

## 問題 5 – 砍預算

(20 分)

### 問題敘述

天龍國是一個交通複雜的國家，其中首都城中市為了發展觀光，提出了一些直達其他縣市的地下鐵。今天哈其議員在議會提出了  $M$  個直達地下鐵的提案，在經過大家的一番計算，發現確實拉進了城中市與一些縣市的距離。但是聰明的潘議員，一眼就看出有些不對，他發現有些直達路線，就算不建立，也不會改變任城中市與任何一個縣市的距離。為了能夠一舉指出哈其議員的弊處，潘議員決定蒐集最多同時移除也不會比原本提案的距離更差的直達路線。身為潘議員幕僚的你，有辦法告訴潘議員他最多可以從提案中找到幾個這樣的直達路線嗎。

### 輸入格式

第一行有三個數字  $N, M, S$  分別代表城市、道路、和直達地下鐵方案的數量

接下來  $M$  行，每行代表一個雙向的道路，有三個正整數  $u, v, w$  代表這個距離  $w$  的道路連接  $u, v$  兩個城市

最後  $S$  行，每行代表一個雙向直達地下鐵，有兩個整數  $u, w$  代表連接首都（1 號城市）和  $u$  城市，距離是  $w$ 。

### 輸出格式

輸出一個整數代表最多可以同時移除幾個直達地下鐵方案，而不影響首都到任何一個城市的最短距離。

### 資料範圍

- $1 \leq N, M, S, \leq 100000$
- $1 \leq u, v \leq N$
- $1 \leq w \leq 1000000$

### 輸入範例 1

```
3 1 2
2 3 3
2 4
3 1
```

### 輸出範例 1

```
1
```

## 輸入範例 2

```

3 2 2
1 3 2
3 2 1
3 2
2 4
    
```

## 輸出範例 2

2

## 輸入範例 3

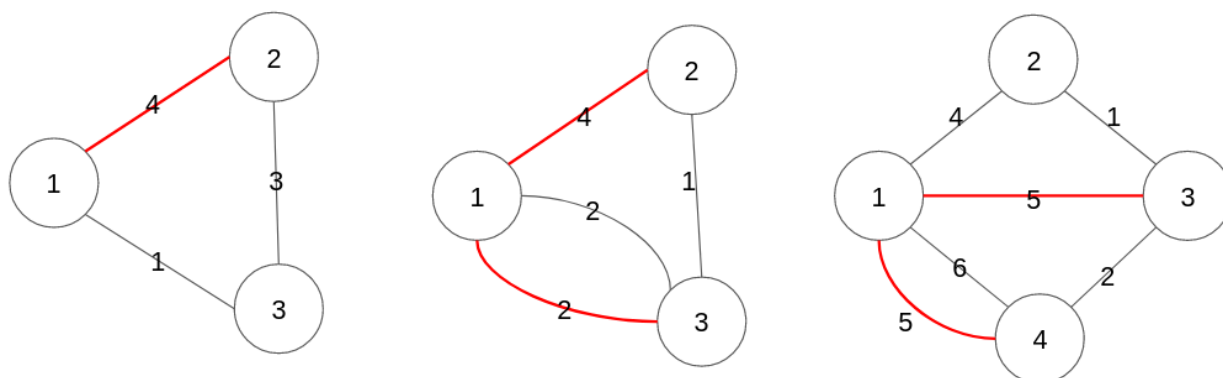
```

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

## 輸出範例 3

1

## 範例說明



第一個範例 (上圖左)，可移除第一個方案，連結首都 1 與城市 2 的地鐵提案。

第二個範例 (上圖中)，兩個提案都不會讓其它城市(2 或 3)跟首都 1 的距離縮短

第三個範例 (上圖中)，可移除第一個方案，不會對任何最短路造成影響，但移除第二個方案會讓 1 和 4 的距離變遠

## Q5 - Budget Cut

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(20 points)

### Description

The Tainlong Kingdom is a country with a complex transportation system. In order to develop tourism in the capital, Rep. City councilor, Hachi put forward  $M$  proposals for direct subways from the capital to other cities. After some precise calculations, it was found out that the shortest distance between the capital and some other city was indeed pulled. But clever Rep. Man saw something was wrong at a glance. He found out that even if some proposed subways were not established, the distance of the new plan will not be affected. In able to point out the problems at once, Rep. Man decided to find out the most subways path that can be removed synchronously without altering the benefits of the new proposal. As Rep. Man's best staff, can you tell him how many such subway paths can be removed together?

### Input Format

The first line contains  $N, M, S$  - the number of cities, roads, and subways proposals.

The Following  $M$  lines represent the original path of the country.

Each line contains  $u, v, w$  - a bidirectional path of length  $w$  connecting  $u$  and  $v$  cities.

The Following  $S$  lines are the proposals.

Each line contains  $v, w$  - a bidirectional subways connecting city 1 (the capital) and city  $v$  with length  $w$ .

### Output Format

Print the max number of proposals that can be removed together without changing the benefits of the Rep. Hachi's plans.

### Data Range

- $1 \leq N, M, S \leq 100000$
- $1 \leq u, v \leq N$
- $1 \leq w \leq 1000000$

### 範例說明

#### Input Example 1

```
3 1 2
2 3 3
2 4
3 1
```

## Output Example 1

1

## Input Example 2

3 2 2  
 1 3 2  
 3 2 1  
 3 2  
 2 4

## Output Example 2

2

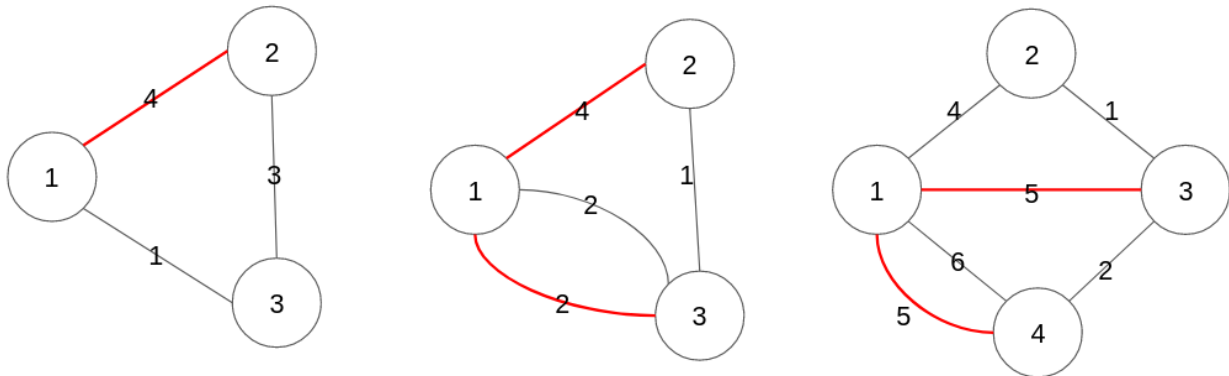
## Input Example 3

4 4 2  
 1 2 4  
 2 3 1  
 3 4 2  
 1 4 6  
 3 5  
 4 5

## Output Example 3

1

## Example Explanation:



For example 1, the only proposal can be removed.

For example 2, both proposals do not shorten the distance between the cities and the capital.

For example 3, removing the first proposal alone does not cause any changes of the shortest distance from the capital, but removing the second proposal will increase the distance between the 4th city and the capital.