**Lists and functions**

The following functions both double all numbers in a list. One function returns a new list, but the other does not. For each case, write Python code that calls each function and prints the doubled list.

| **Function** | **Function call and print** |
| --- | --- |
| **def** double(list\_of\_nums):  idx = 0  doubled\_list = []  while idx < len(list\_of\_nums):  doubled\_list.append(2\*list\_of\_nums[idx])  idx += 1  return doubled\_list | nums = [1, 2, 3, 4, 5]  doubled\_list = double(nums)  print("Doubled list using return: ",doubled\_list) |
| **def** double(list\_of\_nums):  idx = 0  while idx < len(list\_of\_nums):  list\_of\_nums[idx] \*= 2  idx += 1 | double(nums)  print("Doubled list not using return: ", nums) |

**File input/output -**

1. What line of code do we write to open a file? What does the second parameter (the letter) signify?

**You use the open function where the first argument is the name of the file and the second argument**

**Is the mode you want to open the file in. You can open in “r” mode to read the file, “w” to write to the file but this will clear the existing content of the file or “a” mode to append to the end of the file.**

1. How do we read a single line from a file?

**You can use the readline() method. For example: line = file.readline().**

1. How do we iterate through all lines in a file?

**You can set up a while loop to go through the entire file where your condition is whether there is another line available or not. Check the Python notebook for example. You can also set up a while loop whose condition is a counter variable less than the length of the file.**

1. What are the differences between opening a file in "write" mode vs. "append" mode?

**Opening a file in “write” mode will open a file in a write-only mode or create a new file with the specified name if one doesn’t already exist. Opening a file in “append” mode, allows you to append new information to the end of the file.**

1. When you use the file.write() function, where does this function include a new line in the file you give it?

**The function doesn’t add a new line unless specified using the \n new line character.**

1. If your program is located in the directory lab9\_fileio, where must your text file, mytext.txt be located for the following line of code not to cause an error?

infile = open("mytext.txt", "r")

**mytext.txt has to be in the lab9\_fileio directory.**

1. What must you do after you are done with a file?

**You must make sure you close it by using the close() method after you’re done with the file. Check the Python notebook for this lab to see an example.**