Terminology

- designated root node
- edge
- parent of A
- sibling of A
- child of A
- leaf nodes

Information Visualization MOOC

Unit 5 – “With Whom”: Tree Data

Overview and Terminology
Sample Trees

Hierarchies
- File systems and web sites
- Organizational charts
- Categorical classifications
- Similarity and clustering

Branching processes
- Genealogy and lineages
- Phylogenetic trees

Decision processes
- Indices or search trees
- Decision trees
- Tournaments

Source & samples:
http://www-graphics.stanford.edu/~hanrahan/talks/todrawatree/

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Tree Types

Rooted tree: Has designated root node.
Unrooted tree: No designated root node.

Binary tree: Each node has at most two child nodes.

Balanced tree: Rooted tree whose subtrees differ in height by no more than one and the subtrees are balanced, too.

Sorted tree: Children of each node have a designated order (not necessarily based on their value) and can be referred to specifically.

Node Properties

In-degree of a node is the number of edges arriving at that node.
Out-degree of a node is the number of edges leaving that node.
The root is the only node in the tree with In-degree = 0.
All the leaf nodes have Out-degree = 0.

Depth of a node is the length of the path from the root to the node. Root node is at depth zero.

Each node can have additional properties—e.g., in a family tree, each person has a name, age, gender, hair/eye color, etc.
Tree Properties

Size: Number of nodes.

Height (or depth of tree): Length of the path from the root to the deepest node in the tree.

Example:
Binary tree of size 9 and depth 3. Unbalanced and not sorted.