Competitive Programming SS24

Submit until end of contest

Problem: hacking3 (1.0 second timelimit)

It's Raya's turn to be defender in this year's episode of *Cops and Robbers*, where the attackers try to win by hacking their way through the defenders' network starting from their entrypoint (1) all the way to the VAX-11[1] with a secret database on it (n). But Raya and her team want to prevent that! Unfortunately, all the unidirectional connections are insecure and easily breachable, even for the lousiest amateurs in the attacker team. And time is running out! Each connection can be made impenetrable with clever configuration but this takes a specific amount of time. To be extra careful to not make any mistakes, the focus of Raya's entire team is needed to configure a connection, so they can only work on one connection at a time.

Can you tell Raya which connections to secure to make victory of the attacker team impossible as fast as possible?

Input The first line contains an integer n ($2 \leq n \leq 100$), the number of servers in the network, and m ($0 \leq m \leq 500$), the number of unidirectional connections.

The next m lines each contain three integers u, v and t ($1 \leq u, v, \leq n$, $u \neq v$, $1 \leq t \leq 10^9$), for each connection denoting the source and target server as well as the time required for completely securing the connection. Servers have no connections to themselves and between two servers is at most one connection in each direction.

Output First output a line containing the number of connections Raya should secure and the time required to do so. Next, output a line containing the connections.

To identify the connections, use their position in the input (1 to m). You may print them in any order. If there are multiple answers, you may print any of them.

Sample input

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

Sample output

```
2 3
1 3
```

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

```
3 13
2 6 3
```

[1] https://en.wikipedia.org/wiki/VAX-11

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

```
2 2
1 2
```

Notes In the third sample, securing the 2nd and 3rd connection ($\{1, 3\}$ and $\{2, 3\}$) would also have been a valid answer.