CS 2003 Fundamentals of Algorithms and Computer Applications

Lab 5: Use recursion to find the kth smallest number in an array

You will write a program that allows the user to recursively find the kth smallest element from an array. We have provided a `Lab5.java` file with code to read in a data file of integers into an array of Integers and print the number of elements read in, N.

Complete the recursive function `kSmall` which, given an argument k between 1 and N and an array of `Comparable` elements, returns the kth smallest element in the array.

You also need to add a loop in the main method that repeatedly prompts the user to input an argument between 1 and N. The program should loop until an index less than 1 or greater than N is entered as the index. For a valid index, k, call `kSmall` to compute the kth smallest integer read in and then write out an appropriate message.

Submit only the file `Lab5.java`. We will use our own data files to test your work.