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CS 150 Lab

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Lab 12 Notes

Introduction

In this lab, we were asked to implement a graph, its vertices, its edges, and its methods. Then, we would create a new graph using an input file that hold the vertices and edge and find the quickest path from one vertex to another vertex that is in the graph. To find the quickest path, we had to implement a method that used breadth first traversal called Dijkstra's Algorithm and then print out the quickest path. To create the graph, we used inner classes which contained the vertices and the edges and the different paths from slowest to quickest. Finally, it was all ran in a main class that took in the input file and printed out the results.

Unit Test

✓ DirectedGraphTest.testAddEdge

✓ DirectedGraphTest.testAddNode

✓ DirectedGraphTest.testGetEdge

✓ DirectedGraphTest.testGetNeighbors

✓ DirectedGraphTest.testNeighbor

Runs: 5/5

✖Errors:0

✖Failures:0

Total Time: 4ms

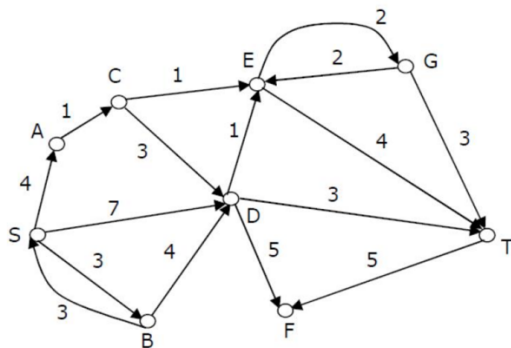
Show Source

Close

Required Output

The required output is:

S 0 b 3 a 4 c 5 e 6 d 7 g 8 t 10 f 12 where the letters represent the different vertices and the numbers represent the quickest and shortest path from the source “S” to that vertex.



your output should be:

S 0 b 3 a 4 c 5 e 6 d 7 g 8 t 10 f 12

Trouble Report

One thing I did not get correctly was the output. The problem is not that I did not get an output, but that it did not come out printed in the format in the lab directions. However, the values and vertices match and are all correct.

```
(Total Distance is: 0) S
(Total Distance is: 4) S
to a
(Total Distance is: 3) S
to b
(Total Distance is: 5) S
to a
to c
(Total Distance is: 7) S
to d
(Total Distance is: 6) S
to a
to c
to e
(Total Distance is: 12) S
to d
to f
(Total Distance is: 8) S
to a
to c
to e
to g
(Total Distance is: 10) S
to a
to c
to e
to t

Can only enter input while your programming is running
```

References

Weiss, M. A. (2006). *Data Structures & Problem Solving Using Java* (4th ed.). Addison Wesley.

APIs

- HashMap API
- ArrayList API
- Scanner API
- FileReader API
- Arrays API