Certified Python Programmer - PCEP

Montgomery College

Workforce Development & Continuing Education

Information Technology Institute

Course Path

PROGRAMMING FUNDAMENTALS

BASIC PYTHON

OBJECT-ORIENTED PROGRAMMING WITH PYTHON

Lesson Objectives

Lesson 3

- **Comments**
- **Data Types**
- **Variables**
- **Built-In Functions**
- **Operators**


What is a
Comment?

Comments

Lesson 3

- Not a code
- A note
- Hashtag (#) per line

Data Types

Lesson 3

int

- Whole number
- 123
- -999

float

- Floating decimal number
- 123.0
- -0.00009

Data Types

Lesson 3

str

- “1600 Pennsylvania Ave”
- ‘19.99’
- “MacDonald’s”
- “My dog said, \”Whoof\””

Data Types

Lesson 3

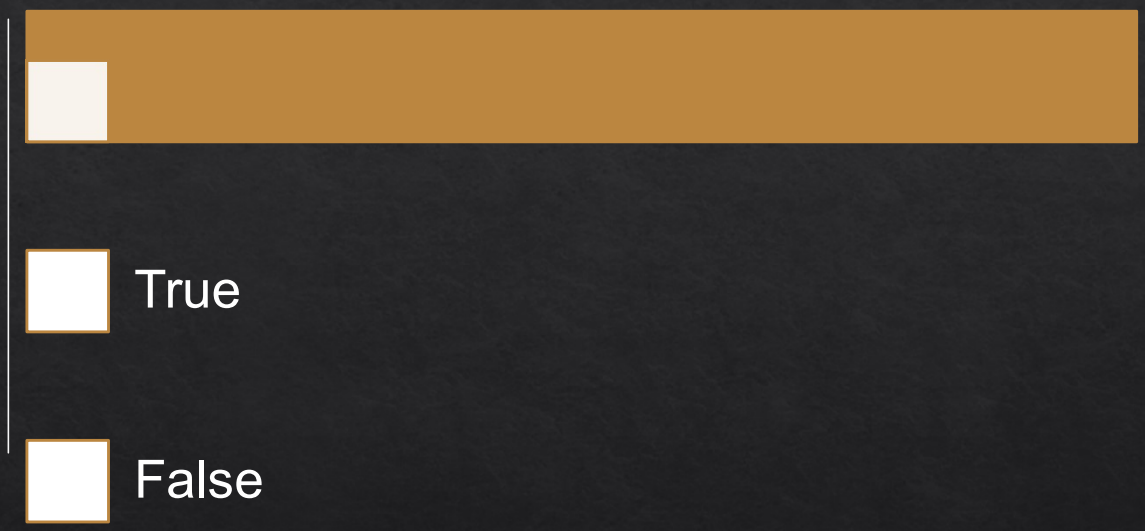
escape character

- \”
- \t tab
- \n new line

Data Types

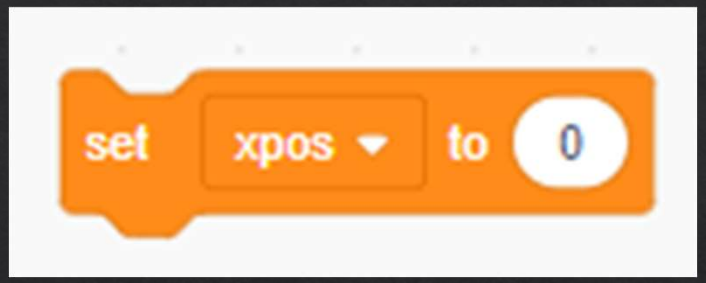
Lesson 3

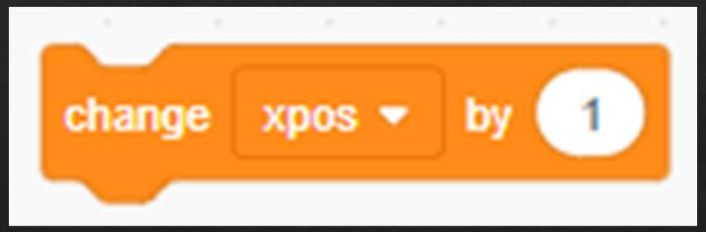
bool



Variables

Lesson 3





Variables

Lesson 3

<variable> = <value>

month = 9

month = “September”

A placeholder

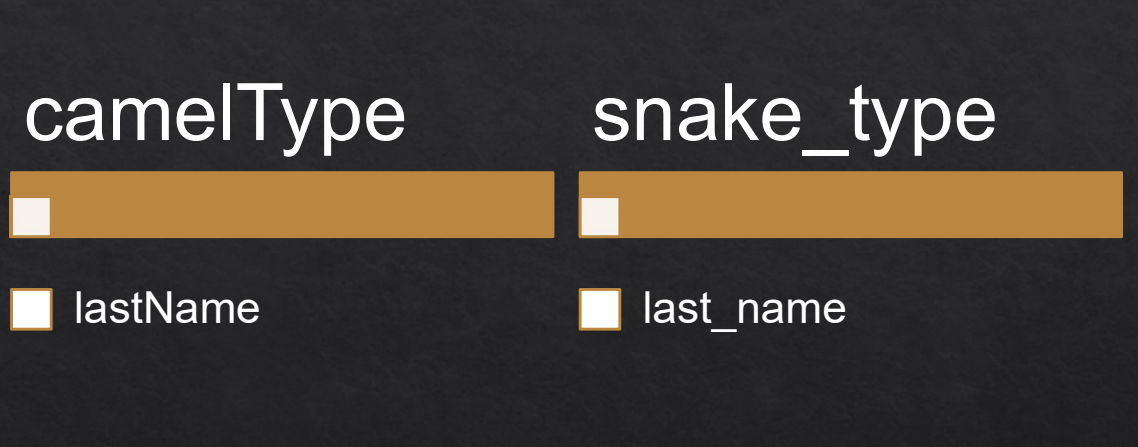
Variables

Lesson 3

- Meaningful name
- Starts with a letter or underscore (_)
- Case-sensitive

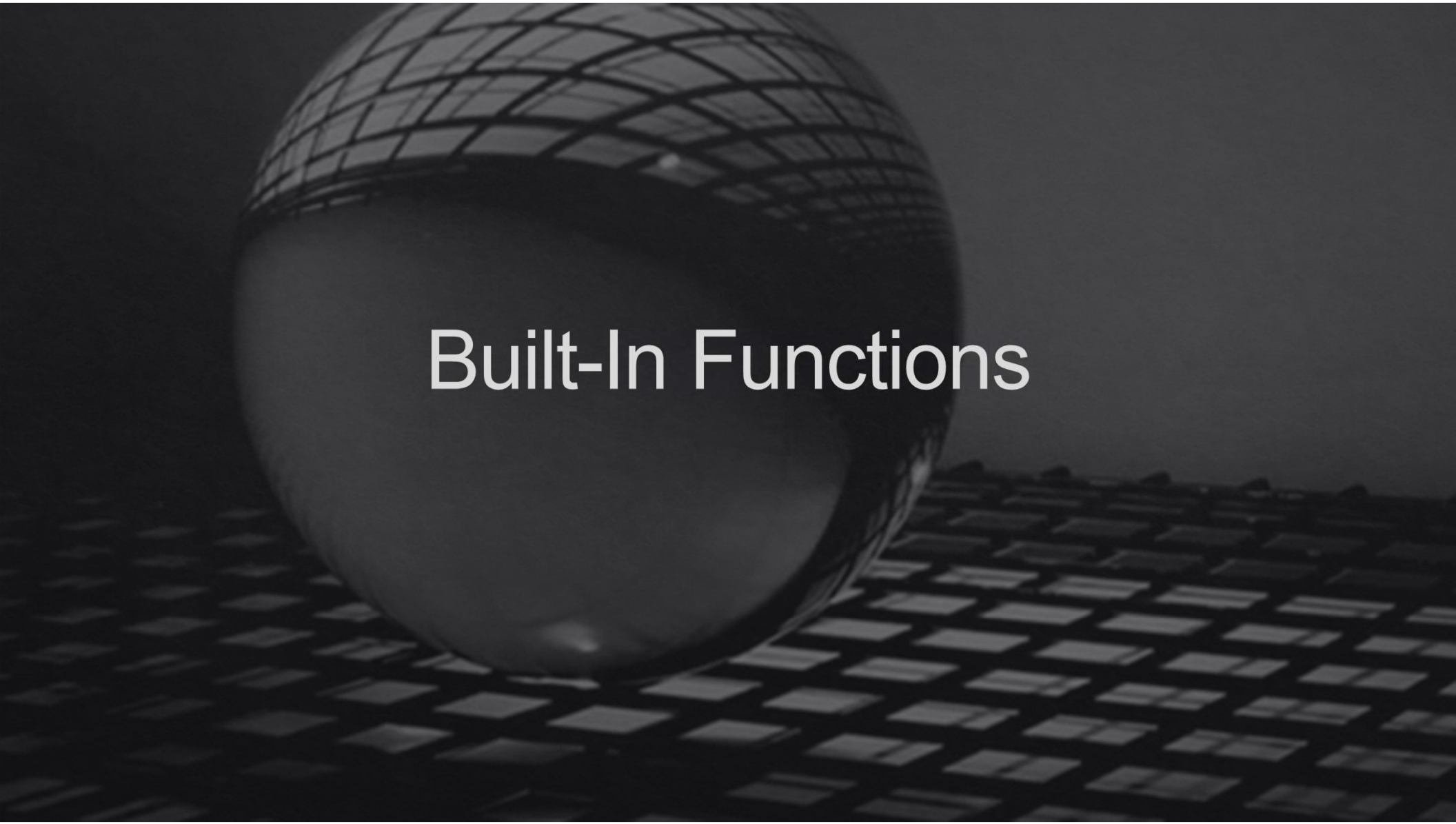
Variables

Lesson 3



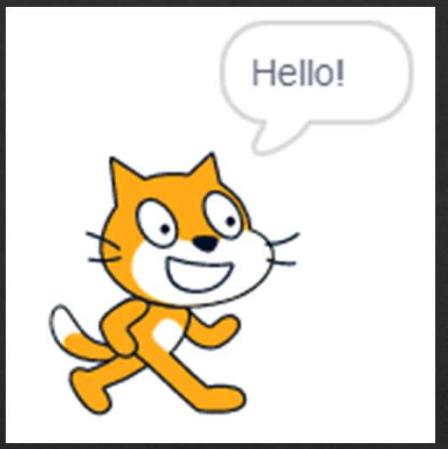
Break

Take a 5-minute break


Built-In Functions

Variables

Lesson 3



print(“Hello!”)

print()

Built-In Function

Lesson 3

- print(“Hello, world!”)

  Hello, world!

- print(5)

  5

- print(“Hello,” , user)

  Hello, Elmo

print(args [, sep=‘ ‘] [, end=‘\n’])

print(1, 2, 3, sep=‘|’)

1|2|3

print(1, 2, 3, end=‘***’)

1 2 3***

type(arg)

Built-In Function

Lesson 3

- type(“Hello”) → str
- type(2021) → int
- type(99.99) → float

input([prompt])

Built-In Function

Lesson 3

- returns a string
- prompt is optional - displays message to a user

Built-In Function

Lesson 3

int(arg)

- returns an integer value of arg
- int(“123”)
- int (12.3)

float(arg)

Built-In Function

Lesson 3

- returns a float value of arg
- float(“123”)
- float (12)

Built-In Function

Lesson 3

str(arg)

- returns a string value of arg
- str (123)
- str (12.99)

What is float(“a”)?

1. 97 (ascii)
2. 97.0 (ascii)
3. Error

Lesson 3

Basic Python

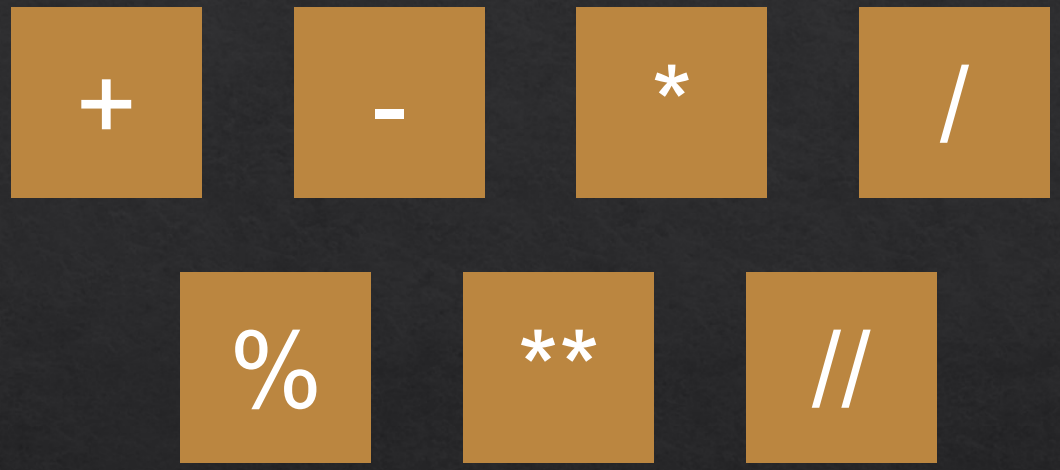
Classwork

- Do **Exercise 1** in Day3 Class Demo.ipynb


Operators

Arithmetic Operators

Lesson 3



9 / 5 = 1.8
9 // 5 = 1

Compound Assignment Operators

Lesson 3

+= -= *= /=

%= **= //=

```
index = 3
index += 5
index **= 5
```

```
index = index + 5
index = index ** 5
```

What is “10” * 3?

1. 30
2. Error
3. “101010”

Lesson 3

Basic Python

String Operators

Lesson 3

“Hello, ” + “Elmo”
“Hello, Elmo”

“Data” * 3
“DataDataData”

Formatted String

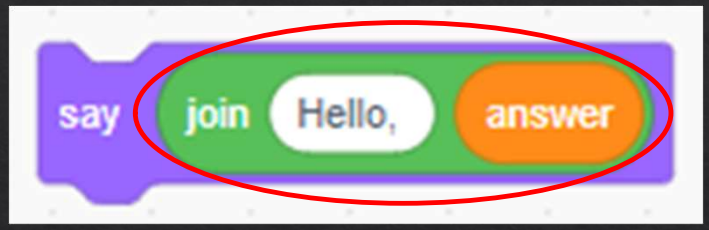
Lesson 3

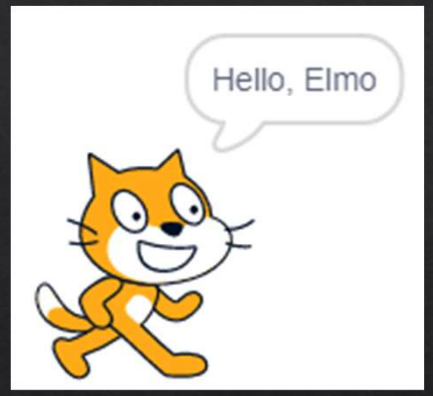
f “Hello, {user}”

Hello, Elmo

Formatted String

Lesson 3





Formatted String

Lesson 3

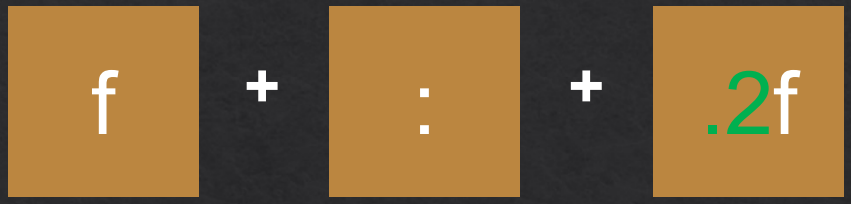
show commas in thousands place

```
amount = 1234567.89123
print( f “Amount is ${ amount:, }” )
```

Amount is $1,234,567.89123

Formatted String

Lesson 3



show 2 decimal places

```
amount = 1234567.89123
print( f “Amount is ${ amount:.2f }” )
```

Amount is $1234567.89

Formatted String

Lesson 3

f + : + .3%

show 3 decimal places in percentage (%)

```
rate = 0.0312
print( f “Rate is { rate:.3% }” )
```

Rate is 3.120%

Classwork

- Do **Exercise 2**

Classwork

- Do **Exercise 3**


Questions?

Homework

- Download Module3 Exercise from Canvas
- Change the file name to include your last name
- Submit your work to Canvas
- Watch recordings in for review


Thank you!