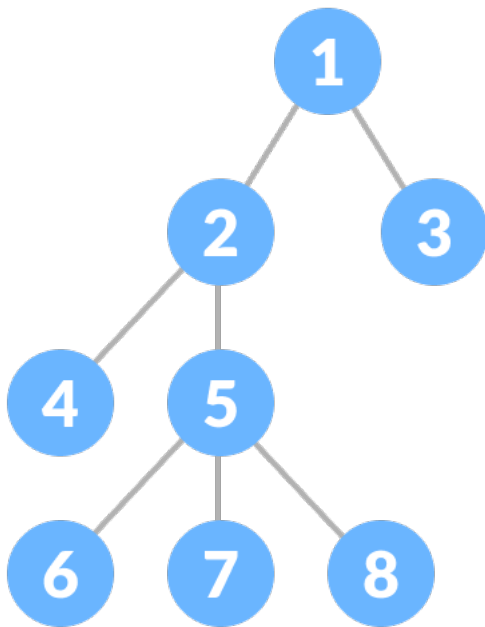# Trees Data Structure

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TREES DATA STRUCTURE

Trees represent nodes connected by edges eg. binary trees, AVL trees etc. Example: image:
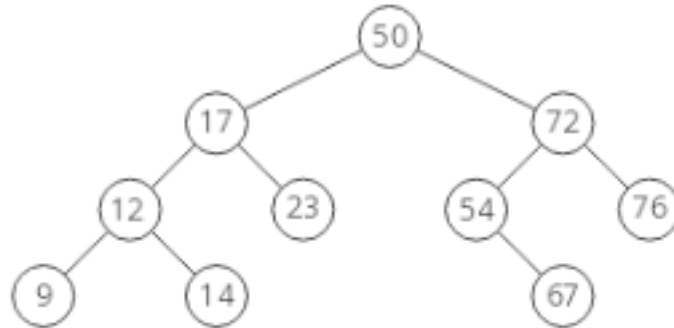

important terms

- Path
- Root
- Parent
- Edges
- Nodes
- Subtree
- Branches
- Levels

Binary trees

This is a tree data structure which each node a maximum of two children (left child and right child).

Example: image:

Types of binary trees.

complete binary tree

Every level except possibly the last is completely filled and all nodes in the last level are as far left as possible.

full/proper/plane binary tree

Its a tree in which every node have either 0 or 2 children.

Basic Operations.

- insert
- search
- traversal

TREE TRAVERSAL

This is the process of visiting all nodes in a tree and print all the values starting from the root.

Methods of tree traversal

1. in order traversal.

The left child/subtree is visited first, then the root/parent and later the right child/subtree (L rt R).

2. pre order traversal.

The root/parent node is visited first then the left child/subtree and finally the right child/subtree (rt L R).

3. post order traversal.

The left child/subtree is visited first followed by the right child/subtree and lastly the root/parent(L R rt).