

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 **T**. 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:

$1 \leq N \leq 10\,000$

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

Time limit: 1 sec

Memory limit: 256 MB

Example:

code.in	code.out
5 AXABB	ABBAX
16 ALABALAPORTOKALA	AALABALAKLAOPORT

Explanation of the first test case:

Step	S	T
initially	A XABB	-
1	XAB B	A
2	XAB	AB
3	X A	ABB
4	X	ABBA
5	-	ABBAX