# Problem A. Simple Merge

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1 second |
| Memory limit: | 256 megabytes |

Given a set of strings print the set sorted according to their size. If the size of the strings are equal, must maintain the original order of the set.

## Input

The first line of input has an integer $T$ that indicates the number of sets of strings, each set may contain between 1 and 50 inclusive elements, and each of the strings of the set may contain between 1 and 50 inclusive characters('$a$' to '$z$').

## Output

The output should contain the set of input strings ordered by the length of strings.A blank space must be printed between two words.

## Examples

| standard input | standard output |
|---|---|
| 3<br>ab cd e j asd ljffg df<br>a a b b c c<br>xy yx zxy zx xzy xxx | e j ab cd df asd ljffg<br>a a b b c c<br>xy yx zx zxy xzy xxx |
| 4<br>aabc ddfd fbbe f baaad<br>fddf badcf aedbe cdb ae bbd<br>ada bc eaced dadab b aabc fbee<br>bedaf edde fcaa adbf beec | f aabc ddfd fbbe baaad<br>ae cdb bbd fddf badcf aedbe<br>b bc ada aabc fbee eaced dadab<br>edde fcaa adbf beec bedaf |

# Problem B. Merge

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1 second |
| Memory limit: | 256 megabytes |

Given two sorted integer arrays $a$ and $b$, merge $a$ into $b$ as one sorted array.

## Input

The first line contains one integer $n$ ($1 \leqslant n \leqslant 10^5$) — $a$ size. The second line contains $n$ integers $a_i$ ($1 \leqslant a_i \leqslant 10^5$) — elements of array. The third line contains one integer $m$ ($1 \leqslant m \leqslant 10^5$) — $b$ size. The next line contains $m$ integers $b_i$ ($1 \leqslant b_i \leqslant 10^5$) — elements of array.

## Output

Array B into sorted order.

## Examples

| standard input | standard output |
|---|---|
| 5<br>4 5 6 7 10<br>5<br>2 4 6 7 8 | 2 4 4 5 6 6 7 7 8 10 |
| 3<br>1 4 7<br>1<br>6 | 1 4 6 7 |
| 4<br>2 5 7 8<br>3<br>2 4 9 | 2 2 4 5 7 8 9 |
| 2<br>3 10<br>4<br>1 3 6 8 | 1 3 3 6 8 10 |
| 1<br>4<br>4<br>1 1 5 6 | 1 1 4 5 6 |

# Problem C. House of love

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1 second |
| Memory limit: | 256 megabytes |

Once upon a time, in one university, created a one organization called "House of love"in which friendship is the main value. So they created one test to know level of their friendship. Two person write some numbers and gives it to you, to check common numbers.

## Input

First line contain two numbers n,m. Size of arrays. Next 2 line contain n numbers of first person and m numbers of second.

## Output

Print common numbers.

## Examples

| standard input | standard output |
|---|---|
| 4 2<br>1 2 2 1<br>2 2 | 2 2 |
| 3 5<br>4 9 5<br>4 3 2 1 9 | 4 9 |
| 0 1<br>1 | |
| 4 2<br>1 2 3 1<br>2 2 | 2 |

# Problem D. New GPA

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 3 seconds |
| Memory limit: | 256 megabytes |

KBTU introduces new GPA calculation system. You're given $n$ students, their marks and number of credits for their subjects. Sort them by total GPA. It is calculated as $\frac{\sum_{i=1}^{m} g_i * c_i}{\sum_{i=1}^{m} c_i}$, where $m$ - student's number of subjects, $g_i, c_i$ - GPA and number of credits for $i$-th subject respectively. GPA scale is given in the notes.

## Input

First line contains one integer $n$ ($1 \le n \le 10^5$). Each of the next $n$ lines contains information about the $i$-th student: his lastname, firstname, an integer $m_i$ ($1 \le m_i \le 10$) - number of subjects for this student, then $m_i$ marks and number of credits for each subject.

## Output

You should print sorted list of students. Each student should be printed in the following format: *lastname firstname GPA*. First, sort them by overall GPA, if it's equal, sort by lastname, then by firstname. GPA should be printed with three digits after decimal point.

## Example

| standard input | standard output |
|---|---|
| 5<br>Issenbayev Yernur 4 A 4 D+ 2 B 3 A+ 4<br>Yermekbayeva Diana 3 A+ 4 B+ 3 B 1<br>Kadyrov Asman 2 A+ 4 A+ 4<br>Stepanenko Ivan 3 C+ 3 F 1 A+ 5<br>Bissimbayev Arystan 3 A+ 4 A+ 5 D 1 | Stepanenko Ivan 3.056<br>Issenbayev Yernur 3.308<br>Yermekbayeva Diana 3.688<br>Bissimbayev Arystan 3.700<br>Kadyrov Asman 4.000 |

## Note

| | |
|---|---|
| A+ | 4.00 |
| A | 3.75 |
| B+ | 3.50 |
| B | 3.00 |
| C+ | 2.50 |
| C | 2.00 |
| D+ | 1.50 |
| D | 1.00 |
| F | 0 |

# Problem E. Sorter

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1 second |
| Memory limit: | 256 megabytes |

Almas loves to sort numbers with specific rules that he comes up with himself. Today he wants to sort rows, each row contain m integer elements. He decided to sort rows in decreasing order of their sum, i.e. the row with larger sum will be the first. In case the sums are equal, then he order rows lexicographically, i.e. The row with least first element will be the first, if first elements are equal, then compare second element, third element, etc. He successfully finished sorting. He wanted to put the result in the closet, but accidentally put it in the shredder and divided everything into rows again. Help him sort it again.

## Input

The first line contains two numbers, n and m the number of rows and number of elements in a row. The next n lines contain m numbers, elements of each row.

- $1 \leq n, m \leq 500$
- $0 \leq row[i] \leq 5000$

## Output

Print rows in desired sorted order.

## Examples

| standard input | standard output |
|---|---|
| 5 3<br>1 2 3<br>1 2 4<br>1 3 2<br>6 0 0<br>2 3 2 | 1 2 4<br>2 3 2<br>1 2 3<br>1 3 2<br>6 0 0 |
| 2 3<br>16 3 18<br>5 10 8 | 16 3 18<br>5 10 8 |
| 5 5<br>17 16 21 10 48<br>1 34 5 41 42<br>29 8 50 21 43<br>21 39 9 26 23<br>45 44 29 8 24 | 29 8 50 21 43<br>45 44 29 8 24<br>1 34 5 41 42<br>21 39 9 26 23<br>17 16 21 10 48 |