

# Homework 1

COP 3502: Computer Science I  
Due: Friday 6pm EST, February 1

1. Consider the following lists:

```
fruits = ['apple', 'banana', 'orange', 'grape', 'tangerine', 'kiwi']  
numbers = [1,2,3,4,5,6,7,8,9,10]
```

- a) Write a python program using **for** loop to iterate (run through) each item in the list **fruits** and find the length using the **len** function (For example, there are 5 characters in the item apple so its length is 5). Now having found the length, **if** the length of the item is greater than 4 then print the name of the item **else** print “This item has no more than 4 characters.”. The output to this program should look like this:

**Output:**

```
apple  
banana  
orange  
grape  
tangerine  
This item has no more than 4 characters.
```

- b) Write a python program using **while** loop to iterate (run through) each number in the list **numbers** and find the result of adding all the numbers in the list (1+2+3....+10). The output to this program should look like this:

**Output:**

```
Sum=55
```

[20 points]

2. The factorial of a number is defined as the product of all values from one to that number. A shorthand of factorial is  $N! = 1 * 2 * 3 * \dots * (N-1) * (N)$ . So  $4! = 1 * 2 * 3 * 4$ .

- a) Write a python program using **while** loop to compute the factorial of a number N. The program should print something like “The factorial of 4 is 24”.
- b) Repeat part (a) using a **for** loop to compute the factorial.

Hint: Begin the program by having a variable N and assigning it a value (say N=4), where N is an integer (non-decimal value). You are free to use your own logic and any number of variables.

[20 points]

3. Given a list L consisting of n numbers, we want you to implement “mysort” function as demonstrated in the class. You are NOT allowed to use the “min” function in python or any other function that directly sorts the input (for example sorted). Your implementation must use a while loop to drive the sorting. For this assignment, you need to provide an implementation of the “min” function, the “mysort” function and the “test\_min” and “test\_mysort” functions.

[20 points]

**Submission:**

Submit a single **text file** with all the answers through blackboard. Under assignments, a link to HW1 will be provided where you could upload your file. Maintain correct **indentation** of the program and **number** each answer correctly. Name the file using this format:

**yourLastNameLowerCase\_FSUuserID\_hw1.txt**. Your FSU user ID will be unique to you, will typically be your FSU email ID, and will be something like "ab23c". Hence file names will look something like "smith\_ab23c\_hw1.txt."