

Week 2 In-class Exercises

1) Write a function that asks users for their favorite color, then prints “Your favorite color is: (their favorite color)”

2) Write a function that asks the user for two numbers, and then prints their sum.

3) Write a function that takes two numbers as parameters and prints their sum.

4) Write a function that prints the input parameter multiplied by 3.

- a) What happens when you call it with an integer?
- b) What happens when you call it with a string?

5) $f(x) = 2x + 5$ is a mathematical function.

- a) What is the input?
- b) What does the function do to that input?
- c) Write a python function that takes in x and prints f(x)

6) One important aspect of functions is scope: How do variables defined inside a function and variables defined outside a function interact with each other? The following questions will lead you through some experiments to understand scope in python – at times, they may be confusing! Try to come up with guesses and then understand why you were right or wrong.

Read the following code. What do you think will happen? Run it and try to understand the output.

a.

```
my_number = 3
def print_my_number():
    print(my_number)

print_my_number()
```

b.

```
def print_my_number():
    print(my_number)
```

```
my_number = 3
print_my_number()
```

c.

```
def print_my_number():
    print(my_number)
```

```
print_my_number()
my_number = 3
```

d.

```
def print_my_number():
    my_number = 5
    print(my_number)
```

```
print(my_number)
```

e.

```
def print_my_number():
    my_number = 5
    print(my_number)
```

```
my_number = 3
print_my_number()
```

f.

```
def print_my_number():
    my_number = 5
    print(my_number)
```

```
my_number = 3
print_my_number()
print(my_number)
```

g.

```
def print_my_number(the_number):
    the_number = 8
    print(the_number)
```

```
my_number = 3
print_my_number(my_number)
```

```
print(my_number)
```

- h. Try to summarize the results:
 - i. Can a function “see” variables defined outside of itself?
 - ii. Does it matter where or when they are defined?
 - iii. Can the outside code “see” variables defined inside of a function?
 - iv. What happens if a variable inside the function and outside the function have the same name?