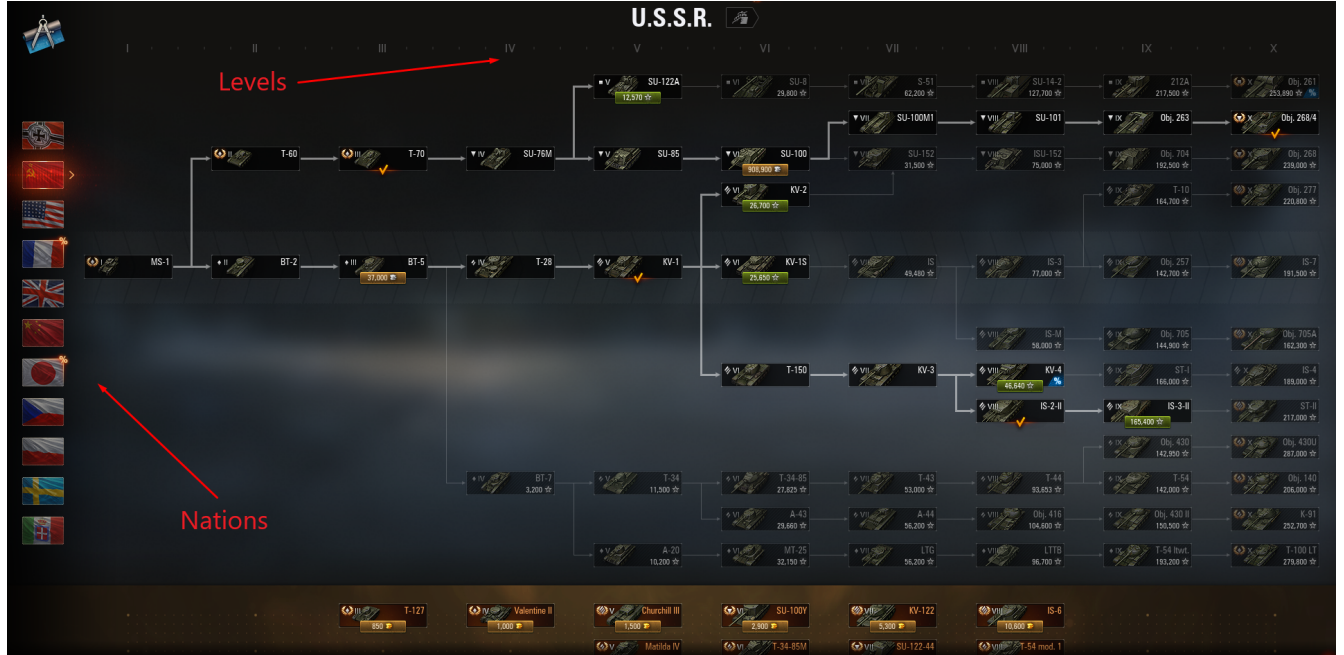# Task B. Lists of nations

Vehicles in WoT are categorized by nation and level. Levels start from 1 and go up to a maximum of 10.

There are n lists of nations ordered by level. Each nation has m vehicles. You need to combine those into one big list with vehicles of all nations, which also have to be ordered by level.

Input

The first line contains n and m. Each next line contains a list of a nation. Every item in the list is represented by two integer numbers (a_i – vehicle ID, b_i – vehicle level) separated by a comma.
$1 \le n \le 11$
$1 \le m \le 10^5$
$1 \le a_i \le 10^{10}$
$1 \le b_i \le 10$
If two vehicles have the same level, first goes the vehicle that has the smaller ID.

Output

List of vehicle IDs ordered by level. Vehicles of the same level should be ordered by ID.

Example

Input

```
2 5
101,1 102,2 103,3 104,3 105,4
201,1 202,2 203,2 204,3 205,4
```

Output

```
101 201 102 202 203 103 104 204 105 205
```

How to send a solution?

Your solution should be a console program in one of the available programming languages (C++11 or Python 3.6). The program must read from the standard input stream (std::cin in C++ language) the input data (it is guaranteed that when checking the solution it will be exactly in the format and the ranges as described in the "Input data"section), and output the answer to the standard output stream (std::cout in C++) in the format described in the "Output data"section. Extra spaces at the end of lines will be ignored. To send a solution, you need to select a task in the system and a programming language. Then, send the source file with the code. It will be checked by the system in different test runs. The test is considered passed if the program outputs the correct answer and meets the time and memory limits. One point is granted for each test passed. The scores for all tests are summed up. The first tests are always from the examples given in the description. The overall result for the task is determined by the solution that scored the maximum number of points. It will be hidden in the system, and only the result of the first 10 tests of the task will be available to you. The number of attempts is not limited.