Problem B. The Next Number

Small input 9 points	Solve B-small
Large input 26 points	Solve B-large

Problem

You are writing out a list of numbers. Your list contains all numbers with exactly $\mathbf{D_i}$ digits in its decimal representation which are equal to **i**, for each **i** between 1 and 9, inclusive. You are writing them out in ascending order.

For example, you might be writing every number with two '1's and one '5'. Your list would begin 115, 151, 511, 1015, 1051.

Given **N**, the last number you wrote, compute what the next number in the list will be.

Input

The first line of input contains an integer **T**, the number of test cases in the input. **T** lines follow, one for each test case, each containing a single integer **N**.

Output

For each test case, output

```
Case #X: K
```

where **X** is the test case number, starting from 1, and **K** is the next integer in the list.

Limits

Small dataset

$1 \le T \le 50$
$1 \le N \le 10^6$

Large dataset

$1 \le T \le 500$
$1 \le N \le 10^{20}$

Sample

Input	Output
3 115 1051 6233	Case #1: 151 Case #2: 1105 Case #3: 6323