Interplanetary Travel

You've had enough of your roommate bragging about his travels to Cancun, so you decided to do him one better and go to Mars this Spring Break. When you arrive, you discover that Martians are real! Unfortunately, you really struggle to understand the Martian language. But after some reading, you realize that their language is actually the exact same as English - except all words are spelled in descending order of the frequency of characters in the original English word. So "peer" becomes "eerp" (or "eepr"), and "bob" becomes "bbo". Can you write a program that will translate words from English into Martian?

Input Format

Each test case begins with a single integer N, the number of words you want to translate. Each line after that contains a single word that must be translated into Martian.

Constraints

- $1 \leq N \leq 1000$
- $1 \leq len(word) \leq 1000$
- In each word, any given character appears a distinct number of times, so that there is only one possible translation of the word into Martian. For instance, a word like "peer" from the problem statement would not appear in the input.
- You can assume that all characters will be lowercase & uppercase Latin letters, and digits 0-9.

Output Format

For each word in the input, output the Martian translation of the word on a separate line.

Sample Input 0

```
3
bob
trtrrq
jjejjej4
```

Sample Output 0

```
bbo
rrrttq
jjjjjee4
```