✓ Done

Opened: Thursday, 12 October 2023, 12:00 AM
Due: Wednesday, 18 October 2023, 12:00 AM

Stack-based Activities

Problem 1	Given an array arr[] denoting heights of N towers and a positive integer K. For each tower, you must perform exactly one of the following operations exactly once. Increase the height of the tower by K Decrease the height of the tower by K Find out the minimum possible difference between the height of the shortest and tallest towers after you have modified each tower. Example 1: Input: K = 2, N = 4 Arr[] = {1, 5, 8, 10} Output: 5 Explanation: The array can be modified as {1+k, 5-k, 8-k, 10-k} = {3, 3, 6, 8}. The difference between the largest and the smallest is 8-3 = 5. Example 2: Input: K = 3, N = 5 Arr[] = {3, 9, 12, 16, 20} Output: 11 Explanation: The array can be modified as {3+k, 9+k, 12-k, 16-k, 20-k} -> {6, 12, 9, 13, 17}. The difference between the largest and the smallest is 17-6 = 11.

?

	Expected Time Complexity: O(N*logN) Constraints: 1 ≤ K ≤ 104, 1 ≤ N ≤ 105, 1 ≤ Arr[i] ≤ 105
Problem 2:	Given an array arr[] denoting heights of N towers and a positive integer K. For each tower, you must perform exactly one of the following operations exactly once. Increase the height of the tower by K Decrease the height of the tower by K Find out the minimum possible difference between the height of the shortest and tallest towers after you have modified each tower. Note: It is compulsory to increase or decrease the height by K for each tower. After the operation, the resultant array should not contain any negative integers. Example 1: Input: K = 2, N = 4 Arr[] = {1, 5, 8, 10} Output: 5 Explanation: The array can be modified as {1+k, 5-k, 8-k, 10-k} = {3, 3, 6, 8}. The difference between the largest and the smallest is 8-3 = 5. Example 2: Input: K = 3, N = 5 Arr[] = {3, 9, 12, 16, 20} Output: 11 Explanation: The array can be modified as {3+k, 9+k, 12-k, 16-k, 20-k} -> {6, 12, 9, 13, 17}. The difference between the largest and the smallest is 17-6 = 11. Your Task: Your task is to complete the function getMinDiff() which takes the arr[], n, and k as input parameters and returns an integer denoting the minimum difference.

Expected Time Complexity: O(N*logN)
Constraints: 1 ≤ K ≤ 10^4, 1 ≤ N ≤ 10^5, 1 ≤ Arr[i] ≤ 10^5

Problem 3:
Given an expression string x. Examine whether the pairs and the orders of {,},(,),[,] are correct in exp.

For example, the function should return 'true' for exp = [()]{}{[()()]()} and 'false' for exp = [(]).
Note: The drive code prints "balanced" if function return true, otherwise it prints "not balanced".
Example 1:
Input:
{([])}
Output:
TRUE
Explanation:
{ ([ ]) }. Same colored brackets can form balanced pairs, with 0 number of unbalanced bracket.
Example 2:
Input:
()
Output:
TRUE
Explanation:
(). Same bracket can form balanced pairs, and here only 1 type of bracket is present and in balanced way.
Example 3:
Input:
([]
Output:
FALSE
Explanation:
([]. Here square bracket is balanced but the small bracket is not balanced and hence , the output will be unbalanced.
Expected Time Complexity: O(|x|)

Constraints: 1 ≤ |x|
≤ 32000

Edit submission | Remove submission

Submission status

Submission status	Submitted for grading
Grading status	Not graded
Time remaining	Assignment was submitted 5 days 8 hours early
Last modified	Thursday, 12 October 2023, 3:41 PM
File submissions	P1.c 12 October 2023, 3:41 PM P2.c 12 October 2023, 3:41 PM P3.c 12 October 2023, 3:41 PM Stack.c 12 October 2023, 1:08 PM
Submission comments	Comments (0)