
Your Ultimate Guide To Landing
Top AI roles


DECODE
AiML

2.19.3

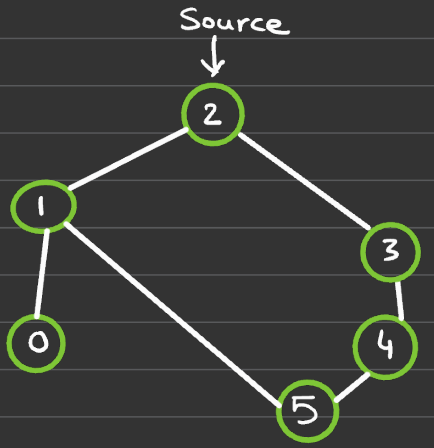
DFS Traversal Algorithm

→ A graph traversal algorithm is a method to systematically visit all the nodes of the graph.

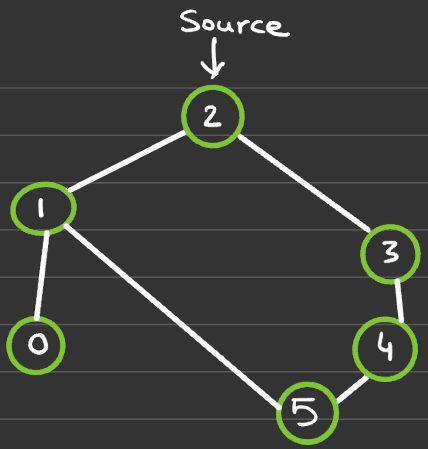
→ There are mainly 2 types of Graph traversal Algorithms.

① Breadth-First Search (BFS)
② Depth-First Search (DFS)

Depth-First Search (BFS)



DFS Sequence : 2 1 0 5 4 3 ~~5~~



DFS Dry Run

→ Visited
→ Explored

⓪ Input & output
→ Input → adjacency List, src
→ Output → dfs sequence (list)

① Initial Setup:
↳ Visited array → List in Python.

② Dry Run:

```
def dfs(adj, src, vis, res):
    vis[src] = True
    res.append(src)
    for ngb in adj[src]:
        if not vis[ngb]:
            dfs(adj, ngb, vis, res)
    return res
```

DFS sequence

Visited

Time & Space Complexity → Adjacency List Repr...

→ Time Complexity = $O(n) + O(2E) = O(n+E)$

$O(n)$: no of times Recursion get called

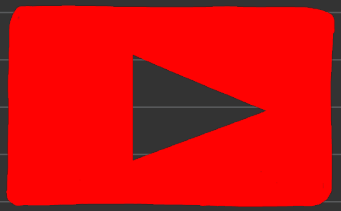
$O(2E)$: no of times if condition is checked

→ Space Complexity = Auxiliary Space → Excluding Input & Output space.

$= O(n) + O(n) = O(n)$

$O(n)$: Space for visited array

$O(n)$: Space taken by stack foame allocation

Like  Subscribe