

CSCI 127: Joy and Beauty of Data

Lecture 4: Python Functions

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<https://reese.github.io/classes/127/main.html>

Announcements

Great job submitting Lab 1!

-> I will post a solution video on Monday/Tuesday

Lab 2 is due FRIDAY @ 11:59 PM

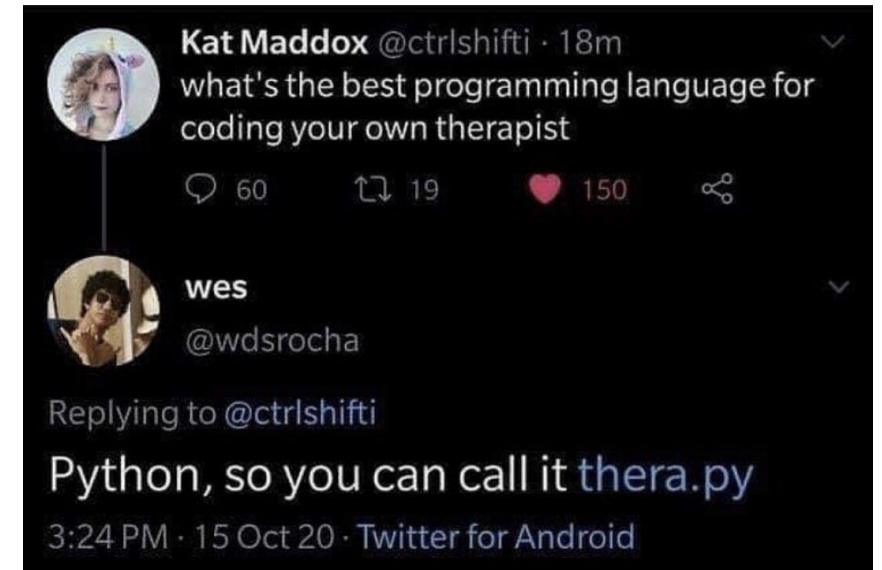
-> Assignment and overview video has been posted

Will grade Labs 1 and 2 and post some of next week's lecture over the weekend

We skipped over a textbook section, so chapter 6 might be a litter bit confusing if you are reading the textbook

Today

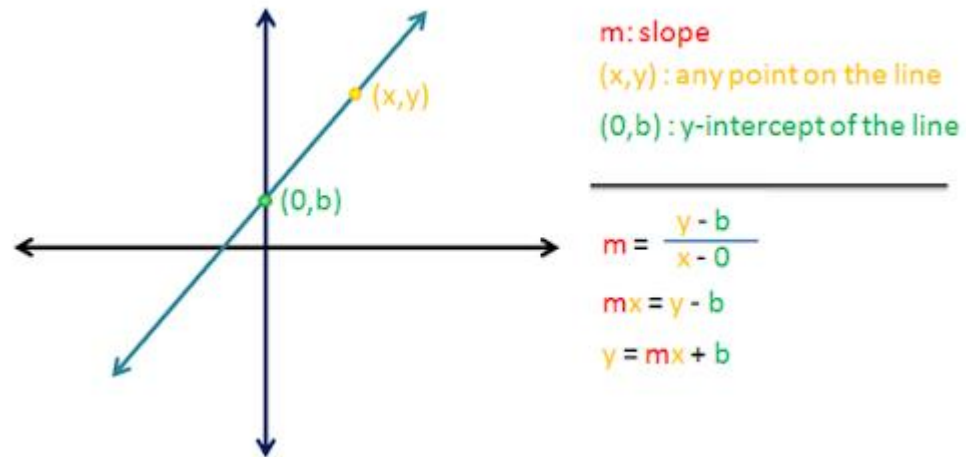
Python Functions



What is a function?

You might think of something like a math function, i.e. something that has some input and output value

$$y = mx + b$$



quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

What is a function (in Python)?

A function is a block of **organized, reusable** code that is used to perform a single, related task

A function can take in some set of inputs (for example, # of quarters, # of nickels, etc)

and can output some value (for example, total value of coins)

In some cases, a function doesn't need to have an input or output

What is a function (in Python)?

Let's make some changes to our change.py program to implement functions

Function basics

Name of function

Input parameters / arguments

```
def sum_change(quarters,dimes,nickels,pennies):
```

Function body

```
    answer = (quarters * .25) + (dimes * .10) + (nickels * .05) + (pennies * .01)
    return answer
```

Return value (output)

```
print( sum_change(4,3,2,2) )
```

Calling our function

Values of input parameters:
quarters = 4
dimes = 3
nickels = 2
pennies = 2

Function basics

Fruitful function – A function that returns a value

Non-fruitful function – A function that does not return a value

Functions Practice

Birthday song- Write a function that takes in a name and prints out the happy birthday song using that name

Test average- Write a function that takes in 3 exam scores and returns the average of the exam scores