## **Graph DSA**

- 1. Adjacency List representation: <a href="https://ide.geeksforgeeks.org/yZ7lvYnKut">https://ide.geeksforgeeks.org/yZ7lvYnKut</a>
- 2. BFS (Breadth First Search):
  - a. given an undirected graph and a source vertex 's' https://ide.geeksforgeeks.org/1JYKqCPmP6
  - b. B.F.S on disconnected graphs: https://ide.geeksforgeeks.org/eoPMnNe3tX
  - C. Print number of islands in a graph (or number of connected components in a graph): https://ide.geeksforgeeks.org/HPs3CVQIrN
- 3. DFS (Depth First Search):
  - a. given an undirected graph and a source vertex 's' https://ide.geeksforgeeks.org/xpF9AYFQrY
  - b. For Disconnected Graphs: <a href="https://ide.geeksforgeeks.org/QRfA8cE92K">https://ide.geeksforgeeks.org/QRfA8cE92K</a>
  - c. For finding connected components/islands in graph: https://ide.geeksforgeeks.org/JiJM7uhdML
- 4. Detect Cycle in a Undirected Graph
  - a. (DFS method): https://ide.geeksforgeeks.org/6NH6MSd4ae
  - b. (BFS method):https://ide.geeksforgeeks.org/YX7x0ir7ow
- 5. Bipartite Graph
  - a. BFS method: https://ide.geeksforgeeks.org/LJwbObu6U1
  - b. DFS method: https://ide.geeksforgeeks.org/qKKBsV8rcy
- 6. Topological Sort
  - a. DFS method: https://ide.geeksforgeeks.org/A7LHVToQYE
  - b. BFS method: https://ide.geeksforgeeks.org/mleiCuxsUc
- 7. Shortest Path in an Unweighted graph: <a href="https://ide.geeksforgeeks.org/DKX9mdThcv">https://ide.geeksforgeeks.org/DKX9mdThcv</a>
- 8. Shortest Path in Directed Acyclic Graph (DAG): https://ide.geeksforgeeks.org/vPTy9pqJoh
- 9. Dijkstra's Algorithm | Shortest Path in Undirected Graphs: https://ide.geeksforgeeks.org/uKIcHX0h9u
- 10. Minimum Spanning Tree
  - a. Prim's Algorithm:
    - i. Brute Force : <a href="https://ide.geeksforgeeks.org/9pq38no2SV">https://ide.geeksforgeeks.org/9pq38no2SV</a>
    - ii. Efficient (using minHeap): https://ide.geeksforgeeks.org/Vx2u3Wj6zk
  - b. Kruskal's Algorithm: <a href="https://ide.geeksforgeeks.org/yHHTNd3af5">https://ide.geeksforgeeks.org/yHHTNd3af5</a>
- 11. Bridges in a Graph / Cut Edge : https://ide.geeksforgeeks.org/VIROmKAIY1
- 12. Articulation Point / Cut Vertex : <a href="https://ide.geeksforgeeks.org/ylllVq5dwh">https://ide.geeksforgeeks.org/ylllVq5dwh</a>
- 13. Strongly Connected Component:
  - a. Kosaraju's Algorithm: <a href="https://ide.geeksforgeeks.org/Z2fsVZDRGO">https://ide.geeksforgeeks.org/Z2fsVZDRGO</a>
  - b. Tarjan's Algorithm: https://ide.geeksforgeeks.org/iCoDUW2OFA
- 14. Bellman Ford Algorithm | Detect Negative cycle in a graph : https://ide.geeksforgeeks.org/68Nqln25ZM