(CL2001) Data Structure Lab

Lab 1 Task:

Problem: 1

Populate an array of your size choice and write a program to find the largest and smallest element in that array.

Note: Perform the above task using pass by reference using pointer variables.

Problem: 2

Implement a function that finds common elements in two arrays. You can assume that the sets are stored using arrays. So, if array1 = {1,2,3,4,5,6,3,2} and array2 is {1,3,5,7}, then array3

should be {1,3,5}. Note array3 should not have any duplicate elements. You have to:

think of all the functions that are required for this problem. Each function should perform its dedicated task. So, plan them out before implementing them.

Main should only have a set of function calls.

Problem: 3

Implement a function that finds union of two sets. You can assume that the sets

are stored using arrays. So, if array1 = {1,2,3,4,5,6,3,2} and array2 is {1,3,5,7}, then array3

should be {1,2,3,4,5,6,7}. Note array3 should not have any duplicate elements. You have to:

think of all the functions that are required for this problem. Each function should perform its dedicated task. So, plan them out before implementing them.

Main should only have a set of function calls.

Problem: 4

Write a function find_small_val(A) that given an array A of N integers, returns the smallest positive integer (greater than 0) that does not occur in A.

For example, given A = [1, 3, 6, 4, 1, 2], the function should return 5.

Given A = [1, 2, 3], the function should return 4.

Given A = [-1, -3], the function should return 1.

Write a program for the following assumptions.

Each element of array A is an integer within the range

[-1,000,000...1,000,000].