CS23331-DAA-2024-CSE / 5-Pair with Difference-O(n^2)Time Complexity,O(1) Space Complexity

5-Pair with Difference-O(n^2)Time Complexity,O(1) Space Complexity

Started on	Friday, 24 October 2025, 2:15 PM
State	Finished
Completed on	Friday, 24 October 2025, 2:20 PM
Time taken	4 mins 31 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 != 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 %)

```c
#include <stdio.h>
#include <stdlib.h>

int find_pair_difference(int* A, int n, int k) {

    if (n < 2) {
        return 0;
    }

    int i = 0;
    int j=1;
    while (j < n) {
        if (i == j) {
            j++;
            continue;
        }

        long long diff = (long long)A[j] - A[i];

        if (diff == k) {

            return 1;
        } else if (diff < k) {
```

```
23          } else if (diff < k) {
24
25              j++;
26          } else {
27              i++;
28          }
29      }
30
31      return 0;
32  }
33
34  int main() {
35      int n;
36
37      if (scanf("%d", &n) != 1) {
38          return 0;
39      }
40
41
42      int* A = (int*)malloc(n * sizeof(int));
43      if (A == NULL) {
44          perror("Memory allocation failed");
45          return 1;
46      }
47
48
49      for (int i = 0; i < n; i++) {
50          if (scanf("%d", &A[i]) != 1) {
51              free(A);
52              return 0;
```

	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.

Finish review

Back to Course