

GraphDot Project - CSE 464

Brady Flahart

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.



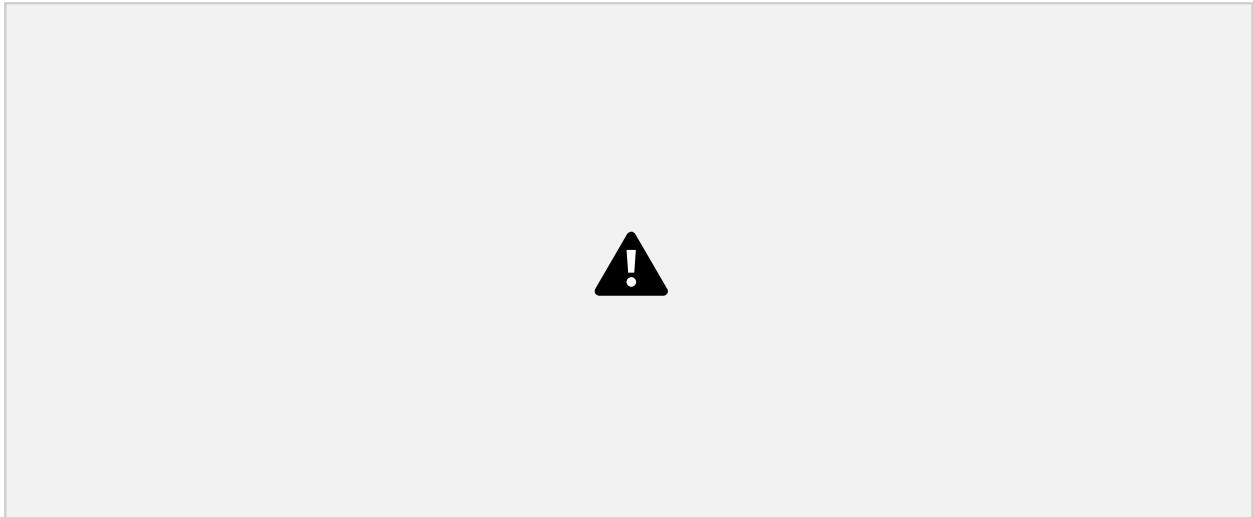


The first 3 images show the classes with example nodes being added, and then test statements doing actions to test the class. In Feature 1 we have A, B, C, and D Nodes added, then have A removed as well as the B->C Edge. So we compare it to the expected result, that being 3 nodes remaining, and 1 edge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





7 workflow runs			
	Event	Status	Branch
✓ Feat: Task 4 added graphSearch for DFS and all test cases Github CI Task 2 #7: Commit 4e651c6 pushed by btflahar	<code>dfs</code>	2 minutes ago ⌚ 17s	...
✓ Feat: Added Task 3 graphSearch and graphSearchTests Github CI Task 2 #6: Commit a968feb pushed by btflahar	<code>bfs</code>	29 minutes ago ⌚ 15s	...
✓ Fix 2 Github CI Task 2 #5: Commit fa9be5b pushed by btflahar	<code>main</code>	Today at 7:20 PM ⌚ 29s	...
✗ Fix to version 17 Github CI Task 2 #4: Commit f0f68e8 pushed by btflahar	<code>main</code>	Today at 7:11 PM ⌚ 20s	...
✓ Fix Github CI Task 2 #3: Commit b81f696 pushed by btflahar	<code>main</code>	Today at 6:50 PM ⌚ 36s	...
✗ Fixed yml Github CI Task 2 #2: Commit 19bccf7 pushed by btflahar	<code>main</code>	Today at 6:36 PM ⌚ 24s	...
✗ Feat: Project 2 Task 2: Github CI workflow integration Github CI Task 2 #1: Commit 5259bbd pushed by btflahar	<code>main</code>	Today at 6:34 PM ⌚ Failure	...

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



The screenshot shows an IDE interface with a code editor and a terminal window.

Code Editor:

```
cts\CSE464-btflahar 15 class GraphAppTest { @BradyN *
206     void graphSearchDfsExist() {
214         btflahar.asu.edu.graphDot.Path path = app.graphSearch( srcLabel: "W", dstLabel: "Z");
215
216         assertNotNull(path, message: "Path W->Z is valid");
217         assertEquals(List.of("W", "X", "Y", "Z"), path.getNodes());
218         assertEquals(expected: "W -> X -> Y -> Z", path.toString());
219     }
220
221     @Test new *
222     void graphSearchDfsNullPath() {
223         GraphApp app = new GraphApp();
224
225         app.addNode(new String[]{"W", "X", "Y", "Z"});
226         app.addEdge(srcLabel: "W", dstLabel: "X"); // No edges for Z
227
228         btflahar.asu.edu.graphDot.Path path = app.graphSearch( srcLabel: "W", dstLabel: "Z");
229
230         assertNull(path, message: "Path W->Z should be null");
231     }
232 }
```

Terminal Window:

```
✓ 1 test passed 1 test total, 49 ms
C:\Users\brady\.jdks\openjdk-25\bin\java.exe ...
Process finished with exit code 0
```



The screenshot shows a Java project structure on the left and a code editor on the right.

Project Structure:

- CSE464-btflahar-graph

 - .github
 - .idea
 - .mvn
 - src
 - main
 - java
 - btflahar.asu.edu.graphDot
 - Algorithm
 - GraphApp
 - Path
 - resources
 - test
 - java
 - btflahar.asu.edu.graphDot
 - GraphAppTest
 - target
 - .gitignore
 - CSE464-btflahar-graph.zip
 - expected.txt
 - graph-report.txt
 - input.dot

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

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>

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

<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/a968febcd44399dfd2101c94e66e9534aa3627cff>

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

<https://github.com/btflahar/CSE-464-btflahar-graph/commit/00984cb91ee701fcc31b0584d6bea85e091e025>