

Topics: Continue with function definitions, Procedure vs Function, Function calls(Stack- global space, call frame and local variables)

Some references for Function calls:

<https://www.cs.ucsb.edu/~pconrad/cs8/topics.beta/theStack/01/>

Lecture slides available at : <http://www.cs.cornell.edu/courses/cs1110/2016sp/lectures/02-18-16/6.FuncMechanics.pdf>

Problem 1 [String slicing]

Define a function, called `leftrotate`, that takes a string parameter and returns a string rotated left `k` times.

`leftrotate('Hello',2)` should return `'lloHe'`

`leftrotate('Hi',1)` should return `'iH'`

`leftrotate('Python',20)` should return `'thonPy'`

Problem 2 [String slicing]

Define a function, called `fitin`, that takes two parameters: a tag string of length 4, such as `"{{ }}"`, and a word. The function should return a new string where the word is in the middle of the tag string, e.g. `"{{word }}"`.

`fitin('{{ }}', 'Hello')` returns `'((Hello))'`

`fitin('<<>>', 'Yikes')` returns `'<<Yikes>>'`

`fitin('[[]]', 'Black')` returns `'[[Black]]'`

Problem 3

Given 3 int values, `a b c`, return their sum. However, if any of the values is a teen -- in the range 13..19 inclusive -- then that value counts as 0, except 15 and 16 do not count as a teens. Write a separate helper `"def fix_teen(n):"` that takes in an int value and returns that value fixed for the teen rule. In this way, you avoid repeating the teen code 3 times (i.e. "decomposition"). Define the helper below and at the same indent level as the main `no_teen_sum()`.

`no_teen_sum(1, 2, 3)` returns 6

`no_teen_sum(2, 13, 1)` returns 3

`no_teen_sum(2, 1, 14)` returns 3

`no_teen_sum(2,1,15)` returns 18

Problem 4

For a script that calls the function `no_teen_sum` , implemented previously, explain the execution by defining the state of global space and call frame stacks at each line.

Let's say we made this call: `no_teen_sum(2, 1, 14)`

Problem 5

Explain the execution of this script, going line by line, by maintaining the global space and call frame stack and tell the output printed on the screen for this script:

```
1      def foo():
2          print("foo line 1")
3          print("foo line 2")
4          print("foo line 3")
5
6      def fum():
7          print("fum line 1")
8          print("fum line 2")
9          print("fum line 3")
10
11     def bar():
12         print("bar line 1")
13         fum()
14         foo()
15         print("bar line 4")
16
17     def go():
18         bar()
19
20     go()
```