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Unit 17 - Week 7 Quiz

Week 7 Quiz

The due date for submitting this assignment has passed. **Due on 2019-03-20, 23:59 IST.**

Assignment submitted on 2019-03-20, 21:05 IST

All questions carry equal weightage. All Python code is assumed to be executed using Python3. You may submit as many times as you like within the deadline. Your final submission will be graded.
Note:

- If the question asks about a value of type `string`, remember to enclose your answer in single or double quotes.
- If the question asks about a value of type `list`, remember to enclose your answer in square brackets and use commas to separate list items.

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

```
fjadcbeghi
```

fjadbihgec

Yes, the answer is correct.
Score: 2.5

Accepted Answers:
*(Type: Regex Match)]*fjadbihgec[ ]*

2.5 points

2) We want to add a function `sum()` to the class `Node` that implements user defined lists of numbers which will compute the sum of the values in a list. An incomplete implementation of `sum()` given below. You have to provide an expression to put in place of `***` on the last line. You may assume that the quantities stored in `Node.value` can be added using the operator `+`.

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

self.value+self.next.sum()

Yes, the answer is correct.
Score: 2.5

Accepted Answers:
*(Type: Regex Match)]*self.value[ ]*\+[ ]*self\.next\.sum\(\)[ ]*

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(self.value)
        else:
            return(self.value + max(self.left.foo(),
                                    self.right.foo()))
```

- The sum of the elements in the tree
- The length of the longest root to leaf path in the tree
- The maximum sum across all root to leaf paths in the tree
- The number of root to leaf paths in the tree.

Yes, the answer is correct.
Score: 2.5

Feedback:
This computes the maximum sum along the paths from the root to the leaves.

Accepted Answers:
The maximum sum across all root to leaf paths in the tree

4) The preorder traversal of a binary search tree with integer values produces the following sequence: 35, 23, 26, 46, 40, 39, 41, 52. What is the value of the right child of the root of the tree? ***2.5 points***

- 39
- 40
- 41
- 46

Yes, the answer is correct.
Score: 2.5

Feedback:
The inorder traversal of a search tree is always the sorted sequence. In this case: 23, 26, 35, 39, 40, 41, 46, 52. From the preorder traversal, we know that 35 is the root of the tree, so the segment 23, 26 corresponds to the left subtree and the segment 39, 40, 41, 46, 52 corresponds to the right subtree. The preorder traversal of the right subtree starts with 46, so this is the right child of the root node.

Accepted Answers:
46

End

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