

Hippo Marshes

Max and his friends are planning an excursion to *The Great Hippo Marshes* of Hippopotamia. The marshes consist of N sites (numbered from 1 to N) connected by M **directed** trails. The i -th trail can be used to travel from site a_i to site b_i ($a_i \neq b_i$), but not the other way around. Multiple trails can exist between the same pair of sites (in the same direction or in opposite directions).

Max and his friends will start at site 1 and finish at site N . There is at least one sequence of trails that begins at site 1 and ends at site N .

A site x is *visitable* if there is a sequence of trails that starts at site 1, ends at site N , and includes site x . Note that a sequence of trails can visit any given site more than once along the way, including sites 1 and N .

How many sites are visitable?

Subtasks and Constraints

For all subtasks, you are guaranteed that:

- $2 \leq N \leq 100\,000$.
- $1 \leq M \leq 100\,000$.
- $1 \leq a_i, b_i \leq N$, for all i .
- $a_i \neq b_i$ for all i .
- There is at least one sequence of trails that begins at site 1 and ends at site N .

Additional constraints for each subtask are given below.

Subtask	Points	Additional constraints
1	20	If there is a trail from u to v , then there is also a trail from v to u .
2	30	$a_i < b_i$ for all i .
3	30	$N, M \leq 1000$
4	20	No special constraints.

Input

- The first line of input contains the two integers N and M .
- The following M lines describe the trails. The i -th line contains the two integers a_i and b_i .

Output

Output a single integer: the number of visitable sites.

Sample Input 1

9 15
 1 5
 1 4
 1 3
 5 7
 4 7
 8 4
 8 3
 2 3
 3 2
 7 9
 7 9
 7 8
 8 2
 6 8
 6 9

Sample Input 2

8 14
 1 6
 6 1
 6 3
 3 6
 3 8
 8 3
 6 2
 2 6
 4 5
 5 4
 5 7
 7 5
 4 7
 7 4

Sample Input 3

8 8
 1 3
 2 3
 3 4
 4 5
 5 6
 2 6
 3 5
 5 8

Sample Output 1

6

Sample Output 2

5

Sample Output 3

5

Explanation

The sample cases are illustrated below. The visitable sites are shaded orange.

In Sample Input 1:

- The path $1 \rightarrow 5 \rightarrow 7 \rightarrow 9$ shows that sites 1, 5, 7, and 9 are visitable.
- The path $1 \rightarrow 4 \rightarrow 7 \rightarrow 8 \rightarrow 4 \rightarrow 7 \rightarrow 9$ shows that sites 4 and 8 are visitable.

There is no explanation for Sample Inputs 2 and 3.

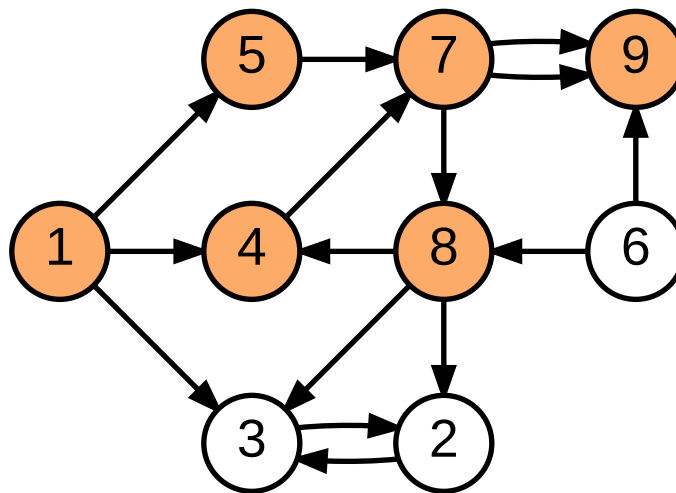


Figure 1: Sample Input 1

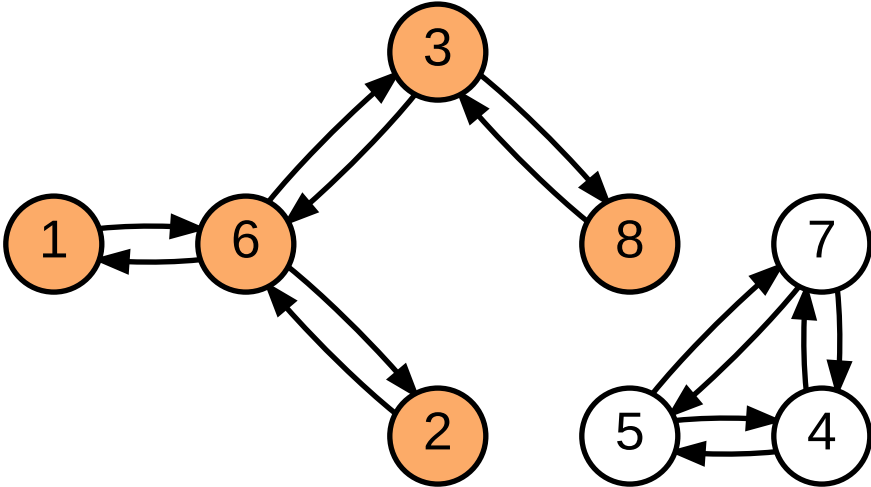


Figure 2: Sample Input 2

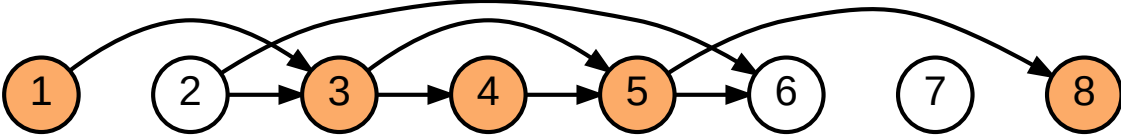


Figure 3: Sample Input 3