

# Rolling Encryption

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You have a sequence of lowercase characters that you want to encrypt.

The first  $k$  characters will be encoded as plain-text. All characters after the first  $k$  characters will be shifted by the most frequently occurring character that appeared in the previous  $k$  characters, with ties broken by the character which occurs first in the alphabet.

By "shifted by", we mean that if `c` was the most frequently occurring character, the character would be shifted ahead by 3 positions (since `c` is the third letter of the alphabet), modulo 26 (e.g., `b` becomes `e`, and `z` becomes `c`).

## Input Specification

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On the first line of input contains  $k$  ( $1 \leq k \leq 10\,000$ ). The next line contains  $c$  characters ( $1 \leq c \leq 100\,000$ ).

## Output Specification

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One line, containing the encrypted version of the  $c$  characters from the input.

## Sample Input

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```
5
abbaabbacdecde
```

## Output for Sample Input

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```
abbaacdcddegdgh
```

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