

Learn to Program @ Home

Day 1: Getting Started

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Today's Goals (Monday June 29)

Log into the CS50 IDE

Make a terminal tab

Write some Python commands

Make a Python program

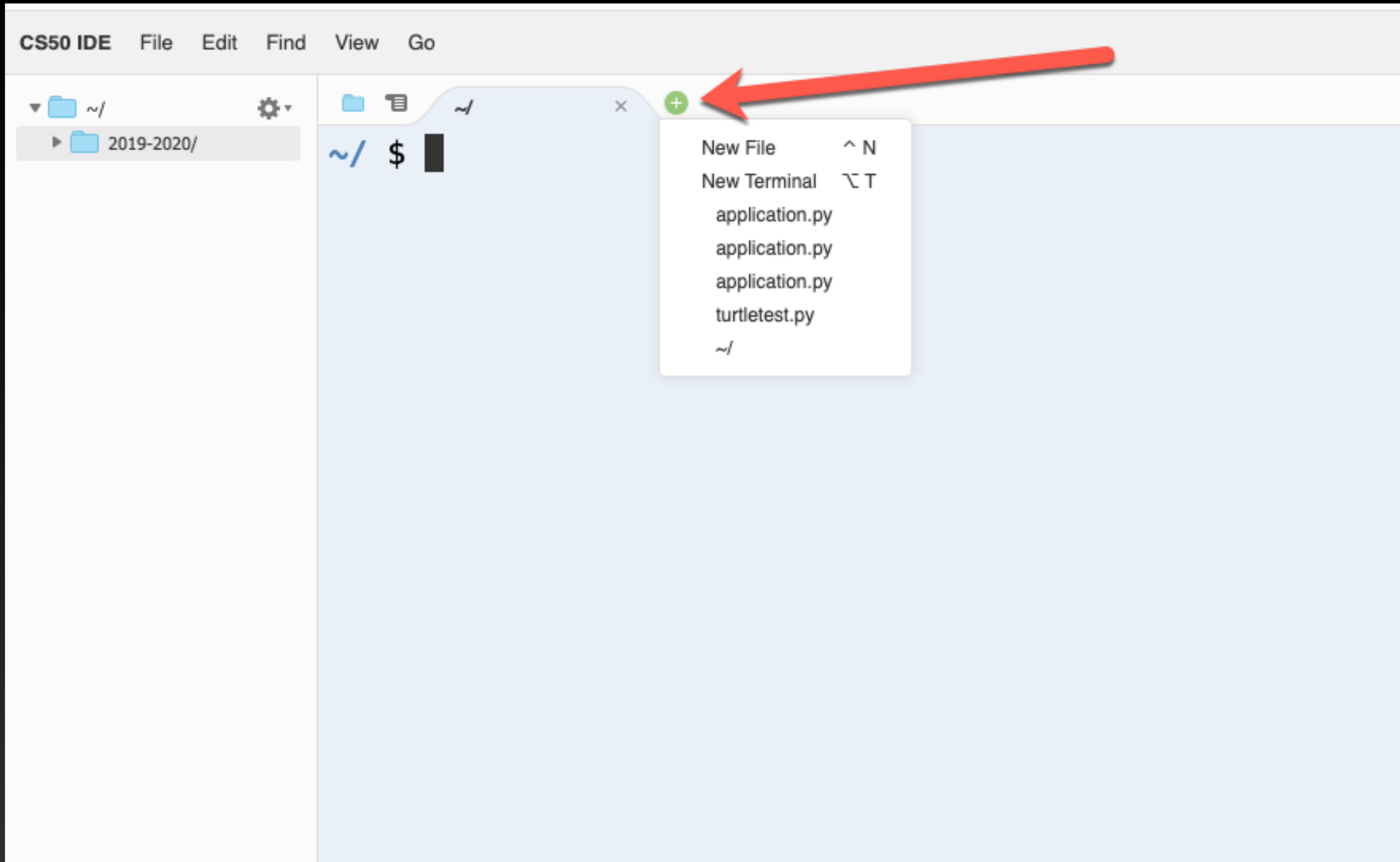
Run a Python program

Today's Python ideas: variables and printing.

Looking ahead: Conditionals (*if* statements)

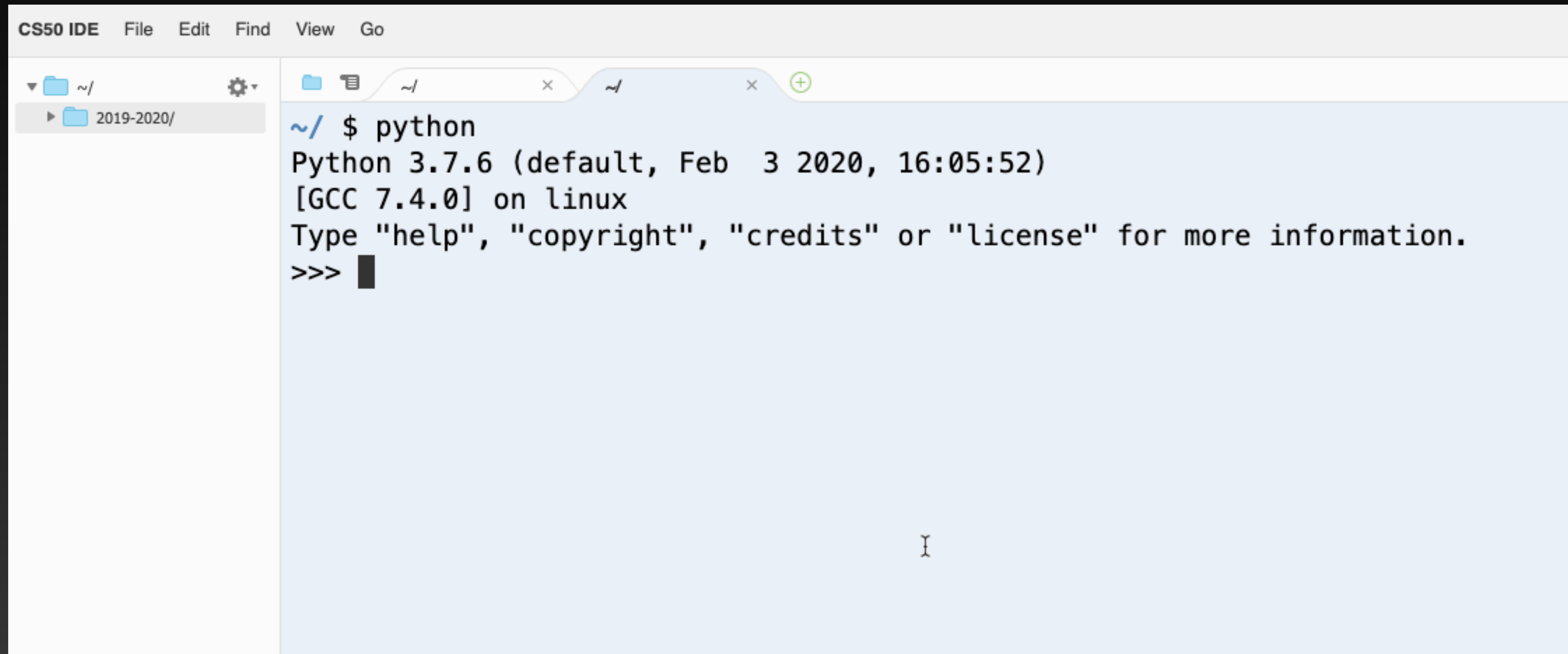
ide.cs50.io

Bookmark it (before you log in)



Click the “+” to make a New Terminal.

The \$ symbol is called the *prompt*. Click next to the prompt and type “python”. Commands in the terminal are *case sensitive*, which means that typing “Python” and “python” are not the same thing.



```
CS50 IDE  File  Edit  Find  View  Go
~/
 2019-2020/
~/ $ python
Python 3.7.6 (default, Feb  3 2020, 16:05:52)
[GCC 7.4.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> █
```

The “>>>” prompt is the python prompt. We can type python commands here and they are immediately executed. This is not really a program, but it’s a great way to try stuff out.

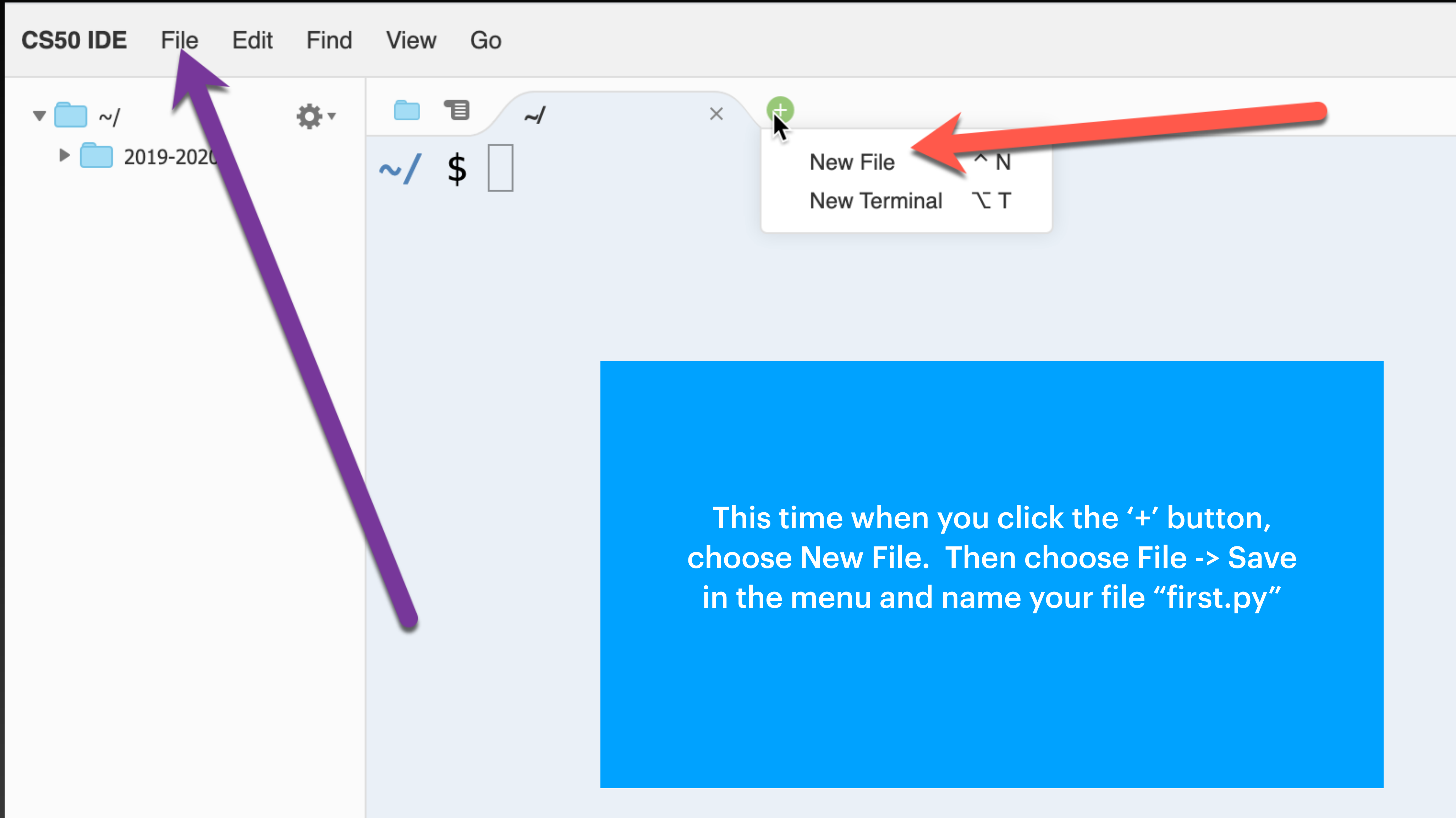
```
CS50 IDE  File  Edit  Find  View  Go
~/
  2019-2020/
~/ $ python
Python 3.7.6 (default, Feb  3 2020, 16:05:52)
[GCC 7.4.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> a = 4
>>> b = 7
>>> a * b
28
>>> a - b
-3
>>> sqrt(2)
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'sqrt' is not defined
>>> from math import sqrt
>>> sqrt(2)
1.4142135623730951
>>> █
```

There is a lot going on here! You can see that Python is good at math. But in order to do some stuff, like take a square root, you have to import a function first.

You can leave the python prompt open in a tab if you want, or you can use the exit function to get back to the \$ prompt. Whenever you use a python function, you give the name of the function, then parentheses. Sometimes there is stuff inside the parentheses and sometimes not.

```
>>> from math import sqrt
>>> sqrt(2)
1.4142135623730951
>>> exit()
~/ $ █
```

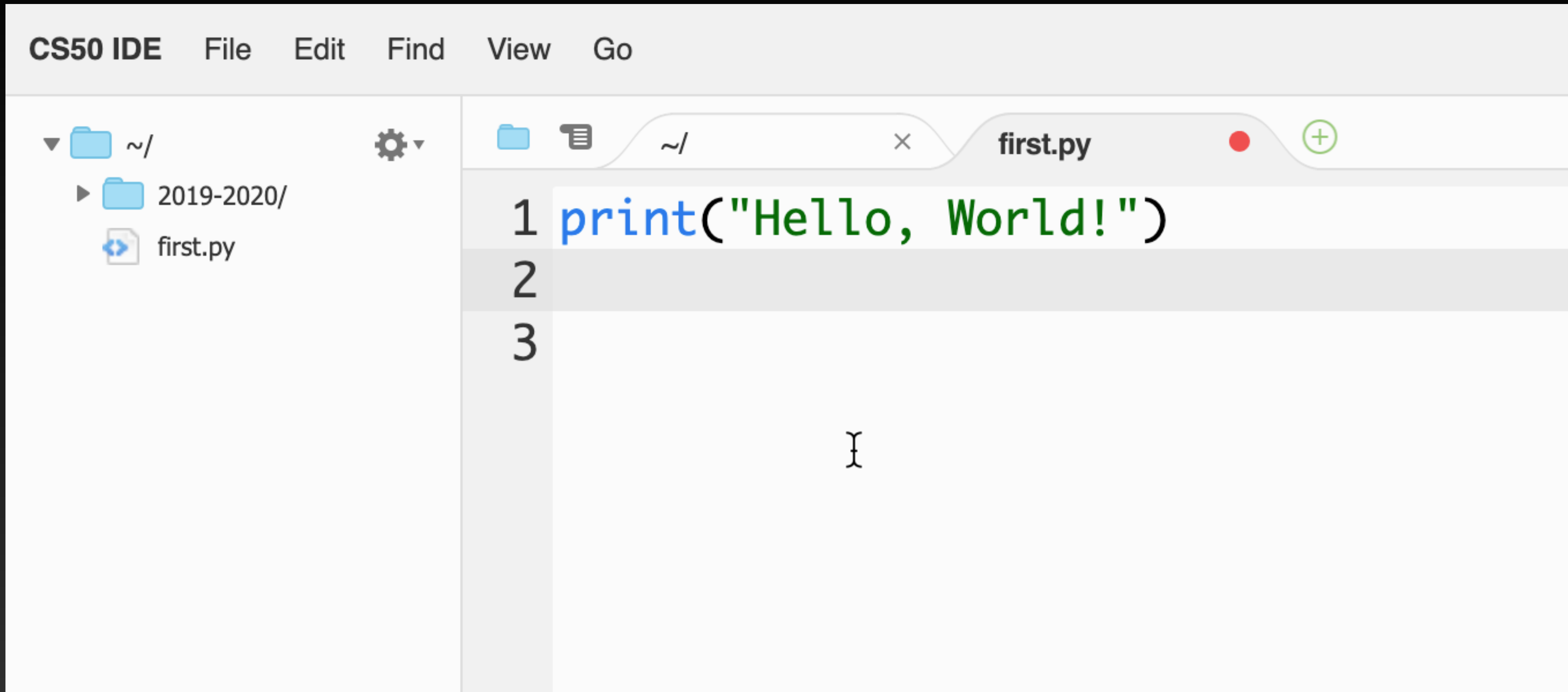
make a python program



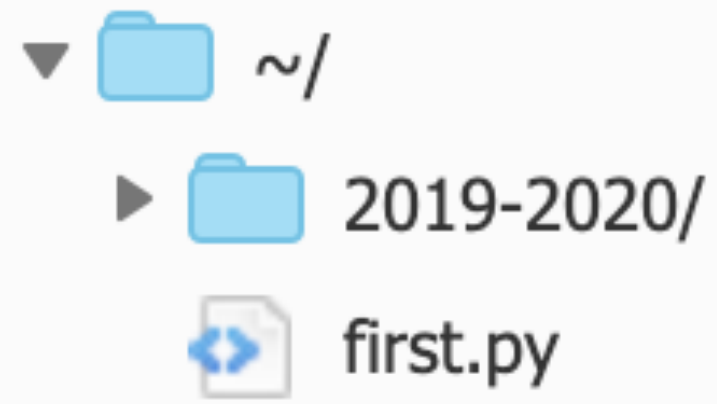
The screenshot shows the CS50 IDE interface. At the top, the menu bar includes 'CS50 IDE', 'File', 'Edit', 'Find', 'View', and 'Go'. A purple arrow points from the 'File' menu to the 'File' menu item. Below the menu bar, the left sidebar shows a file explorer with a folder named '2019-2020'. The main editor area has a toolbar with a green '+' button. A red arrow points from the '+' button to a context menu that is open, showing 'New File' (with keyboard shortcut ^N) and 'New Terminal' (with keyboard shortcut ⌘T). A blue text box in the lower right corner contains the following instructions:

This time when you click the '+' button, choose New File. Then choose File -> Save in the menu and name your file "first.py"

Type a command into your file. It should look just like this.



The red dot next to the file name means you haven't saved it since you made a change.



```
~/ $ python first.py
Hello, World!
~/ $ █
```

Save your file and switch to a Terminal tab. Run your program!

```
CS50 IDE  File  Edit  Find  View  Go

~/
├── 2019-2020/
│   └── first.py
└── first.py

1 print("Hello, World!")
2 name = "Mark"
3 print(f"Hello, {name}")
4
```

Give your variables names that are meaningful. Variable names can have letters and numbers and some other characters in them. They have to start with a letter and can't have any spaces in them.

Try this program. On line 2, we create a variable called "name". Remember, capitalization counts! Note that 'f' at the beginning of the print statement, and those curly braces { ... } around the variable name in the print.

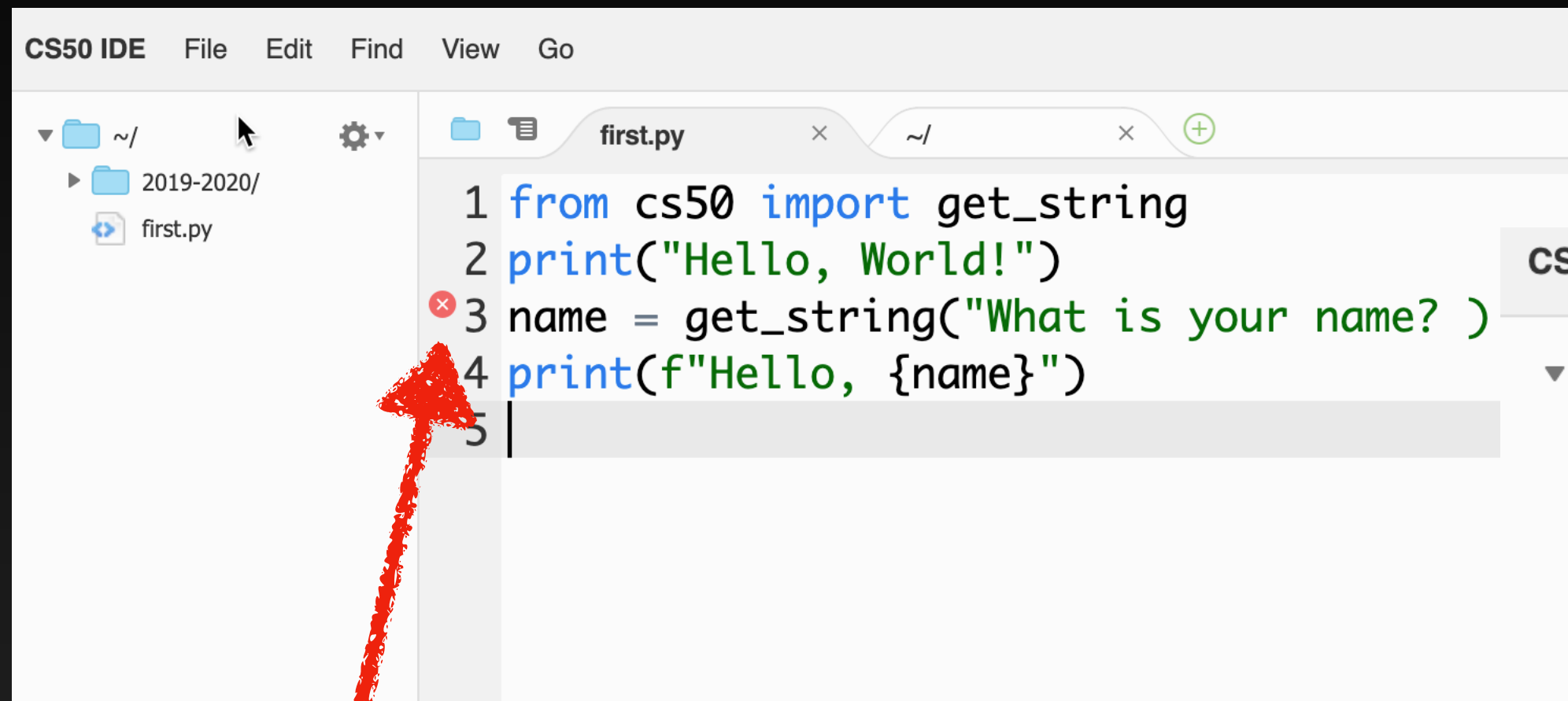
```
CS50 IDE  File  Edit  Find  View  Go

~/
├── 2019-2020/
│   └── first.py
```

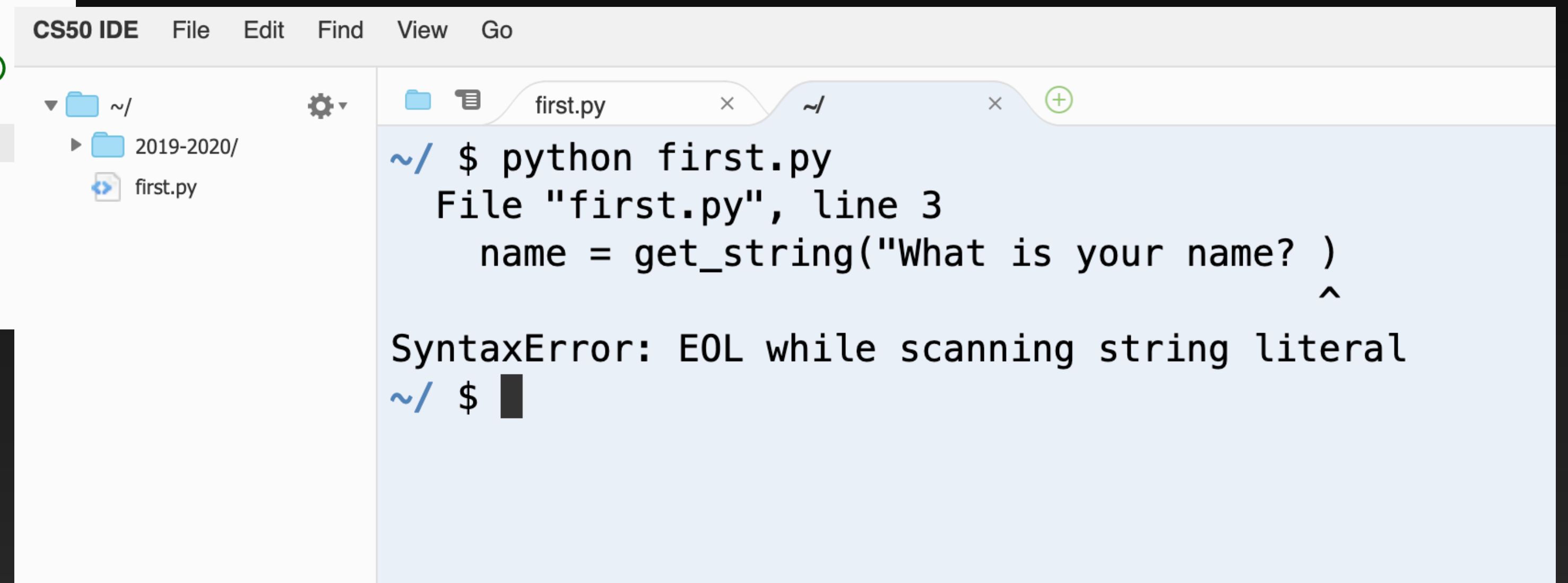
```
1 from cs50 import get_string
2 print("Hello, World!")
3 name = get_string("What is your name? ")
4 print(f"Hello, {name}")
5
```

On line 1, we're importing a function, called "get_string", from a library called "cs50".

Error Messages



```
CS50 IDE File Edit Find View Go
~/
  2019-2020/
    first.py
first.py
1 from cs50 import get_string
2 print("Hello, World!")
3 name = get_string("What is your name? )
4 print(f"Hello, {name}")
5
```



```
CS50 IDE File Edit Find View Go
~/
  2019-2020/
    first.py
~/ $ python first.py
File "first.py", line 3
    name = get_string("What is your name? )
                                ^
SyntaxError: EOL while scanning string literal
~/ $
```

Python is trying to tell us something is wrong.

Error messages can be hard to read. But This message tells us the problem is on line 3, and even puts a little ^ pointing to near where the problem is.

Day 1 Challenge

Make a word game.

First ask the user for some words. Save them in variables. Ask for a bunch of words - maybe 8? Make sure the variables all have different names.

Then, tell a story that incorporates those words. You can start coding right away, or you can design your story first.