Qualification Round 2017

Ask a question

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Submissions

Oversized Pancake Flipper

5pt	Correct **18301/22116 users** correct (83%)
10pt	Submitted **17658 users** attempted

Tidy Numbers

5pt	Correct **22619/24356 users** correct (93%)
15pt	Submitted **20336 users** attempted

Bathroom Stalls

5pt	Not attempted **12100/13840 users** correct (87%)
10pt	Not attempted **9480/11422 users** correct (83%)
15pt	Not attempted **7660 users** attempted

Fashion Show

10pt	Not attempted **841/2043 users** correct (41%)
25pt	Not attempted **708 users** attempted

Top Scores

FatalEagle	100
ACMonster	100
y0105w49	100
johngs	100
HellKitsune123	100
kyc	100
SergeyRogulenko	100
spnautilus	100
BudAlNik	100
mjy0724	100

Problem B. Tidy Numbers

Confused? Read the quick-start guide.

Small input 5 points	You have solved this input set.
Large input 15 points	You have already tried this input set. (Judged at the end of the contest.)

Problem

Tatiana likes to keep things tidy. Her toys are sorted from smallest to largest, her pencils are sorted from shortest to longest and her computers from oldest to newest. One day, when practicing her counting skills, she noticed that some integers, when written in base 10 with no leading zeroes, have their digits sorted in non-decreasing order. Some examples of this are 8, 123, 555, and 224488. She decided to call these numbers *tidy*. Numbers that do not have this property, like 20, 321, 495 and 999990, are not tidy.

She just finished counting *all* positive integers in ascending order from 1 to **N**. What was the last tidy number she counted?

Input

The first line of the input gives the number of test cases, **T**. **T** lines follow. Each line describes a test case with a single integer **N**, the last number counted by Tatiana.

Output

For each test case, output one line containing `Case #x: y`, where `x` is the test case number (starting from 1) and `y` is the last tidy number counted by Tatiana.

Limits

$1 \le \mathbf{T} \le 100$.

Small dataset

$1 \le \mathbf{N} \le 1000$.

Large dataset

$1 \le \mathbf{N} \le 10^{18}$.

Sample

Input	Output
4 132 1000 7 111111111111111110	Case #1: 129 Case #2: 999 Case #3: 7 Case #4: 99999999999999999

Note that the last sample case would not appear in the Small dataset.