

Problem H. Hidden Digits

Time limit: 5 seconds
Memory limit: 512 megabytes

You are given a sequence of n digits d_0, d_1, \dots, d_{n-1} . Find the minimum positive integer x such that for all $0 \leq i < n$, the decimal representation of number $x + i$ contains the digit d_i .

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^5$). The description of the test cases follows.

The first line of each test case contains a single integer n ($1 \leq n \leq 10^6$).

The second line contains a string of n digits $d_0d_1\dots d_{n-1}$ ($0 \leq d_i \leq 9$).

It is guaranteed that the sum of n over all test cases does not exceed 10^6 .

Output

For each test case, print a single integer x — the smallest positive integer such that the decimal representation of $x + i$ contains the digit d_i for all $0 \leq i < n$.

Example

standard input	standard output
6	1
5	10
12345	92
5	45296
01234	701
3	10367486
239	
9	
998244353	
10	
1000000007	
20	
18446744073709551616	