Code Jam 2016 - Round 1B

Getting the Digits

Problem

You just made a new friend at an international puzzle conference, and you asked for a way to keep in touch. You found the following note slipped under your hotel room door the next day:

"Salutations, new friend! I have replaced every digit of my phone number with its spelled-out uppercase English representation ("ZERO", "ONE", "TWO", "THREE", "FOUR", "FIVE", "SIX", "SEVEN", "EIGHT", "NINE" for the digits 0 through 9, in that order), and then reordered all of those letters in some way to produce a string **S**. It's up to you to use **S** to figure out how many digits are in my phone number and what those digits are, but I will tell you that my phone number consists of those digits in nondecreasing order. Give me a call... if you can!"

You would to like to call your friend to tell him that this is an obnoxious way to give someone a phone number, but you need the phone number to do that! What is it?

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each consists of one line with a string **S** of uppercase English letters.

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 a string of digits: the phone number.

Limits

Time limit: 20 seconds per test set.
Memory limit: 1 GB.
$1 \leq \mathbf{T} \leq 100$.
A unique answer is guaranteed to exist.

Small dataset (Test Set 1 - Visible)

$3 \leq$ length of **S** ≤ 20.

Large dataset (Test Set 2 - Hidden)

$3 \leq$ length of **S** ≤ 2000.

Sample

Sample Input	Sample Output
4 OZONETOWER WEIGHFOXTOURIST	Case #1: 012 Case #2: 2468 Case #3: 114 Case #4: 3

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OURNEONFOE
ETHER
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