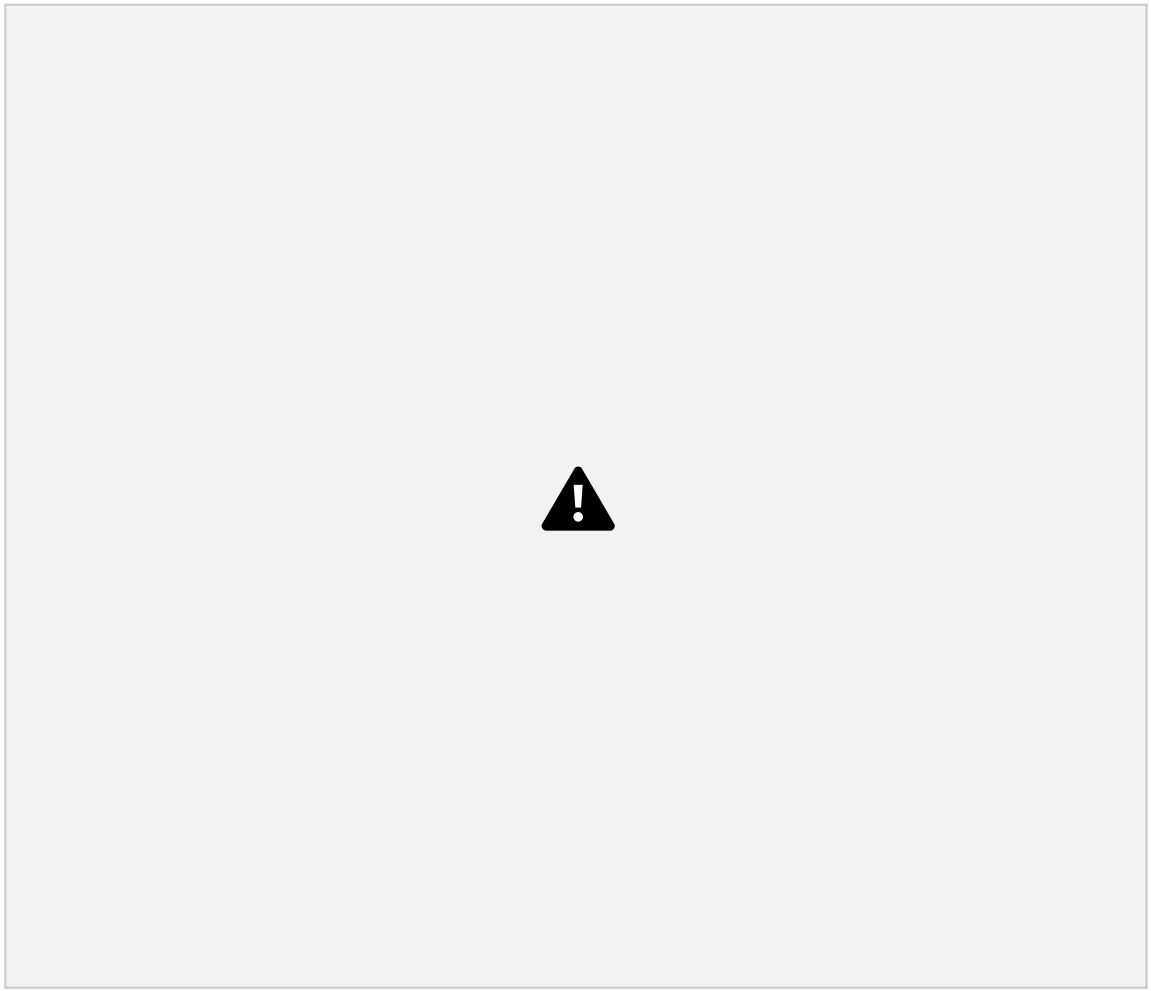
The expected graph-report is
Nodes: 4
Edges: 2
A->B
B->C

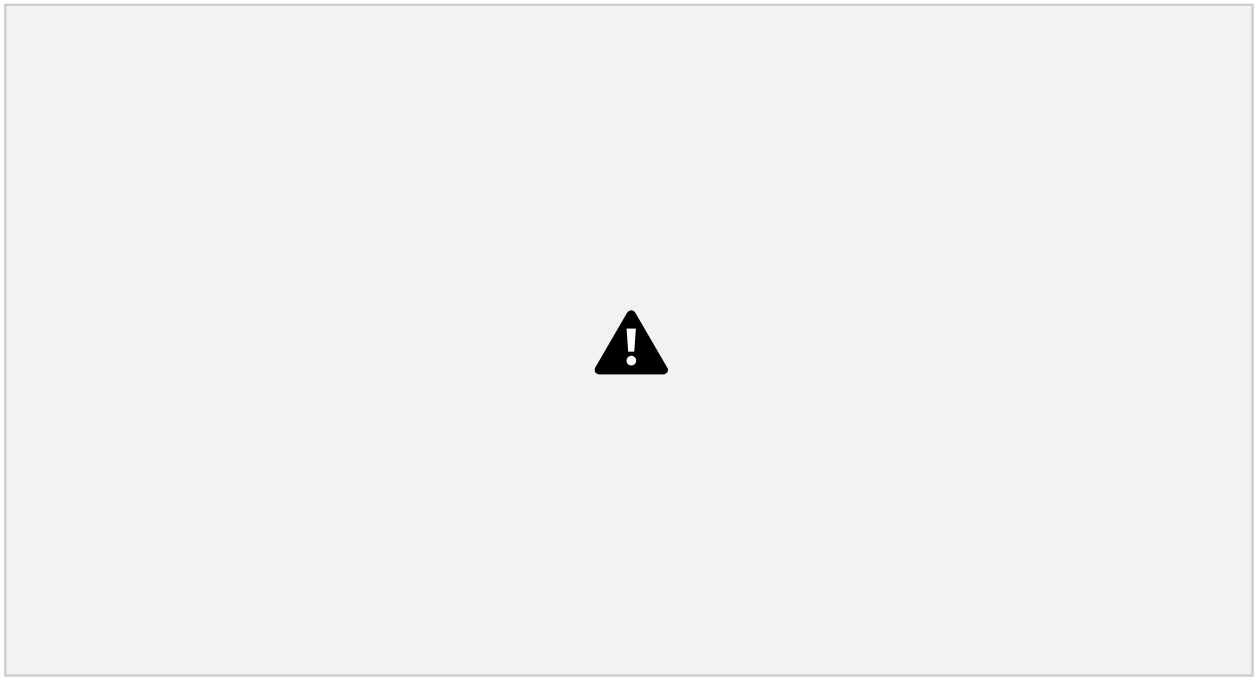
All of the test files are located at

src/test/java/btflahar/asu/edu/graphDot/GraphAppTest.java

All tests can be run with mvn test or by simply navigating to each class in GraphAppTest.java and pressing the play button to the left of the class.

All test classes have areas to insert desired input and check for the expected correct output. Below are the images for each Feature implemented.

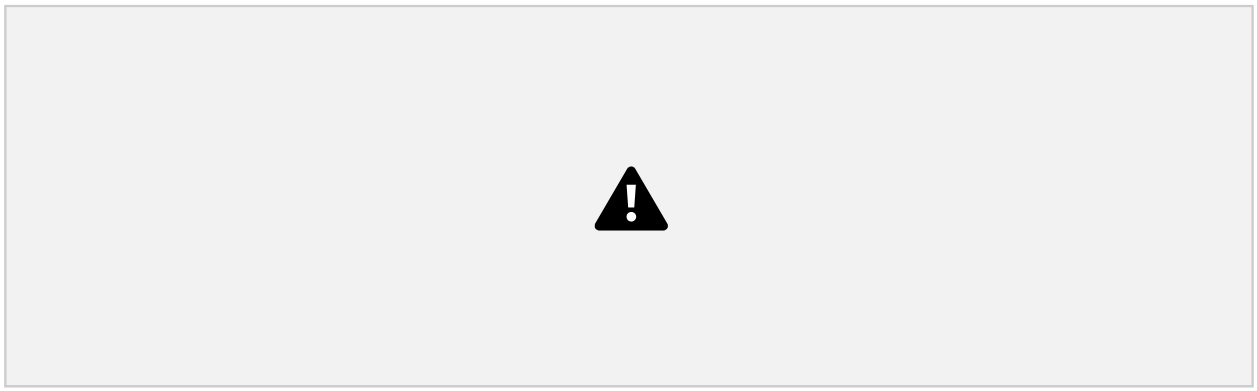


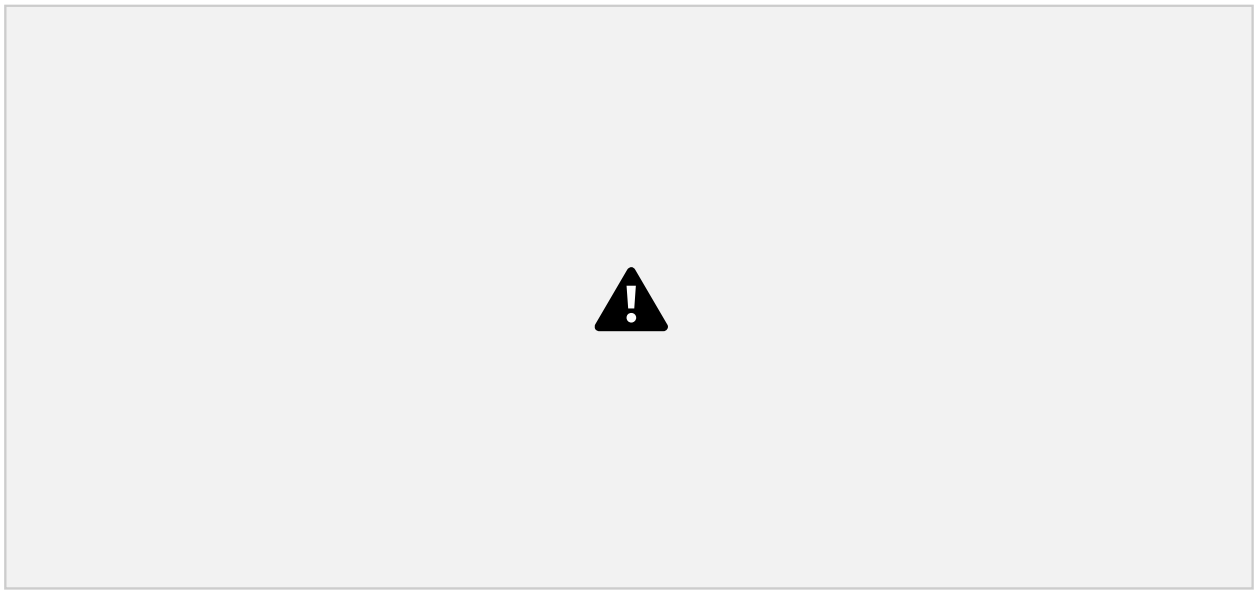


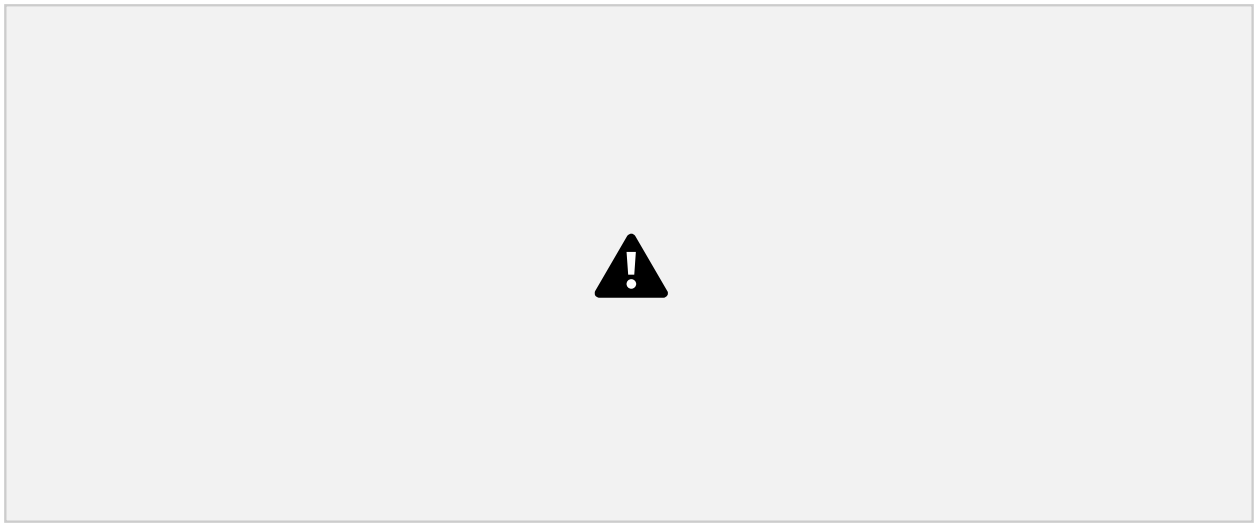
The first 3 images show the classes with example nodes being added, and then test statements doing actions to test the class. In Feature 1 we have A, B, C, and D Nodes added, then have A removed as well as the B->C Edge. So we compare it to the expected result, that being 3 nodes remaining, and 1 edge remaining as well as ensuring the edges remaining match what is correct.

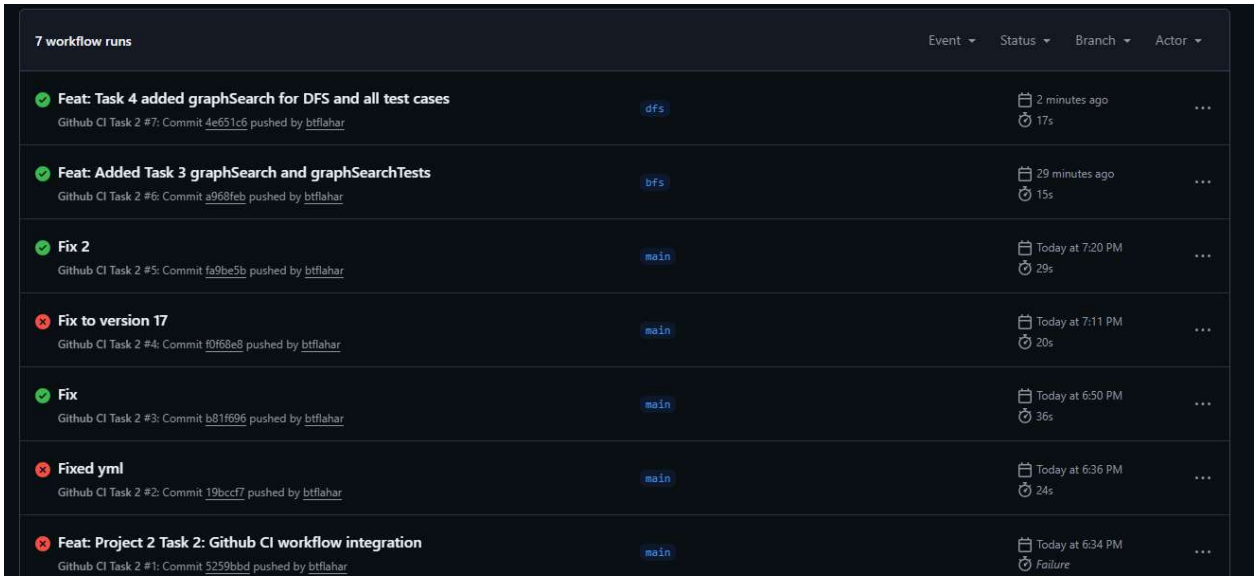
Features 2 and 3 follow this scheme as well, the correct output is listed at the bottom of each class and is compared to the output that is produced by the class when it is ran to ensure it is correct. If an error occurs in the test case, it will fail.

We have the Continuous Integration running and active on the github with images to show below



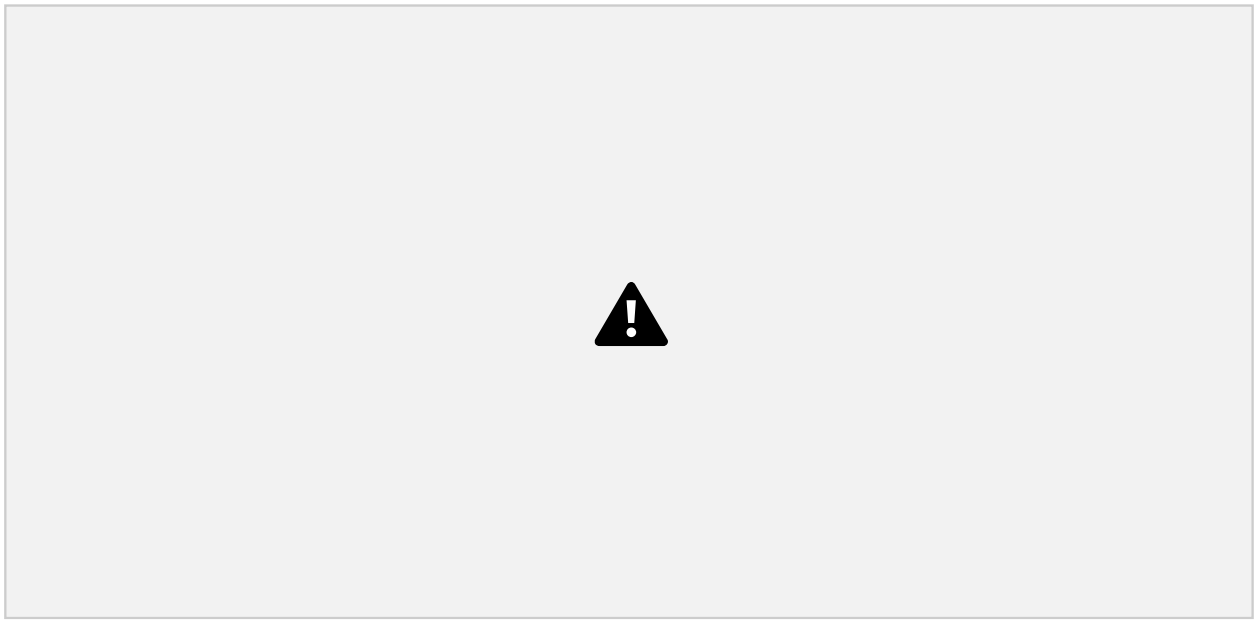


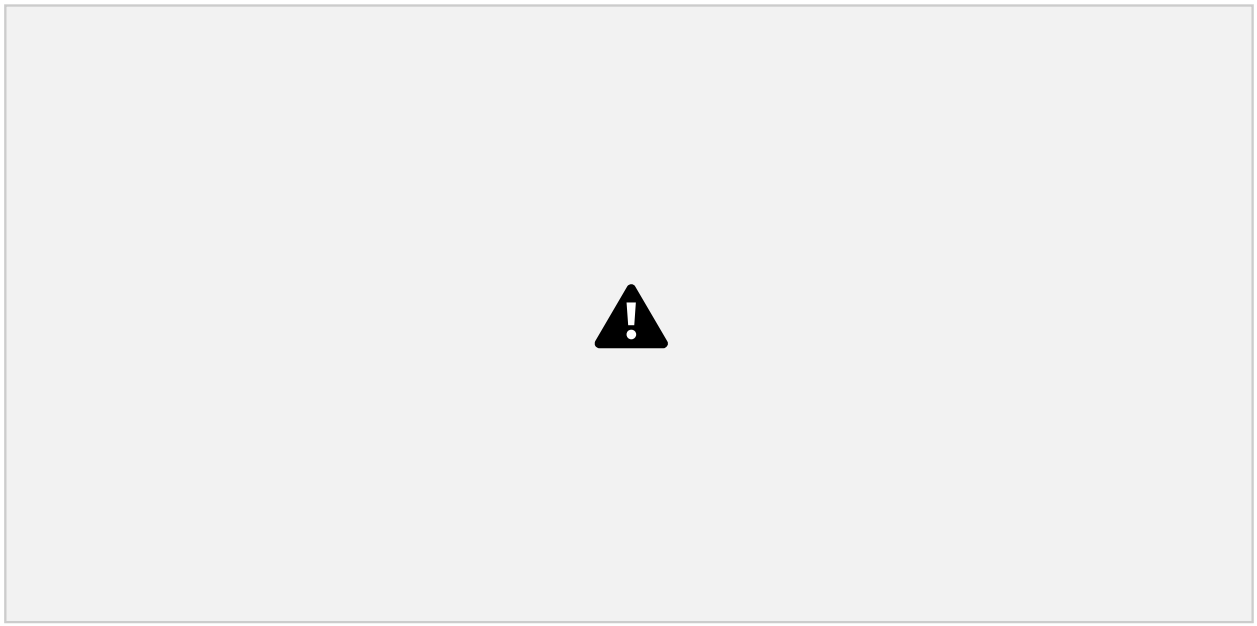


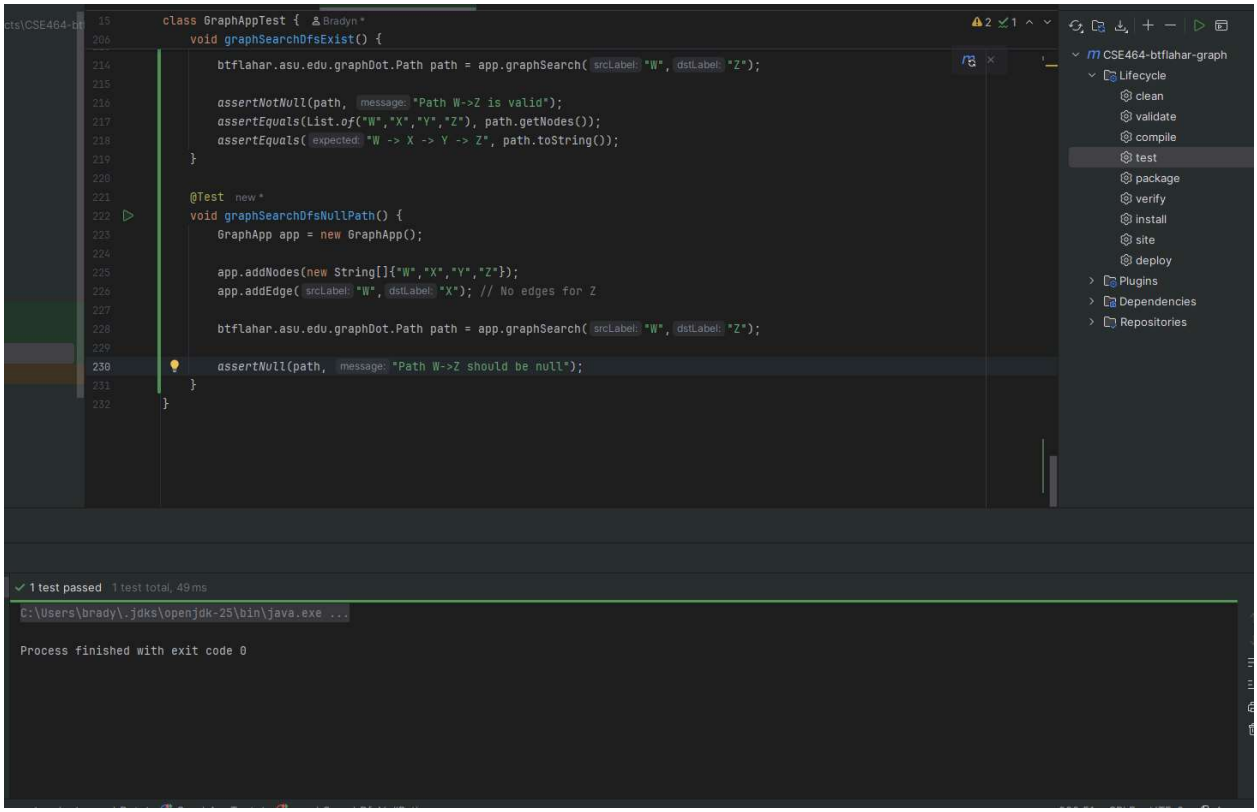


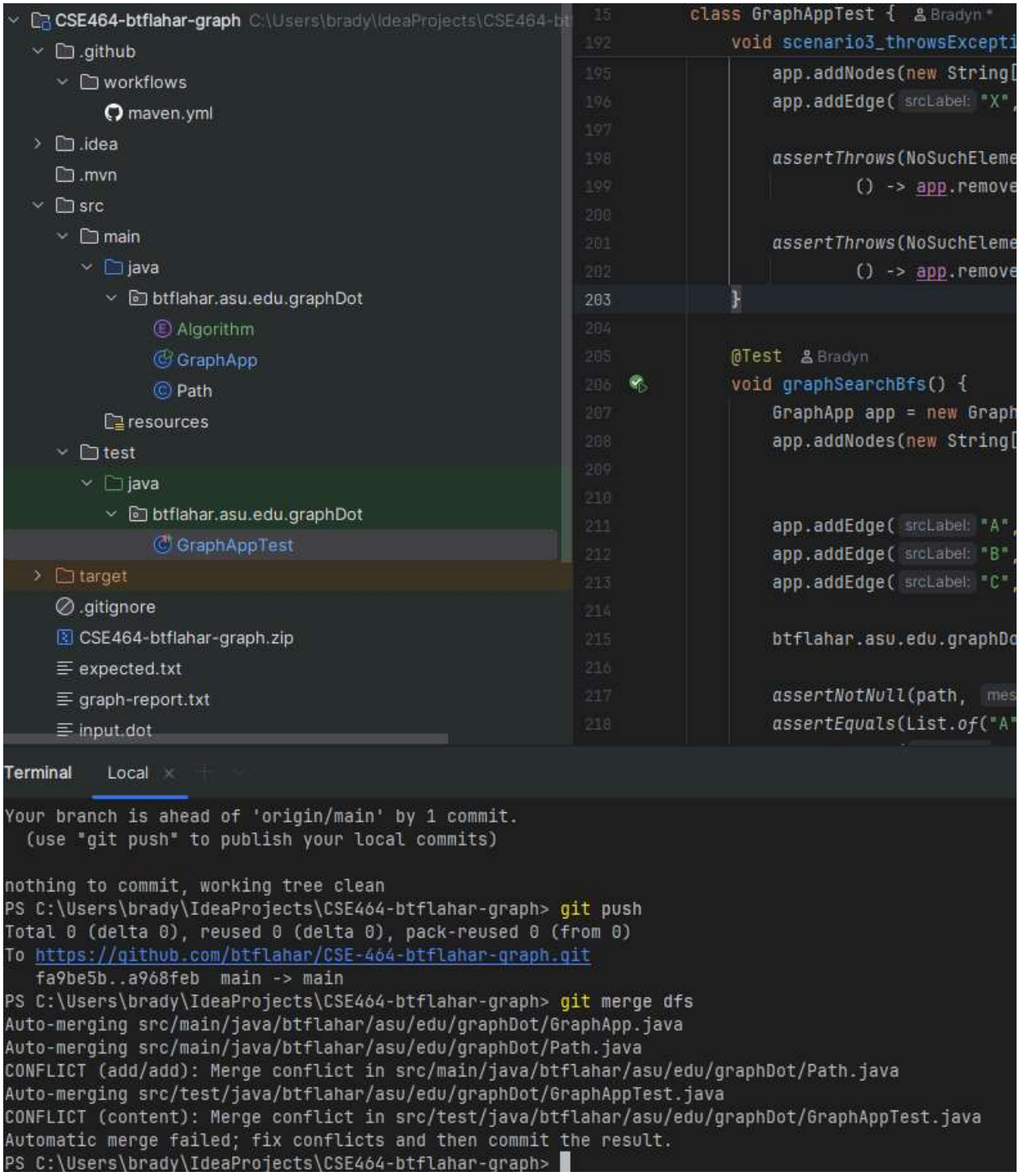
All of the images above show CI being integrated and used properly.

From here the BFS and DFS occurred. Here are the images of each being implemented, and tested as well as finally merged, creating a conflict and resolving it






class GraphAppTest {
void graphSearchDfsExist() {
btflahar.asu.edu.graphDot.Path path = app.graphSearch(srcLabel: "W", dstLabel: "Z");
assertNotNull(path, message: "Path W->Z is valid");
assertEquals(List.of("W","X","Y","Z"), path.getNodes());
assertEquals(expected: "W -> X -> Y -> Z", path.toString());
}
@Test new *
void graphSearchDfsNullPath() {
GraphApp app = new GraphApp();
app.addNodes(new String[]{"W","X","Y","Z"});
app.addEdge(srcLabel: "W", dstLabel: "X"); // No edges for Z
btflahar.asu.edu.graphDot.Path path = app.graphSearch(srcLabel: "W", dstLabel: "Z");
assertNull(path, message: "Path W->Z should be null");
}
}
CSE464-btflahar-graph
Lifecycle
clean
validate
compile
test
package
verify
install
site
deploy
Plugins
Dependencies
Repositories
1 test passed 1 test total, 49 ms
C:\Users\brady\.jdks\openjdk-25\bin\java.exe ...
Process finished with exit code 0



Images 1 and 2 are BFS features, 3 and 4 are DFS features,
Image 5 is the merge conflict occuring

Here are the links for all commits in the project

https://github.com/btflahar/CSE-464-btflahar-graph/commit/8e9bef07a5c54683194413e4678a62832f50b165

https://github.com/btflahar/CSE-464-btflahar-graph/commit/79a4faa12024c432f2954a3d48c2723086fff307

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https://github.com/btflahar/CSE-464-btflahar-graph/commit/5259bbd32106dc350a682ca52ca37aa3649cf68d

https://github.com/btflahar/CSE-464-btflahar-graph/commit/19bccf7bca38f41e84fa11c2cac14a68a9c8bf2a

https://github.com/btflahar/CSE-464-btflahar-graph/commit/b81f6967006cae499b813aa4705e413a11c13a21

https://github.com/btflahar/CSE-464-btflahar-graph/commit/f0f68e8def9574a38efc4f199a3201a2dd31a62e

https://github.com/btflahar/CSE-464-btflahar-graph/commit/fa9be5bd20b2844b84b423aaf19c69d9e38cca96

https://github.com/btflahar/CSE-464-btflahar-graph/commit/a968febd44399dfd2101c94e66e9534aa3627cff

https://github.com/btflahar/CSE-464-btflahar-graph/commit/4e651c686d59535b5dbac3421d021f98a625c2ea

https://github.com/btflahar/CSE-464-btflahar-graph/commit/00984cb91ee701fccc31b0584d6bea85e091e025