More Basics of Python

- Common types of data we will work with
  - String (`str`): a list of characters in order, surrounded by a pair of single or double quotes. E.g., 'Hello', '1234', "How are you?"
  - Integers (`int`): a whole number. E.g., 1, -5, 34567
  - Decimals (`float`): numbers with decimals. E.g. 1.0, 2.3, -3.4

Operations for Python Data

Strings

```
# concatenation
x = 'Hello'
y = 'world!'
z = x + ' ' + y
print(z)   # hello world!
```

```
# slicing
x = 'Hello world!'
y = x[0:5]
z = x[6:]
print(y)   # Hello
print(z)   # world!
```

```
# len()
x = 'Hello world!'
print(len(x))   # 12
```

Integers

```
# arithmetic
x = 2
y = 3
print(x + y)    # 5
print(x - y)    # -1
print(x * y)    # 6
print(x // y)   # 0
print(x / y)    #  0.6666
print(x ** y)   # 8
```

Floats

```
# arithmetic
x = 2.0
y = 3.0
print(x + y)    # 5.0
print(x - y)    # -1.0
print(x * y)    # 6.0
print(x // y)   # 0.0
print(x / y)    #  0.6666
print(x ** y)   # 8.0
```

Functions

- We'll study functions more extensively.
- Here are some of the basics of a function

Key word to designate this is a function

Function inputs

Function name

```
def compute( num1, num2 ):
    print('We saw ' + str(num1) + str(num2))
    if num1 > num2:
        result = 2*num1 + num2
    else:
        result = 2*num2 + num1
    return result
```

Function result

Use of Functions

- A Python function is a block of code that does something
- Similar to a math function
  - x = add(2, 3)
  - y = compute(2, 3)
  - answer = input('Enter a value : ') # answer a string
  - n = int(input('Enter a value : ')) # n now an int

Use of Python Built-in Functions

- Python has a huge collection of built-in functions we can use. These functions are stored in various *library* files.
- To use Python functions in a library, we *import* the library first, then use any functions in that library.

```
import random
print('Some random values ', random.randint(3, 10))
```