

Union & Intersection

Write a program that finds union and intersection of the given sets.

Input

The first line is an integer n, for the number of sets to be inputted.

The next n lines are integer sets, one set per line. For each line, list all the integer members, separated by a space.

Output

The first line is the size of the union of all given sets.

The second line is the size of the intersection of all given sets.

Example

| Input (from keyboard) | Output (on screen) |
|---|--------------------|
| 3 1 2 1 2 3 1 2 1 2 1 2 3 2 5 4 3 | 5 2 |
| 6 100 1000 101 123 200 201 -1 -2 -3 | 9 0 |
| 6 -1 0 1 -1 1 0 0 -1 1 1 -1 0 1 0 -1 0 1 -1 | 3 3 |