Qube QRT

Codingame - 2022 Sep04 *(4 questions in 30 minutes)*

Question 1 / 4 - Programming

Elapsed time: 00:07/12:00

You can change the programming language at the top right of the screen.

Goal

You have just recently purchased a LED display that can show up to `N` characters at once. Your goal is to scroll a message across the display, moving from the right to the left, one character at a time.

Input

Line 1: An integer `N` for the amount of characters the display can show at once
Line 2: The string `text` to scroll

Output

Each snapshot of letters that will be shown on the display until the whole message has scrolled

Constraints

0 < `N` < 32
`N` <= Length of `text`

Example

Input

```
3
HELLO WORLD
```

Output

```
HEL
ELL
LLO
LO
O W
 WO
WOR
ORL
RLD
```

You can change the programming language at the top right of the screen.

Goal

The goal of your program is to compress a N by N grid into one single line using **run-length encoding**.
The grid contains only the characters "A", "B" or "C".

Input

Line 1: An integer N for the amount of rows and columns of the grid.
Next N lines: A string of N characters.

Output

Consecutive characters of the same type are expressed as the count followed by the character.
If the count is 1, it is omitted.
Consecutive means either:
- two characters next to each other on the same row
- or one character at the end of a given row and another one a the start of the next row

Line 1: The run-length encoding of the grid.

Constraints

$3 \leq N \leq 7$

Example

Input	Output
3 AAA BBB AAA	3A3B3A

Question 3 / 4 - Programming

Elapsed time: 00:02/10:00

You can change the programming language at the top right of the screen.

Goal

Clap@7 is a game played by a group of people, whereby each person will call out numbers, in ascending order, starting from `1`. However, if the number satisfies any of the following conditions:

> The number is divisible by `7`
> The number has the digit `7` in it
> The sum of the digits of the number is divisible by `7`

Then the person has to **clap** instead of calling out the number. If the person does not perform the correct action, he loses.

Given an integer `N`, determine how many **claps** there have been, if the game has terminated at `N`, including `N`.

An example is shown, where three players A, B and C are playing this game.

A: 1
B: 2
C: 3
A: 4
B: 5
C: 6
A: CLAP
B: 8
C: 9
A: 10
B: 11
C: 12
A: 13
B: CLAP
C: 15
A: CLAP
B: CLAP
C: 18

Input

Line 1: An integer `N` which is the number at which the game has ended.

Output

Print the number of `CLAPS`

Question 4 / 4 - Programming

Elapsed time: 00:03/20:00

You can change the programming language at the top right of the screen.

The program:

Given the coordinates of the points 1 and 2, fill the grid of the given size in order to demonstrate which of the two points is the closest to each cell. We will use the Manhattan distance: d(A, B) = abs(Ax - Bx) + abs(Ay - By).

Print a grid that contains, for each cell, the following character:
- 'X' if one of the two given points is in the cell
- '0' if the cell is equidistant to the two points
- '1' if the closest point to the cell is point 1
- '2' if the closest point to the cell is point 2

INPUT:
Line 1 : two space separated integers giving the width and the height of the grid.
Line 2 : two space separated integers giving the coordinates of point 1.
Line 3 : two space separated integers giving the coordinates of point 2.

OUTPUT:
A grid of height rows and width columns.

CONSTRAINTS:
$1 <$ width , height ≤ 200
$0 \leq$ x1 , y1 , x2 , y2 < 200

EXAMPLE:

Input	Output
10 10 4 5 8 7	1111111022 1111111022 1111111022 1111111022 1111111022 1111X11022 1111110222 11111022X2 1111102222 1111102222