Competitive Programming SS24

Submit until end of contest

Problem: Diamond Dilemma (2 second timelimit)

While you were on vacation, you discovered an ancient treasure chest filled with precious diamonds. You want to bring these diamonds back home. Fortunately, you have managed to secure a ship for your journey.

Your ship—ready to sail.
CC0 by Rolf Johansson on Pixabay

However, sailing between different territories with such a valuable cargo requires paying tolls at each checkpoint. Thankfully, you can pay these tolls with the diamonds you are carrying.

After some investigation, you have found a list detailing the checkpoints you can pass through with your ship and the toll rate (as a percentage) for each checkpoint. Since you cannot pay with fractional diamonds and the diamonds are highly prized, the officials at the checkpoints will always round up the toll amount. You must pay tolls based on the number of diamonds you have on board each time you cross a checkpoint.

Your objective is to determine the maximum number of diamonds you can bring back home.

Input The input consists of:

- One line containing two integers n ($2 \leq n \leq 10^5$), the number of countries, and m ($1 \leq m \leq 2 \cdot 10^5$), the number of border checkpoints.
- One line containing three integers s ($1 \leq s \leq n$), the country where you found the ancient chest, t ($1 \leq t \leq n, t \neq s$), your home country and c ($1 \leq c \leq 10^9$), the number of diamonds you found in the treasure chest.
- Then follow m lines that describe the checkpoints, each containing three integers u, v ($1 \leq u, v \leq n$, $u \neq v$) and p ($0 \leq p \leq 100$), where p is the percentage of diamonds you have to pay as tax when travelling from country u to country v or vice versa.

It is guaranteed that you can return home with your ship, and that each pair of countries is listed at most once.

Output Output the maximum number of diamonds you can arrive home with.

Sample Input 1

```
4 4
1 4 1000
1 2 25
2 4 10
1 3 4
3 4 30
```

Sample Output 1

```
675
```

Sample Input 2

```
5 5
1 5 6
1 2 17
2 5 19
1 3 1
3 4 1
4 5 1
```

Sample Output 2

```
3
```