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 / [6-Pair with Difference -O\(n\) Time Complexity,O\(1\) Space Complexity](#)

**Started on** Tuesday, 19 November 2024, 11:48 PM

**State** Finished

**Completed on** Tuesday, 19 November 2024, 11:48 PM

**Time taken** 26 secs

**Marks** 1.00/1.00

**Grade** 4.00 out of 4.00 (100%)

Question **1**

Correct

Mark 1.00 out of 1.00

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 3 5 4	1

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2
3 int find_pair_with_difference(int arr[], int n, int k) {
4     int i = 0, j = 1;
5
6     while (i < n && j < n) {
7         int diff = arr[j] - arr[i];
8
9         if (diff == k && i != j) {
10            return 1;
11        }
12        j++;
13    }
14    return 0;
15 }
```

```

11 |         } else if (diff < k) {
12 |             j++;
13 |         } else {
14 |             i++;
15 |         }
16 |     }
17 |     return 0;
18 | }
19 |
20 | int main() {
21 |     int n, k;
22 |     scanf("%d", &n);
23 |     int arr[n];
24 |     for (int i = 0; i < n; i++) {
25 |         scanf("%d", &arr[i]);
26 |     }
27 |     scanf("%d", &k);
28 |     printf("%d\n", find_pair_with_difference(arr, n, k));
29 |
30 |     return 0;
31 | }
32 |

```

	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.

◀ 5-Pair with Difference-  
O(n<sup>2</sup>)Time Complexity,O(1) Space  
Complexity

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