

15-110 recitation 06

Recap

- lists- indexing, len, max, sum, splicing, iterating
- List aliasing
- Sort, append, remove
- 2D lists

Reminders!

HW 3 Check-in #2 due Monday!

Submit Exam Regrade Requests over Gradescope!

Problems

debug lists

Identify the bug in the following functions and describe how to fix them.

```
# The following function returns a string that is the  
# concatenation of all the strings in a list
```

```
def f1(string_list):  
    big_string = ""  
    for string_elem in range(0, len(string_list)):  
        big_string = big_string + string_elem  
    return big_string
```

```
# The following function return a list that contains all the  
# non-negative integers less than n that are a multiple of k
```

```
def f2(n, k):  
    multiple_list = []  
    for i in range(0, n):  
        if (i % k == 0):  
            multiple_list.append([i])  
    return multiple_list
```

Problem

```
# The following function take a list of integers as input  
# to the function, and will return a list that has all  
# the even elements removed.
```

```
def f3(integer_list):  
    for element_index in range(0, len(integer_list)):  
        if (integer_list[element_index] % 2 == 0):  
            integer_list.pop(element_index)  
    return integer_list
```

Bug/Fix in f1:

A large, empty rectangular box with a black border, intended for writing the bug or fix for function f1.

Bug/Fix in f2:

A large, empty rectangular box with a black border, intended for writing the bug or fix for function f2.

Bug/Fix in f3:

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list aliasing

Problem	<pre># Create a list a = [4, 6, 9, 2] b = a a[0] = 15 b[1] = 110</pre>
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What is a after the code is executed?

What is b after the code is executed?

same first letter

Problem	<p>Given a list of students in the class, write a function that returns the names of students who have the same first letter in their name.</p> <p>Variation: the number of students who have names that start with a particular letter</p>
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```
def sameFirstLetter(L, letter):
```

2D lists rundown

Problem

```
a = [ [ 2, 3, 5] , [ 1, 4, 7 ] ]
```

How many rows are in a?

How many columns are in a?

```
# dimensions
rows = len(a)
cols = len(a[0])

for row in range(rows):
    for col in range(cols):
        a[row][col] += 1 <- how many times will this line be run?
```

What is a?

2D aliasing

Problem

```
rows = 3  
cols = 2
```

```
a = [ [0] * cols ] * rows
```

What is a?

```
a[0][0] = 42
```

What is a?

```
def make2dList(rows, cols, defaultValue=0):  
    a=[]  
    for row in range(rows):  
        a.append([defaultValue]*cols)  
    return a
```

```
rows = 3  
cols = 2
```

```
a = make2dList(rows, cols, 0)
```

```
a[0][0] = 42
```

What is a?