Session 3

* Variables are labels attached to objects:
  + a = [1, 2, 3]
  + b = a
  + a.append(4)
  + b
    - [1, 2, 3, 4]
* The objects might contain the same data, but are references to two different things:
  + a = {“Tuna”: “Fish”}
  + b = {“Tuna”: “Fish”}
  + a == b
    - True
  + a is b
    - False

Functions:

* ‘def’ keyword, to let python know you’re defining a function
* the function name, can be any word provided it doesn’t contain spaces
* () parameters
* the function body (“code inside the function to be ran”)
* def my\_example\_function() :
  + print(“hello”)
* eg.
  + def say\_hello(name):

print(“Hello: “ + name)

say\_hello(“Tony”)

Hello: Tony

* Multiple arguments:
  + def say\_hello(name, age):

scnds = age \* 60 \* 60 \* 24 \* 365.25

print(“Hi: “ + name + “you are: “ + str(scnds) + “old”)

say\_hello(“Ian”, 14)

Hi: Ian you are: 441806400.0 old

* Passing a list:
  + def grade\_average(grades):

first, \*middle, last = grades

return sum(middle) / len(middle)

grade\_average([100, 1, 2, 3, 100])

2.0

* find the max of three numbers:
  + def max\_of\_two(x, y):

if x > y:

return x

return y

def max\_of\_three(x, y, z):

return max\_of\_two(x, max\_of\_two(y, z))

print(max\_of\_three(3, 6, -5))

* find the sum of a list:
  + def sum(numbers):

total = 0

for x in numbers:

total += x

return total

print(sum((8, 2, 3, 0, 7)))

* multiply a list:
  + def multiply(numbers):

total = 1

for x in numbers:

total \*= x

return total

print(multiply((8, 2, 3, -1, 7)))

* reverse a string:
  + def string\_reverse(str1):

rstr1 = ‘’

index = len(str1)

while index > 0:

rstr1 += str1[index – 1]

index = index = 1

return rstr1

print(string\_reverse(‘1234abcd’))

* to calculate the factorial of a number (non-negative integer). The function accept the number as an argument
  + def factorial(n):

if n == 0:

return 1

else:

return n \* factorial(n-1)

n = int(input(“5”))

print(factorial(n))

* to check whether a number is in a given range