Time limit: 2.0s Java: 3.0s Python: 5.0s Memory limit: 256M Python: 768M

#### Canadian Computing Competition: 2009 Stage 1, Senior #4

In Doubleclickland, there are N cities  $(2 \le N \le 5\,000)$ , with each city having various trade routes to other cities. In total, there are T trade routes  $(1 \le T \le 5\,000\,000)$  in Doubleclickland. For each trade route between two cities x and y, there is a transportation cost C(x,y) to ship between the cities, where C(x,y)>0,  $C(x,y)\le 10\,000$  and C(x,y)=C(y,x). Out of the N cities, K  $(1 \le K \le N)$  of these cities have stores with really nice pencils that can be purchased online. The price for each pencil in city x is  $P_x$   $(0 \le P_x \le 10\,000)$ .

Find the minimal price to purchase one pencil online and have it shipped to a particular city D ( $1 \le D \le N$ ) using the cheapest possible trade-route sequence. Notice that it is possible to purchase the pencil in city D and thus require no shipping charges.

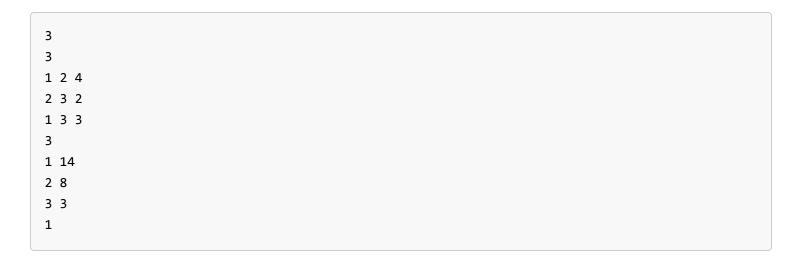
#### **Input Specification**

The first line of input contains N, the number of cities. You can assume the cities are numbered from 1 to N. The second line of input contains T, the number of trade routes. The next T lines each contain 3 integers, x, y, C(x,y), to denote the cost of using the trade route between cities x and y is C(x,y). The next line contains the integer K, the number of cities with a store that sells really nice pencils online. The next K lines contain two integers, z and  $P_z$ , to denote that the cost of a pencil in city z is  $P_z$ . The last line contains the integer D, the destination city.

## **Output Specification**

Output the minimal total cost of purchasing a pencil online and shipping it to city D.

## Sample Input



# **Sample Output**

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