**AI LAB TASK 6**

**Explanation of BFS**

We are using Breadth-First Search (BFS) on a tree structure. BFS works by exploring nodes level by level, starting from the root.

**BFS with Queue**

In the first approach, we use a queue to keep track of which node to visit next.

* Start by adding the root node to the queue.
* Take out the first node from the queue and mark it as visited.
* If this node is the goal, stop the search.
* Otherwise, add all of its children to the queue.
* Continue this process until the queue is empty or the goal is found.

**BFS with Levels**

In the second approach, we use two lists:

* One for the current level of nodes.
* Another for the next level (children of the current level).

The process goes like this:

* Start with the root in the current level.
* Visit all nodes in the current level, one by one.
* If the goal is found, stop the search.
* Otherwise, collect all children of the current level into the next level.
* Move to the next level and repeat the process.

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