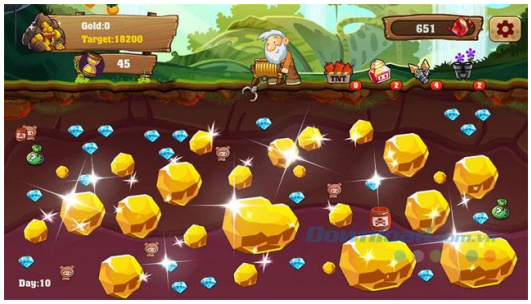
Problem C
Gold Miner

Time Limit: **3 seconds**
Mem limit: **512 Megabytes**



Mr. Phidang is a gold miner, and he is now at a gold mine. He has a powerful mining machine, but it seems heavy. Mr. Phidang is going to use the machine to mine gold or other precious minerals (e,g. diamonds, silver, etc.).

There are many types of minerals in the gold mine, and Mr. Phidang has his own preferences over them. The preference of each type is represented by a lowercase Latin letter, and the preference rank is considered by its alphabetical order. For example, Mr. Phidang's most preferable type of mineral will be '`a`', the '`b`' type has a little bit less preferred, '`c`' type is for defining even worse, and so on.

The gold mine can be described as a sequence of contiguous minable slots. The following figure describes the gold mine "`ebadcab`".

Mr. Phidang can start mining at any slot that he wants. However, after starting the mining process, he can only move to either of the two adjacent slots (left or right) to continue mining since the current slot needs a unit of time to be refilled, and his mining machine is too heavy so he cannot move far away. Given that the amount of mineral at each slot is unlimited, Mr. Phidang can move back to the previous slots to mine.

Mr. Phidang is very greedy so he always wants to **maximize his preference of the minerals that he can earns at each step.** This also means that Mr. Phidang wants to choose the string that has the smallest alphabetical order.

Please help Mr. Phidang find the best starting slot and the way to achieve the best preference after a certain number of steps. For example with the gold mine as "`ebadcac`", the minerals that Mr. Phidang earns after the 5 steps is "`ababa`", which is the best way for his preference.

Input

The first line contains the string s of lowercase Latin letters – the gold mine. The number of minable slots is not less than 2 and not greater than 100.

The second line contains one integer k ($1 \leq k \leq 10^4$) – the number of mining steps.

Output

Print the sequence of letters without spaces – the values of minerals in the order that Mr. Phidang is going to mine.

Sample Input

Sample Output

Sample Input	Sample Output
ebadcac 5	ababa
ccc 6	cccccc