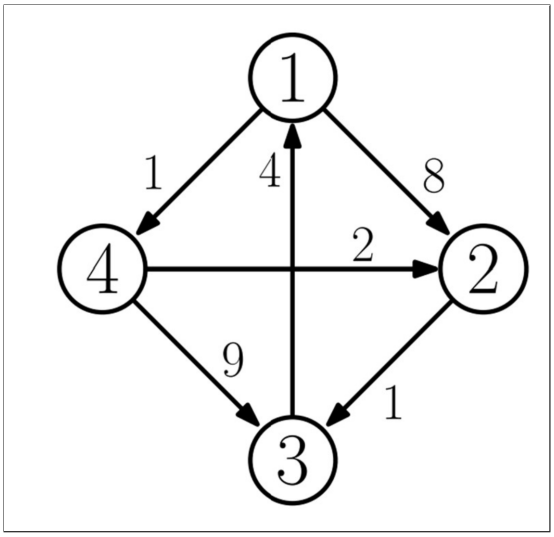
CS/CPE590: Algorithms
Spring 2023
Assignment6

Dynamic Programming

1. (30+20=50 points) Apply Floyd Warshall Algorithm to find the all-pair shortest path from the following graph (show all the steps of your work). Mention the shortest path for each vertex to every other vertex. Also, find the transitive closure of the graph (show all the steps of your work).



2. (50 points) Implement a C++ program to apply Floyd Warshall Algorithm to find the all-pair shortest path from a weighted graph. Please consider the graph above as input to your program. Your program should print the distances of the shortest paths of all the vertices from all the other vertices. Follow the provided template.

Remarks:

- The assignment has to be completed individually. No collaboration is allowed between students. No code from online resources is allowed to be used. Any sign of collaboration or use of online materials will result in a 0 and be reported to the Graduate Academic Integrity Board. You have to strictly follow the provided template. The late submission policy is applicable to the assignment as specified in the course syllabus.

- You have to submit a report containing your solutions to problem-1 as a pdf file.
- For problem-2, you have to maintain the provided template strictly!
- You have to make sure your program works as expected in the following online compiler: https://www.onlinegdb.com/online_c++_compiler.
- **Submit a zip file containing your report(.pdf) file and code(.cpp) file**.