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Unit 17 - Week 7 Quiz

Week 7 Quiz

Due date for this assignment: 2018-09-27, 23:59 IST.
All questions carry equal weightage. All Python code is assumed to be executed using Python3.

- If the answer to a question is a string, make sure you enclose the value in quotes (either single or double quotes).
- If the answer to a question is a list, make sure you enclose the value in square brackets and separate the values using commas.

You may submit as many times as you like within the deadline. Your final submission will be graded.

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1) Given the following permutation of `a,b,c,d,e,f,g,h,i,j`, what is the next permutation in lexicographic (dictionary) order? Write your answer without any blank spaces between letters.

```
fjadbihgec
```

abcdefghji

2.5 points

2) We want to add a function `length()` to the class `Node` that implements user defined lists which will compute the length of a list. An incomplete implementation of `length()` given below. You have to provide an expression to put in place of *** on the last line.

```
def length(self):
    if self.value == None:
        return(0)
    elif self.next == None:
        return(1)
    else:
        return(***)
```

1+self.next.length()

2.5 points

3) Suppose we add this function `foo()` to the class `Tree` that implements search trees. For a name `mytree` with a value of type `Tree`, what would `mytree.foo()` compute? ***2.5 points***

```
def foo(self):
    if self.isempty():
        return(0)
```

```
    elif self.isleaf():
        return(1)
    else:
        return(1 + max(self.left.foo(),self.right.foo()))
```

- The number of nodes in `mytree`
- The largest value in `mytree`.
- The length of the longest path from root to leaf in `mytree`.
- The number of paths in `mytree`.

4) Inorder traversal of a binary tree has been defined in the lectures. A preorder traversal lists the vertices of a binary tree (not necessarily a search tree) as follows:

- Print the root.
- Print the left subtree in preorder.
- Print the right subtree in preorder.

Suppose we have a binary tree with 10 nodes labelled `a, b, c, d, e, f, g, h, i, j`, with preorder traversal `gbhecidajf` and inorder traversal `ehbicgjafd`. What is the right child of the root node?

d

Hint

2.5 points

You may submit any number of times before the due date. The final submission will be considered for grading.

Submit Answers

End