

AAD1 (CSE2631) LAB EXPERIMENT

Experiment-4

Objective: Implement sorting and searching techniques to solve the given problems.

Task list:

- 1) Write an efficient algorithm/program to determine whether a given list of integers is sorted or not. If the answer is "YES", then say whether the list is sorted in ascending or descending order.
Input: 12,23,34,56,78 Output: Yes ascending
Input: 12,23,45,32,56,78 Output: No
Input: 78,56,34,23,12 Output: Yes descending
- 2) Given a VALUE and two lists of integers X and Y. Find all pairs of elements ($X[i],Y[j]$) such that the absolute difference of $X[i]$ and $Y[j]$ is the VALUE, where $i=j$ or $i \neq j$.
Input: VALUE: 4 X: 1,5,4,3,7 Y:2,9,6,7,8 Output: (5,9), (4,8), (3,7)
- 3) Write a program to find the k^{th} smallest element from a given list of n integers. (Note: $k < n$)
Input: 15,7,22,9,18,4 k=3 Output:9
- 4) Given an array, find if there is a pair whose sum is equal to the sum of the rest of the elements of the array.
Input: 4, 8, 1, 2, 16, 15 Output: 8, 15
- 5) Given an array of positive integers representing the edges of a triangle. Find the number of triangles that can be formed from these elements, representing the sides of a triangle. For a triangle, the sum of two edges is always greater than the third edge.
Input: 1, 2, 3, 4, 5 Output: 3