Customs Controls 2

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Look how short the statement is! This must be the easiest problem.

Given a directed acyclic graph G, you need to assign each vertex i a positive integer weight w_i. Your goal is to make all paths from 1 to n of equal length.

A directed acyclic graph is a graph with directed edges and without cycles.

The length of a path is defined as the sum of the weights of vertices on the path.

Input

The first line contains a positive integer T ($1 \le T \le 10^4$), denoting the number of test cases.

For each testcase:

- The first line contains two integers n, m ($1 \le n \le 2 \cdot 10^5$, $1 \le m \le 5 \cdot 10^5$), denoting the number of vertices and edges.

- The next m lines each contains two integers u, v, denoting an edge from u to v.

It is guaranteed that $\sum n \le 2 \cdot 10^5$, $\sum m \le 5 \cdot 10^5$.

It is guaranteed that the graph contains no multiple edges, no self-loops and no cycles. It is also guaranteed that every vertex is reachable from 1 and can reach n.

Output

For each testcase, if there is no solution, then output "`No`" on a single line. Otherwise, output "`Yes`" on the first line, then n positive integers $w_1, w_2, \ldots, w_n$ ($1 \le w_i \le 10^9$) on the second line.

Examples

standard input	standard output
2 3 3 1 2 1 3 2 3 8 9 1 2 1 3 1 4 2 5 3 6 4 7 5 8 6 8 7 8	No Yes 1 1 2 3 3 2 1 1
2 11 16 1 2 1 3 1 4 1 5 2 6 4 6 3 7 4 7 5 8 6 8 2 9 3 9 7 10 8 10 9 11 10 11 8 10 1 2 1 3 2 4 3 5 3 6 4 6 2 7 5 7 6 8 7 8	Yes 1 1 1 1 2 1 2 1 3 1 1 No