Hasso Plattner Institut
IT Systems Engineering | Universität Potsdam

Prof. Dr. Friedrich, Dr. Lenzner, Boockmeyer, Neumann, Stangl
Sommersemester 2017

Woche 04 – (Adv.) Competitive Programming

Abgabe 15.05.2017 17:00 Uhr, über das Judge-Interface

ipomc: (100 Points - 1 second timelimit)

Professor Hasso Plattner has a huge team of race mice. Once in a while he and his rich friends compete against each other with their race mice. Unfortunately he looses often.

While constructing the new building of the HPI, he thought it would be really good, if his mice could train there. To be reasonable he thought about some nice ideas to use his race mice inside of the building. The result is: IPoMC (Internet Protocol on Mouse Carriers - somehow related to IPoAC (https://tools.ietf.org/html/rfc1149)).

Therefore he installed lots of pipes inside the new building, one per Computer and between network devices. His race mice carrying the IP packages on USB sticks on their back. And they are really intelligent! Each pipe can be used by two mice at the same time (so communication in both directions is possible) and they can decide, in which direction they have to run. Unfortunately after some tests Hasso Plattner found a dead mouse in the pipes. This mouse was caught in an endless cycle. To avoid further deaths, he decided to get rid of all cycles in his pipe network. But to train his mice as much as possible, the remaining track should be as long as possible.

Given the pipe network of the new building, please help Prof. Hasso Plattner to find the longest possible network without cycles inside. Please ensure, that each computer can sill communicate with every other computer, as it was before.

Input The input will begin with a single integer t ($t \leq 10$), the number of test cases. Each test case starts with a line that contains n and m ($1 \leq n \leq 15000$, $1 \leq m \leq 200000$), the number of computers and the number of pipes between them. Each pipe consists of three integers a, b and w. That means, the pipe from computer (or network device) a to b has the length w ($0 \leq a, b < n$, $0 < w \leq 10000$).

Output Please print for each test case the length of the remaining track.

Points There are three groups of test sets:

- *e(asy)*: For the first group worth 30 Points, you can assume, that $n \leq 200$ and $m \leq 4000$.
- *m(edium)*: For the second group worth 30 Points, you can assume, that $n \leq 2000$ and $m \leq 40000$.
- *h(ard)*: For the third group of test sets worth 40 Points, there are no additional assumptions.

Sample Input

```
1
4 6
0 1 1
1 2 6
2 3 2
3 0 3
1 3 8
0 2 7
```

Sample Output

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21
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