



Hostos BMI TEAM – Python Boot Camp

Winter 2020

Assignment #1

Due: January 13, 2020

BMI TEAM Program Co-Directors: Prof. Nelson Nuñez, Ph.D. and Prof. Yoel Rodríguez, Ph.D.

BMI TEAM Program Coordinators: Christian Huacón and Luis Tejeda Ortiz

Boot Camp Instructor: Kelvin Ma

Part I – General questions

Problem 1 – What is the output of the following codes? If there is an error, simply write that there is an error in the code. If there is no output, just write no output.

- a.

```
x = 14.5
print(type(x))
```
- b.

```
My_name = "Bob"
print(My_name);
```
- c.

```
My_name = "Bob"
print(type(My_name))
```
- d.

```
My_name = "Mike" + str(49)
print(type(My_name))
```

Problem 2 – What is the value of the variable **ans** in the following codes? If there is an error, simply write that there is an error in the code. If it is a string, please indicate it by using double quotes.

- a.

```
x, y = 8, 2
ans = x^y
```
- b.

```
x, y = 8, 2
ans = x**y
```
- c.

```
x, y = "2", 5
ans = x + y
```
- d.

```
x, y = 18, 4
ans = x % y
```
- e.

```
x, y = 18, 4
ans = (x % y) >= 3
```

Part II. Programming Challenges

For this part of the assignment, you must push your code onto GitHub. Please create a new file for each programming challenge below. I will check your repositories by 10 A.M. on January 19, 2020.

Some of these problems' solutions are available online (as I didn't produce them out of thin air). Try not to look at the solution until after you've tried them!

The stars ★ indicate the level of difficulty. These difficulties are highly subjective, so don't worry! Just complete any that you can. We'll go over the solutions to these during class!

Challenge #1 (★)

Create a function that takes in an array (or list) of integers or floats as input. The output of the function is the sum of all the elements inside of the array. If the list is empty, the output should be 0. Print this output to console.

Test cases:

Input	Expected output
Input_list = [1,2,3]	6
Input_list = [1,3,5,7]	16
Input_list = [1,1]	2
Input_list = [2.5, 6.2, 3.14]	11.84
Input_list = []	0

Challenge #2 (★★)

Create a function that takes an integer n as the input. The output function should be a **list** of the all odd integers between 0 and n **inclusively**. If $n = 0$, the output **list** should be empty.

Test cases:

Input	Expected output
$n = 1$	Output = [1]
$n = 5$	Output = [1, 3, 5]
$n = 2$	Output = [1]
$n = 19$	Output = [1, 3, 5, 7, 9, 11, 13, 15, 17, 19]

Challenge #3 (★★★)

Create a function that takes an integer n as the input. The output function should be the n^{th} *positive even integer*. If $n = 0$, let the output be 0.

Test cases:

Input	Expected output
$n = 0$	0
$n = 1$	2
$n = 5$	10
$n = 19$	38
$n = 1000$	2000

Challenge #4 (****)

Create a function that compares two lists of integers. The output of the function should be a **list** containing the differences between the first and second lists. In other words, list all the elements that are unique only to ONE of the lists.

If both lists are empty or the same, the output list should also be empty.

Test cases:

Note: the expected outputs can be in any order, so long as the values are the same.

Input		Expected output
a = [1,2,3]	b = [1,2,3]	Output = []
a = [1,2,3,5]	b = [1,2,3,4]	Output = [5, 4]
a = [1,3,5]	b = [1,2,3,4]	Output = [5, 2, 4]
a = [1,2,3]	b = [4,5,6]	Output = [1,2,3,4,5,6]