

Assignment 9 - Graph Algorithms 1

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Sample Input & Output

```
Enter the number of vertices in your graph: 3
Note that the vertices should have their values from 1 - 3
Do you want to enter more edges? (y/n): y
Enter the edge: 1 2
Edge (1,2) added.
Do you want to enter more edges? (y/n): y
Enter the edge: 1 3
Edge (1,3) added.
Do you want to enter more edges? (y/n): y
Enter the edge: 2 3
Edge (2,3) added.
Do you want to enter more edges? (y/n): n
The Input Graph in Adjacency List representation:
1 -> 2 3
2 -> 3
3 ->

Enter the start vertex for DFS : 1
Set of reachable vertices from vertex 1 are : 1 2 3

Enter the start vertex for BFS : 2
The vertex 1 is not reachable from the given vertex 2. So distance is defined as -1
The vertex 2 is reachable from the given vertex 2 with distance between them = 0
The vertex 3 is reachable from the given vertex 2 with distance between them = 1

The graph G is a DAG.
```

Time Complexity (Directed, Adjacency List)

The Time Complexity of **DFS(int n)** is **$O(|E|+|V|)$**

The Time Complexity of **BFS(int n)** is **$O(|E|+|V|)$**

The Time Complexity of **linearization()** is **$O(|E|+|V|)$**

where E,V denote the set of Edges & Vertices respectively of the graph.