A - Permutations

Source file name: `perm.c`, `perm.cpp`, *or* `perm.java`

A permutation of a string is the set of all possible ways to combine its characters. For example, the permutations of abc are $\{abc, acb, bac, bca, cab, cba\}$. The size of this set is the factorial of the initial string size.

Given a string S (with up to 20 characters, all lowercase letters and pairwise distinct) and a integer N ($0 \leq N < 20$) find the $(N+1)$th smallest element of the permutation of S (consider the lexicographic order; the permutation of abc above, for example, is represented in lexicographic order form left to right).

For example:

- if $S = abc$ and $N = 0$, then the result would be abc
- if $S = abc$ and $N = 5$, then the result would be cba
- if $S = abc$ and $N = 3$, then the result would be bca
- if $S = cba$ and $N = 3$, then the result would be bca

Input

The input file contains one line with the number of samples and then each sample consists of two lines: one with string S and the next with number N. Notice that the string may not be initially sorted.

The input must be read from standard input.

Output

For each sample, a line with the required value.

The output must be written to standard output.

Sample Input	**Sample Output**

`2`
`abc`
`3`
`abcde`
`119`
	`bca`
	`edcba`