

Programming Assignment #4

Due at 11:59pm, Sunday, April 24

All the codes should be written in c or c++ for linux and commented appropriately for major steps/functions

Code that does not compile will not be graded and get a 0 automatically

The codes should be submitted as a single zipped file through Blackboard

Implement Floyd's Algorithm for all pairs shortest paths using C or C++. (100 pts)

```
ALGORITHM Floyd( $W[1..n,1..n]$ )  
 $D \leftarrow W$   
for  $k \leftarrow 1$  to  $n$  do  
    for  $i \leftarrow 1$  to  $n$  do  
        for  $j \leftarrow 1$  to  $n$  do  
             $D[i, j] \leftarrow \min\{D[i, j], D[i, k] + D[k, j]\}$   
return  $D$ 
```

Requirements:

- Your code should be able to read an input ASCII file named 'input.txt', which contains a distance matrix with non-negative floating-number distances and the diagonal entries are all zeros.
- Your code will produce an output ASCII file named 'output.txt', which contains the final distance matrix for all pairs shortest paths
- **A script file or readme file including the instructions to compile and run the code should be submitted together with the codes**