CS 6301.002

Implementation of advanced data structures and algorithms

Long Project 3: Shortest paths

G-07: Salil Kansal, Twinkle Sharma, Sujit Sajja

Report

Level 1

Properly Implemented the Level1 with all the algorithms. Every test case working correctly.

Algorithms implemented:

BFS

Dijkstras

DAG Shortest Path

Bellman Ford Shortest Path algorithm

Level 2

Implemented the number of shortest path from source to all vertices recursively. Could not do the printing of negative cycles.

Problems faced:

- Finding if a graph has a negative cycle
- Printing the negative cycle

Design Descisions:

- The number of shortest path are calculated recursively by utilizing the fact that if the count has not previously calculated then calculate that otherwise we can directly use the value. So it is a linear algorithm in the sense that it calculated number of shortest path of each vertex only once.

Test results:

- All input files provided are giving the required output for Level1 and Level2
- It is not printing the negative cycle and does not handle those test cases perfectly
- References:

StackOverflow

Wikipedia