Problem B: Bewitched Broomstick

Time limit: 5 seconds

ONCE upon a time, the old Sorcerer left their apprentice to clean the house.

The old sorcerer has vanished
And for once has gone away!
Now be quick or do get punished.
Still we'll do a bit of play.
Come, old broomstick, come obey
Wipe the old and dusty floor.
Take the bucket, don't delay.
Fill it up and bring and pour.

Clean the house while I lie here,
Catching up the needed sleep.
Before long, I wake and peer
Oh my god, the flood runs deep.
Water surges to my knees
Broomstick sweeps like stormy seas.

Stop, I command, but what's the spell?
This never happened hitherto.
To my knees the waters swell
The flood is dire – what to do?
Of the spell, I know the start
The trailing letters I forget.
There's a very frequent part.
Help me, save me from this threat.

More precisely, the apprentice remembers the beginning of the spell s and a length ℓ. They now have to find the remaining $\ell - 1$ letters of the spell. They also know that the most frequently appearing substring[1] of length ℓ within the spell appears very often. Determine the last $\ell - 1$ letters that maximize the number of appearances of the most frequently appearing substring of length ℓ within the whole spell. If there are multiple valid options, you may output any one of them.

Input

The input consists of:

- One line with two integers n and ℓ ($2 \leq \ell < n \leq 2 \cdot 10^5$), the length of the beginning of the spell and the length of the frequently appearing part of the spell.
- One line with a string s, the beginning of the spell, consisting of n English lowercase letters (`a`–`z`).

[1] A substring of a string is a contiguous segment of characters from it.

Output

Output one spell consisting of $n+\ell-1$ English letters, that maximizes the number of appearances of the most frequently appearing substring of length ℓ. The first n letters should match the beginning of the spell s.

If there are multiple valid solutions, you may output any one of them.

Sample Input 1

```
13 4
wintercontest
```

Sample Output 1

```
wintercontestest
```

The substring of length 4, "`test`", appears twice in "`wintercontestest`". It is possible to show that no substring of length 4 can appear more than twice.

Sample Input 2

```
6 4
ababab
```

Sample Output 2

```
abababababa
```

Sample Input 3

```
19 8
bewitchedbroomstick
```

Sample Output 3

```
bewitchedbroomstickblunder
```

Sample Input 4

```
6 5
helppp
```

Sample Output 4

```
helpppppppp
```