

CS23331-DAA-2024-CSE / 6-Pair with Difference -O(n) Time Complexity,O(1) Space Complexity



6-Pair with Difference -O(n) Time Complexity,O(1) Space Complexity

Started on	Sunday, 12 October 2025, 7:12 PM
State	Finished
Completed on	Sunday, 12 October 2025, 7:13 PM
Time taken	42 secs
Marks	1.00/1.00
Grade	4.00 out of 4.00 (100%)

Question 1 | Correct | Mark 1.00 out of 1.00 | [Flag question](#)

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that $A[j] - A[i] = k$, $i \neq j$.

Input Format:

First Line n - Number of elements in an array

Next n Lines - N elements in the array

k - Non - Negative Integer

Output Format:

1 - If pair exists

0 - If no pair exists

Explanation for the given Sample Testcase:

YES as $5 - 1 = 4$

So Return 1.

For example:

Input	Result
3	1
1 3 5	
4	

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     scanf("%d", &n);
6
7     int arr[n];
8     for(int i = 0; i < n; i++)
9         scanf("%d", &arr[i]);
10
11     int k;
12     scanf("%d", &k);
13
14     int i = 0, j = 1;
15     int found = 0;
16
17     while(j < n) {
18         if(i == j) {
19             j++;
20             continue;
21         }
22
23         int diff = arr[j] - arr[i];
24
25         if(diff == k) {
26             found = 1;
27             break;
28         } else if(diff < k) {
29             j++;
30         } else {
31             i++;
32         }
33     }
34
35     printf("%d\n", found);
36     return 0;
37 }
38
```

	Input	Expected	Got	
✓	3 1 3 5 4	1	1	✓
✓	10 1 4 6 8 12 14 15 20 21 25 1	1	1	✓
✓	10 1 2 3 5 11 14 16 24 28 29 0	0	0	✓
✓	10 0 2 3 7 13 14 15 20 24 25 10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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