

## Cow Toll Paths

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Like everyone else, FJ is always thinking up ways to increase his revenue. To this end, he has set up a series of tolls that the cows will pay when they traverse the cowpaths throughout the farm.

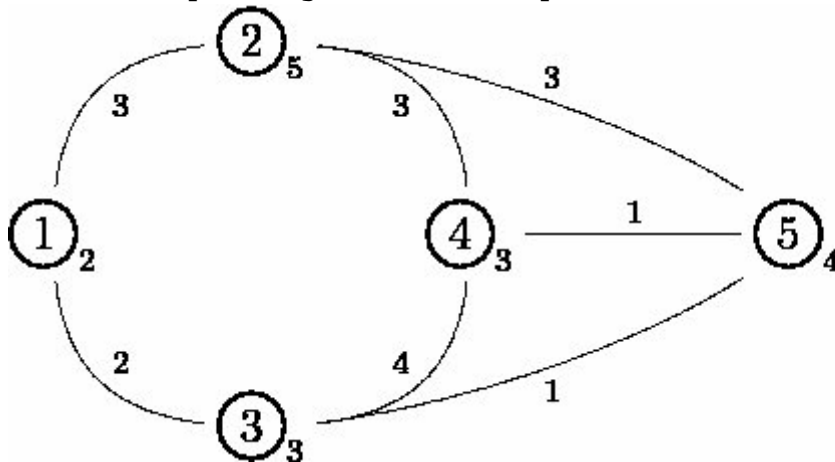
The cows move from any of the  $N$  ( $1 \leq N \leq 250$ ) pastures conveniently numbered  $1..N$  to any other pasture over a set of  $M$  ( $1 \leq M \leq 10,000$ ) bidirectional cowpaths that connect pairs of different pastures  $A_j$  and  $B_j$  ( $1 \leq A_j \leq N$ ;  $1 \leq B_j \leq N$ ). FJ has assigned a toll  $L_j$  ( $1 \leq L_j \leq 100,000$ ) to the path connecting pastures  $A_j$  and  $B_j$ .

While there may be multiple cowpaths connecting the same pair of pastures, a cowpath will never connect a pasture to itself. Best of all, a cow can always move from any one pasture to any other pasture by following some sequence of cowpaths.

In an act that can only be described as greedy, FJ has also assigned a toll  $C_i$  ( $1 \leq C_i \leq 100,000$ ) to every pasture. The cost of moving from one pasture to some different pasture is the sum of the tolls for each of the cowpaths that were traversed plus a \*single additional toll\* that is the maximum of all the pasture tolls encountered along the way, including the initial and destination pastures.

The patient cows wish to investigate their options. They want you to write a program that accepts  $K$  ( $1 \leq K \leq 10,000$ ) queries and outputs the minimum cost of trip specified by each query. Query  $i$  is a pair of numbers  $s_i$  and  $t_i$  ( $1 \leq s_i \leq N$ ;  $1 \leq t_i \leq N$ ;  $s_i \neq t_i$ ) specifying a starting and ending pasture.

Consider this example diagram with five pastures:



The 'edge toll' for the path from pasture 1 to pasture 2 is 3. Pasture 2's 'node toll' is 5.

To travel from pasture 1 to pasture 4, traverse pastures 1 to 3 to 5 to 4. This incurs an edge toll of  $2+1+1=4$  and a node toll of 4 (since pasture 5's toll is greatest), for a total cost of  $4+4=8$ .

The best way to travel from pasture 2 to pasture 3 is to traverse pastures 2 to 5 to 3. This incurs an edge toll of  $3+1=4$  and a node

toll of 5, for a total cost of  $4+5=9$ .

PROBLEM NAME: toll

INPUT FORMAT:

- \* Line 1: Three space separated integers:  $N$ ,  $M$ , and  $K$
- \* Lines 2.. $N+1$ : Line  $i+1$  contains a single integer:  $C_i$
- \* Lines  $N+2$ .. $N+M+1$ : Line  $j+N+1$  contains three space separated integers:  $A_j$ ,  $B_j$ , and  $L_j$
- \* Lines  $N+M+2$ .. $N+M+K+1$ : Line  $i+N+M+1$  specifies query  $i$  using two space-separated integers:  $s_i$  and  $t_i$

SAMPLE INPUT (file toll.in):

```
5 7 2
2
5
3
3
4
1 2 3
1 3 2
2 5 3
5 3 1
5 4 1
2 4 3
3 4 4
1 4
2 3
```

OUTPUT FORMAT:

- \* Lines 1.. $K$ : Line  $i$  contains a single integer which is the lowest cost of any route from  $s_i$  to  $t_i$

SAMPLE OUTPUT (file toll.out):

```
8
9
```