Question 1: Energy Converter

Problem Statement:
A scientist is experimenting with an energy conversion machine that alternates between two states —
'C' (Charge) and 'D' (Discharge). A perfectly optimized machine must have all its charges balanced with discharges in a proper sequence (like CDCDCD).
You are given a string consisting of 'C' and 'D' representing the current state sequence of the machine.
Determine the minimum number of swaps required to make the sequence perfectly balanced.
If it is not possible to balance it, print -1.

Input Format:
A string S consisting of characters 'C' and 'D'.

Output Format:
An integer denoting the minimum number of swaps required to balance the sequence. If not possible, print -1.

Constraints:
$1 \leq |S| \leq 10^5$

Sample Input 1:
CDDDC

Sample Output 1:
2

Sample Input 2:
CCCC

Sample Output 2:
-1

Question 2: Mountain Array

Problem Statement:
You are given an array of integers representing the height of mountains in a line.
A mountain array is defined as an array that first strictly increases and then strictly decreases.

Your task is to find the length of the longest mountain subarray within the given array.
If there is no valid mountain, print 0.

Input Format:
The first line contains an integer n denoting the number of elements in the array.
The next line contains n space-separated integers.

Output Format:
An integer representing the length of the longest mountain subarray.

Constraints:
$2 \leq n \leq 10^5$
$1 \leq arr[i] \leq 10^6$

Sample Input 1:
8
2 1 4 7 3 2 5 1

Sample Output 1:
5

Sample Input 2:
5
1 2 3 4 5

Sample Output 2:
0