Problem H - The End

Daniel has figured out how to get rid of the rest of the balloons, and at the same time, decorate UBC by putting up balloons everywhere.

UBC can be modeled as intersections and directed roads between intersections. Daniel wants to put a balloon at each intersection. Daniel can drive to any intersection, then walk to some number of different intersections before returning to his car. Daniel really dislikes walking, so besides the intersections where he parked his car, he never wants to visit the same intersection more than once. It takes Daniel some amount of time to walk on any road, so help Daniel put up all the balloons, while minimizing the amount of time he spends walking. Daniel doesn't care about how long he drives for.

Input

The first line contains a single integer T the number of test cases.

Each test case begins with two integers n ($2 \leq n \leq 200$), and m ($1 \leq m \leq \frac{n(n-1)}{2}$) denoting the number of intersections and roads respectively. Following this will be m lines with three numbers a, b, t ($0 \leq a, b \leq n-1$) representing a directed road from a to b that takes t ($0 \leq t \leq 1000$) minutes to walk. There is at most one road connecting any two intersections in either direction, and no road from an intersection to itself.

Output

For each test case, output an integer representing the minimum cost of putting up all the ballons, or `-1` if Daniel's constraints can't all be satisfied.

Sample Input

```
2
6 9
0 1 5
1 2 5
2 0 10
2 3 12
3 0 8
3 5 11
4 3 7
4 5 9
5 4 4
5 8
0 1 4
1 0 7
0 2 10
2 1 10
2 3 10
3 4 10
4 2 10
4 3 3
```

Sample Output

```
42
40
```