Problem H. Hidden Digits

Time limit: 5 seconds
Memory limit: 512 megabytes

You are given a sequence of n digits d_0, d_1, $\ldots d_{n-1}$. Find the minimum positive integer x such that for all $0 \le i < n$, 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 ($1 \le t \le 10^5$). The description of the test cases follows.

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

The second line contains a string of n digits $d_0 d_1 \ldots d_{n-1}$ ($0 \le d_i \le 9$).

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 $0 \le i < n$.

Example

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