Assignment 3

Total Marks : 40 | CAM % : 20

Instruction

1. This is a group assignment of MAXIMUM 3 students
2. The registration of group can be done through iTa'leem by **5 June 2023**
3. Only ONE submission is required for each group
4. Submission is done through iTa'leem before **14 June 2023**
5. Each group member is required to complete and submit an online self-assessment form.

Question

Write a user-friendly well-documented Java program that uses a linear data structure to construct a binary tree from a sequence of integer nodes provided by the user. For each the input, the program should evaluate and display the properties of the binary tree, including the root, height, type and all three traversals.

Examples of Test Cases

Input	Output
20 15 - - 17	Root: 20 Height: 2 Number of Nodes: 3 Number of Leaves: 1 Complete binary tree: No Full binary tree: No Pre-order: 20 15 17 In-order: 15 17 20 Post-order: 17 15 20
51 31 83 - - 17 97	Root: 51 Height: 2 Number of Nodes: 5 Number of Leaves: 2 Complete binary tree: No Full binary tree: Yes Pre-order: 51 31 83 17 97 In-order: 31 51 17 83 97 Post-order: 31 17 97 83 51

<<< Other inputs will also be included in the testing >>>