

Introduction to Python

Download Python

Google “download python”

<https://www.python.org/downloads/>

Windows: click on yellow button “Download Python 3.7.0”

Other: click on your OS below the yellow button, then click “Latest Python 3 Release - Python 3.7.0”

I will be using 3.6.4, 3.7 should be very similar

The development environment “IDLE” should come with python

Download the latest version for Windows

Download Python 3.7.0

Looking for Python with a different OS? Python for [Windows](#),
[Linux/UNIX](#), [Mac OS X](#), [Other](#)

Want to help test development versions of Python? [Pre-releases](#)

Looking for Python 2.7? See below for specific releases

Open Script

Search for IDLE in your computer and open the desktop app

Here is a terminal - not great for coding programs

Open a script: File > New file

Save file (CTRL + S)

Filename doesn't matter

Create Function

```
def HelloWorld() :
```

Notice after you hit “enter” your cursor indents itself

Python tracks methods and loops with indentation - no braces!

Python tracks commands with new lines - no semicolons!

We want to compute 4+6 (type 4+6 inside the function)

Save (CTRL+S)

Run (Run > Run Module) (F5)

Run your script

Type `HelloWorld()` in the terminal

What happens? - it computes 4+6

Make it print to terminal: go back to script

Use `print`

Save and Run

Now it prints the output to the terminal

Strings

Defined with ' or ": `"this is a string"` and `'this is also a string'`

In your print statement type a string

If its annoying to retype your function every time you run - put it in the script

Where should it go in the script?

Save and run - you don't need to do anything in the terminal

Variables

Assigned at runtime - do not declare variables

Create a variable `name` and set it equal to your name:

```
name = "my name"
```

Put your variable in your print statement

Save and run

User Input

We want to get name from user instead of hardcoding it

```
input("prompt that will be printed out to terminal")
```

Whatever is typed in the terminal is returned in a string

```
name = input("What is your name?")
```

Save and run

Parameters

Lets pass in the name we want to print out

Delete the input line

Change function definition to include variable: `def HelloWorld(name) :`

Change function call to include parameter: `HelloWorld("Megan")`

What happens if I try to pass in a number?

Comments

Lets create a new function, called `loops`

Comment out the line that makes `HelloWorld()` run automatically

```
#HelloWorld()
```

```
def loops():
```

For Loops

Lets print 1 through 5 to the terminal

For loops are not like java/c++

```
for x in range(5):  
    print(x)
```

Now how would change it to print what we want?

How to print letters in a name?

Lists

Lists are like arrays (0-indexed)

Comment out our old function calls

Create a new function `list()`

```
pets = ["cat", 'dog', "fish"]
```

```
numbers = [1,2,3]
```

```
items = ['cat', 2, "cow"]
```

Print list: `print(items)`

You can have lists of lists:

```
L1 = ['cat', [3,2], "fish"]
```

```
L2 = [L1, [3,2,1], "cow"]
```

How to access 'fish' from L2?

```
fish = L2[0][2]
```

How to set `[3,2,1]` to 'dog' in L2?

```
L2[1] = 'dog'
```

While Loops

Similar to java/c++

Print out all items from the list individually

```
while i < len(items):
```

```
    print(items[i])
```

```
    i = i + 1
```

Questions?