

## Problem 1: For Whom the Route Tolls

A massively multiplayer online role-playing game (MMORPG) features numerous towns that players can visit, where each town is connected to one or more other towns by routes. In a crass attempt to increase revenue, the game designers require players to provide payment to travel the routes between the various towns. The cost is symmetric — that is, it costs the same to travel from town  $A$  to town  $B$  as it does to travel from town  $B$  to town  $A$ . However, once you've paid the fee to travel from one town to another, you can go back and forth freely between them without incurring any additional cost.

Write a program which, given a description of a map with  $r$  routes linking  $t$  towns, determines the minimum cost required to ensure that a player can visit all towns on that map. The towns are represented by integers from 0 to  $t - 1$ , inclusive. Your input will be an  $(r + 1)$ -line textfile, in which the first line contains the values of  $t$  and  $r$  and each of the subsequent  $r$  lines specifies a route in terms of three integers, namely, the pair of integer-codes of the two towns that this route links and the cost to travel between those two towns on this route. You may assume that all input files are formatted correctly and that each town can be reached either directly or indirectly from any other town.

**Sample input #1** (available as file "test1a.dat"):

```
5 6
0 1 5
0 2 1
1 2 1
2 3 4
2 4 2
3 4 1
```

**Sample output #1:**

```
Minimum Cost: 5
```

**Sample input #2** (available as file “test1b.dat”):

```
5 6
0 1 1
0 2 1
1 2 1
2 3 4
2 4 2
3 4 3
```

**Sample output #2:**

Minimum Cost: 7

**Sample input #3** (available as file “test1c.dat”):

```
10 10
3 5 20
0 3 28
3 6 27
9 3 30
2 7 31
2 5 44
9 8 29
3 7 47
1 8 23
4 0 41
```

**Sample output #3:**

Minimum Cost: 273