BREADTH FIRST SEARCH

The only catch here is, that, unlike trees, graphs may contain cycles, so we may come to the same node again. To avoid processing a node more than once, we divide the vertices into two categories:

Visited and

Not visited.

How does BFS work?

Starting from the root, all the nodes at a particular level are visited first and then the nodes of the next level are traversed till all the nodes are visited.

To do this a queue is used. All the adjacent unvisited nodes of the current level are pushed into the queue and the nodes of the current level are marked visited and popped from the queue.

Illustration:

Let us understand the working of the algorithm with the help of the following example. A screenshot of a computer

Description automatically generated

A screenshot of a graph

Description automatically generated

Step 5: Remove node 2 from the front of queue and visit the unvisited neighbours and push them into queue.

A screenshot of a computer

Description automatically generated

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