Data Structures and Algorithms - LAB 11 - 29.10.2022

Evaluation

Observation – 5 marks

Execution – 15 marks

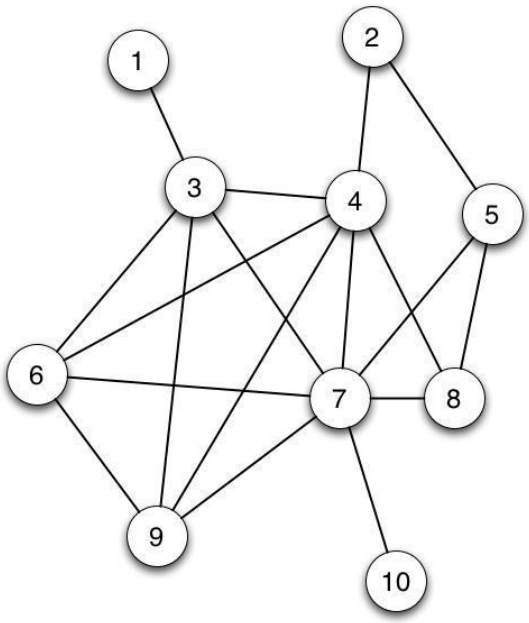
Spot – 5 marks

Observation

1. Define Graph with an example.
2. Differentiate Tree with Graph.
3. List the types of graphs
4. List the traversal techniques in graph
5. Write the applications of graph.

Execution

1. Implement BFS and DFS traversal for the given graph



Spot

1. Suppose that G is a *directed* graph with N vertices. What's the maximum number of edges that G can have? Assume that a vertex cannot have an edge pointing to itself, and that for each vertex u and v, there is at most one edge (u, v).

2. Suppose the graph G is an undirected graph and assume that no vertex is adjacent to itself, and at most one edge connects any pair of vertices. What's the maximum number of edges that G can have compared to the directed graph of G?

3. What's the minimum number of edges that a connected undirected graph with N vertices can have?

4. Which is most **space-efficient and time efficient** if you have a lot of edges and very few edges in your graph?

Justify

Adjacency matrix

Adjacency lists

5. Write all possible BFS and DFS graph traversals for the given graph