

# Using Python

Fall 2019

# Installing Python

<https://www.python.org>

- Download the latest version of Python to your machine (3.7.4)
  - Mac and Windows versions available through the website
  - Linux machines should have it pre-installed
    - IDLE requires external download
- Once downloaded, there should be an application known as “IDLE” on your machine (the basic IDE that comes packaged with Python)

# Other Ways to Run Python

- IDEs that support Python:
  - PyCharm
  - Microsoft Visual Studio
  - PyDev
  - WingIDE
- Text Editor and Command-line
  - Must have Python added to the path of your machine
    - Mac and Linux should automatically do this for you
    - Windows should have an option to do this when installing (checkbox)

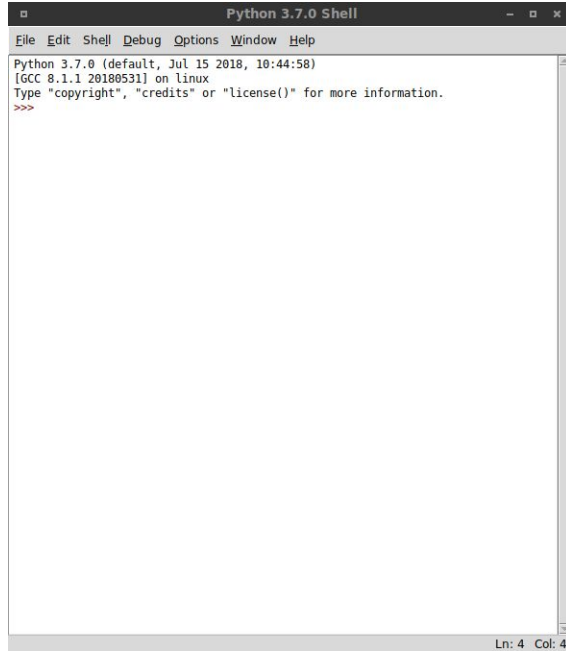
# Basic Syntax

- Delimiters - how a language determines the end of a command
  - Python uses whitespace
    - Newlines
    - Indentation
- Comments - used to explain what a section of code is doing in plain English without causing errors
  - Python denotes comments with a “#”
    - Lets the program know to not execute that line
- Built-in Functions - basic commands built in to Python to execute common instructions
  - `print(“Hello World”)` is an example, with `print()` being the function

# Coding Convention

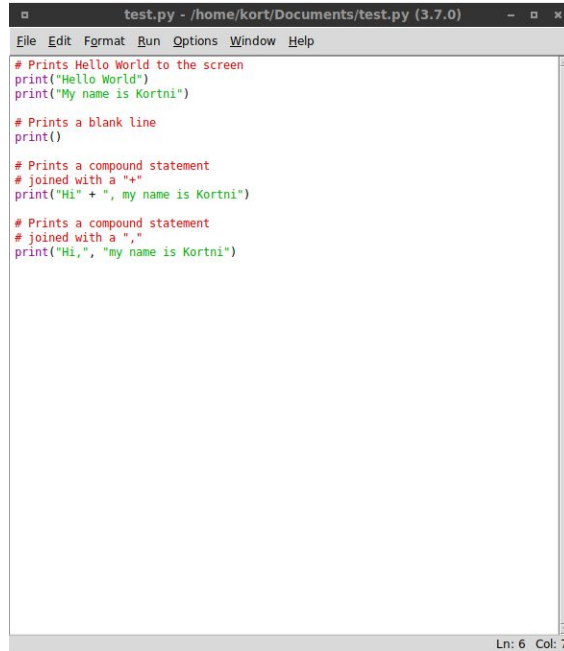
- Coding convention is essentially how someone writes code
- Good coding convention dictates:
  - Good whitespace (blank lines between different sections of code)
    - Increases readability
  - Good commenting
    - Makes inheriting code easier for those involved
    - Makes looking at old code easier to follow
- Boils down to a matter of opinion
  - Gets more apparent the more complicated the programs become

# Hello World Program

A screenshot of a Python 3.7.0 Shell window. The title bar reads "Python 3.7.0 Shell". The menu bar includes "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The main text area shows the standard Python startup message: "Python 3.7.0 (default, Jul 15 2018, 10:44:58) [GCC 8.1.1 20180531] on linux Type 'copyright', 'credits' or 'license()' for more information. >>>". The status bar at the bottom indicates "Ln: 4 Col: 4".

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (default, Jul 15 2018, 10:44:58)
[GCC 8.1.1 20180531] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
Ln: 4 Col: 4
```

This is the Python shell. To open a new window to program in, select “File > New File”

A screenshot of a text editor window titled "test.py - /home/kort/Documents/test.py (3.7.0)". The menu bar includes "File", "Edit", "Format", "Run", "Options", "Window", and "Help". The code is written in Python and includes comments. The status bar at the bottom indicates "Ln: 6 Col: 7".

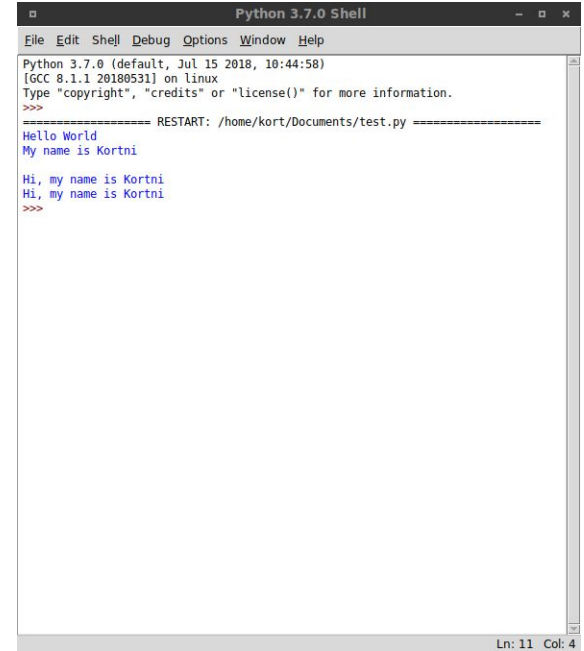
```
test.py - /home/kort/Documents/test.py (3.7.0)
File Edit Format Run Options Window Help
# Prints Hello World to the screen
print("Hello World")
print("My name is Kortni")

# Prints a blank line
print()

# Prints a compound statement
# joined with a "+"
print("Hi" + " , my name is Kortni")

# Prints a compound statement
# joined with a ","
print("Hi," , "my name is Kortni")
Ln: 6 Col: 7
```

This is the window you’ll see with a new file. Type code and to run select “Run > Run Module”

A screenshot of a Python 3.7.0 Shell window after running the test.py file. The title bar reads "Python 3.7.0 Shell". The menu bar is the same. The main text area shows the output of the program: "Hello World" and "My name is Kortni" on separate lines, followed by "Hi, my name is Kortni" and "Hi, my name is Kortni" on separate lines. The status bar at the bottom indicates "Ln: 11 Col: 4".

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (default, Jul 15 2018, 10:44:58)
[GCC 8.1.1 20180531] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: /home/kort/Documents/test.py =====
Hello World
My name is Kortni
Hi, my name is Kortni
Hi, my name is Kortni
>>>
Ln: 11 Col: 4
```

This is the Python shell after running a module. Only items output (print) from the program will display

# IDLE Notes:

- To run a python file, it must be saved
- Keep track of where your files are being saved
- To write a saved program in IDLE, after opening IDLE you must select “File > New File” or it will run it via the shell (your progress won’t be saved)
- To run a previously saved program, you can’t just click on it to open it
  - This will just run the Python
  - To edit the program, you must right click and select a program (such as IDLE) from the “Edit” option

# Syntax Notes:

- Anything you want to directly print must be *inside* quotations
  - `print(Hello World)` will not work
- You can print a blank line through `print()`
- You can have compound print statements through two avenues: `+` and `,`
  - `+` and `,` must be *outside* of the quotations to work
  - `+` conjoins statements directly (no space between)
  - `,` adds a space between statements
- Examples online may use Python version 2, which doesn't use parentheses in print statements
  - Python version 3 *requires* parentheses
  - If an example you find online doesn't work for you, check the version