7A3	GRAPH TRAVERSAL 3	
	Input	Standard Input
	Output	Standard Output

Problem Description

Given an undirected graph, find if it's connected or not. A graph is **connected** when there is a path between every pair of vertices. In a connected graph, there are no **unreachable** vertices.

Input

There are few test cases. For each test case, the first line of input are 2 integers v ($1 \leq v \leq 50$) and e ($1 \leq e \leq 50$) representing the number of vertices and the number of edges respectively, follows by e lines where in each line there are 2 integers that represent the edge. The program terminates if v and e are 0.

Output

Output "Connected" if the graph is connected, otherwise output "Not connected"

Sample Input	Sample Output
8 9 0 2 0 5 2 4 2 5 4 5 1 3 1 6 3 7 6 7 4 3 0 1 1 2 1 3 0 0	Not connected Connected

Note: You may modify DepthFirstSearch.java given with the lecture slide. The program uses Graph.java, Bag.java and Stack.java, which need to be include in your project and submit to PC2.

7C	CONNECTING THE ISLANDS	
	Input	Standard Input
	Output	Standard Output

Problem Description

In one of the scene in GraphLake game, players are required to build bridges to connect islands in the lake.

For example, there are eight small islands in the lake, players need to build seven bridges to connect them so that each island can be reached from any other one via one or more bridges. The cost of constructing a bridge is proportional to its length. The distances between pairs of islands are given in the following table.

	1	2	3	4	5	6	7	8
1	-	240	210	340	280	200	345	120
2	-	-	265	175	215	180	185	155
3	-	-	-	260	115	350	435	195
4	-	-	-	-	160	330	295	230
5	-	-	-	-	-	360	400	170
6	-	-	-	-	-	-	175	205
7	-	-	-	-	-	-	-	305
8	-	-	-	-	-	-	-	-

Write a program to find which bridges to build to minimize the total construction cost.

Input

First line of input is integer T ($1 \leq T \leq 10$) that represents the number of test cases. Each test case starts with a line with two integers $\boldsymbol{N}$ ($1 \leq N \leq 20$) and $\boldsymbol{M}$ ($1 \leq M \leq N*(N-1)$), that represents the number of islands and the number of bridges to consider. In the following $\boldsymbol{M}$ lines is, there are 3 integers a, b ($0 \leq a, b <$ N) and d ($1 \leq d < 1000$) that represent the start island number, the end island number and the distance of the bridge connecting *a* and *b*.

Output

For each test case, the minimum cost to build the bridges.

Sample Input

```
2
8 28
1 2 240
1 3 210
1 4 340
1 5 280
1 6 200
1 7 345
1 8 120
2 3 265
2 4 175
2 5 215
2 6 180
2 7 185
2 8 155
3 4 260
3 5 115
3 6 350
3 7 435
3 8 195
4 5 160
4 6 330
4 7 295
4 8 230
5 6 360
5 7 400
5 8 170
6 7 175
6 8 205
7 8 305
4 5
1 2 10
1 3 30
1 4 40
2 3 20
3 4 50
```

Sample Output

```
1075
70
```