Divide and conquer

Program – 3

Aim:

To determine if there exist two elements in a sorted array whose sum equals xxx, using a divide and conquer approach.

Input:

- First line: An integer nnn – size of the array.
- Next nnn lines: nnn integers – elements of the sorted array.
- Last line: An integer xxx – target sum value.

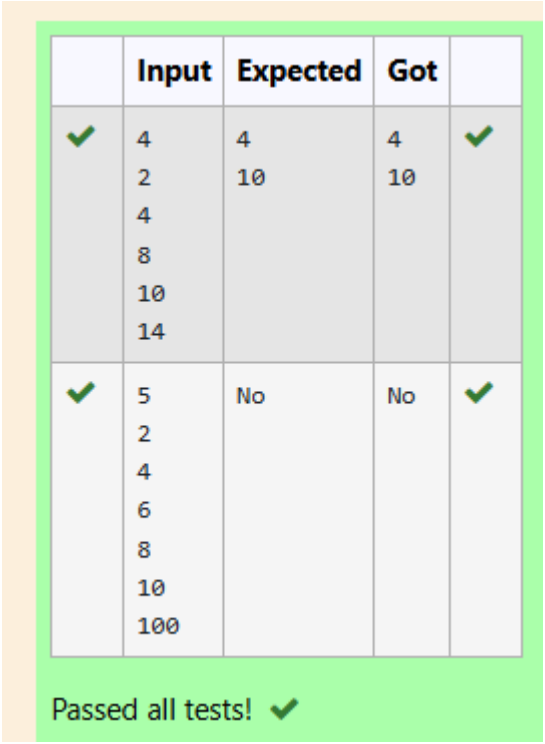
Code:

```
#include <stdio.h>




int findPair(int arr[], int low, int high, int x, int *num1, int *num2) {


   if (low >= high) {

      return 0;

   }


   int sum = arr[low] + arr[high];


   if (sum == x) {

      *num1 = arr[low];

      *num2 = arr[high];

      return 1;

   }

   else if (sum < x) {
```

```
        return findPair(arr, low + 1, high, x, num1, num2);
    } else {
        return findPair(arr, low, high - 1, x, num1, num2);
    }
}

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);


    int num1 = 0, num2 = 0;



    if (findPair(arr, 0, n - 1, x, &num1, &num2)) {
        printf("%d\n%d\n", num1, num2);
```

```
    } else {
        printf("No\n");
    }

    return 0;
}
```

Output:



	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! ✔