**Sort by Absolute Difference**

**Given an array of N elements and a number K. The task is to arrange array elements according to the absolute difference with K, i. e., element having minimum difference comes first and so on.  
Note : If two or more elements are at equal distance arrange them in same sequence as in the given array.**

**Example 1:**

**Input: N = 5, K = 7**

**arr[] = {10, 5, 3, 9, 2}**

**Output: 5 9 10 3 2**

**Explanation: Sorting the numbers accoding to**

**the absolute difference with 7, we have**

**array elements as 5, 9, 10, 3, 2.**

**Example 2:**

**Input: N = 5, K = 6**

**arr[] = {1, 2, 3, 4, 5}**

**Output: 5 4 3 2 1**

**Explanation: Sorting the numbers according to**

**the absolute difference with 6, we have array**

**elements as 5 4 3 2 1.**

**Your Task:  
This is a functional problem. You only need to complete the function sortABS(). The printing is done automatically by the driver code.  
  
Expected Time Complexity: O(N log(N) ).  
Expected Auxiliary Space: O(1).  
  
Constraints:  
1 <= N <= 105  
1 <= K <= 105**

**CODE :**

**#include <bits/stdc++.h>**

**using namespace std;**

**class Solution{**

**public:**

**// A[]: input array**

**// N: size of array**

**//Function to sort the array according to difference with given number.**

**void sortABS( int a[], int n, int k ) {**

**stable\_sort( a, a + n, [=]( const int i, const int j ){**

**return abs( i - k ) < abs( j - k ); });**

**}**

**};**

**int main()**

**{**

**int T;**

**cin>> T;**

**while (T--)**

**{**

**int N, diff; cin>>N>>diff;**

**int A[N];**

**for(int i = 0; i<N; i++)**

**cin>>A[i];**

**Solution ob; ob.sortABS(A, N, diff);**

**for(int & val : A)**

**cout<<val<<" ";**

**cout<<endl;**

**}**

**return 0;**

**}**

**Link :** [**https://www.geeksforgeeks.org/problems/sort-by-absolute-difference-1587115621/1?page=13&difficulty=Easy&sortBy=submissions**](https://www.geeksforgeeks.org/problems/sort-by-absolute-difference-1587115621/1?page=13&difficulty=Easy&sortBy=submissions)