Film — Part Three

The lives of starring actors can be quite hectic, so the studio takes advantage of their availability as much as possible. The studio is only interested in allotments of lead actors to films that cannot be extended; an allotment cannot be extended if, without altering its assignment of actors to films, no other actor can be assigned to a film.

For example, suppose A could star in films 2 and 3, B could star in 1 and 2, and C can only star in 2. There are three possible allotments that cannot be extended: firstly A in 3, B in 1 and C in 2; secondly A in 2 and B in 1; finally A in 3 and B in 2.

Given a list of films and the actors suitable for playing the lead roles in each, determine in how many different ways the actors can be assigned to the films so that no further assignments are possible.

The input will consist of a sequence of lines each containing two numbers; the first number a_i ($1 \leq a_i \leq 100$) identifying an actor and the second f_i ($1 \leq f_i \leq 100$) identifying a film for which they could play the lead role. The input will be terminated by the line `-1 -1`.

You should output a single integer m, indicating the number of valid allotments of actors to films *that cannot be extended.* [For all test cases $m < 2^{31}$.]

Sample Input

```
2 3
4 5
1 1
2 7
1 5
6 3
6 2
4 1
8 8
-1 -1
```

Sample Output

```
6
```