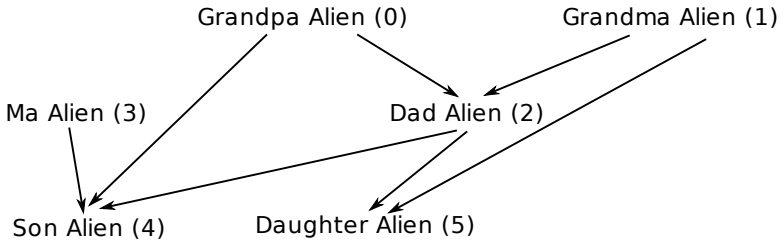
Problem ALIENS: Alien Genealogy

Aliens are strange people. In contrast to us humans they may have more than two parents and in fact it is also quite common that their grand parents, grand-grand parents, ... are involved in their procreation (did I mention that aliens are strange?). Anyway, this tradition is reflected in the families' genealogies which look quite strange to us (the numbers next to the names correspond to the numbers in the sample in-/output below):



Since this tends to irritate quite a lot of humans, the intergalactical alien council decided to revise all genealogies so that they look more familiar to what humans are used to. For example, in the small cutout from an alien genealogy depicted above the connection between Grandpa Alien and Son Alien should be omitted in the revised version because Grandpa's genes are already present via the connection from Dad Alien. Also Daughter Alien already inherited some of Grandma's genes from Dad Alien so the direct link from Grandma can be left out.
Your task is two write a program for the intergalactical alien council that takes all genealogies and simplifies them as far as possible so that the inheritance of genes stays correct. Fortunately, aliens are still somewhat natural beings and cannot betray the laws of physics so there are no "loops" in their genealogies.

Input

The input starts with the number of genealogies $1 \leq n \leq 100$ in the first line. Each of the following n genealogies starts with the number of links $1 \leq k \leq 4\,950$ and the number of involved aliens $1 \leq l \leq 100$ in the first line, separated by white space. Then k lines containing the links follow. Each link consists of two names (for simplicity they are all encoded as numbers between 0 and $l - 1$).

Output

After simplifying each genealogy, output its links in the same order as in the input but leave out the superfluous ones. Separate each pair of genealogies by a blank line.

Sample Input 1

```
1
8 6
0 2
1 2
2 5
2 4
1 5
3 4
3 5
0 4
```

Sample Output 1

```
0 2
1 2
2 5
2 4
3 4
3 5
```