You are given a long decimal number a consisting of n digits from 1 to 9. You also have a function f that maps every digit from 1 to 9 to some (possibly the same) digit from 1 to 9.

You can perform the following operation **no more than once**: choose a non-empty **contiguous subsegment** of digits in a, and replace each digit x from this segment with $f(x)$. For example, if $a = 1337$, $f(1) = 1$, $f(3) = 5$, $f(7) = 3$, and you choose the segment consisting of three rightmost digits, you get 1553 as the result.

What is the maximum possible number you can obtain applying this operation no more than once?

Input

The first line contains one integer n ($1 \le n \le 2 \cdot 10^5$) — the number of digits in a.

The second line contains a string of n characters, denoting the number a. Each character is a decimal digit from 1 to 9.

The third line contains exactly 9 integers $f(1)$, $f(2)$, ..., $f(9)$ ($1 \le f(i) \le 9$).

Output

Print the maximum number you can get after applying the operation described in the statement no more than once.

Examples

input Copy

```
4
1337
1 2 5 4 6 6 3 1 9
```

output Copy

```
1557
```

input Copy

```
5
11111
9 8 7 6 5 4 3 2 1
```

output Copy

```
99999
```

input Copy

```
2
33
1 1 1 1 1 1 1 1 1
```

output Copy

```
33
```