

Introduction to Computers and Programming

Extra

2024/01/02

1. Problems

1.1 ZigZag Conversion

You are required to write a program that takes a string and a positive integer as input, arranges the string in a zigzag pattern with a specified number of rows, and then reads the string line by line. For instance, taking the string "PAYPALISHIRING" and transforming it into 3 rows resulted in the elegant arrangement:

```
P   A   H   N
A P L S I I G
Y   I   R
```

Then, reading the characters row by row revealed the unique sequence "PAHNAPLSIIGYIR." In another case, the zigzag pattern with 4 rows would look like:

```
P       I       N
A     L S   I G
Y A   H R
P       I
```

The characters of the input string are placed in this pattern, and when you read it line by line, you get the output string "PINALSIGYAHRPI".

Input

The input will consist of an integer n and a string s , one per line. The integer n indicates the number of rows in the zigzag pattern, and s is a string of characters that needs to be processed and arranged in the zigzag pattern. The string s only consists of English letters. ($1 \leq s.length \leq 100$, $1 \leq n \leq 10$)

Output

Please print out the string s after converting with the specific row number.

Example 1:

Input

```
3
PAYPALISHIRING
```

Output

```
PAHNAPLSIIGYIR
```

Example 2:

Input

```
4
PAYPALISHIRING
```

Output

```
PINALSIGYAHRPI
```