**Definition - Tree** (data structure): A **tree** is a connected, acyclic graph with a given vertex declared to be the **root**.

**Definition – Root** (tree): The **root** of a tree is the node with no parents, only children.

**Definition – Parent** (tree)**:** The **parent** of node is the next node on the path from to the root.

Equivalently, the parent of node is the next node up from .

**Definition – Child** (tree): A **child** of node is a node connected to that is not ’s parent.

**Definition – Descendant** (tree): A node is a **descendant** of node if there is a path from to that traverses only through children.

Equivalently, is a descendant of if there is a downward-only path from to .

**Definition – Leaf** (tree): A node is a **leaf** if it has no children.

**Definition – Up** (tree): We use “up” in the context of trees to mean “toward the root”.

**Definition – Down** (tree): We use “down” in the context of trees to mean “away from the root”.