COMPETITVE PROGRAMMING

PROBLEM 5:
PAIR WITH DIFFERENCE-O(N^2)TIME COMPLEXITY,O(1) SPACE COMPLEXITY

AIM:

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.

CODE:

```
#include <stdio.h>


int checkPairWithDifference(int arr[], int n, int k) {
   int i = 0, j = 1;


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


      if (diff == k && i != j) {
         return 1;  // Pair exists
      } else if (diff < k) {
         j++;
      } else {
         i++;
      }
   }


   return 0;  // No pair found
}
```

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

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

    scanf("%d", &k);

    printf("%d\n", checkPairWithDifference(arr, n, k));
    return 0;
}
```

INPUT AND OUTPUT:

	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	✔