

## CSE208: Data Structures and Algorithms II Sessional

### Offline for Week 6: All pair shortest path

Deadline: 21/12/2021, 11:55 pm

Implement an efficient algorithm for solving the All Pairs Shortest Path problem. The problem is to find shortest distances between every pair of vertices in a given edge weighted directed Graph.

**Input:** The first line of the input file will contain the number of vertices  $0 < n < 100$  and the number of edges  $m$  ( $\leq 10000$ ) followed by  $m$  lines each containing origin  $u$ , end  $v$  and weight  $w$  ( $\leq 100000$ ) of an edge of the directed graph.

**Output:** Distance matrix including distances between every pair of vertices

Sample input and output

4 6 1 2 8 1 4 1 2 3 1 3 1 4 4 2 2 4 3 9	Shortest distance matrix  0 3 4 1 5 0 1 6 4 7 0 5 7 2 3 0
4 4 1 2 5 2 3 3 3 4 1 1 4 10	Shortest distance matrix  0 5 8 9 INF 0 3 4 INF INF 0 1 INF INF INF 0