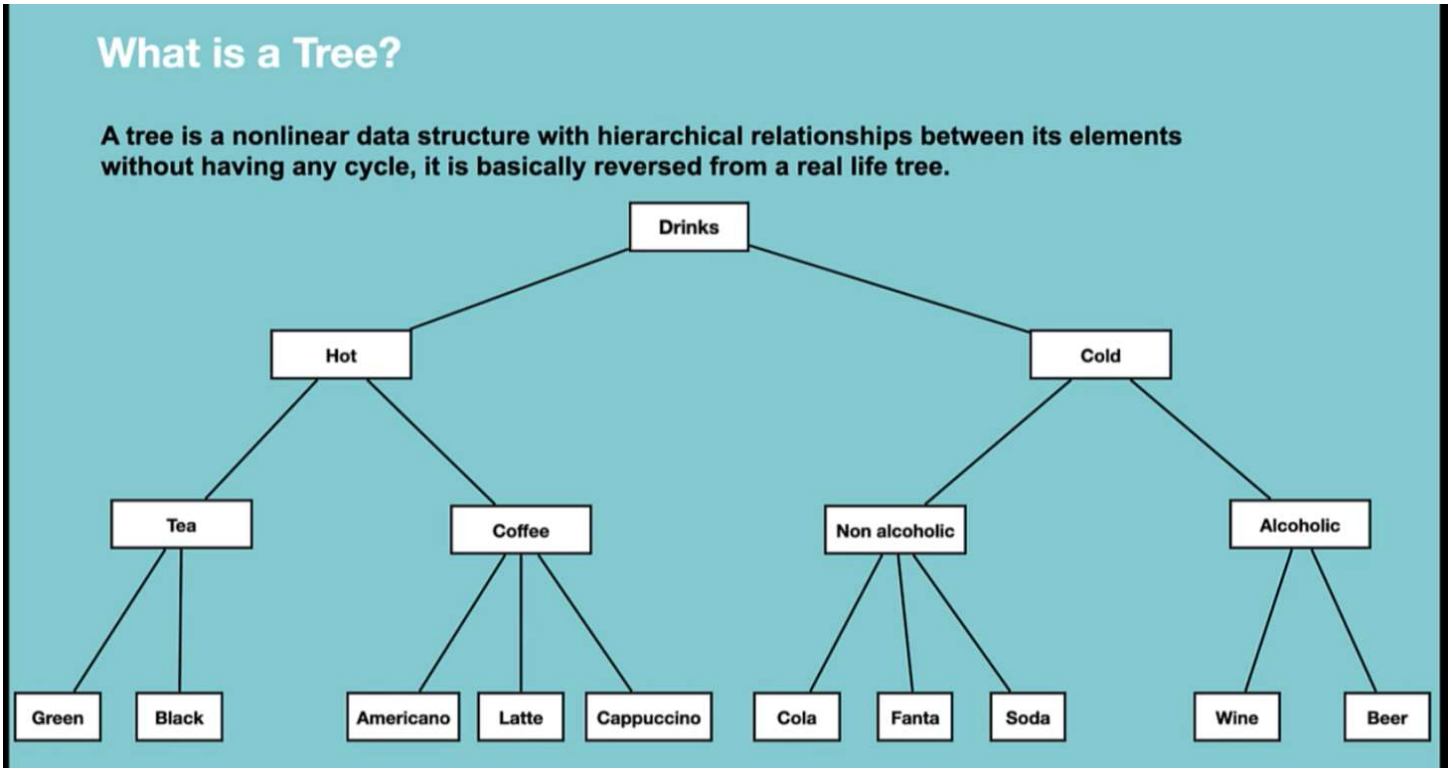
13 BINARY TREE

Saturday, June 4, 2022 9:29 AM



Properties:

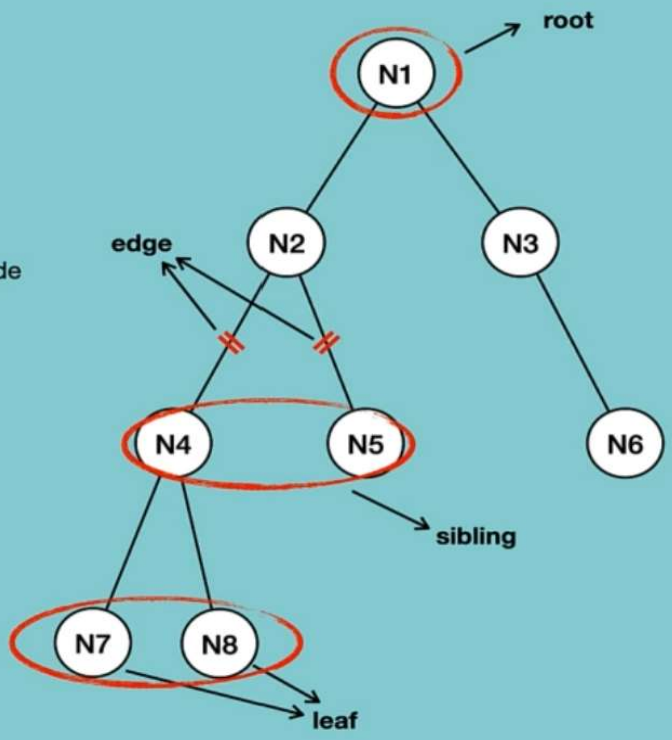
- Represent hierarchical data
- Each node has two components : data and a link to its sub category
- Base category and sub categories under it

Why a Tree?

- Quicker and Easier access to the data
- Store hierarchical data, like folder structure, organization structure, XML/HTML data.
- There are many different types of data structures which performs better in various situations
  - Binary Search Tree, AVL, Red Black Tree, Trie

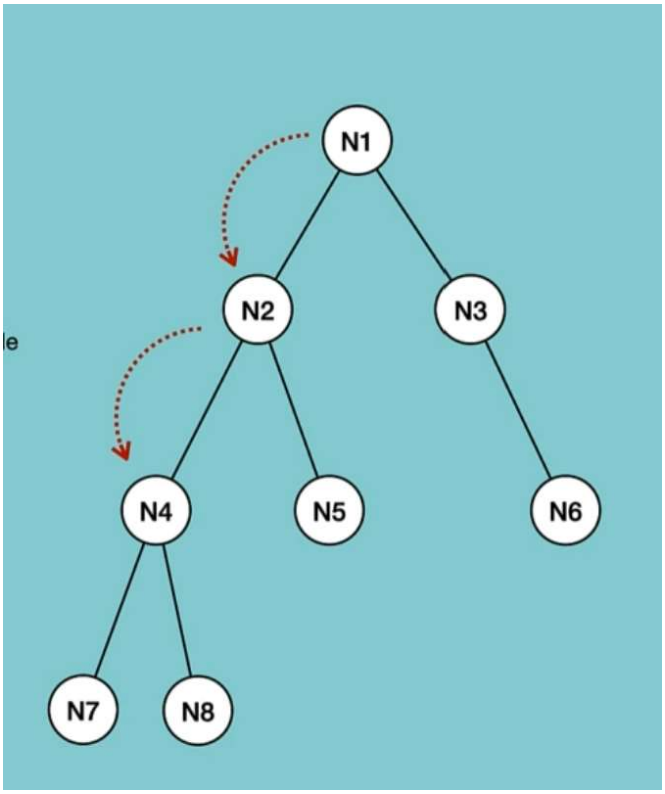
Tree Terminology

Root : top node without parent
Edge : a link between parent and child
Leaf : a node which does not have children
Sibling : children of same parent
Ancestor : parent, grandparent, great grandparent of a node



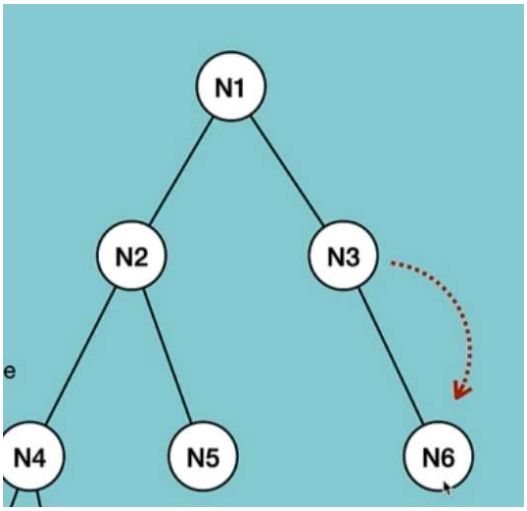
Depth of node : a length of the path from root to node

EX: DEPTH OF N4 = 2

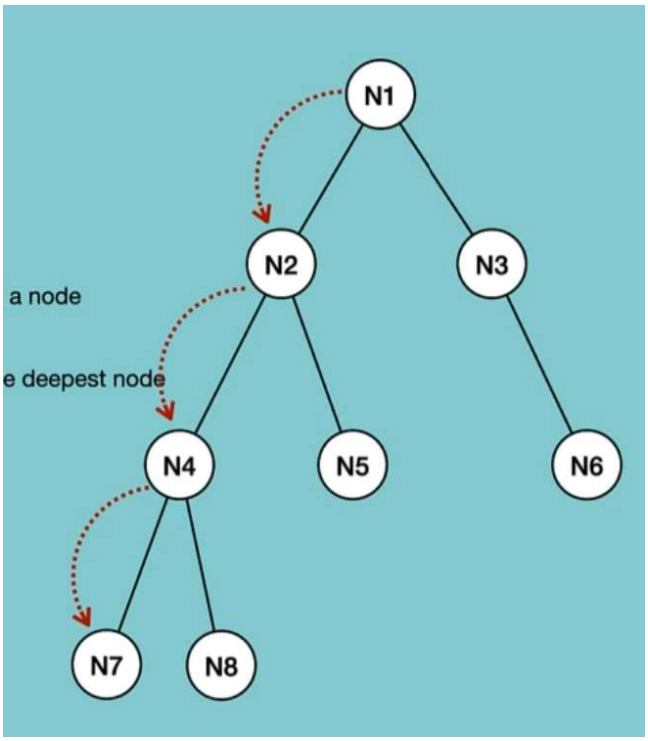


Height of node : a length of the path from the node to the deepest node

Heigh of N3 = 1



Height of tree : height of root node



IN THIS CASE FROM ROOT TO DEEPEST NODE (N7), HEIGHT = 3