A. Sum Sort

The letters A-Z are given the values 1-26, respectively. The value of a word is the sum of the values of the letters in it. Given a list of words composed entirely of uppercase letters, sort them in ascending order by their value. If there is a tie, arrange them lexicographically (i.e., alphabetically).

Input

The first line contains the number T ($1 \leq T \leq 100$) giving the number of test cases. The first line of each test case will contain the number n ($1 \leq n \leq 100$) giving the number of words. The following n lines will each contain a string of k uppercase letters ($1 \leq k \leq 100$).

Output

For each case, output the given words in sorted order, with one word one each line. There should be a blank line output between each test case.

Sample Input/Output

Input	Output
5 3 Z M A 4 Z BA B AAA 1 WOW 5 HELLO THIS IS A PROBLEM 4 EE AAAAAAAAA AAAAAAAAAA AAAAAAAAAAA	A M Z B AAA BA Z WOW A IS HELLO THIS PROBLEM AAAAAAAAA AAAAAAAAAA EE AAAAAAAAAAA