Problem B

Continuing our analysis, we are interested in creating a dictionary from all the substrings of the given text. More precisely, let D be the set of all non-empty substrings that appear in the text; for example, for the text "`aabab`", we have

$$D = \{\texttt{a}, \texttt{aa}, \texttt{aab}, \texttt{aaba}, \texttt{aabab}, \texttt{ab}, \texttt{aba}, \texttt{abab}, \texttt{b}, \texttt{ba}, \texttt{bab}\}.$$

We are interested in, for a given k, finding the k-th lexicographically smallest of these strings (the elements of D above are presented in the lexicographic order, so for example for $k = 3$, we want to return the string "`aab`").

Input and output

The first line contains a string S of length at most 100 000 consisting only of lowercase letters. The second line contains a single integer k ($1 \leq k \leq 10^9$). Output the k-th lexicographically smallest non-empty substring of S (it is guaranteed k is at most as large as the number of distinct non-empty substrings of S).

Example

Input:

```
aabab
3
```

Output:

```
aab
```