Scheming Plans

Program Name: scheme.java   **Input File: scheme.in**

Your love of literature and computer science has culminated in a desire to write a program that will, given a poem, output its rhyme scheme. A rhyme scheme is a pattern of rhyming lines, referred to by using letters to indicate which lines rhyme. We can identify the rhyme scheme by assigning letters to each rhyme, beginning with "a" and proceeding through the alphabet. For example, the poem:

There was a young fellow of Wheeling
Endowed with such delicate feeling
When he read on the door
Do not spit on the floor
He jumped up and spat on the ceiling

would have the rhyme scheme "aabba", as lines 1,2, and 5 rhyme with each other, and lines 3 and 4 rhyme with each other.

Input
The first line of input will consist of a single integer, *n*, indicating the number of datasets in the remaining input. Each dataset will consist of:
1. A line containing a single integer, $1 <= m <= 10$, indicating the number of lines in the poem.
2. *m* lines of the poem. Poems will consist solely of words and spaces (no punctuation), where a word is defined as a contiguous unit of letters.

Note: for the purposes of this problem, consider two words to rhyme if the latter half (rounded up) of their letters are identical, regardless of case. Following these rules, consider the third example input below. The latter halves of the last words in each line are: ght, ight, ght, ight. So even though a normal person can tell that these words really do rhyme, the algorithm of comparing the latter halves of the words can only tell that lines 1 and 3 match, and that lines 2 and 4 match, resulting in the rhyme scheme: abab.

Output
For each dataset (poem) in the input, output a single line containing its rhyme scheme.

Example Input File
```
3
5
There was a young fellow of Wheeling
Endowed with such delicate feeling
When he read on the door
Do not spit on the floor
He jumped up and spat on the ceiling
4
Here is the church
And here is the steeple
Open the door
And see all the people
4
Star Light Star bright
The first star I see tonight
I wish I may and I wish I might
Have the wish I wish tonight
```

Example Output To Screen
```
aabca
abcd
abab
```