

Problem D. Central Subset

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 256 megabytes

You are given a undirected **connected** graph on N vertices and M edges. The vertices are numbered from 1 to N . You have to find a subset of vertices S , such that both conditions are satisfied:

- $|S| \leq \lceil \sqrt{N} \rceil$ - the number of vertices in S should be less than or equal to $\lceil \sqrt{N} \rceil$
- For every vertex u in the graph, there exists a vertex v in S such that $dist(u, v) \leq \lceil \sqrt{N} \rceil$

If there is no such subset then print -1.

Note:

- $\lceil x \rceil$ is the smallest integer greater than or equal to x .
- $dist(u, v)$ is the number of edges in the shortest path from u to v .

Input

First line contains a single integer T denoting the number of test cases.

The first line of each test case contains two space separated integers N and M denoting the number of vertices and the number of edges respectively.

The next M lines each contains two space separated integers u and v denoting that there is an edge between u and v .

There are no self-loops or multi-edges.

Constraints

- $1 \leq T \leq 2 \cdot 10^4$.
- $1 \leq N \leq 2 \cdot 10^5$.
- $0 \leq M \leq 10^6$.
- $1 \leq u, v \leq N$.
- Sum of N over all test cases does not exceed $2 \cdot 10^5$.
- Sum of M over all test cases does not exceed 10^6 .
- The graph is connected.

Output

For every test case:

- If there is no valid subset then print -1 in a new line.
- If there exists a subset S , then print the size of the subset in a new line. In the next line print $|S|$ space separated distinct vertices in any order. If there are multiple valid subsets then print any.

Example

standard input	standard output
2	1
4 3	2
1 2	3
2 3	5 2 6
3 4	
6 7	
1 2	
2 3	
3 1	
1 4	
4 5	
5 6	
6 4	

Note

- For the first test case, $\lceil \sqrt{4} \rceil = 2$. The valid subsets are $\{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{1, 4\}, \{2, 3\}, \{2, 4\}, \{3, 4\}$. Any one of them can be printed.
- For the second test case, $\lceil \sqrt{6} \rceil = 3$. One example of a valid subset is $\{2, 5, 6\}$.