

## Assignments (Lab 11)

**NB:** This paragraph is common for all the questions. The programs should work for any value of N (as high it may be). What is the complexity of the algorithms? Please state the reason with a proper explanation [Write on a white paper and submit the scan copy with the assignment PDF file]. Each program should be run for at least TWO test cases. If you are assigning any memory through malloc() function, remember to free() up that memory at the end of the program.

1. Take a random connected directed acyclic graph. Store it using Adjacency Matrix as well as Adjacency list. Implement the Breadth-first search, Depth-first search and Topological sort using both the storage structures.
2. Take a complete graph of N nodes. N should be input from the user. Store it using either Adjacency Matrix or Adjacency List. Edge weights ( $>0$ , integer) can be taken as random. Find out the Minimum spanning tree using Prim's and Kruskal Algorithm.