#CodeYork

Session 2: Functions and Control

Recap

- Last time, we looked at:

    - Primitive Data Types (Strings, Floats, Integers, Booleans)

    - Operators and Conditionals (+, -, /, *, **, ==, !=, >, <)

    - Variables and Mutability

    - If Statements

    - Lists and Indexing

    - Splicing Lists

    Questions? Speak up now!

The Schedule

Part 1: Introduction to Functions

Intro to Functions

- The 'verbs' of a programming language

- Can define an 'action' in code and 'perform' it at any time

  - In English, can define what 'speak' means and do it after, once everyone knows what it means

  - In Python, can define what 'foo()' means and do it after, once Python knows what it means

- Sometimes our actions need to know about the world they're in

  - eg. 'eating' needs us to know who's eating and what they're eating

- Functions can have <u>parameters</u>, and we can pass <u>arguments</u> to the function:

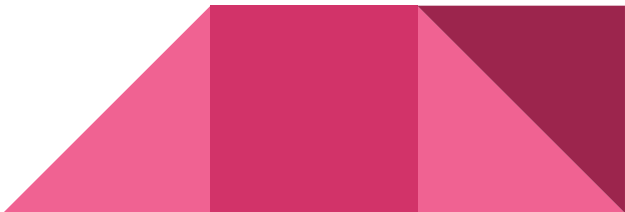 - eg. print("Hello york!") -> "Hello york!" is the argument

Functions in Python

- Functions are <u>defined</u> using the "def" keyword

- Functions may or may not "return" values

```python
def add_one(num):
    return num + 1


print(add_one(3))
```
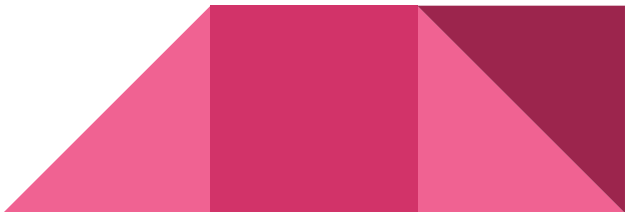
Functions Calling Functions

- Functions can call other functions if needed

```python
def add_one(num):
    return num + 1

def add_two(num):
    return add_one(add_one(num))



print(add_two(3))
```

Course Website

https://york.gjcampbell.co.uk/

Task 3

```python
def example(n):
    if n > 10:
            return True
    elif n < 10:
            return False
```

Task 4

```python
def example(n):
    if n > 10:
        return square(n)
    elif n < 10:
        return False
```

Part 2: Further Control Structures

For Loops

- For loops to do something for every element

```
>>> for n in [1, 2, 3, 4]:
        print(n)

1
2
3
4
```

The Range Function

- The range function behaves a bit like a list

```python
>>> for i in range(0, 3):
        print(i)

0
1
2
```

While Loops

- While loops will repeat until a condition stops being true

```
>>> x = 0
>>> while x < 5:
        print(x)
        x = x + 1

0
1
2
3
4
```

Go write code!

Task 3

```
>>> def foo(n):
        while n > 1:
            n = n / 2
        return n

>>> foo(6)
0.75
```

Task 4

```
>>> def sum(ls):
        total = 0
        for i in ls:
                total += i
        return total

>>> sum([1, 2, 3])
6
```

Summary

- Today, we have looked at:
  - Defining functions
  - Calling functions
  - For loops
  - The range function
  - While loops

Questions? Speak up now!

Thanks!

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