## Depth First Search

*Description:*

Depth First Search Algorithm is just as the name of the algorithm: as long as possible, if there exists node.

*Phase 1:*

Depth First Search Algorithm would search from the starting edge of the Latest Found Node v, until Each Edge of the node has been found. The process finished.

*Phase 2:*

Once all starting edges of the node v have been visited, the search process would return back to the precursor node of the node v to find the starting edges of the priority node.

*Phase 3:*

As long as all precursor nodes of the current node have been visited, then if there still has some other unfounded nodes, then Depth First Search Algorithm would pick up a random node from all unfounded nodes as the new node, and to repeat the same query process. The Depth First Search Algorithm would repeat, until all nodes in the Graph have been visited.

*Key:*

* Multiple Depth Priority Trees of Priority Sub - Graph forms the Depth Priority forest. Still, the edge in the Tree forest is still called the edge of tree.
* Need to attention that, just like Breadth First Search Algorithm, the Depth Priority Tree makes the color of node to display the status of node.
* The initial color of node equals to White, and once the node has been found, then it turns to Gray. After Adjacent Linked List has been completely scanned, the color of node turns to Black. Such method ensures that each node exist in only one Depth First Tree. Therefore, the conclusion can be reached, which is to say, all Depth First Tree is disjoint.

*Rule:*

*Example:*

*Code:*