# Homework 3 (78 points)

For Questions 1-9, use a Word or PDF document (NO OTHER FORMATS ACCEPTED) to record your responses in red font color below. For Question 10, write a Python script. To submit your assignment, create a zip folder containing the Word/PDF document and the Python script for Question 10 and upload the zip folder to Moodle.

## Question 1 (2 points)

What is the difference between a while loop and a for loop?

A while loop runs for as long as a statement is true, a for loop runs for a certain range

## Question 2 (2 points)

What does a break statement inside a while loop do?

a break statement kicks you out of the loop

## Question 3 (2 points)

What does a continue statement inside a while loop do?

## Question 4 (3 points)

What will be printed to the screen?

sum = 0

for i in range(0, 10, 2):

sum += i

print(i)

print(sum)

0

2

4

8

20

How would you change the script to print the same sum, but count backwards instead? For example, what are the values of x and y?

sum = 0

for i in range(x, y, -2):

sum += i

print(i)

print(sum)

x=10, y= -2

## Question 5 (4 points)

What is the difference between the append() method and the insert() method when working with lists?

Append will always add to the end of the list, insert can insert at any position in the list

## Question 6 (8 points)

What are the four ways to remove elements from a list? List the differences between each of the four ways.

Del-removes an element at a certain position

Pop() on last item-saves the last element into a variable

Pop() on a specific position-saves the element at the specified position to a variable

.remove()-removes by value not position

## Question 7 (2 points)

What is the difference between the sort() and sorted() functions when working with lists?

Sort() permanently sorts the list alphabetically, Sorted() returns the sorted list alphabetically but doesn’t change the original order

## Question 8 (15 points)

Write for statements that print the following sequences of values to the screen. You don’t need to write an entire Python script, just modify the line of the for loop. An example has been provided for you:

1. 1, 2, 3, 4, 5, 6, 7, 8, 9

for i in range(1, 10, 1):

print(i)

1. 13, 18, 23, 28, 33, 38, 43

for i in range (13,44,5):

print(i)

1. 20, 19, 18, 17, 16, …, 1, 0

for I in range (20,-1,-1):

print(I)

1. 5, 3, 1, -1, -3, -5

For I in range(5,-6,-2):

Print(i)

1. 2, 4, 6, 8, 10

for I in range(2,11,2):

print(i)

1. 10, 8, 6, 4, 2

For I in range(10,1,-2):

Print(i)

## Question 9 (20 points)

For each of these items below, (1) find and explain the error and (2) explain how to fix it. You must provide both of these points for each part to receive full points.

**For parts 7-10, assume that the employee\_list has been correctly created as described in part 6.**

1. num\_attempts = 0

while (num\_attempts <= 3):

print(“Wrong password, try again.”)

1. for i in range():

print(“I bought a new video game.”)

there’s no inputs in the range function.to fix it enter a number to represent how many times you want to print “ I bought a new video game”.

1. import random

print(randint(1, 10))

you need to call the random module when trying to print a rand int. to fix use “random.randint” instead of “randint”

1. ingredients\_list = [‘cheddar cheese’, ‘butter’, ‘flour’, ‘milk’, ‘salt’, ‘macaroni’

a bracket is missing at the end. Just add an end braket

1. print(ingredients\_list.upper()

the print statement needs to be closed. Add another parentheses to the end

1. employee\_list = [‘leslie’, ‘ron’, ‘tom’, ‘april’, ‘donna’, ‘ben’, ‘chris’, ‘jerry’, ‘andy’]

print(employee\_list[9])

there is no 9th position in the list. Either add more items to the list or choose position between 0 and 8

1. append(‘anne’, employee\_list)

append is a function of the list so you need to call the list. To fix use employee\_list.append(‘anne’)

1. employee\_list.insert(‘mark’)

position is not specified. add a position to add mark

1. employee\_list.del(2)

wrong format. Correct format is del employee\_list[2]

1. employee\_list.remove(0)

remove is by value not position. since the items in the list are string you need to enter a string to remove

## Question 10 (20 points)

Write a Python script that uses a random number generator to pick from at least four categories of your choice. For example, your script can act as a Sorting Hat and place you in Gryffindor, Hufflepuff, Ravenclaw, or Slytherin house. Alternatively, you may want to pick a house from Game of Thrones, select your spirit animal, decide which video game to buy first during the Steam Christmas sale, pick your favorite meme, etc.

These are the requirements:

1. When the script is executed, the random number generator chooses a number, outputs the result to the terminal, and asks the user if they want to continue. If the user enters “y” for yes, then repeat the actions listed (HINT: use a while loop). If the user enters “n” for no, then program execution ends.
2. Use a minimum of four categories but feel free to add more.
3. Use a list containing elements that represent each category. (HINT: use the value of the random number integer as the index position of the list)
4. Comment your code