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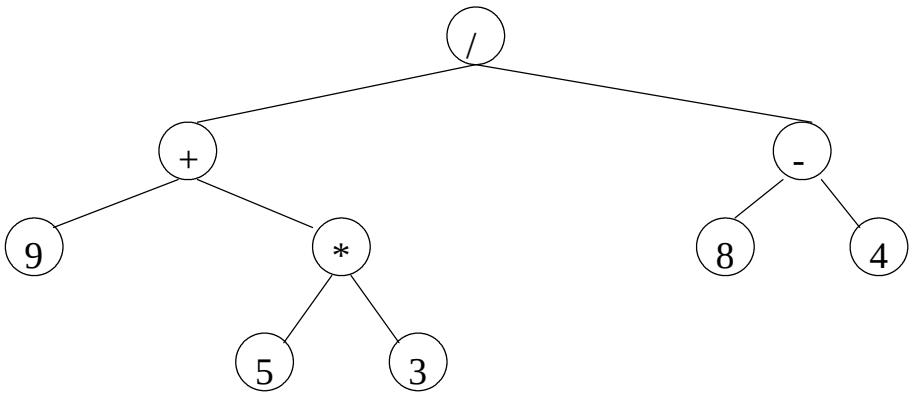
Absent:

1. Consider the parse tree for (9 + (5 * 3)) / (8 - 4):



Indentify the following items in the above tree:

a. *node* containing "*"

b. *edge* from node containing "-" to node containing "8"

c. *root* node

d. *children* of the node containing "+"

e. *parent* of the node containing "3"

f. *siblings* of the node containing "*"

g. *leaf* nodes of the tree

h. *subtree* who's root is node contains "+"

i. *path* from node containing "+" to node containing "5"

j. *branch* from root node to "3"

k. mark the *levels* of the tree (level is the number of edges on the path from the root)

l. What is the *height* (max. level) of the tree?

2. In Python an easy way to implement a tree is as a list of lists where a tree look like:

["node value", remaining item are subtrees for the node each implemented as a list of lists]

What would the list of lists representation look like for the above parse tree?

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3. Consider the following Binary Tree module for the list of lists implementation:

```
def BinaryTree(r):
    return [r, [], []]

def getRootVal(root):
    return root[0]

def setRootVal(root,newVal):
    root[0] = newVal

def getLeftChild(root):
    return root[1]

def getRightChild(root):
    return root[2]

def insertLeft(root,newBranch):
    t = root.pop(1)
    if len(t) > 1:
        root.insert(1,[newBranch,t,[]])
    else:
        root.insert(1,[newBranch, [], []])
    return root

def insertRight(root,newBranch):
```

a) Complete the `insertRight` function definition.

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4. Consider the following BinaryTree class for the "pointer" implementation:

```
class BinaryTree:
    def __init__(self,rootObj):
        self.key = rootObj
        self.left = None
        self.right = None

    def getRootVal(self,):
        return self.key

    def setRootVal(self,obj):
        self.key = obj

    def getLeftChild(self):
        return self.left

    def getRightChild(self):
        return self.right

    def insertLeft(self,newNode):
        if self.left == None:
            self.left = BinaryTree(newNode)
        else:
            t = BinaryTree(newNode)
            t.left = self.left
            self.left = t

    def insertRight(self,newNode):
```

a) Complete the `insertRight` method.