Substring Cut and Paste

Time: 1 sec / Memory: 256 MB

Problem Statement

Let $s=s_1\ s_2\ \dots\ s_n$ be a string of length n. For any $1\leq \ell\leq r\leq n$, let

$$s_{[\ell,r]} := s_\ell \ s_{\ell+1} \ \ldots \ s_r$$

denote the substring of s formed by characters between ℓ and r. For any $\ell>r$, define $s_{[\ell,r]}$ to be the empty string.

In the cut-and-paste operation on any given segment $[\ell,r]$ with $1\leq \ell\leq r\leq n$, we cut the substring $s_{[\ell,r]}$ from s and paste it to the end of the string. As a result, the string s becomes

$$s_{[1,\ell-1]} \ s_{[r+1,n]} \ s_{[\ell,r]}$$
.

Given a string s, your task is to process a sequence of the cut-and-paste operations and output final string.

For example, if the input string is AYBABTU , then after the operation on [3,5], the string becomes AYTUBAB , obtained by moving BAB to the end of the string. After the second operation on [3,5], the string becomes AYABTUB .

Input

The first input line has two integers n and m: the length of the string and the number of operations. The characters of the string are indexed by $1, 2, \ldots, n$.

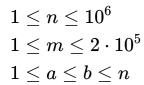
The next line has a string of length n that consists of characters A–Z.

Then, there are m lines that describe the operations. Each line has two integers a and b: the segment [a,b] on which the cut-and-paste operation is to be performed.

Output

Print the final string after all the operations.

Constraints



Example

Input 1:

7 2 AYBABTU 3 5

Output 1:

3 5

AYABTUB

Input 2:

Output 2:

QHNPUEVJJX