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Test cases are given in test folder located in the project folder ProjectTest1 should include all the unit testing.

Github:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47

Tree Branch BFS:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/bfs

Tree Branch DFS:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/dfs

Continuous Integration:

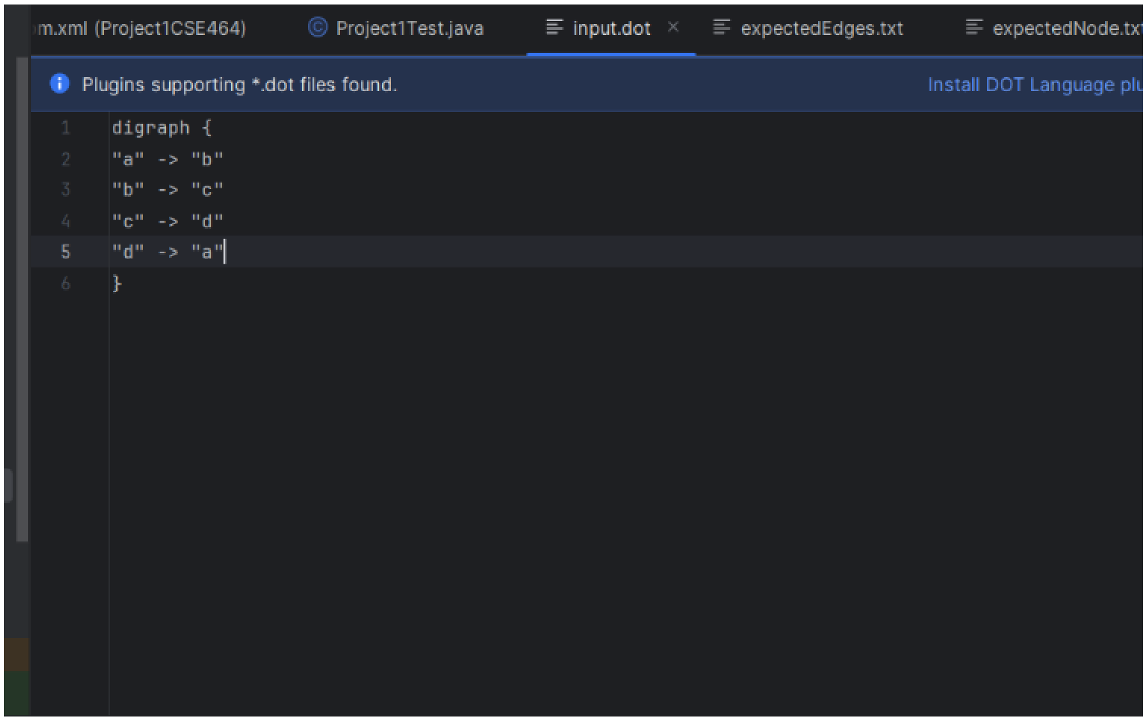
https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/actions/runs/6765986554

Merge bfs:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/53df010698f5c4423fff91ff37d12cd14b05034f

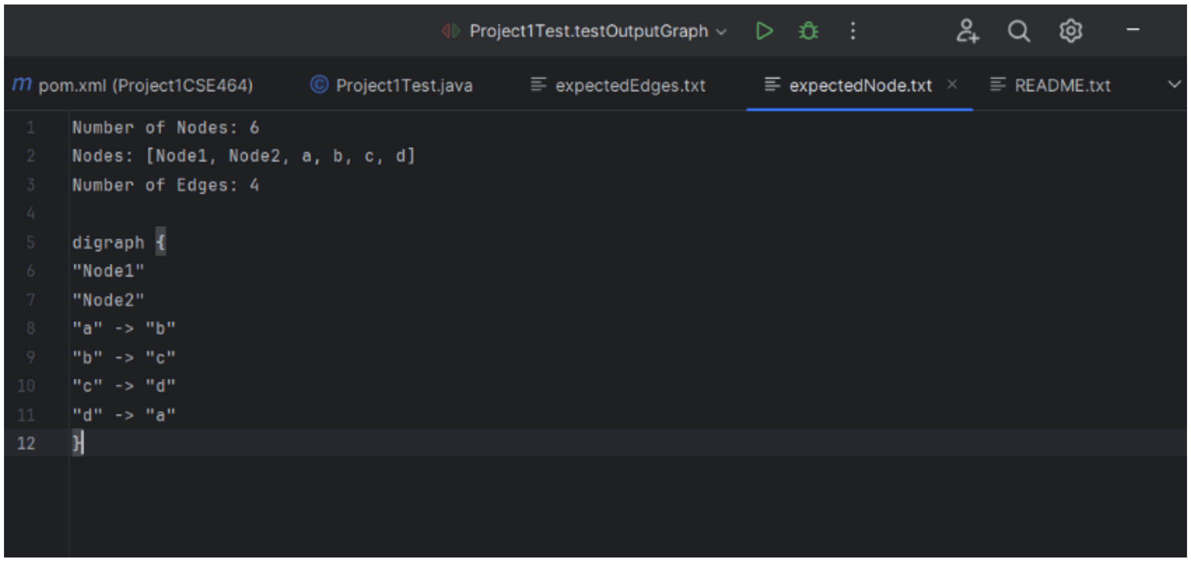
Expected outputs:

Expected for feature 4 testOuputDotGraph



```
digraph {
"a" -> "b"
"b" -> "c"
"c" -> "d"
"d" -> "a"
}
```

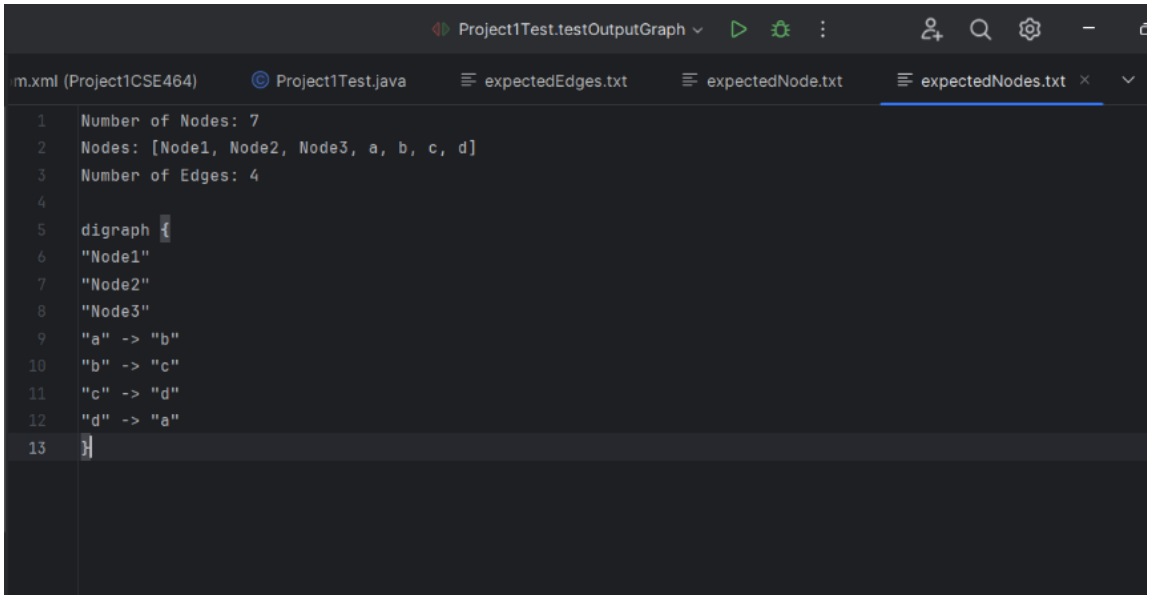
Expected output or feature 2 addNode



```
Number of Nodes: 6
Nodes: [Node1, Node2, a, b, c, d]
Number of Edges: 4

digraph {
"Node1"
"Node2"
"a" -> "b"
"b" -> "c"
"c" -> "d"
"d" -> "a"
}
```

Expected output for feature 2 addNodes

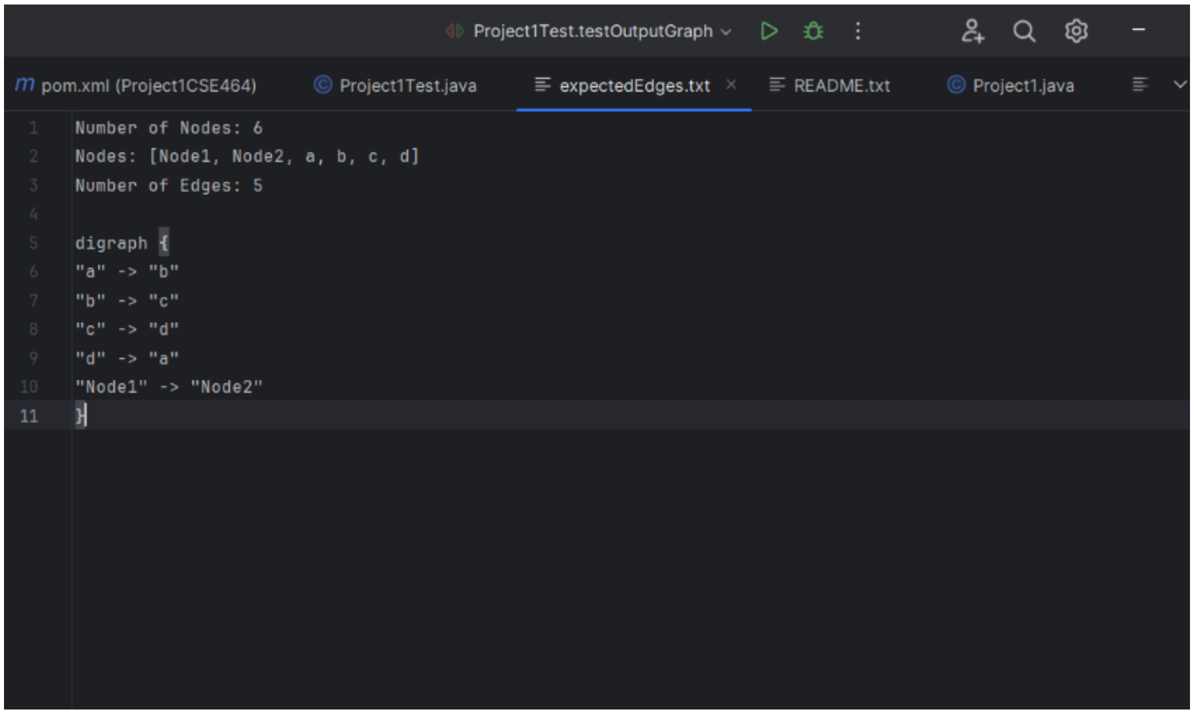


m.xml (Project1CSE464) | Project1Test.java | expectedEdges.txt | expectedNode.txt | expectedNodes.txt

```
Number of Nodes: 7
Nodes: [Node1, Node2, Node3, a, b, c, d]
Number of Edges: 4

digraph {
"Node1"
"Node2"
"Node3"
"a" -> "b"
"b" -> "c"
"c" -> "d"
"d" -> "a"
}
```

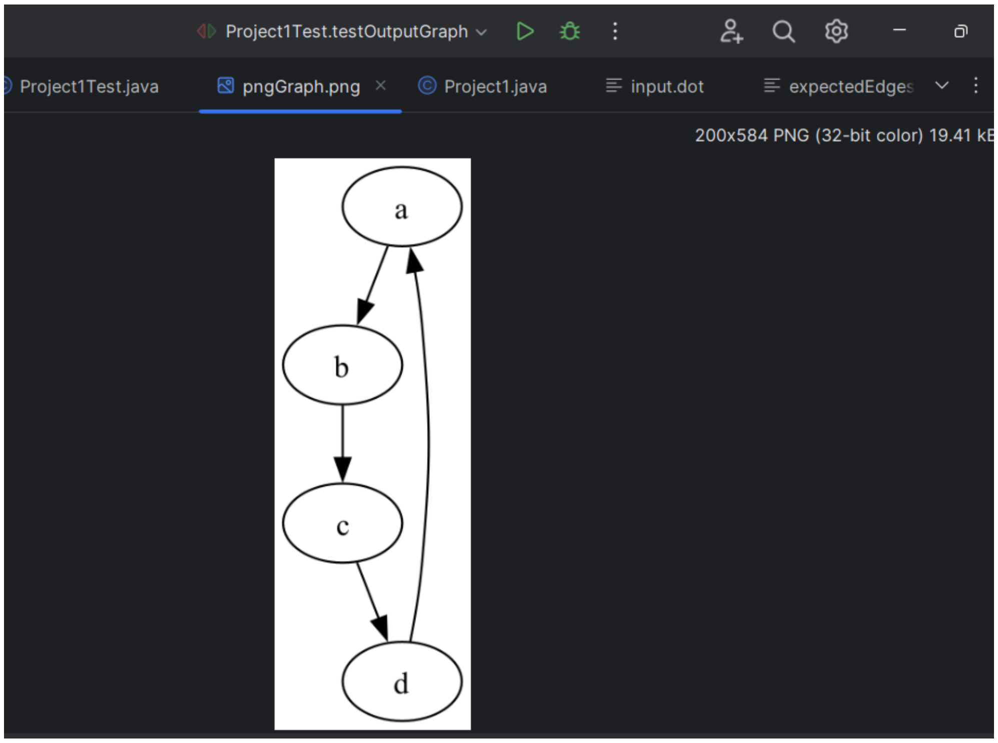
Expected output for feature 3 addEdge



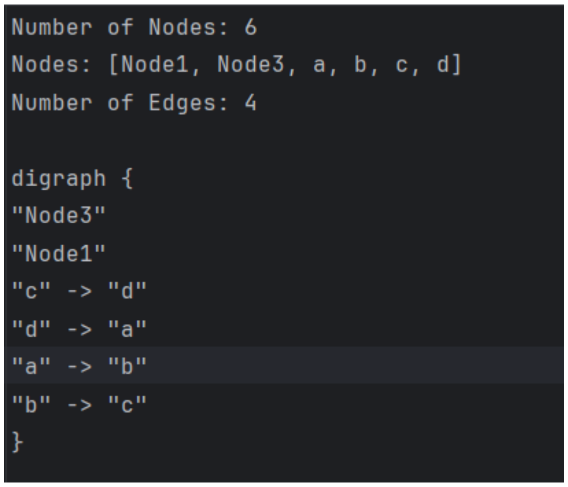
```
Number of Nodes: 6
Nodes: [Node1, Node2, a, b, c, d]
Number of Edges: 5

digraph {
"a" -> "b"
"b" -> "c"
"c" -> "d"
"d" -> "a"
"Node1" -> "Node2"
}
```

Expected output for feature 4 outputGraphics



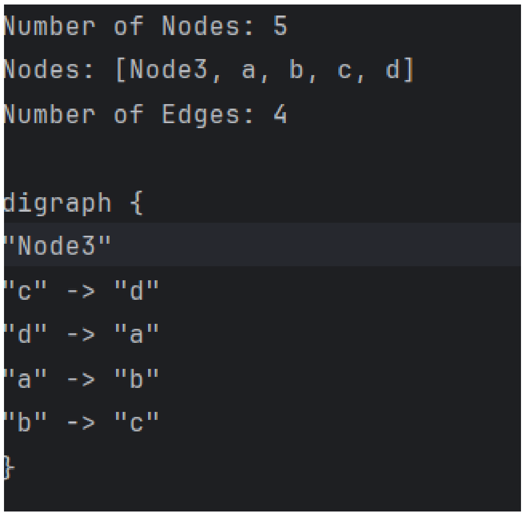
Expected Output for removeNode



```
Number of Nodes: 6
Nodes: [Node1, Node3, a, b, c, d]
Number of Edges: 4

digraph {
"Node3"
"Node1"
"c" -> "d"
"d" -> "a"
"a" -> "b"
"b" -> "c"
}
```

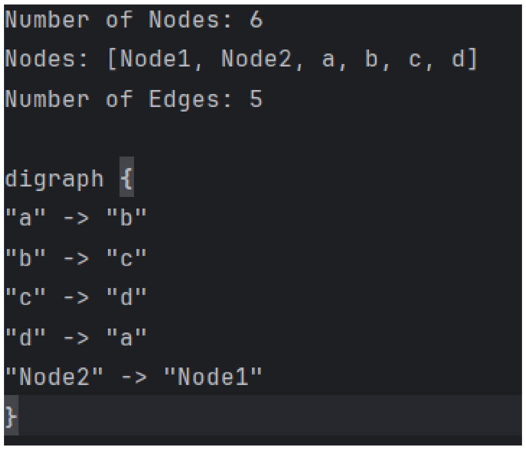
Expected Output for removeNodes



```
Number of Nodes: 5
Nodes: [Node3, a, b, c, d]
Number of Edges: 4

digraph {
"Node3"
"c" -> "d"
"d" -> "a"
"a" -> "b"
"b" -> "c"
}
```

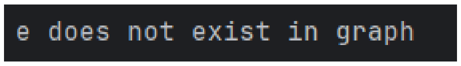
Expected output for removeEdge



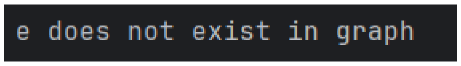
```
Number of Nodes: 6
Nodes: [Node1, Node2, a, b, c, d]
Number of Edges: 5

digraph {
"a" -> "b"
"b" -> "c"
"c" -> "d"
"d" -> "a"
"Node2" -> "Node1"
}
```

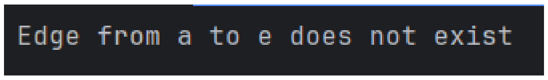
**The error files like removeNodeError, removeNodesError, and removeEdgeError should all return the error message into the terminal. As well as just compare the output**



```
e does not exist in graph
```



```
e does not exist in graph
```



```
Edge from a to e does not exist
```

Github Commits:

Feature 1:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/13da5df15d70f137599f0d0548c08deca4fbdecf

Feature 2:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/82dfd0cf6478be38794919aa65f49d4b758ccca6

Feature 3:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/66fa44ecc89a2b389f3e56fd61a6584742bd2ac1

Feature 4:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/21d75d8c94ba273ff7bbd3bed34fe07e4f2d3cc1

Feature Remove:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/52c998e285aa93415b7ad7906e72960d2268cbeb

---

1st Refactor:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/caffc21b4a15021d73befc831654b6dff0d17ca8

2nd,3rd,4th Refactor:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/1f664ae68174a492238adc8f973147b8ae710abf

5 Refactors:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/afd7239346c91139e9b6df03d8e6188e29b5ed12

BFS and DFS Template Pattern:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/d52112709187ebc2cf601f66e10d87d64fef4357

Explanation:

Created two different classes for the BFS and DFS template pattern. They both get their template from the class SearchTemplate.java, and they are called within the Path.java and Project1.java. Separating both of the code.

BFS Strategy Pattern:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/fb5fab0a156a8ae7df9b3d523529027b4910d540

Strategy pattern uses the implementation of Path search from graphStrategy to run the bfs

Code Review Pull Request:

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/pull/4

RandomWalk Strategy and Template Pattern

https://github.com/Sgomez47-ASU/CSE464-2023-Sgomez47/tree/eb89a68c76d0ea555f7510f30dec121cf70fb9c9

Template Pattern: RandomWalkTemplate

Strategy Pattern: RandomWalkAlgorithm

Template Pattern uses the SearchTemplate.java file and StrategyTemplate uses the GraphStrategy.java, to separate the search methods between the randomwalk in order to recursively call it.