D - Substr Swap   Editorial (/contests/abc419/tasks/abc419_d/editorial)   ●/🏴

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 400 points

Problem Statement

You are given length-N lowercase English strings S and T, and M pairs of integers $(L_1, R_1), (L_2, R_2), \ldots, (L_M, R_M)$.

Perform the following operation for $i = 1, 2, \ldots, M$ in order:

- Swap the L_i-th through R_i-th characters of S and the L_i-th through R_i-th characters of T.
  - For example, if S is abcdef, T is ghijkl, and $(L_i, R_i) = (3, 5)$, then S and T become abijkf and ghcdel, respectively.

Find the string S after performing the M operations.

Constraints

- $1 \leq N \leq 5 \times 10^5$
- $1 \leq M \leq 2 \times 10^5$
- Each of S and T is a length-N lowercase English strings.
- $1 \leq L_i \leq R_i \leq N$
- N, M, L_i, and R_i are integers.

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Input

The input is given from Standard Input in the following format:

```
N   M
S
T
L₁   R₁
L₂   R₂
⋮
Lₘ   Rₘ
```

$$N \quad M$$
$$S$$
$$T$$
$$L_1 \quad R_1$$
$$L_2 \quad R_2$$
$$\vdots$$
$$L_M \quad R_M$$

Output

Output the S after performing the M operations.

Sample Input 1 [Copy]

```
5 3
apple
lemon
2 4
1 5
5 5
```

Sample Output 1 [Copy]

```
lpple
```

Initially, S and T are `apple` and `lemon`, respectively.

- After the operation for $i = 1$, S and T are `aemoe` and `lppln`, respectively.
- After the operation for $i = 2$, S and T are `lppln` and `aemoe`, respectively.
- After the operation for $i = 3$, S and T are `lpple` and `aemon`, respectively.

Thus, the string S after the three operations is `lpple`.

Sample Input 2 [Copy]

```
10 5
lemwrbogje
omsjbfggme
5 8
4 8
1 3
6 6
1 4
```

Sample Output 2   Copy

```
lemwrfogje
```
Copy

#telegram)

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