Problem 8. Hyosong and Gwangsong

Time Limit : 1 second
Memory Limit : 256 megabytes

Description

There is a long string S and each character of string is a lowercase English alphabets.

Two boys Hyosong and Gwangsong are playing interesting game.

The game rule is followed.

Initially, Hakmyong, the referee of the game, gives them one non-empty substring of S. (Let us write it as P.)

Two players append one English character to the substring alternately such that the result string must be also the substring of S.

If they can not append any character, the game ends.

Hyosong wants to make the final string as short as possible and Gwangsong wants as long string as possible. **Hyosong plays first.**

If they plays optimally, you can guess the **number of appended characters** for each substring. (Let us write it as $f(P)$.)

Substring A is **smaller** than substring B, if $f(A) < f(B)$ holds or $f(A) = f(B)$ and A is smaller than B lexicographically.

You are given the integer K, you must find out the K-th smallest substring of S.

Can you find out?

Input

The first line contains one string that the length is smaller than or equal to 500000.

The second line contains one integer K ($1 \leq K \leq 1000000000$).

Output

Print the number of appended characters of result substring and the result substring separated by a space.

Sample Input

```
aababb
8
```

Sample Output

```
1 abab
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