**COMPETITIVE PROGRAMMING**

## PROBLEM 6: PAIR WITH DIFFERENCE -O(N) 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 existsPairWithDifference(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;

} else if (diff < k) {

j++;

} else {

i++;

}

}

return 0;

}

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", existsPairWithDifference(arr, n, k));

return 0;

}

INPUT AND OUTPUT:  
