



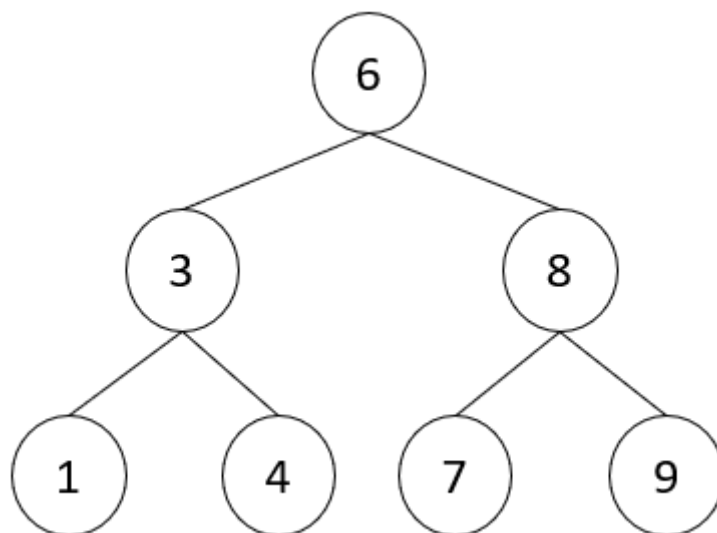
4.3.1 Graph and Tree Traversal

Breadth-First Traversal

A breadth-first traversal visits nodes level by level.

After visiting the start node, it visits every node connected to it.

Then every node connected to these nodes and so on.



The breadth-first traversal of this graph, starting at node 6 would be:

6, 3, 8, 1, 4, 7, 9





Depth-First Traversals

A depth-first traversal explores a graph by traversing as deep as possible into the graph before backtracking to explore other routes.

There are three variations:

Pre-Order

VLR – For each node: the node is visited, then every node to the left is visited, then every node to the right is visited.

Used for: Copying a tree.

In-Order

LVR – For each node: every node to the left is visited, then the node is visited, then every node to the right is visited.

Used for: Outputting the contents of a binary tree in ascending order.

Post-Order

LRV – For each node: every node to the left is visited, then every node to the right is visited, then the node is visited.

Used for: Converting infix to Reverse Polish Notation.

