Winter ’12 CIS 122 Assignment 4 – 120/100 points possible – Due Tuesday, 3-6, 11:59 PM

1. [20] Exercise 6.4 (p. 300). Write a program which first defines a function *sumNeighbors(list)*. The function should return a new list containing elements as defined by the problem in the text. Your program should then initialize an empty list and then prompt the user for an integer and keep prompting for integers, adding each integer to the list, until the user enters a single period character (i.e., ‘.’). Your program should then call *sumNeighbors* with the list of integers as an argument and print the result returned by the function call. Save your program as Assignment4-1.py.

2. [20] Exercise 6.10 (p. 301). Write a program which first defines functions *minFromList(list)* and *maxFromList(list)*. The functions should return a single element as defined by the problem in the text. Your program should then initialize an empty list and then prompt the user for an integer and keep prompting for integers, adding each integer to the list, until the user enters a single period character (i.e., ‘.’). Your program should then call *minFromList* and *maxFromList* with the list of integers as an argument and print the results returned by the function calls. Save your program as Assignment4-2.py.

3. [20] Exercise 6.21 (p. 302). Write a program which first defines a function *sortText(text)*. The function should take a string as the argument and return a modified version of the string with the characters sorted as specified by the problem in the text. Your program should then prompt the user for input text, call *sortText* with the text as an argument, and then print the result of the function call. Save your program as Assignment4-3.py.

4. [20] Exercise 7.1 (p. 333). Write a program which first defines a function *evens(n)*. The function should take an integer as the argument and return a list of *n* even integers starting with 2 using the *range* function as specified by the problem in the text. Your program should then prompt the user for an integer, call *evens* with the integer as an argument, and then print the result of the function call. Save your program as Assignment4-4.py.

5. [20] Exercise 7.18 (p. 335). Write a program which first defines a function *multiFind(someString, subString, start, end)* with start and end as optional arguments as specified by the text (hint: the builtin *find* function uses None as the its default end argument). The function should use the builtin *find* function to assembly and return a list containing the indices of all instances of subString in someString within the range start to end. Your program should then prompt the user for someString and subString strings and start and end integers, call *multiFind* with the input values as arguments, and then print the result of the function call. For reference, the previous *multiFind* function mentioned in the text is discussed on page 249. Try calling your function without passing the start and end arguments to ensure that the optional arguments are working correctly. Save your program as Assignment4-5.py.

6. [+20] (extra credit) Exercise 6.54b (p. 306). Write a program which first defines a function *shiftList(list, amount, right)*. The function should take a list of integers, a shift amount, and a Boolean indicating whether to shift right or not (i.e., to shift left). The function should return a new list containing elements as defined by the problem in the text. Your program should then initialize an empty list and then prompt the user for an integer and keep prompting for integers, adding each integer to the list, until the user enters a single period character (i.e., '.'). Your program should also prompt the user for an integer shift amount and ask the user whether or not they want to shift the list right (you may accept "yes" as True and anything else as False). Your program should then call *shiftList* with the list of integers, the shift amount, and the shift-right Boolean as arguments and print the result returned by the function call. Save your program as Assignment4-6.py.

Upload your .py files to Blackboard.