

GitHub Repo: <https://github.com/accfmax95/CSE-464-2023-mjberry4>

How to Run the BFS and DFS Functions -

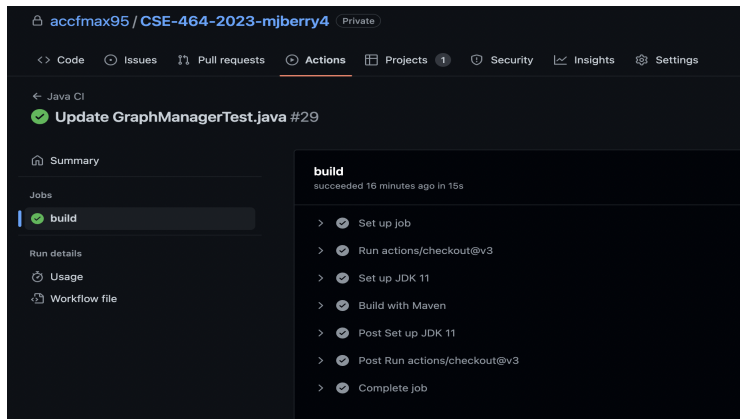
1. Once the code has been downloaded and opened in IntelliJ (or whatever IDE you are using), type 'mvn package' into your IDE's terminal. This will install the necessary libraries onto your project structure. NOTE: If you want to run the program with the .jar file created by maven, type this command: 'mvn clean compile assembly:single'. This will install the .jar file with the necessary dependencies to execute the Part1.java file. This base file has just a few lines to test the GraphManager. You can modify this file for further testing.
2. Once you run 'mvn package', you will notice the test cases run in console. All test cases should pass if the BFS and DFS function is working correctly.
3. If you would like to test the program manually, you can open the GraphManagerTest.java file and run the testGraphSearch function at the bottom. The inputs I am using for BFS and DFS are as follows:
 - a. BFS - GraphSearch(src, dst, Algorithm.BFS) for "a -> k"
 - i. Output should be "a -> b -> c -> h -> j -> k"
 - b. DFS - GraphSearch(src, dst, Algorithm.DFS) for "a -> k"
 - i. Output should be "a -> b -> c -> h -> i -> k"
 - c. BFS - GraphSearch(src, dst, Algorithm.BFS) for "a -> d"
 - i. Output should be "a -> b -> c -> d"
 - d. DFS - GraphSearch(src, dst, Algorithm.DFS) for "e -> i"
 - i. Output should be "e -> f -> g -> h -> i"
 - e. NOTE: If you want to test different inputs by modifying the test functions, you will also have to modify what the output should be in order for the new test case to pass. To change the src value and dst value, simply modify the letter of the assigned node for the src and dst variables in the test function (They are "a" and "k" as default).
4. Here is a screenshot of the correct output when running 'mvn package'. As you can see, all the test cases pass, and I have displayed the output of both the DFS and BFS algorithm for the inputs shown above.

```
}
BFS Output: a -> b -> c -> h -> j -> k
DFS Output: a -> b -> c -> h -> i -> k
BFS Output: a -> b -> c -> d
DFS Output: e -> f -> g -> h -> i
[INFO] Tests run: 8, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 1.208 s - in GraphManagerTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 8, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- jar:3.3.0:jar (default-jar) @ CSE-464-2023-mjberry4 ---
```

GitHub Commits, Branches, and Merges -

1. Here is a history of my commits, merges and everything else listed in the Actions tab of my GitHub: <https://github.com/accfmax95/CSE-464-2023-mjberry4/actions>
2. You can view a specific history of my commits here:
<https://github.com/accfmax95/CSE-464-2023-mjberry4/commits/master>

3. In this screenshot, you can see that my Continuous Integration is set up properly. This is one example of the build being complete.



4. Here I will list a series of screenshots that shows each branch being created, committed, and eventually merged into the master branch:

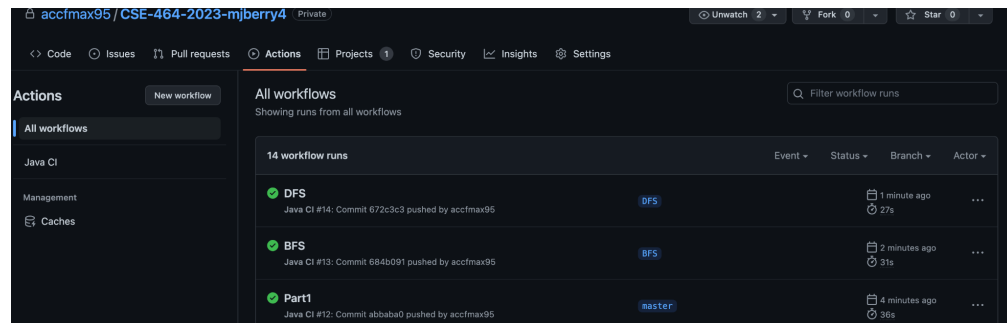
- a. The DFS, BFS, and Part1 being committed separately.

Commit for BFS, which contains the original GraphSearch for BFS -

<https://github.com/accfmax95/CSE-464-2023-mjberry4/commit/7b86dc7ce6bf5a37ad6eb6ee21c7cca74bb30e22e#diff-454107ab9f9dec7212c3aee184598948113f9c4b4c6986bf73f0ae80210f6cd2>

Commit for DFS, which contains the GraphSearch for DFS -

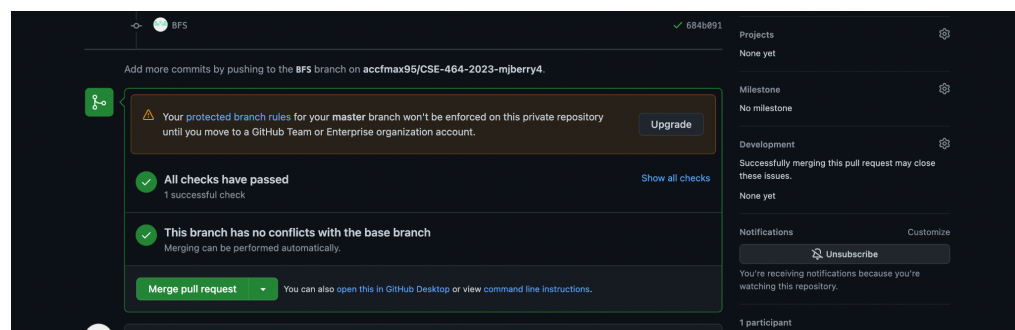
<https://github.com/accfmax95/CSE-464-2023-mjberry4/commit/672c3c3fc3c4adb5902ec6caa28f2d5530c6ae7f>



- b. The BFS branch being merged with the main branch.

<https://github.com/accfmax95/CSE-464-2023-mjberry4/actions/runs/4527563758>

<https://github.com/accfmax95/CSE-464-2023-mjberry4/commit/66966d05d4f89f1e67ff3bb8ba33a14bca7c9602>



- c. The DFS branch being merged with the main branch, and my resolution of the merge conflicts.

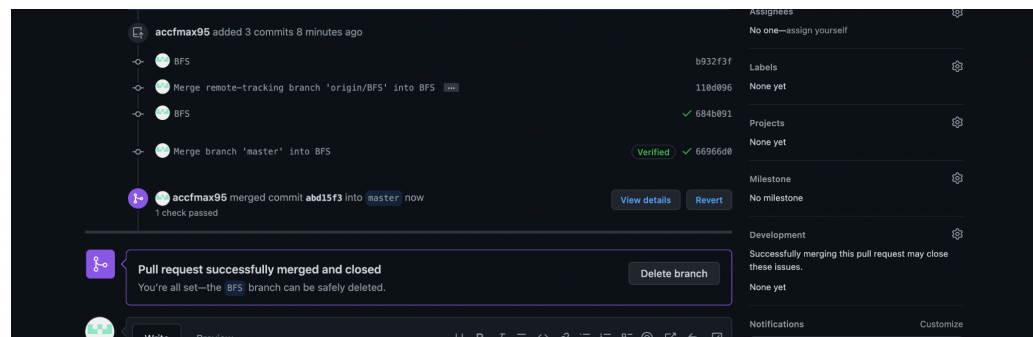
<https://github.com/accfmax95/CSE-464-2023-mjberry4/actions/runs/4527646628>

<https://github.com/accfmax95/CSE-464-2023-mjberry4/commit/252e8ffb98bdcc0bb30026a06871f75094ff5597>



```
GraphManager.java
src/main/java/GraphManager.java
test.java
src/test/java/test.java

169 Graphviz.fromGraph(graph).width(700).render(Format.PNG).toFile(new File(filename));
170 break;
171 case "svg":
172 case "SVG":
173
174 Graphviz.fromGraph(graph).width(700).render(Format.SVG).toFile(new File(filename));
175 break;
176 }
177 }
178
179 public String GraphSearch(MutableNode src, MutableNode dst, Algorithm algo) {
180
181 if (algo == Algorithm.DFS) {
182
183 String path = "";
184 Map<MutableNode, MutableNode> parent = new HashMap<>();
185 Stack<MutableNode> stack = new Stack<>();
186
187 if (src == null || dst == null) {
188
189 return null;
190 }
191
192 stack.push(src);
193
```



accfmax95 added 3 commits 8 minutes ago

- BFS
- Merge remote-tracking branch 'origin/BFS' into BFS
- BFS
- Merge branch 'master' into BFS

accfmax95 merged commit abd15f3 into master now

1 check passed

Pull request successfully merged and closed
You're all set—the BFS branch can be safely deleted.

Assignees: No one—assign yourself

Labels: b932f3f, 118d096

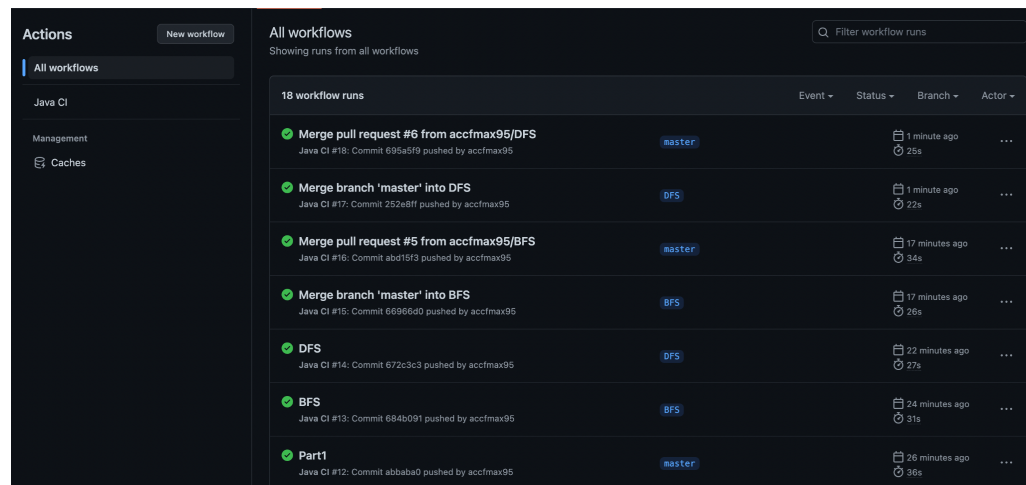
Projects: 684b091, 66966d0

Milestone: No milestone

Development: Successfully merging this pull request may close these issues.

Notifications: Customize

- d. The final history of all these merges happening being shown through Continuous Integration.



Actions: New workflow

All workflows: Showing runs from all workflows

18 workflow runs

Event	Status	Branch	Actor
Merge pull request #6 from accfmax95/DFS	Success	master	accfmax95
Merge branch 'master' into DFS	Success	DFS	accfmax95
Merge pull request #5 from accfmax95/BFS	Success	master	accfmax95
Merge branch 'master' into BFS	Success	BFS	accfmax95
DFS	Success	DFS	accfmax95
BFS	Success	BFS	accfmax95
Part1	Success	master	accfmax95