MATHEMATICAL GRAMMAR SCHOOL CUP
June 29, 2017

TASK1 COUNTING LINES (Time limit: 1 sec Memory limit: 64 MB)

There are two integers ***L***, ***U***. Let us notice all points with integer coordinates ***(x,y)*** (0 <= x <= ***L***, 0 <= y <= ***U***). Calculate how many lines contains at least two points with integer coordinates (described above).
The first line of standard input contains the integers ***L*** and ***U*** separated with space ***(0 < L, U < 3000)***.
The only line of standard output contains only one number - the number of lines.

Example 1

Input	Output
1 2	11

Example 2

Input	Output
2 2	20

TASK2 COUNTING RASPBERRY (Time limit: 1 sec Memory limit: 256 MB)

As You may know, Serbia is the world's largest exporter of raspberries.
There is need to deliver precisely ***S*** liters of the best Serbian raspberry juice. For transportation purposes, juice have to be distributed in barrels.
There are barrels with ***N*** different capacities, and the smallest capacity is 1 liter. The number of barrels of each capacity is unlimited. There is need to choose minimal number of barrels for transportation, so that each barrel is full. Write a program that for given ***S, N*** and the capacities of available barrels, determines the minimal number of barrels, used for the raspberry juice transportation.
The first line of standard input contains integers ***S*** and ***N***, separated by a single space.(0<S<=1000000000, 1<=N<=100).
The second line of standard input contains **N** different numbers including 1 (the elements of the sequence of available barrels, including capacity 1), separated by space.
The program has to print on the first line of the standard output the requested minimal number of barrels.

Example

Input	Output
1000 10 1 12 123 4 5 678 7 8 9 10	10

TASK3 PSY – COUNTER (Time limit: 1 sec Memory limit: 64 MB)

Have You heard that Psy's “Gangnam Style” broke YouTube’s counter? Let us consider set of ***N*** intervals which represent total number of Psy's views during one year in one classroom per one student. For example, interval 4-100 describe that there have been at least 4 views from one classroom and maybe some more, but maximal number of Psy's views from that classroom is 100.

We are interested to find the special sequence of distinct intervals described above. That special sequence should be the longest one such that views in classroom (one interval in the sequence) are from the given set of ***N*** intervals and that each interval contains the interval that succeed in the sequence. Print the length of such longest sequence.

The first line of standard input contains integer ***N*** - the number of intervals in the set (1<=N<=100000).

Each of the following ***N*** lines contains two integers ***L*** and ***R*** describing minimum and maximum number of views in one classroom (1<=L<R <=1000000).

Output the length of the longest sequence on the first line (number of chosen intervals).

Example 1

Input	Output
6 2 10 6 9 1 2 7 8 1 8 8 10	3

Clarification-longest sequence: (2 10), (6 9), (7 8)

Example 2

Input	Output
3 3 4 2 5 1 6	3

Clarification - longest sequence: (1 6), (2 5), (3 4)

Example 3

Input	Output
6 1 4 1 5 1 6 1 7 2 5 3 5	5

Clarification - longest sequence: (1 7), (1 6), (1 5), (2 5), (3 5)