

Use an arbitrary programming language that you are most proficient with to solve the problems below. The problems below are to be solved with large input values.

**Note:** The input and output data you use is the standard std input, std output console.

And during time to execute programming with every test max 10 seconds. Please try thinking with optimize algorithm to solve

**C/C++/Object C:** cout/cin, printf/scanf

**Pascal/FreePascal/Delphi:** Read/Write,ReadLn/Writeln

**Java:** System.out/System.in, Scanner

**Javascript/TypeScript:** Using nodejs read file, console

**C#.Net:** Console class Write/Read,WriteLine/ReadLine

**Python:** input()

**Php:** Access via file handle fopen, fscanf

\$handle = fopen ("php://stdin","r");

fscanf(\$handle,"%d",\$t);

### Test 1:

Given a string S consisting of only the opening bracket characters ( , { , [ and the closing brace character ), }, ]. And we have 3 brackets ( ), {} and []. Thus, S is said to be valid if the brackets are properly organized in opening and closing brackets (like a mathematical expression). Write a program that checks the string S and returns YES if valid and NO if invalid.

Sample:

{[()]}

YES

{[()]}

NO

{{[[[()]]]}}

YES

Condition:  $1 \leq \text{Length}(S) \leq 10^8$

### Test 2:

Given a sequence S1 and S2. We only delete characters on S1 so that S1 and S2 can be the same or not. If possible, print YES and if not, print NO.

Input: Input 2 lines. Line 1 is S1 and line 2 is S2

Condition:  $1 \leq \text{Length}(S1) \leq 10^8$ ,  $1 \leq \text{Length}(S2) \leq 10^8$

Sample:

Input

I love you

oyou

Output

YES

Input

1234015789

0123

Output

NO

**Test 3:**

There is a battalion in the army, during the battle it is necessary to overcome an enemy barrier with a large area. To ensure safe passage through the protective barrier with little loss, these soldiers observed and mapped a large area represented by the coordinates of cells (small areas) with a degree of different suspicions. Thus, we have a map with size  $m \times n$  cells and  $a[i,j]$  ( $i=0..m-1, j=0..n-1$ ) is a positive integer  $\geq 0$  representing the degree of doubt. dangerous when moving through this cell.

About the movement of the battalion is that from a cell with coordinates  $(i,j)$  can only move to adjacent cells  $(i+1,j-1)$ ,  $(i+1,j)$ ,  $(i+1,j+1)$ . The battalion starts at any cell with coordinates  $i=0$  and exits at any cell with  $i=m-1$ .

Requirements: Find a way to move over the barrier so that the level of danger is minimal.

Illustration:

mxn	0	1	2	3	4	5	6	7	8	9
0	8	1	5	2	6	11	1	1	1	1
1	4	1	5	4	1	10	10	2	1	10
2	1	10	2	1	2	11	20	10	10	20
3	1	11	2	20	6	1	1	6	1	5
4	18	15	1	1	1	10	3	1	1	1

According to the illustration above, the movement by the yellow cells and the total suspicion is

$(0,3) \rightarrow (1,4) \rightarrow (2,4) \rightarrow (3,5) \rightarrow (4,4)$

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**Input:**

Line 1:  $m$   $n$

The next  $m$  lines each are the values representing the suspect value of a cell

$a[i,j]$  Condition:  $1 \leq m, n \leq 10^5, 0 \leq a[i,j] \leq 10^4$

Sample:

```

5 10
8 1 5 2 6 11 1 1 1 1
4 1 5 4 1 10 10 2 1 10
1 10 2 1 2 11 20 10 10 20
1 11 2 20 6 1 1 6 1 5
18 15 1 1 1 10 3 1 1 1

```