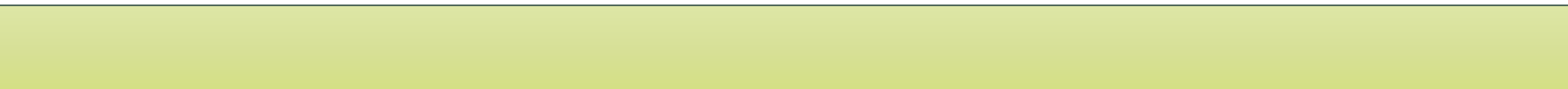# Graph traversal technique I : BFS (Breadth First Search)

Presented by: Adarsh Singh

What is BFS?

Its a traversing algorithm, where we start traversing from selected node (source or starting node) and traverse the graph layerwise which means it explores the neighbour nodes (nodes which are directly connected to source node) and then move towards the next level neighbour nodes. As the name suggests, we move in breadth of the graph, i.e., we move horizontally first and visit all the nodes of the current layer and then we move to the next layer.
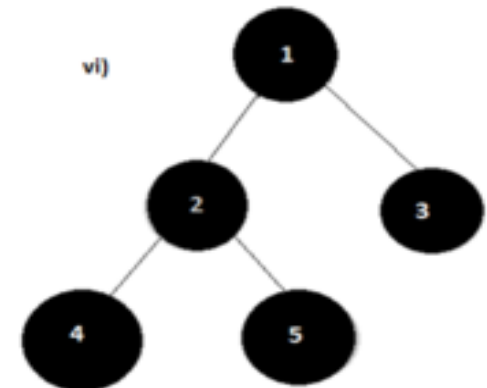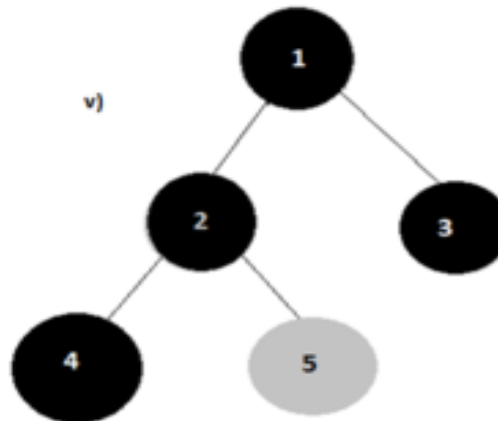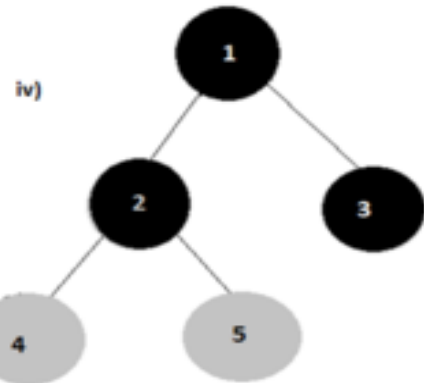
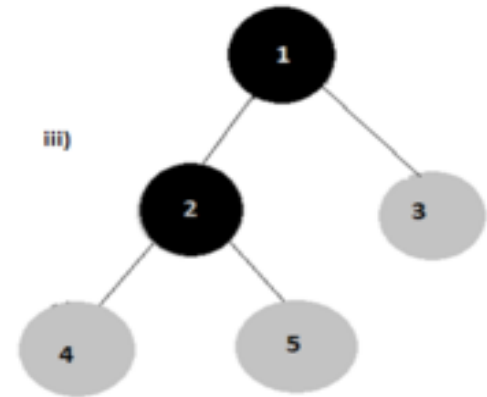Layer 0   0   source node

Layer 1

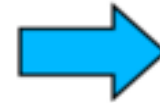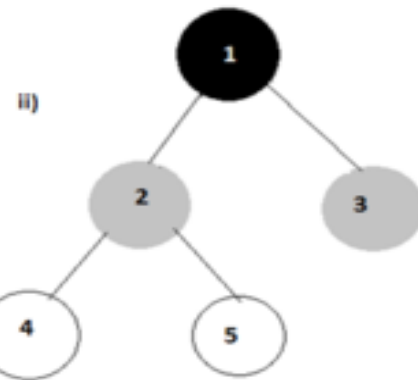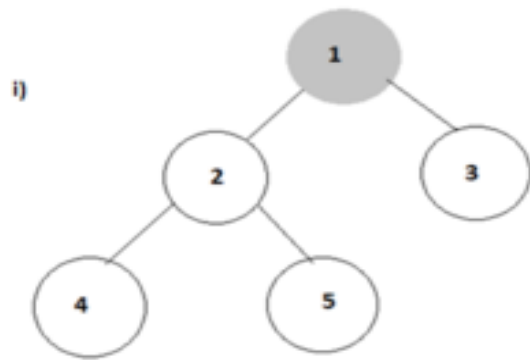Layer 2
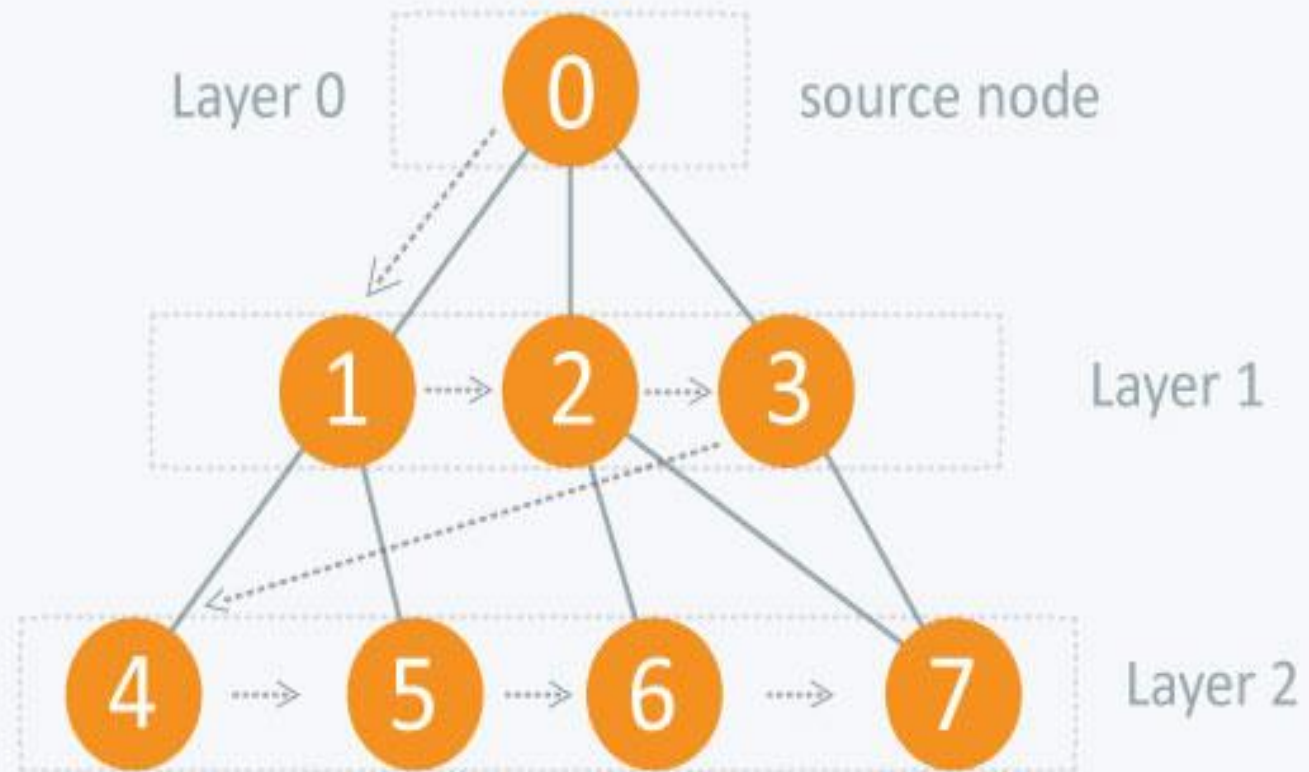
Pseudocode

```
BFS (G, s)                          //where G is graph and s is source node.
  let Q be queue.
  Q.enqueue( s ) // inserting s in queue until all its neighbour vertices are marked.

  mark s as visited.
  while ( Q is not empty)
        // removing that vertex from queue,whose neighbour will be visited now.
        v  =  Q.dequeue( )


        //processing all the neighbours of v
        for all neighbours w of v in Graph G
              if w is not visited
                      Q.enqueue( w )              //stores w in Q to further visit its
neighbour
                      mark w as visited.
```

Example

Thanks