
Python Foundations

Python

Python3

- should be mapped to just ``python``
- very common scripting language
 - quick to write and test
 - slower to run compared to compiled languages
- easy to learn!
 - English-like syntax
- hard to learn!
 - English-like syntax
 - overloaded operations by default

Convenient

- precoded **packages** and **libraries** with added functionality

Inconvenient

- multiple ways to do the same thing

Building Blocks of Code

Variables

Arithmetic Operators

Conditional Logic

Iteration

Functions

How to fire up Python

Terminal

- start interpreter
- write single lines
- run through interpreter

Script

- write in IDE (.py file)
- run in terminal

Notebook (specifically Colab)

- write in browser (.ipynb file)
- run in browser
- mix between terminal and script

More on the Terminal

```
cd
```

```
ls
```

```
cd ..
```

```
cd ~/Documents/courses/cmpsc101/lab1
```

```
gatorgrade --config config/gatorgrade.yml
```

```
python script-example-name.py
```

```
python square/square.py
```

git commands in terminal

```
git status
```

```
git add .
```

don't forget the ``



```
git status
```

```
git commit -m "Write what you did as reminder to yourself"
```

**local
commands**

```
git push origin main
```

**remote
command**

Code example 1

```
sum = 0
count = 0
data = [1, 5, 8, 2, 0, 9, 10, 4]
for number in data:
    sum += number
    count += 1
print(sum/count)
```

Code example 2

```
sum = 0  
count = 0  
file = open("data")  
for number in file:  
    n = int(number)  
    sum += n  
    count += 1  
print(sum/count)
```



Code example 3

```
def average(filename):  
    sum = 0  
    count = 0  
    file = open(filename)  
    for number in file:  
        n = int(number)  
        sum += n  
        count += 1  
    return (sum/count)
```



Code example 4



```
from pathlib import Path

def average(filename: Path) -> float:

    """ Compute average of numbers in a file named filename."""

    sum = 0

    count = 0

    file = open(filename)

    for number in file:

        n = int(number)

        sum += n

        count += 1

    return (sum/count)
```