coding in python

week 1

what will we do for ten weeks?

- learn the basics
- emphasis on minimalism and building foundations

goals for you

- ❏ learn to code, of course
- ❏ experience
- ❏ **build a coding mindset**

why do we program?

- automation
- in other words, we make computers do what we don’t want to

why python?

- simplicity
- easy to read and write
- strengths
  - numbers and statistics
  - good for scientists and machine learning

setting up python

- we have 2 options
  - replit
  - download python to your computer and use an IDE
    - note that Mac computers have it by default

which one should i choose?

- python on replit
  - just need to click the link
  - only one window
  - work on different computers
- python on your computer
  - offline work
  - faster run times
  - more freedom

replit

- runs on your browser
- all you have to do is make an account and memorize how to open your project

download python

- you may also choose to download python to your computer
  - you must use an editor where you can write and run your code
  - an IDE is basically just a program you use to code
- https://www.python.org/downloads/

getting started

- things to remember about python
  - indentation
    - python relies on indentation to know what you want it to do
  - keywords
    - there are certain words that python reserves for its own functions
    - avoid using them as variables

coding in python

if we want python to do something, we must give it two things

- code
  - so python knows what to do
- values
  - so python knows what to do it with

values in python

we will get to the code later, but setting values in python is very easy

- there are many types of values, just like there are many types of values in real life
- we will cover the most important ones as we go along

two of the most basic values in python

- words, sentences, letters
- numbers
- note!
  - this is a simplification of what is happening, but you don’t need to worry about that now

how does python represent these values?

- numbers are represented with, well, numbers
- letters, words, and sentences are represented by putting quotation marks around your message
- you can test these using print()

```
>>> print (“hello world!”)
```

variables

- sometimes we want to store our values so that we don’t have to keep typing it out
- we can store it using a variable!

using variables

consider we have a program where we want to print a message several times

it is not very smart to keep typing the message over and over again when you want to print it

so we use variables!

variables are simple!

to create a variable:

1. find a name
2. set it equal to the value you want

setting a variable

let's go back to the example of the repeated message

we can set a variable so we don't have to type out the message over and over again

```
>>> message = “hello world”

>>> print(message)
```

doing math using python

as stated, python is very useful for doing math related coding

we can use number values to do math just like we would in real life

if you want to find 1+1, do

```
>>> print(1+1)
```

python prints out 2

more math using python

addition: +

subtraction: -

multiplication: *

division: /

math using variables

we can do math with variables as well! just replace the numbers with the variable

```
>>> 10 + 10

>>> number = 10

>>> number  + number
```

Summary

- know we know what programming is and why we should use it
- we also know why we should choose python over other languages
- we learned about values in python
- we learned how to create variables
- we learned how to do math with python

homework?

- try and use python this week to maybe do some math, maybe even make use of variables

a quick tip

if you don’t know something, look it up!

nobody can remember everything, so in programming it is fine to use google

Doctors: Googling stuff online does not make you a doctor.

Programmers:

questions?

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