

JJenkins_HW#1

September 10, 2018

1 Week 1 Homework: Introduction to Python

Create a new IPython Notebook (or copy this one), and use it to answer the following assignments. If you'd prefer not to use IPython, use another interpreter and answer the same questions.

1.1 Question 1

Create a Python list with the following values: [1, 2, 4, 10, 12, 117, 1244]

- Compute the sum of the values.
- Compute the mean of the values.
- Compute the product of all the numbers (multiply them all together).

```
In [37]: #Create a Python list with the following values: [1, 2, 4, 10, 12, 117, 1244]
Q1_list = [1, 2, 4, 10, 12, 117, 1244]
```

```
#Compute the sum of the values.
```

```
Q1_sum = sum(Q1_list)
print("The sum of the values is " + str(Q1_sum) + ".\n")
```

```
#Compute the mean of the values.
```

```
Q1_mean = (Q1_sum / float(len(Q1_list)))
print("The mean of the values is " + str(Q1_mean) + ".\n")
```

```
#Compute the product of all the numbers (multiply them all together).
```

```
import numpy as np
Q1_product = np.prod(Q1_list)
print("The product of all of the the values multiplied together is {0:,}".format(Q1_p
```

The sum of the values is 1390.

The mean of the values is 198.57142857142858.

The product of all of the the values multiplied together is 139,726,080.

1.2 Question 2

Write functions to do all the operations above; repeat them on the following lists of numbers:

a. [3, 2, 3, 3, 3, 2, 8, 2, 2, 126]

b. [7, 267, 4, 2, 5, 319, 5, 6, 713, 3]

In [34]: *# Question 2 Part a*

```
def Q2_a(*args):
    #Compute the sum of the values.
    Q2_a_sum = sum(*args)
    print("The sum of the values is " + str(Q2_a_sum) + ".\n")

    #Compute the mean of the values.
    Q2_a_mean = (Q2_a_sum / float(len(*args)))
    print("The mean of the values is " + str(Q2_a_mean) + ".\n")

    #Compute the product of all the numbers (multiply them all together).
    import numpy as np
    Q2_a_product = np.prod(*args)
    print("The product of all of the the values multiplied together is {0:,}".format(Q2_a_product))

Q2_a_list = [3, 2, 3, 3, 3, 2, 8, 2, 2, 126]
Q2_a(Q2_a_list)
```

The sum of the values is 154.

The mean of the values is 15.4.

The product of all of the the values multiplied together is 1,306,368.

In [36]: *# Question 2 Part b*

```
def Q2_b(*args):
    #Compute the sum of the values.
    Q2_b_sum = sum(*args)
    print("The sum of the values is " + str(Q2_b_sum) + ".\n")

    #Compute the mean of the values.
    Q2_b_mean = (Q2_b_sum / float(len(*args)))
    print("The mean of the values is " + str(Q2_b_mean) + ".\n")

    #Compute the product of all the numbers (multiply them all together).
    import numpy as np
    Q2_b_product = np.prod(*args)
    print("The product of all of the the values multiplied together is {0:,}".format(Q2_b_product))
```

```
Q2_b_list = [7, 267, 4, 2, 5, 319, 5, 6, 713, 3]
Q2_b(Q2_b_list)
```

The sum of the values is 1331.

The mean of the values is 133.1.

The product of all of the the values multiplied together is 1,346,037,424.

1.3 Question 3

FizzBuzz is a classic programming exercise. Iterate over the numbers from 0 to 99 and for each number:

- If the number is divisible by 3, print Fizz
- If the number is divisible by 5, print Buzz
- If the number is divisible by both 3 and 5, print Fizz Buzz
- Otherwise, just print the number.

Hint: The modulo operator which gives you a division remainder is the percentage sign, %.
For example:

```
In [14]: for number in range(1, 100):
          if number % 3 == 0 and number % 5 == 0:
              print("Fizz Buzz")
          elif number % 3 == 0:
              print("Fizz")
          elif number % 5 == 0:
              print("Buzz")
          else:
              print(number)
```

```
1
2
Fizz
4
Buzz
Fizz
7
8
Fizz
Buzz
11
Fizz
13
```

14
Fizz Buzz
16
17
Fizz
19
Buzz
Fizz
22
23
Fizz
Buzz
26
Fizz
28
29
Fizz Buzz
31
32
Fizz
34
Buzz
Fizz
37
38
Fizz
Buzz
41
Fizz
43
44
Fizz Buzz
46
47
Fizz
49
Buzz
Fizz
52
53
Fizz
Buzz
56
Fizz
58
59
Fizz Buzz
61

```
62
Fizz
64
Buzz
Fizz
67
68
Fizz
Buzz
71
Fizz
73
74
Fizz Buzz
76
77
Fizz
79
Buzz
Fizz
82
83
Fizz
Buzz
86
Fizz
88
89
Fizz Buzz
91
92
Fizz
94
Buzz
Fizz
97
98
Fizz
```

```
In [1]: 4 % 2
```

```
Out[1]: 0
```

```
In [2]: 5 % 2
```

```
Out[2]: 1
```