Computer Science I Bill Griffith PhD

HW7 12 pts **Due Thursday, October31 , 11:59 PM**

In HW7, we will explore the binary search algorithm. We looked at the bubble/push down sort in class So, in this assignment, use either the selection sort function or the insertion sort function**. Do NOT use the Python sort function.** To set up the problem, create a list containing 10 unique (no dups) random numbers chosen from the inclusive range of 0 to 100. You will then have the program randomly choose one number from the same range to be used as your target number. The next step will be to search the list of ten to see if the target number in contained in that list. If not, the program will then choose another random target number (no dups) from the inclusive range of 0 to 100 and once again, the program will search for a hit. This will proceed until there is a hit. The program will must print the prospective targets as it proceeds and also report the total number of attempts required for success. You must use the binary search method to look for hits, which, of course, requires you to sort the list of 10. The numbers in the list of ten do not change during this process. Do not search for duplicate targets. There must be ONLY TWO user created functions in the program: the sort function and the binary search function. The rest of the code will be in the main section.

Sample Outputs:

Original List [23, 2, 97, 45, 5, 13, 21, 68, 54, 47]
Sorted List [2, 5, 13, 21, 23, 45, 47, 54, 68, 97]
Target = 57
Target = 44
Target = 27
Target = 40
Target = 23
Count = 5

Original List [76, 83, 73, 100, 10, 32, 80, 40, 70, 79]
Sorted List [10, 32, 40, 70, 73, 76, 79, 80, 83, 100]
Target = 12
Target = 17
Target = 99
Target = 44
Target = 56
Target = 30
Target = 81
Target = 97
Target = 100
Count = 9