

## CSE 464 Project 2 Readme document

command on how to run: mvn package

Command to clean : mvn clean

command to compile : mvn compile

Step:1

Added 3 new APIs and their test cases to support removing nodes and edges

- Remove a node API (5 points): removeNode(String label)
- Remove nodes API (5 points): removeNodes(String[] labels)
- Remove an edge API (10 points): removeEdge(String srcLabel, String dstLabel)

```
public void removeNode(String label) {
    if (!nodes.contains(label)) {
        throw new NoSuchElementException("Node '" + label + "' does not exist.");
    }
    nodes.remove(label);
    edges.removeIf(edge -> edge[0].equals(label) || edge[1].equals(label));
}

public void removeNodes(String[] labels) {
    for (String label : labels) {
        removeNode(label);
    }
}

public void removeEdge(String srcLabel, String dstLabel) {
    boolean removed = edges.removeIf(edge -> edge[0].equals(srcLabel) && edge[1].equals(dstLabel));
    if (!removed) {
        throw new NoSuchElementException("Edge from '" + srcLabel + "' to '" + dstLabel + "' does not exist.");
    }
}
```

```
@Test
public void testAddNode() {
    String newNode = "2";
    graph.addNode(newNode);
    assertTrue(graph.getNodes().contains(newNode), message:"The graph should contain the newly added node.");
}

@Test
public void testRemoveNode() {
    String newNode = "2";
    graph.addNode(newNode);
    graph.removeNode(newNode);
    assertFalse(graph.getNodes().contains(newNode), message:"The graph should no longer contain the removed node.");
}

@Test
public void testRemoveNonexistentNode() {
    assertThrows(expectedType=NoSuchElementException.class, () -> graph.removeNode(label:"nonexistent"), message:"Should throw an exception when trying to remove a non-existent node.");
}

@Test
public void testAddAndRemoveEdge() {
    String source = "a";
    String destination = "2";
    graph.addNode(source); // Ensuring source exists
    graph.addNode(destination); // Ensuring destination exists
    graph.addEdge(source, destination);
    assertTrue(graph.getEdges().stream().anyMatch(e -> e[0].equals(source) && e[1].equals(destination)), message:"The graph should contain the newly added edge.");
    graph.removeEdge(source, destination);
    assertFalse(graph.getEdges().stream().anyMatch(e -> e[0].equals(source) && e[1].equals(destination)), message:"The graph should no longer contain the removed edge.");
}

@Test
public void testRemoveNonexistentEdge() {
    assertThrows(expectedType=NoSuchElementException.class, () -> graph.removeEdge(srcLabel:"nonexistentSource", dstLabel:"nonexistentDest"), message:"Should throw an exception when trying to remove a non-existent edge.");
}
```

## Step 2:

Adding continuous integration support for your GitHub project:

links:[https://github.com/abdullahmasood6/CSE464\\_2024\\_ahakim1/actions/runs/11751279972](https://github.com/abdullahmasood6/CSE464_2024_ahakim1/actions/runs/11751279972)

The screenshot shows the 'All workflows' page in GitHub Actions. The left sidebar contains a navigation menu with 'Actions' (selected), 'All workflows', 'Java CI', 'Management', 'Caches', 'Attestations', and 'Runners'. The main area is titled 'All workflows' and shows a list of 11 workflow runs. Each run entry includes a status icon (green for success, red for failure), a title, the workflow name, the branch, and the time since completion. The runs are as follows:

Status	Event	Branch	Time since completion
Completed	completed step 4	dfs	18 minutes ago
Completed	Merge pull request #13 from abdullahmasood6/bfs	main	45 minutes ago
Completed	Bfs	bfs	47 minutes ago
Completed	fix	main	16 hours ago
Completed	fix	main	16 hours ago
Completed	fix	main	16 hours ago
Failed	fix	main	16 hours ago
Completed	Fix	main	16 hours ago
Failed	fixing CI	main	16 hours ago
Failed	Some changes to handle CI error	main	17 hours ago

The screenshot shows the details of a specific workflow run, 'completed step 4 #11'. The left sidebar shows the navigation menu with 'Summary', 'Jobs', 'Run details', 'Usage', and 'Workflow file'. The 'Jobs' section is selected, showing a list of jobs: 'build' (selected), 'Set up job', 'Run actions/checkout@v3', 'Set up JDK 11', 'Install Graphviz', 'Build with Maven', 'Run tests', 'Post Set up JDK 11', 'Post Run actions/checkout@v3', and 'Complete job'. The 'build' job is expanded, showing a list of steps and their durations:

Step	Duration
Set up job	1s
Run actions/checkout@v3	1s
Set up JDK 11	6s
Install Graphviz	7s
Build with Maven	8s
Run tests	4s
Post Set up JDK 11	0s
Post Run actions/checkout@v3	0s
Complete job	0s

Created branch bfs:

bfs	53 minutes ago	✓ 1 / 1	1   0	#13	...
-----	----------------	---------	-------	-----	-----

Created another branch dfs

Your branches					
Branch	Updated	Check status	Behind	Ahead	Pull request
dfs	22 minutes ago	✓ 1 / 1	0	2	#14

Step 5:  
merged the bfs branch first and then dfs.

abduallahmasood6 / CSE464\_2024\_ahakim1

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> Code

Issues

**Pull requests** 1

Actions

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New pull request

1 Open

13 Closed

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completed step 4

#14 opened 50 minutes ago by abduallahmasood6

ProTip! Filter pull requests by the default branch with [base:main](#).

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Testing all the work at the end using mvn package

```
[INFO] --- surefire:2.22.2:test (default-test) @ GraphManager ---
[INFO]
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running GraphTest
[INFO] Tests run: 11, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.04 s - in GraphTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 11, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] --- jar:3.4.1:jar (default-jar) @ GraphManager ---
[INFO] Building jar: /Users/abdullahmasood/Desktop/CSE464_2024_ahakim1/target/GraphManager-1.0-SNAPSHOT.jar
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 2.521 s
[INFO] Finished at: 2024-11-08T17:30:18-07:00
[INFO] -----
(base) abdullahmasood@abdullahs-mbp CSE464_2024_ahakim1 %
```