Competitive Programming

Program – 6

Aim:

Given a sorted array AAA of integers and a non-negative integer kkk, the task is to find if there exist two indices iii and jjj such that A[j]−A[i]=kA[j] - A[i] = kA[j]−A[i]=k and i≠ji \neq ji□=j. If such a pair exists, return **1**, otherwise return **0**.

Input Format:

1. The first line contains an integer nnn, the number of elements in the array.
2. The next nnn lines contain nnn integers, the elements of the array AAA.
3. The last line contains the integer kkk, the non-negative integer.

Code:

```
#include <stdio.h>



int find_pair_with_difference(int* arr, int n, int k) {

   int i = 0, j = 1;



   while (j < n) {

      int diff = arr[j] - arr[i];



      if (diff == k) {

         return 1;

      }

      else if (diff < k) {

         j++;

      } else {

         i++;

         if (i == j) {
```

```
            j++;
        }
    }
}

return 0;
}

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

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

    int k;
    scanf("%d", &k);

    printf("%d\n", find_pair_with_difference(arr, n, k));

    return 0;
}
```

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	✔