

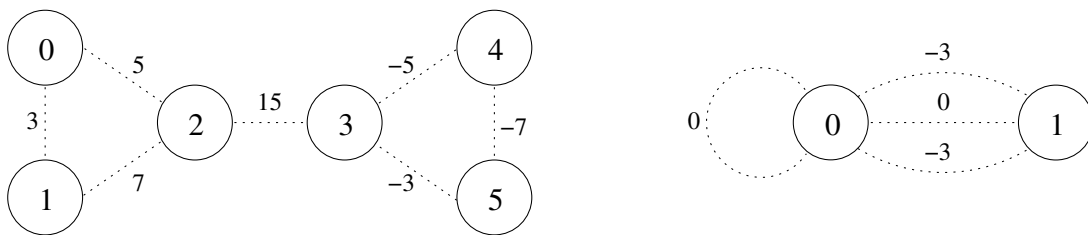
Minimizing the cost of a graph

P36054_en

Quart Concurs de Programació de la UPC - Final (2006-10-04)

Consider a connected, undirected multigraph G with labels at the edges. Define the cost of G as the sum of its labels. You must compute the minimum cost c that can be obtained after removing zero or more edges without disconnecting G . Among all the solutions that achieve cost c , you must also compute the minimum number of remaining edges m , and the maximum number of remaining edges M .

For instance, consider these two graphs:



The minimum possible cost of the first graph is 8, and there is just one way to achieve it, namely removing one of its seven edges: the 1-2 edge. Thus $c = 8$, $m = M = 6$. As for the second graph, it is easy to see that $c = -6$, $m = 2$, and $M = 4$.

Input

Input is all integers, and consists of several descriptions of connected multigraphs. Every description starts with the number of vertices n and the number of edges e . Then follow e triples, one for every edge, with its two vertices and its label in this order. The vertices are numbered from 0 to $n - 1$. Assume $0 \leq n \leq 10000$.

Output

For every given graph, output c , m and M in one line.

Sample input

```
6 7
0 1 3    0 2 5    1 2 7    2 3 15
4 5 -7    3 4 -5    3 5 -3

2 4
1 0 0
0 0 0
0 1 -3
1 0 -3
```

Sample output

```
8 6 6
-6 2 4
```

Problem information

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