

Data Structures Lab Task 1

Date: 08-Jan-2024

Note: Do not use built-in functions

1. You are given an array of N integers in random order. Your task is to determine whether these numbers form an Arithmetic Progression (AP) or not. If they form an AP, return the common difference between two consecutive numbers; otherwise, return -1.

2. You are given an array of N integers. Your task is to implement the Selection Sort algorithm and calculate the total number of swaps performed during the sorting process.

Numbers: 75 64 2 19 12 8 3 45 51 26

3. Write code to sort elements using Bubble Sort Algorithm.

4. Given an array `arr[]` of size N and a number K, where K is smaller than the size of the array. Find the K'th smallest element in the given array. Given that all array elements are distinct.

5. You are given an array `arr` of size N-1 containing distinct integers in arithmetic progression (AP), but the elements are jumbled and one number is missing from the A.P. The first and last values of the original AP are not missing. Your task is to find the missing number from the AP.

6. Given an array of integers `arr[]`, the task is to find the index of the first repeating element in it, i.e., the element that occurs more than once and whose index of the first occurrence is the smallest.

Input: `arr[] = {10, 5, 3, 4, 3, 5, 6}`

Output: 5

Explanation: 5 is the first element that repeats.