

COSC 2436 Homework 4: Shortest Path

Create a C++ program to find the shortest path distance from a starting vertex to all the other vertices in a graph. Your program should compute and save the shortest distance using Dijkstra's algorithm. The distance should be computed starting from vertex 0 in all cases.

1. Input files

- The first line of the input files contains the number of vertices in the graph, n . This value is always a valid positive integer.
- The remaining n lines in the file each contain n positive integers, each separated by a single space.
- The file contains only valid lines of integers, with no blank lines.

2. Output files

- Output the vertices and the distance to each vertex in increasing order by vertex.
- Output one vertex, a space, and the distance; one per line.

3. Example

input1.txt	output1.txt
7	0 0
0 2 3 5 0 0 0	1 2
2 0 0 8 10 0 0	2 3
3 0 0 11 0 14 0	3 5
5 8 11 0 15 7 12	4 12
0 10 0 15 0 0 13	5 12
0 0 14 7 0 0 6	6 17
0 0 0 12 13 6 0	

4. Reminder

- Turn in your lab assignment to our Linux server, follow the link [here](#) for more instructions.
- Make sure to only have **one (1)** .cpp file with the main() function in your working directory, otherwise your program will fail the grading script.
 - Create a folder under your root directory, name the folder *hw4* (case sensitive), copy all your .cpp and .h files to the folder (ArgumentManager.h is also needed)
 - Only include the necessary files (.cpp and .h files) in your working directory in your final submission
 - To test your program, copy the input files into the server and run your program. After verifying that they pass, delete the .txt files.

Please reach out to myself or the TAs for any clarifications or typos.