Annoying Job (Hard)

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Note: This is the Hard version of 'Annoying Job'. The only difference between the easy and hard versions is the constraints.

Alice is fed up with her job and doesn't want to go to work today (or any other day). Annoyed by her daily drama Bob has kicked her out of the house and has strictly instructed her to directly go to the office without stopping anywhere in between.

There are n buildings in her town. Alice lives in building 1 and her office is in building n. There are m one-way roads in her town, road i from building a_i and to building b_i.

Alice knows that if Bob spots her at a place from where it is impossible to reach the office, she will be severely punished. Is there any way that she can keep driving without ever actually reaching the office but making sure that there is always a route that leads to her office wherever she is?

Input

The first line contains a single integer T. T test cases follow.

$$1 \leq T \leq 100$$

The first line of each case contains two space-separated integers n, m.

$$1 \leq n, m \leq 10^5$$

m lines follow, the i^{th} line containing two space separated integers a_i and b_i.

Note: The sum of n, m for all test cases doesn't exceed 10^5

Output

For each test case print a single line containing `yes` if it is possible for Alice to travel infinitely on the roads without making Bob angry and `no` otherwise. If there is no path from her home to her office, print a `no`.

Example

standard input	standard output
3 5 5 1 2 2 3 3 4 4 5 4 2 5 5 1 2 2 3 3 4 4 5 2 4 5 5 1 2 2 3 3 4 4 5 5 2	yes no no