



INOI Team Selection 2021 online mirror

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Tehran, Iran

Team Selection 2021 online mirror - Day 2

string
en (US)

String

Mikael has got n strings named s_1, \dots, s_n each consists of lower-case English letters. He wants to pick a **non-empty** substring of each one and concatenate them together to make a final string of size k . Help Mikael create the smallest lexicographical string possible.

Input

In the first line, you are given two integers n and k , the number of strings and the size of the final string, respectively.

The n following lines contain the sequence s_1, \dots, s_n , the strings of Mikael.

Output

In a single line, print the smallest lexicographical string achievable.

Constraints

- $n, \sum_{i=1}^n |s_i| \leq 4000$
- $n \leq k \leq \sum_{i=1}^n |s_i|$

Subtasks

subtask	score	limits
1	23	$\forall_{1 \leq i \leq n} s_i = s_1 \leq 10$ $1 \leq n \leq 50$
2	19	$\forall_{1 \leq i \leq n} s_i = s_1 \leq 20$ $1 \leq n \leq 200$
3	58	No extra limits

Examples

Standard input	Standard output
3 5 abc xxx aaa	abcxa
5 6 ab bz zb aa cb	abbaab