Shuffling Cards with Problem Solver 68!

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Aru loves playing card games (Poker, Texas hold 'em, Balatro, etc.) and she has perfected the art of shuffling cards, especially the *riffle* shuffle. She is playing with Mutsuki now, and it's her turn to shuffle the cards!

However, Mutsuki knows that Aru is too perfect with her shuffling game. In fact, given a deck with an **even** number of cards, Aru always performs a perfect riffle: she cuts the deck evenly and interleaves the two halves. Formally, if the deck is represented by a string s of length n, where s_i is the i-th card from the top, one riffle produces the deck

$$s' = s_1 + s_{n/2+1} + s_2 + s_{n/2+2} + \ldots + s_{n/2} + s_n.$$

Mutsuki also knows that when handed a deck of cards, Aru will riffle it exactly t times.

Mutsuki currently holds a deck of 2^k cards, represented by a string d. **Before** giving the deck to Aru, Mutsuki can choose to *cut* the deck, by moving some number of cards from the top to the bottom of the deck. Formally, she can choose any m from 0 to $2^k - 1$, and produce the deck

$$d' = d_{m+1} + d_{m+2} + \ldots + d_{2^k} + d_1 + d_2 + \ldots + d_m.$$

Among all 2^k possible cuts, Mutsuki wants to choose the one that results in the **lexicographically smallest** deck after Aru riffles it t times. Can you figure this out for her?

Input

The first line contains two integers k and t, representing the size parameter of the deck, and the number of times Aru will riffle the deck, respectively.

The second line contains a string d of 2^k lowercase characters, representing the original deck of cards that Mutsuki has.

- $1 \leq k \leq 18$
- $0 \leq t \leq 10^9$

Output

Print a string in one line, representing the lexicographically smallest deck of cards that Mutsuki can produce, by first cutting the deck and letting Aru riffle it t times.

Examples

standard input	standard output
4 2 baaabaaabaaabaaa	aaaaaaaaaaaabbbb
4 999999999 abcdefghijklmnop	acegikmobdfhjlnp
4 17 bbcttckrdezzzbcd	bcckdrbdbecztztz