Problem 4: Divide And Conquer Method

Question:

Problem Statement:
Given a sorted array of integers say arr[] and a number x. Write a recursive program using divide and conquer strategy to check if there exist two elements in the array whose sum = x. If there exist such two elements then return the numbers, otherwise print as “No”.
Note: Write a Divide and Conquer Solution
Input Format
First Line Contains Integer n – Size of array
Next n lines Contains n numbers – Elements of an array
Last Line Contains Integer x – Sum Value
Output Format
First Line Contains Integer – Element1
Second Line Contains Integer – Element2 (Element 1 and Elements 2 together sums to value “x”)

Program:

```c
#include <stdio.h>

int findPair(int arr[], int low, int high, int x) {
    if (low >= high)
        return 0;
    int sum = arr[low] + arr[high];
    if (sum == x) {
        printf("%d\n", arr[low]);
        printf("%d\n", arr[high]);
        return 1;
    }
    else if (sum < x)
        return findPair(arr, low + 1, high, x);
    else
        return findPair(arr, low, high - 1, x);
}

int main() {
    int n, x;
    scanf("%d", &n);
    int arr[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    scanf("%d", &x);
    if (!findPair(arr, 0, n - 1, x)) {
        printf("No\n");
    }
    return 0;
}
```

	Input	Expected	Got	
✔	4 2 4 8 10 14	4 10	4 10	✔
✔	5 2 4 6 8 10 100	No	No	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.