

Okret

There is a text consisting of N characters. At each step Mirko chooses two numbers A and B and then reverses the subsequence consisting of characters between indices A and B , inclusive. Indices are 1-based.

Write a program that prints the final text after all operations are made.

Input

The first line of input contains the initial text of length N ($1 \leq N \leq 2500000$). It consists only of lowercase letters of the English alphabet.

The second line contains integer M ($1 \leq M \leq 2500$), the number of steps.

Each of the following M lines contain two integer A and B ($1 \leq A \leq B \leq N$).

Output

In the first and only line output the final text.

Example

Input:

```
lukakuka
3
1 4
5 8
1 8
```

Output:

```
kukaluka
```

Input:

```
kukulelebodumepcele
5
3 7
10 12
2 10
5 18
5 15
```

Output:

```
kubeeludomepcelluke
```