

ITS202: Algorithms and Data Structures

Advanced Data Structures

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Binary Tree Types

Types of Binary Trees

- 1 General Binary tree
- 2 Strictly Binary tree
- 3 Skewed Binary tree
- 4 Complete Binary tree
- 5 Full Binary tree

General Binary Tree

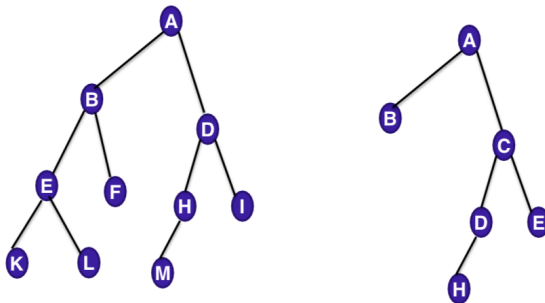


Figure 1

a node can have any degree $0 \leq \text{deg} \leq 2$

Strictly Binary Trees

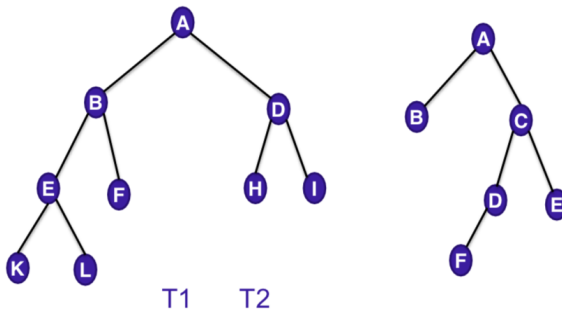


Figure 2

No node with degree one and each node should be with degree
Zero or two
Both are strictly BT ??

Complete Binary Trees

Complete binary tree

is a binary tree where

- All the level except possibly the last level do have maximum number of nodes and
- In the last level, nodes occur as far and as left as possible
- Leaf nodes occurs on atmost two adjacent levels.

Complete Binary Trees

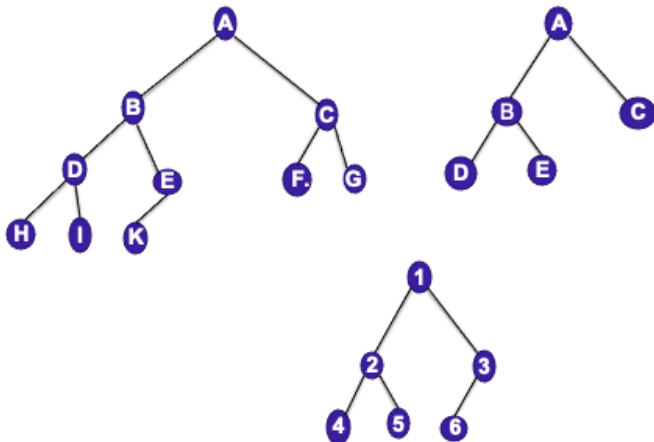


Figure 3

Skewed Binary Trees



Figure 4: Left Skewed BT and Right Skewed BT

Left Skew BT: All initial nodes have empty right sub-tree

Right Skew BT: All initial nodes have empty left sub-tree

Require more memory space

Full Binary Trees

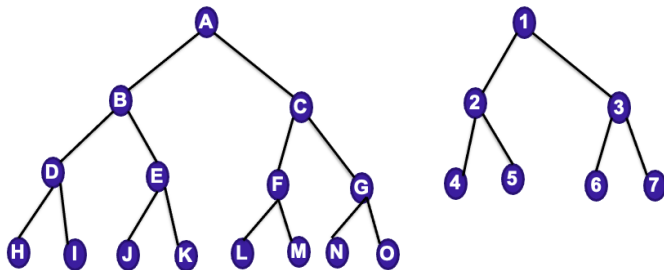


Figure 5: Trees

Full BT is a strictly binary tree with all leaves in the last level.
Both are Full BT. **YES** or **NO**????