Lab 3.04 - Aliasing & Scope

In Your notebook

Aliasing

1. Will updating `B` affect `A`? Explain why or why not.

```
a = [1, 2, 4]
b = a
```

2. Predict what `MY_LIST` list will print out when this code is run. If you are not sure, test the code by copying and running it.

```
# input: a list of ints
# output: an int
def update_list(a_list):
    a_list[3] = "yo"
    b = a_list[4]
    b = 100

my_list = [1, 2, 3, 4, 5]
update_list(my_list)
print(my_list)
```

Scope

1. Draw a stack diagram for the following:

```
var_1 = "kittens"
var_2 = "cookies"

# input: a string
# output: a string
def my_function(my_favorite_things):
    song_lyrics = "raindrops on roses, "
    combined_song = song_lyrics + my_favorite_things
    return combined_song

# input: a string
# output: a string
def my_function_2(item, item2):
    full_lyrics = item + " on " + item2
    full_song = my_function(full_lyrics)
    return full_song

my_song = my_function_2(var_1, var_2)
```

Complete the following on your own:

1. Write down what (if anything) is wrong with the following code.
2. If there is an issue, write out how to fix it.
3. If you are unsure, copy and run the code and fix it

Problem 1

```
var_1 = 'cat'
var_2 = 'dog'

def print_out_my_favorite(favorite_pet):
    if favorite_pet == var_1:
        print("My favorite pet is the cat.")
    if favorite_pet == var_2:
        print("My favorite pet is the dog.")
    var_1 = 'dog'
    var_2 = "cat"

print_out_my_favorite(var_1)
print("var_1:" + var_1 + " var_2:" + var_2)
```

Problem 2

```
var_1 = 'cat'
var_2 = 'dog'

def print_out_my_favorite(favorite_pet):
    var_1 = 'dog'
    var_2 = 'cat'
    if favorite_pet == var_1:
        print("My favorite pet is the cat.")
    if favorite_pet == var_2:
        print("My favorite pet is the dog.")

print_out_my_favorite(var_1)
print("var_1:" + var_1 + " var_2:" + var_2)
```

Problem 3

```
var_1 = 'cat'
var_2 = 'dog'

def print_out_my_favorite(favorite_pet):
    if favorite_pet == var_1:
        print("My favorite pet is the cat.")
    if favorite_pet == var_2:
        print("My favorite pet is the dog.")

print_out_my_favorite(var_1)
print("var_1:" + var_1 + " var_2:" + var_2)
```

In your console

Write a program using the following specifications:

1. Program includes a global variable, `my_num`.
2. Create three functions that update `my_num`
3. `add2`: this function adds 2 to `my_num`
4. `multiply_num:` this function takes in a parameter, `multiplier`, and multiplies `my_num` by that parameter
5. `add2_and_multiply`: this function takes in a parameter, `multiplier`, and calls `add2`, then calls `multiply_num`.

Complete the program

Write the following code in the main part of the program:

1. set `my_num` to some initial value you choose
2. print `my_num`
3. call `add2_and_multiply()` with some argument you choose
4. print the **`FINAL VALUE`** of `my_num`
5. Confirm that the printed values match what you expected