8279 Drawn and Quartered

Source: Pexels

You are playing a game which involves drawing and redrawing a string on a blackboard. You start with a string S of length N and perform a switcheroo on the string exactly K times. A switcheroo involves breaking S into quarters, and then moving the middle two quarters to the end of S without changing their relative order to each other. For example, say you start with aabbccdd. After a single switcheroo, the string would become "`aaddbbcc`". After another switcheroo, you would have "`aaccddbb`", and so on.

Given some starting string S and the number of times you should perform a switcheroo, what is the final state of the string?

Input

The input file contains several test cases, each of them as described below.

The input starts with a line containing two integers N ($4 \leq N \leq 100000$), which is the length of the string, and K ($1 \leq K \leq 10^{18}$), which is the number of times you should perform a switcheroo to S. It is guaranteed that N is a multiple of 4.

The second line contains S. The string S contains only lowercase letters and consists of exactly N characters.

Output

For each test case, on a line by itself, display the string after performing K switcheroos.

Sample Input

```
4 2
abcd
8 1
abcdefgh
20 26
southpacificregional
```

Sample Output

```
:

acdb
abghcdef
southicregionalpacif
```