

Algo (BFS)

Tuesday, June 2, 2020 12:08 PM

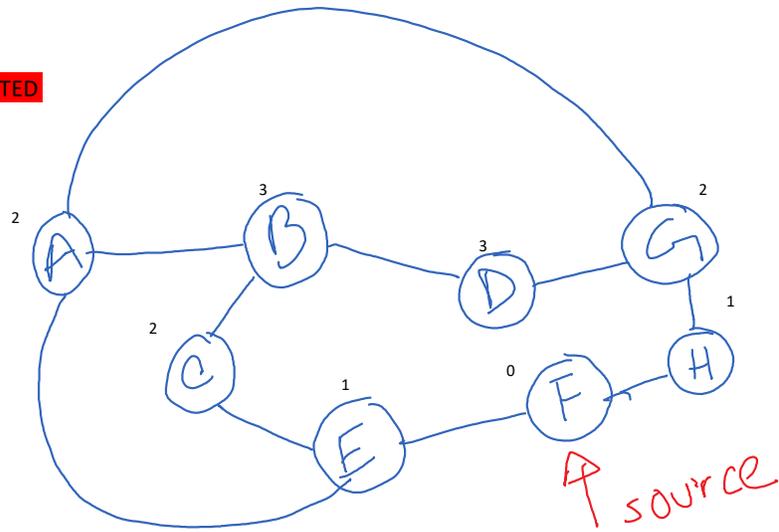
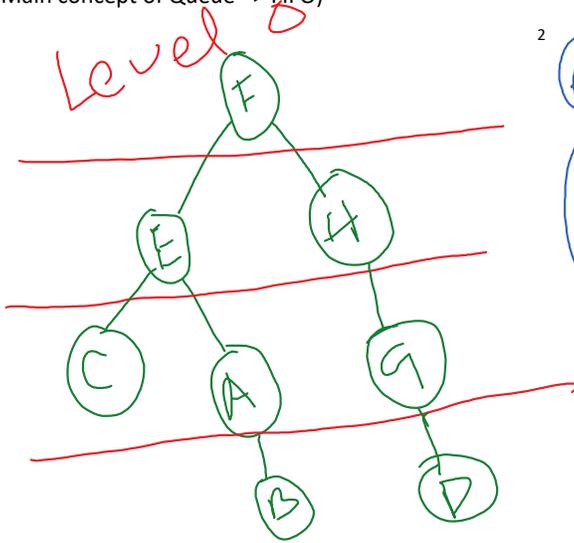
Breadth First Search (Graph Traversal Algo) a.k.a. **Level Order Traversal**

****BFS provides the shortest path from the source node in case of UNWEIGHTED Graphs****

-> Queue used for BFS (Main concept of Queue => FIFO)

Queue: Null

F
F F
E, H
H, A, C
A, C, G
C, G, B
G, B
B, D
D



Undirected Graph, Unweighted Graph

Null/empty

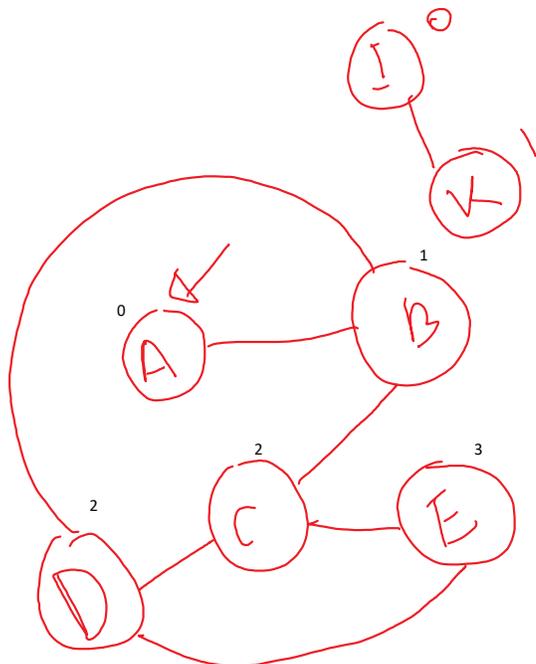
A node can be either **undiscovered, discovered, processed.**

Pseudo Code:

```

BFS(G,S){
  For each v that belongs to v[G]{
    Level[v] = -1
    Parent[v] = Null
  }
  Level[S] = 0

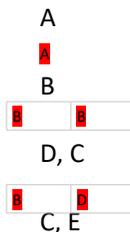
  Q <= enqueue (S)
  While(Q != empty){
    U = Dequeue(Q)
    Level[u] = Level[Parent[u]]+1
    For each v belongs to Adj[u]{
      If(level[v] == -1 || v is not on the queue){
        Parent[v] = u
        Enqueue(v)
      }
    }
  }
}
    
```



Simulate BFS of on the following graph and consider A as the source node.

Queue: Null

Output: A, B, D, C, E



E

null