
2. Code Two

Program Name: Code2.java

Input File: code2.dat

Sally and Nancy have decided to write to each other in a special code. They decide to use the smallest square matrix that will hold all of the characters in their message. They will place their message, one character per cell, into the matrix in upside-down column-row order and fill any remaining matrix cells with an asterisk (*). For example, the coded message:

```
eaetoo**hrmedc**todmir.*sfooaiy*ieoceer*wmgohht*oiltttn*Ntlnofu*
```

would have been placed in an 8x8 matrix as :

```
eaetoo**
hrmedc**
todmir.*
sfooaiy*
ieoceer*
wmgohht*
oiltttn*
Ntlnofu*
```

so it could be decoded by reading column one beginning at the bottom and going up, then column two, and so forth and finally getting the message:

```
Nowisthetimeforallgoodmentocometotheaidoftheircountry.*****
```

Input

The first line of input will contain a single integer *n* that indicates the number of coded messages to follow. Each of the following *n* lines will contain a single coded message. Each message will contain a perfect square number of characters. There will be no spaces in the input.

Output

For each line of input, you will print the decoded message with no spaces and with the filler asterisks at the end.

Example Input File

```
3
eaetoo**hrmedc**todmir.*sfooaiy*ieoceer*wmgohht*oiltttn*Ntlnofu*
acicisynmsadlaeelalNrloeadadohSnydhr
Se0*Lt2*Ian9Uti0
```

Example Output to Screen

```
Nowisthetimeforallgoodmentocometotheaidoftheircountry.*****
SallyandNancyaremiddle-schoolairheads
UILStatein2009**
```