

Minimization by Swaps

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 512 mebibytes

Masha is studying large numbers. She has placed n cards in a row. Each card has a digit from 1 to 9 written on it. Together, they form an n -digit integer s .

In one operation, Masha can take two **adjacent** cards and swap them (she cannot rotate the cards, turning one digit into another). Masha can perform no more than k operations. What is the minimum n -digit number that can be obtained as a result?

Input

The first line contains an integer t : the number of test cases ($1 \leq t \leq 100\,000$). The following lines contain the test cases.

Each test case is given on a line containing two integers s and k separated by a space. The integer s is positive and consists of digits from 1 to 9. Additionally, $0 \leq k \leq 10^{18}$.

The total number of digits in all numbers s does not exceed 100 000.

Output

For each test case, print a line with the answer: the minimum n -digit number that can be obtained from s by swapping two adjacent digits no more than k times.

Example

<i>standard input</i>	<i>standard output</i>
4	321
321 0	9
9 1	11122247
21241127 10	629
692 1	