Assignment

January 28, 2016

1 Week 3 Assignment

Homeworks for this week can be written inside of an ipython notebook file. Questions can be labelled accordingly.

1.1 If statements

The mythical island nation of Laskoatu has a rather simple tax code. The first $1000 of income is taxed at 5%. The next $1000 is taxed at 10%. Any income beyond the first $2000 is taxed at 15%. Complete the following script so that it asks the user for his or her income and outputs the amount of tax owed.

```
In [2]: income = int(input("Please enter your income:"))

Please enter your income:5000
```

1.2 While loops

Write a script that prompts the user for his or her name. Using a while loop that counts downwards, print the name with the letters reversed. You may use `s.lower()` and `s.upper()` to change a string `s` to lowercase and uppercase letters.

```
Enter your name: Paul
Luap
```

If the name is the same forward and backwards, print "Palindrome!" on the next line.

```
Enter your name: Ana
Ana
Palindrome!
```

```
In [ ]: name = input("Enter your name: ")
```

1.3 Tree Prints

Write a script that prompts the user for an integer tree size, then displays a number tree as shown below:
Enter a size: 5

```
    1
   121
  12321
 1234321
123454321
```

```
In [ ]: n = int(input("Enter a size: "))
```

1.4 Fibonacci

The Fibonacci numbers begin with 1, 1. After the first two numbers, each number is the sum of the previous two. $1 + 1 = 2$, so 2 is the third number. Then $1 + 2 = 3$, so 3 is the next one, and so on. Write a script that prompts the user for a number, then prints all the Fibonacci numbers that are less than or equal to the input, in order.

```
Enter a number: 15
1 1 2 3 5 8 13
```

```
In [ ]: n = int(input("Enter a number: "))
```

1.5 Pascal's Triangle

Pascal's triangle is a triangle of numbers that is computed as follows. The first row contains a 1. Each row after that begins and ends with a 1, and every other number is the sum of the two numbers above it. The first six rows of Pascal's triangle are shown below.

```
        1
       1 1
      1 2 1
    1  3 3  1
  1 4  6  4 1
1 5 10 10 5 1
```

Write a script to compute the nth row of Pascal's triangle.

```
In [ ]: n = int(input("Enter a number: "))
```

1.6 Please submit feedback for any and all homeworks!

http://goo.gl/forms/74yCiQTf6k