
Programmers in IIIT

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

You know there are large numbers of programmers in IIIT. Fame of each programmers in IIIT is denoted by a string. Programmers are very competitive and take parts in numerous contest everyday. Whenever a programmer wins a contest, contest title is appended to his/her fame. When a programmers joins IIIT, his/her fame is a null string.

Contest title is single lowercase alphabet or uppercase alphabet or digit.

There is noway to decide which contest was more tougher than other. But if 2 programmer have won the **same set** of contests than we say that they have equal strengths. You have to decide how many programmers have same strength.

Input

The first line contains an integer **T**, which is the number of Testcases.

Each described by **N+1** lines describing each testcase.

First line contains an integer **N**, denoting the number of programmers in IIIT.

Next N line contains a string **F** denoting the fame of each individual.

where

$$1 \leq T \leq 5$$

$$1 \leq N \leq 10^5$$

$$1 \leq |F| \leq 1000000$$

$$F = \{a - z, A - Z, 0 - 9\}^*$$

Total length of all string in a testcase is less than 10^6

Output

Output N integers in the line (followed by a space), *i* – th integer denote the number of programmers having same strength as the *i* – th programmer(including himself).Set here denotes mathematical set.

Example

standard input	standard output
2	2 1 2 2 2
5	1 1 1
aab	
Aab	
ab	
agh	
gggahhh	
3	
abc	
caa	
abb	

Note

Same contest can happen many times. Winning same title again and again do not contribute to the strength of programmer.