Find the closest number

Given a sorted array arr[] of positive integers. The task is to find the closest value in the array to the given number k. The array may contain duplicate values.

Note: If the difference with k is the same for two values in the array return the greater value.

Example 1:

Input:

n = 4

k = 4

arr[] = {1, 3, 6, 7}

Output:

3

Explanation:

We have array arr={1, 3, 6, 7} and target is 4. If we look at the absolute difference of target with every element of the array we will get { |1-4|, |3-4|, |6-4|, |7-4| } = {3, 1, 2, 3}. So, the closest number is 3.

Example 2:

Input:

n = 7

k = 4

arr[] = {1, 2, 3, 5, 6, 8, 9}

Output:

5

Explanation:

The absolute difference of 4 is 1 from both 3 and 5. According to the question, we have to return greater value, which is 5.

Your Task:

This is a function problem. The input is already taken care of by the driver code. You only need to complete the function findClosest() that takes integers n and k and sorted array arr[] of size n as input parameters and return the closest number in the array to k.

Expected Time Complexity: O(log(n)).

Expected Auxiliary Space: O(1).

Constraints:

1 ≤ n ≤ 106

1 ≤ k ≤ 109

1 ≤ arr[i] ≤ 109

Code :

class Solution{

public:

int findClosest( int n, int k,int arr[])

{

// Complete the function

int mini = k-arr[0];

int a = 0;

for(int i=n-1; i>=0; i--){

if(mini > abs(k-arr[i])){

a = i;

mini = abs(k- arr[i]);

}

}

return arr[a];

}

};

Link : <https://www.geeksforgeeks.org/problems/find-the-closest-number5513/1>