ELECTION

Introduction

Today is an important day at the Supreme Chamber of the Beetle Parliament. It is today that the Members of the Beetle Parliament (MBPs) are electing the members of the Jumping Tribunal.

Both parliamentary groups – the Civil Faction and the Military Faction – submitted their nominations. The Jumping Tribunal will be selected from those candidates in a voting that is quite atypical by today's standards. Each MBP has exactly two votes. One of them says which candidate the MBP would want in the Tribunal, the other – the candidate the MBP is vehemently opposed to. When all votes are gathered – in compliance with the Beetle Constitution – the Jumping Tribunal will be elected in such a manner that both votes of as many MBPs as possible corresponds to the selected Tribunal members.

Problem

The Civil Faction submitted A nominations, the Military Faction – B nominations. Each MBP submitted precisely two votes in the manner described above. Because of a strict party discipline, MBPs of each faction vote in favor of one of the nominees of their own faction and against one of the nominees of the opposing faction. A total of N MBPs are entitled to vote.

The two votes (one favorable and one negative) cast by each MBP are considered as two requests: *"please include this candidate in the Tribunal"* and *"under no circumstances may the candidate be included in the Tribunal"*. An MBP is content with the voting results only if both of his requests have been fulfilled simultaneously. The elected representation of the Tribunal must ensure the maximum number of MBPs who are happy with the voting results.

Having all granted votes at your disposal propose the final (and compliant with the Beetle Constitution!) composition of the Jumping Tribunal. The Tribunal may be composed of any number of candidates.

Input data

Test sets are given in `election*.in` files.

The first line of the test set includes one integer T denoting the number of tests. A description of each test includes detailed information regarding all votes cast in the election.

The first line of the description contains three integers: N, A and B, denoting respectively: the number of MBPs, the number of candidates of the Civil Faction and the number of candidates of the Military Faction. Every i-th line of subsequent N lines consists of four integers: i_t, n_t, i_f, n_f. They mean that a given MBP voted for the candidate number n_t from the faction with the identifier i_t and against the candidate number n_f from the faction with the identifier i_f. The identifier of the Civil Faction is 1 and of the Military Faction – 2.

Numbers in one line are always separated with single spaces.

$$1 \leqslant T \leqslant 10$$
$$1 \leqslant N \leqslant 10^4$$
$$1 \leqslant A, B \leqslant 10^4$$
$$\{i_t, i_f\} = \{1, 2\}$$
$$1 \leqslant n_t, n_f$$
$$(i_t = 1 \Rightarrow n_t \leqslant A) \wedge (i_f = 1 \Rightarrow n_f \leqslant A)$$
$$(i_t = 2 \Rightarrow n_t \leqslant B) \wedge (i_f = 2 \Rightarrow n_f \leqslant B)$$

Output data

For each test give any composition of the Jumping Tribunal that is compliant with the Beetle Constitution. It is possible that there is more than one correct composition for the test – in such case give exactly one of the possible solutions, i.e., solutions that allow both votes of a maximum number of MBPs to follow the selected candidates. Tests should be answered in the same order as they occurred in the file with input data.

Each description of the composition of the Jumping Tribunal should consist of four lines. The first and second lines should describe the selected candidates of the Civil Faction, the third and fourth lines – candidates of the Military Faction.

In the first line, the description of the candidates of a given faction should consist of one integer K denoting the number of candidates who will become the Tribunal members. The second line should include K different numbers in ascending order that are the numbers of the selected candidates. The numbers should be separated with single spaces. In case K equals 0, the second line should contain empty string.

Example

For the input data:

```
1
6 100 100
1 22 2 13
2 17 1 22
1 5 2 42
2 17 1 22
1 1 2 42
2 42 1 18
```

The correct answer is:

```
2
1 5
1
17
```

Example clarification

A maximum of four MBPs can be selected from among the voters in such a manner that both their votes follow the selected candidates of the Tribunal. The composition of the Tribunal given in the answer (two candidates from the Civil Faction and one candidate from the Military Faction) corresponds to MBP numbers $2, 3, 4$ and 5.

Table 1: Example – specification of votes cast in the elections.

MBP number	Vote in favor		Vote against	
	Faction	Candidate	Faction	Candidate
1	1	22	2	13
2	2	17	1	22
3	1	5	2	42
4	2	17	1	22
5	1	1	2	42
6	2	42	1	18

Score

If the answer is correct, then the score for a given set equals 1. Otherwise the score is 0.