**Basic tree definitions:**

* node - one data element in a tree, along with links to other nodes.
* edge (or link) - a connection between two nodes in a tree.
* tree - zero or more nodes that have a **one-to-many relationship**, but no cycles.
* root node - a special node of a tree that is the starting node of the tree. All nodes in a tree are accessible from the root node. This node also has no parent.
* parent node - a node in a tree that has child nodes (the predecessor of a node is it’s parent).
* child node - a node in a tree that has a parent node (the successor of a node is it’s child).
* sibling nodes - all nodes that have the same parent.
* ancestor nodes - all nodes on a path from a node to the root, including the root
* descendant nodes - all child nodes and their children, etc., to all connected leaf nodes of the children.
* terminal node (or leaf node) - a node that has no child nodes.
* branch node - a node that has one or more children.

**Recursive definitions:**

* tree - a node with a link to one or more trees.
* descendants - all children of a node and the children's descendants.
* ancestors - the parent of a node and the parent's ancestors.
* sub-tree – the tree formed by a child of a node (the descendants of a tree node are a tree).

**Properties of trees and tree nodes:**

* degree of a node - the number of children it has.
* depth of a node (level of a node) - the number of edges that must be traversed to get to a node (The root node has a depth of zero).
* path – a list of unique successive nodes connected by edges.
* height of a tree – largest depth of any tree
* ordered tree - a tree where the order of each node's children matters.
* oriented tree - a tree where the order of each node's children is not important.
* forest - zero or more trees, with no connections between them.
* full tree - each node has its maximum number of children.
* complete tree - all levels except possibly the last are completely full, and the last level has all its nodes to the left side.
* height-balanced tree - A tree whose sub-trees differ in height by no more than one and the sub-trees are height-balanced, too. An empty tree is height-balanced

**Types of trees:**

* binary tree - each node has at most two children.
* ternary tree - each node has at most three children.
* quad tree - each node has at most four children.