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Coding Area

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Constellation

+ Problem Description

Three characters { #, *, . } represents a constellation of stars and galaxies in space. Each galaxy is demarcated by # characters. There can be one or many stars in a given galaxy. Stars can only be in shape of vowels { A, E, I, O, U }. A collection of * in the shape of the vowels is a star. A star is contained in a 3x3 block. Stars cannot be overlapping. The dot(.) character denotes empty space.

Given 3xN matrix comprising of { #, *, . } character, find the galaxy and stars within them.

Note: Please pay attention to how vowel **A** is denoted in a 3x3 block in the examples section below.

+ Constraints

$$3 \leq N \leq 10^5$$

+ Input

Input consists of single integer N denoting number of columns.

+ Output

Output contains vowels (stars) in order of their occurrence within the given galaxy. Galaxy itself is represented by # character.

+ Time Limit

1

+ Examples

Example 1

Input

18

```
*.*#***#***#***.*.
*.*#*.*#*.*#*****
***#***#***#***.*
```

Output

U#O#I#EA

Explanation

As it can be seen that the stars make the image of the alphabets U, O, I, E and A respectively.

18

```
*.*#***#***#***.*.
*.*#*.*#*.*#*****
***#***#***#***.*
```

Example 2

Input

12

```
*.*#*.*#*.*#***
*.*#*.*#*.*#***
***#*.*#*.*#***
```

Output

U#I#A

Explanation

As it can be seen that the stars make the image of the alphabet U, I and A.

12

```
*.*#*.*#*.*#***
*.*#*.*#*.*#***
***#*.*#*.*#***
```

Upload Solution [Question : A]

☐ I, **kavya lalam** confirm that the answer submitted is my own. ☐ Took help from online sources (attributions)

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