DATA STRUCTURE

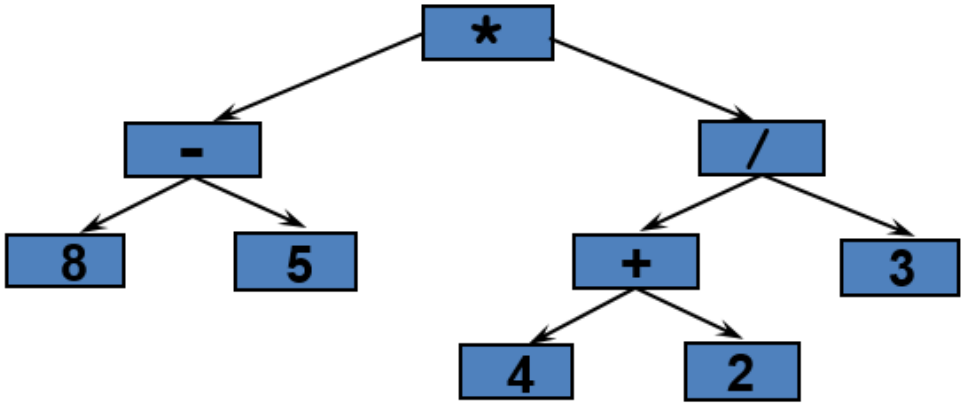
Lab 5 - Binary Tree

Problem 1. Binary Tree:

An expression can be represented by a binary tree in which:

- Each leaf node contains a single operand;
- Each non-leaf node contains a single binary operator;
- The left and right sub-trees of an operator node represent sub-expressions that must be evaluated before applying the operator at the root of the sub-trees.

For example, the infix expression ((8 - 5) * ((4 + 2) / 3)) can be represented as the following binary tree:



Write a program to create the binary tree above and perform the following operations discussed:

a) Print out the expression in the prefix form (pre-order trversal).
b) Print out the expression in the infix form (in-order trversal).
c) Print out the expression in the postfix form (post-order trversal).
d) Compute the value of the postfix expression.

Suggestion:

You should reuse your program Lab3.Problem 1 to compute the value of the postfix expression.