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

Started on	Saturday, 25 October 2025, 11:04 PM
State	Finished
Completed on	Saturday, 25 October 2025, 11:05 PM
Time taken	1 min 9 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>

int main() {
    int n, k;
    scanf("%d", &n);

    int A[n];
    for (int i = 0; i < n; i++)
        scanf("%d", &A[i]);

    scanf("%d", &k);

    int i = 0, j = 1;
    int found = 0;

    while (i < n && j < n) {
        if (i != j) {
            int diff = A[j] - A[i];

            if (diff == k) {
                found = 1;
                break;
            } else if (diff < k) {
                j++;
            } else {
                i++;
            }
        } else {
            j++;
        }
    }

    printf("%d", found);

    return 0;
}
```

	Input	Expected	Got	
✔	3 1 3 5 4	1	1	✔

	4			
✔	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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