



data structures tree

root Node.

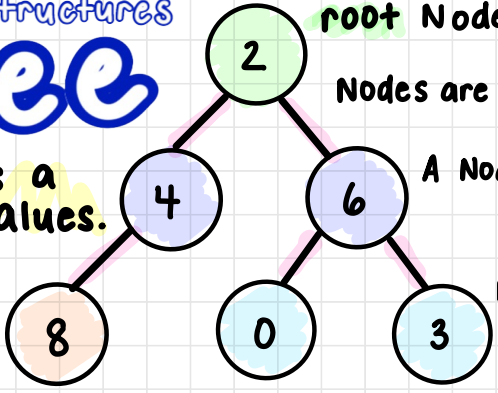
Nodes are connected by links.

A tree stores a hierarchy of values.

A Node can have 0 or more child Nodes.

A leaf is a Node with no children

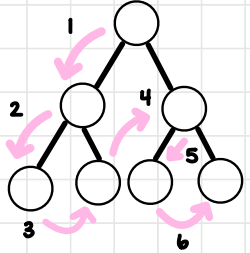
Nodes that share a parent are siblings.



A tree is a special instance of a graph where there is exactly one path between any two Nodes.

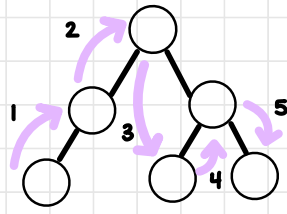
Preorder Traversal

Visit the current Node before visiting its children.



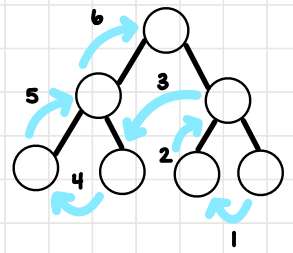
Inorder Traversal

Visit left branch, current Node, then right branch



Postorder Traversal

Visit the current Node after visiting its children.



A tree's height is the number of links from the root Node to the most distant leaf Node.

A node's depth is the number of links from itself back up to the root Node.

time complexity

$O(\log(n))$

use cases

syntax trees

database indexing

comment threads

file systems