

DescriptionHintsSubmissionsDiscussionsNotes

Difficulty

Time Limit

Memory

Score

80/80 XP

30/30

Description

Given a directed graph with N vertices and M edges.

What is the minimum number of edges needed to reverse in order to have at least one path from vertex 1 to vertex N , where the vertices are numbered from 1 to N ?

Input Format

The first line contains T - 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 in the graph respectively.

The i^{th} line of the next M lines of each test case contains two space-separated integers X_i and Y_i , denoting that the i^{th} edge connects vertices from X_i to Y_i .

Output Format

For each test case, In a single line, print the minimum number of edges we need to revert. If there is no way of having at least one path from 1 to N , print -1.

Constraints

$1 \leq T \leq 10$

$1 \leq N, M \leq 10^5$

$1 \leq X_i, Y_i \leq N$

There can be multiple edges connecting the same pair of vertices, There can be self-loops too i.e. $X_i = Y_i$

Sample Input 1

Copy

1
7 7
1 2
3 2

C++14

00:00:00

12 px

```
1  #include<bits/stdc++.h>
2  using namespace std;
3  #define endl "\n"
4  int n,m;
5  vector<vector<pair<int,int>>>g;
6  vector<int>dis;
7  void bfs(int node){
8      dis[node]=0;
9      deque<int>q;
10     q.push_back(node);
11     while(!q.empty()){
12         int temp=q.front();
13         q.pop_front();
14         for(auto i:g[temp]){
15             int neigh=i.first;
16             int weight=i.second;
17             if(dis[neigh]>dis[temp]+weight){
18                 dis[neigh]=dis[temp]+weight;
19                 if(weight==0){
20                     q.push_front(neigh);
21                 }
22                 else{
23                     q.push_back(neigh);
24                 }
25             }
26         }
27     }
28     if(dis[n]==1e9){
29         cout<<"-1"<<endl;
30     }
31 }
```

Sample Tests

Manual Tests

Console

Run on Sample