CS302 - Design and Analysis of Algorithm
Fall 2021
Project Description
Submission: 11th Dec 2021
Total Marks: 10. You need to work as a Group of 2

Option 1: In this project, you are required to implement the following algorithms from Graph Analysis using given benchmarks of increasing number of nodes (from 10 nodes to 100 nodes). Basically, you need to show a very nice user interface where user can select any input files and then graph to be displayed using x and y co-ordinates provided for each node in each input file. Once displayed, then the user should able to run the following algorithms. For Prims, Kruskal & Clustering Coefficient in Graph Theory, if there is a link between two nodes, then consider this as edge in undirected graph. If there are two directed link b/w edges, then consider the edge with minimum cost.

(1) Prims
(2) Kruskal
(3) Dijkstra
(4) Bellman Ford
(5) Floyd Warshall Algorithm
(6) Clustering Coefficient in Graph Theory (Only Local Clustering). The final cost should be the average of all local clustering of all nodes
(7) Borůvka's algorithm

You are required to submit strictly a 4-page report with the following sections

(a) Abstract
(b) Introduction
(c) Your proposed system (make a clear diagram of your system here along with discussion)
(d) Experimental Setup
(e) Results and Discussion (Here, show results from benchmarks i.e. minimum solution obtained using various benchmark files)
(f) Conclusion

(g) References

Option 2: Select a project of your choice with the approval of your class instructor.