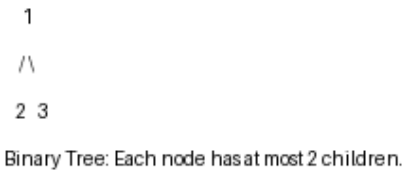
Binary Tree

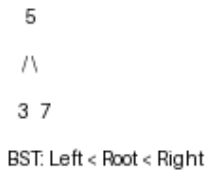
A tree where each node has at most two children. Used in parsing and expression evaluation.



Binary Tree: Each node has at most 2 children.

Binary Search Tree (BST)

A binary tree where left < parent < right. Used for fast lookup and storage.



AVL Tree

A self-balancing binary search tree that maintains height balance using rotations.

Red-Black Tree

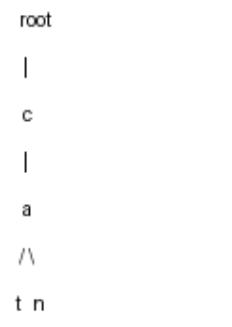
A balanced BST with coloring rules to ensure logarithmic height. Used in maps/sets.

Min Heap

A complete binary tree where each parent is smaller than its children. Used in heaps.

Trie (Prefix Tree)

Used for storing strings. Each path from root represents a prefix. Ideal for autocomplete.



Trie: Prefix tree for strings

N-ary Tree

Each node can have more than two children. Used in XML trees, file systems.

Segment Tree

Used for range queries (e.g., sum/min). Fast updates and queries on intervals.

Fenwick Tree (BIT)

Efficient structure for prefix sums. Faster and easier than segment trees.

B-Tree

Multi-way search tree used in databases and file systems. Keeps data sorted on disk.

B+ Tree

Variant of B-Tree storing all data in leaves. Internal nodes act as index. Great for range queries.