

Program #1 - Due Thursday, Sept. 2

This program should allow the user to enter two sets of integers. You may have the user input the elements from the keyboard in any fashion you wish (of course, you should give instructions how to enter the elements of each set). It is perfectly acceptable for one or both of the sets to be the empty set, and it is very possible that some of the resulting sets below could be the empty set. Each set should be stored as a linked list. Your program should do the following.

1. Sort the elements in each of the sets in ascending order, eliminating any repeated elements, using the insertion-sort algorithm.
2. Compute the union of the two sets by cutting and pasting the lists together appropriately, storing this new set as a linked list. (No sorting of the resulting list should be necessary.)
3. Compute the intersection of the two sets, storing this new set as a linked list. Your intersection operation should allow you to create this new list without having to sort it.
4. Compute each of the set differences, storing each new set as a linked list. (The set difference $A - B$ is defined as the set of elements in A that are not in B .)
5. Using recursion, generate the set of all possible subsets of the first set the user enters.