

ABC-s for Progya

Do you know what touch-typing is? It is the skill of being able to type without looking at the keys. Pretty cool, right? However, Progya, the aspiring programmer, wants to learn touch-typing for reasons far more important than just “feeling cool”.

Progya has outstanding logical deduction and problem solving skills. But she is slow at typing, the only flaw that keeps her from winning programming contests. She has attempted to memorize the keyboard numerous times, but always keeps missing keys! Frustrated, Progya has decided to practice touch-typing using a text excerpt such that, the excerpt contains all the English alphabets. She is as busy as any serious programmer should be, and as her good friend, it is your duty to help her by choosing the excerpt to practice with.

You are a programmer as well, almost as good as Progya (yay!). Your goal is to write a program such that it takes the text input and checks whether it will properly serve Progya’s purpose.

Input

First line of input contains the number of test cases **T** ($1 \leq T \leq 10$). Each of the next **T** lines contains text with only lowercase alphabets and spaces. Maximum length of each line is 1000.

Output

For each test case, there will be a single line of output containing the case number. Additionally, it will contain the string “**Happy Typing Progya!!**” without the quotes if the text excerpt is suitable. Otherwise, it will print the missing alphabets in reverse lexicographical order.

Example

Input:

```
2
abcdefg hijklmno pqrstuv wxyz
poilkjuythgfrewq fdsjdhzx cbv nm
```

Output:

```
Case 1: Happy Typing Progya!!
Case 2: a
```