Cycle of Edges

Problem Statement

You will be given an undirected graph where there will be N nodes and E edges. You need to tell the number of edges that can create a cycle in the graph.

Note: Duplicate edges as input can not be possible. The value of nodes are from 1 to N.

Input Format
- First line will contain N and E.
- Next E lines will contain A and B which means there is a edge between A and B.

Constraints
1. $1 <= N <= 10^5$
2. $1 <= E <= 10^6$
3. $1 <= A, B <= N$

Output Format
- Output the number of edges that can create a cycle.

Sample Input 0
```
5 7
1 2
2 3
3 4
4 5
4 1
2 4
5 3
```
Sample Output 0
```
3
```
Sample Input 1
```
3 3
1 2
2 3
1 3
```
Sample Output 1
```
1
```

Shortest Distance

Problem Statement

You'll be given a graph of N nodes and E edges. For each edge, you'll be given A, B and W which means there is an edge from A to B only and which will cost W. Also, you'll be given Q queries, for each query you'll be given X and Y, where X is the source and Y is the destination. You need to print the minimum cost from X to Y for each query. If there is no connection between X and Y, print -1.

Note: There can be multiple edges from one node to another. Make sure you handle this one.

Input Format

- First line will contain N and E.
- Next E lines will contain A, B and W.
- After that you'll get Q.
- Next Q queries will contain X and Y.

Constraints

1. $1 <= N <= 100$
2. $1 <= E <= 10^5$
3. $1 <= A, B <= N$
4. $1 <= W <= 10^9$
5. $1 <= Q <= 10^5$
6. $1 <= X, Y <= N$

Output Format

- Output the minimum cost for each query.

Sample Input 0

```
4 7
1 2 10
2 3 5
3 4 2
4 2 3
3 1 7
2 1 1
1 4 4
6
1 2
4 1
3 1
1 4
2 4
4 2
```

Sample Output 0

```
7
4
6
4
5
3
```

Sample Input 1

```
4 4
1 2 4
2 3 4
3 1 2
1 2 10
6
1 2
```

```
2 1
1 3
3 1
2 3
3 2
```

Sample Output 1
```
4
6
8
2
4
6
```

Building

Problem Statement

You have just opened a **ISP** business and you want to connect your WIFI lines in your area. In your area there are N buldings and E roads connecting those buildings. The roads are two way obviously. In each road there is a cost of connecting the cables. You want to connect all buldings in such a way that there is connection from any building to another, not necessary to be directly.

As you are a businessman, you want the total cost to be minimum. Can you tell the minimum total cost to do the work?

Note: There can be multiple roads from one building to another. If it is not possible to connect all the building, print . Each building has a number from 1 to N.

Input Format
- First line will contain N and E.
- Next E lines will contain A, B and W which means there is a connection in between A and B where the cost for connecting the cable is W.

Constraints
1. $1 <= N, E <= 10^5$
2. $1 <= A, B <= N$
3. $1 <= W <= 10^9$

Output Format
- Output the minimum cost.

Sample Input 0
```
5 7
1 2 10
1 3 5
3 2 4
2 4 1
3 4 2
4 5 3
```

1 5 2

Sample Output 0

8

Sample Input 1

3 2

1 2 10

2 1 2

Sample Output 1

-1

Can Go Again?

Problem Statement

You will be given N numbers of nodes, E numbers of edges in a graph. For each edge you will be given A, B and W which means there is a connection from A to B only and for which you need to give W cost. The value of nodes could be from 1 to N.

You will be given a source node S. Then you will be given a test case T, for each test case you will be given a destination node D. You need to tell the minimum cost from source node to destination. If there is no possible path from S to D then print **Not Possible**.

Note: If there is a negative weight cycle in the graph, then no answer would be correct. So print one line only - "**Negative Cycle Detected**".

Input Format
- First line will contain N and E.
- Next lines will contain A, B and W.
- Next line will contain source node S.
- Next line will contain T, the number of test cases.
- For each test case, you will get D.

Constraints
1. $1 <= N <= 10^3$
2. $1 <= E <= 10^6$
3. $1 <= S <= N$
4. $1 <= T <= 10^3$
5. $1 <= D <= N$
6. $-10^9 <= w <= 10^9$

Output Format
- Output the minimum cost for each test case.

Sample Input 0

5 7

1 2 10

1 3 -2

3 2 1

2 4 7

3 4 -3

4 5 5

```
2 5 2
1
5
1
2
3
4
5
```

Sample Output 0

```
0
-1
-2
-5
0
```

Sample Input 1

```
5 7
1 2 10
1 3 -2
3 2 1
2 4 7
3 4 -3
4 5 5
2 5 2
5
5
1
2
3
4
5
```

Sample Output 1

Not Possible
Not Possible
Not Possible
Not Possible
0

Sample Input 2

```
5 8
1 2 -2
1 3 -10
3 2 1
2 4 7
4 3 -3
4 5 5
2 5 2
4 1 1
1
5
1
2
```

3
4
5

Sample Output 2

Negative Cycle Detected