Code

Ivancho is trying out new coding algorithms. Recently, he was given a sequence of capital latin letters **S**. While there are letters in **S**, he must choose whether to pick the letter from the start of the sequence or from its end. Then he writes this letter in the end of a new sequence **Т**. Initially, **T** is empty. Ivancho’s goal is to obtain the lexicographically smallest possible sequence **T**.

**Input:** On the first line of the input file **code.in** is written the natural number **N** - the length of the initial sequence **S**. On the second line is the sequence **S** itself, consisted of **N** capital letters.

**Output:** On the only line of the output file **code.out** print the required lexicographically smallest sequence **T**, that could be obtained from **S**.

**Constraints:**

1 <= N <= 10 000

All symbols in the input and the output must be capital latin letters.

**Time limit:** 1 sec

**Memory limit:** 256 МВ

**Example:**

|  |  |
| --- | --- |
| **code.in** | **code.out** |
| 5AXABB | ABBAX |
| 16ALABALAPORTOKALA | AALABALAKLAOPORT |

Explanation of the first test case:

|  |  |  |
| --- | --- | --- |
| Step | S | Т |
| initially | **A**XABB | - |
| 1 | XAB**B** | A |
| 2 | XA**B** | AB |
| 3 | X**A** | ABB |
| 4 | **X** | ABBA |
| 5 | - | ABBAX |