Intro to Python

Input / Output

The 7 Basics of Programming

Concept	**Example from Math**
1. Variables	$x = 5$ $hellothere = $ "howdy"
2. Math & Logic	$5 * 7 + a - 3 / b \% 4$ a is 5 AND $x < 7$ OR $degree \geq 98$
3. Input/Output (IO)	print "Hello World"

4. Conditionals	**if** $(x == f(x))$
	   then print "x is 0 or 1"
	   else print "x is not 0 or 1"

5. Loops	**foreach** x **in** $(array)$ print x
6. Functions	$f(x) = x^2$
7. Lists	$array = 1{:}5$ $array = 1, 4, 7, 8, a, b, c, d$

Joy of coding

Two types of values in computer programs:

Variables

- avg_medals

- name

- listOfStrings

Literals

- 4.567

- "Hello, John"

- -2345

What does input_demo output?

```python
# Demonstrate numeric and string input

# What do you think happens when this program is run?

color = input("What is your favorite color? ")
print("Cool!  My favorite color is _light_", color, "!")

q2 = "On a scale of 1 to 10, how much do you like Urban Fire? "
rating = eval(input(q2))
print("Cool!  I like it", rating*1.8, "!")
```

- Purpose of input & eval?

- In the code above, identify the following: comments, variables, function calls, expressions, assignments, literals
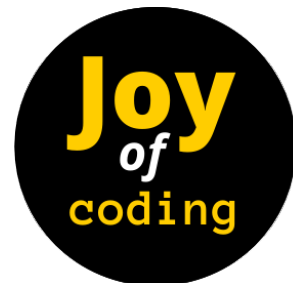
Joy *of* coding
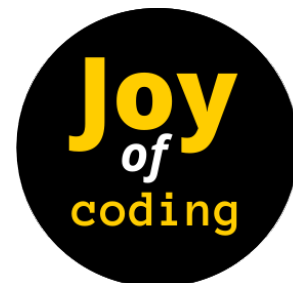
Interactive Programs

- Often, programs need input from users
- Demo: `input_demo.py`
- Let's see how that works…

Getting Input From User

- `input` and `eval` are ***functions***
  - o **Function**: A command to do something
  - o Prompts user for input & gets the user's input
    - `input`: to read in strings/*text*
    - `eval`: converts strings/text into *numbers*

- Syntax:
  - o `input(<string_prompt>)`
  - o `eval(input(<string_prompt>))`

Getting Input From User

Prompt

- Typically used in assignments
- Examples:
  - `width=eval(input(`"`Enter the width: `"`))`
    - `width` is assigned the number the user enters
    - Use `eval` & `input` to get a number from user
  - `name = input(`"`What is your name?`"`)`
    - `name` is assigned the string the user enters
    - Use `input` only to get a string from user

Joy *of* **coding**

Getting Input from User

```
color = input("What is your favorite color? ")
```

Semantics: Assigns variable **color** the user's input

Terminal:

Grabs every character up to the user presses "enter"

```
> python3 input_demo.py
What is your favorite color? blue
Cool!  My favorite color is _light_ blue !
```

input_demo.py