## Count Pairs Problem

Count Pairs Problem is a simple array manipulation coding problem which was asked in TCS Codevita coding competition. TCS organizes this global level coding competition in order to promote Porgramming-As-a-Sport in the search of world’s best Coder.This is an article on TCS Codevita Count Pairs Problem where we have to find the number of happy elements in an array.



### Problem Description

Given an array of integers A, and an integer K find number of happy elements.

Element X is happy if there exists at least 1 element whose difference is less than K i.e. an element X is happy if there is another element in the range [X-K, X+K] other than X itself.

**Constraints**

* 1 <= N <= 10^5
* 0 <= K <= 10^5
* 0 <= A[i] <= 10^9

**Input**

* First line contains two integers N and K where N is size of the array and K is a number as described above.
* Second line contains N integers separated by space.

**Output**

* Print a single integer denoting the total number of happy elements.

**Example 1**

**Input**

6 3

5 5 7 9 15 2

**Output**

5

**Explanation**

Other than number 15, everyone has at least 1 element in the range [X-3, X+3]. Hence they are all happy elements. Since these five are in number, the output is 5.

**Example 2**

**Input**

3 2

1 3 5

**Output**

3

**Explanation**

All numbers have at least 1 element in the range [X-2, X+2]. Hence they are all happy elements. Since these three are in number, the output is 3.

**Possible Solution**

Input:

3 2

1 3 5

import java.util.\*;  
class Main   
{  
 public static int solve (int arr[], int n, int k)   
 {  
 int count = 0;  
 for (int i = 0; i < n; i++)  
 {  
 int a = arr[i];  
 int id1 = i;  
 int id2 = i;  
  
 if (i == 0)  
 {  
 while (arr[id2 + 1] == a)  
 id2 += 1;  
 if (arr[id2 + 1] <= a + k && arr[id2 + 1] >= a - k)  
 count += 1;  
 }  
 else if (i < n - 1)  
 {  
 while (arr[id2 + 1] == a)  
 id2 += 1;  
 while (arr[id1 - 1] == a)  
 id1 -= 1;  
 if (((arr[id1 - 1] <= a + k) && (arr[id1 - 1] >= a - k))|| ((arr[id2 + 1] <= a + k) && (arr[id2 + 1] >= a - k)))  
 count += 1;  
 }  
 else  
 {  
 while (arr[id1 - 1] == a)  
 id1 = id1 - 1;  
   
 if (arr[id1 - 1] <= a + k && arr[id1 - 1] >= a - k)  
 count += 1;  
 }  
 }  
 return count;  
 }  
   
 public static void main (String[]args)   
 {  
 Scanner sc = new Scanner (System.in);  
 int n = sc.nextInt ();  
 int k = sc.nextInt ();  
 int arr[] = new int[n];  
   
 for (int i = 0; i < n; i++)  
 arr[i] = sc.nextInt ();  
 Arrays.sort (arr);  
   
 System.out.println (solve (arr, n, k));  
 }   
}