問題 3 – 時空傳送修復 (Warp Zone Repair)

(15 分)

問題敍述

在一個時間軸的同個固定座標上有很多時空傳送點可以傳送到其他時空去，但是某天可以穿梭在各個時空的渾沌存在——**電熊大魔王**為了有趣，將這些不同時空的時空傳送點打亂。這其實非常的危險：要是使用者使用了錯誤時空的時空傳送點，可能就會導致時間悖論，使使用者煙消雲散。為了避免這種危險的情況發生，身為時空修復員的你想要把這些時空傳送點送回正確的時空上。

不過，我們不能將時空傳送點直接傳送到其他時空點所在的位置，否則物質會在該座標重疊。但相對的，你可以選擇花一單位能量將任兩個時間點的傳送點等質交換。那麼請問，你最少要花多少單位能量才可以將所有時空傳送點送回正確的時空上呢？

輸入格式

輸入的第一行包含一個正整數 N ，代表接下來有 N 個時空傳送站需要送到正確的時空上。

接下來的一行有 N 個正整數分別代表 x_i，表示第 i 個傳送點應該要被放在第 x_i 個時空上，並且 x_i 皆為 1 到 N 的數字，並且彼此不重複。

輸出格式

請輸出最少要花多少單位能量才可以將所有時空傳送點送回正確的時空上。

資料範圍

- $1 \le N \le 1000000$

輸入範例 1
```
4
1 2 3 4
```

輸出範例 1
```
0
```

輸入範例 2
```
3
2 3 1
```

輸出範例 2

2

輸入範例 3

4
2 1 4 3

輸出範例 3

2

範例說明

在範例一中，每個時空已經都在正確的位置上，所以不需要花任何能量來交換傳送點。

在範例二中，需要花一單位能量將 2 3 交換使各個傳送點變成 3 2 1，並再花一單位能量將 1 3 交換使其變成 1 2 3。

在範例三中，需要花一單位能量將 2 1 交換使各個傳送點變成 1 2 4 3，並再花一單位能量將 4 3 交換使其變成 1 2 3 4。

Q3 - Warp Zone Repair

Description

In future days, there's a spatiotemporal teleportation machine, which can be teleported to the other time. One day, the existence of chaos – The Great Devil Electric Bear, shuffles the teleportation machines at various timelines together for fun. This is actually very dangerous. If user use the incorrect teleportation machine that should not exist at that time, it may cause the time paradox and make the user scatter and disappear. To avoid this dangerous situation happening, you, a spatiotemporal manager, need to keep all the spatiotemporal teleportation machines in their time.

However, because spatiotemporal teleportation machines of each timeline are always in the same place, it is impossible to directly transfer the teleportation machine to the correct time, otherwise the substances of the machine will overlap at the same coordinates. But on the other hand, you can spend a blaze rod to exchange two machines at any two time points.

So, the question is, what is the minimum number of blaze rods do you need to spend to make all the spatiotemporal teleportation of each timeline in the correct chronological order?

Input Format

The first line of the input contains two integers N, M, denoting the number of fire ships Little Y sent, and the number of Cao Cao's chained ships.

In the next M lines, the i-th line contains two integers x_i, t_i, denoting that the i-th fire ship will arrive on position x_i in time t_i.

The first line of the input contains one integer N, denoting that there's N spatiotemporal teleportation machine at various timeline requires you to transfer them to the correct time.

The second line of the input contains N positive integers, x_i, denoting that this machine should be exist in time x_i. Note that x_i satisfy the constraint that all the x_i are the integers from 1 to N and any two numbers are different from each other.

Output Format

Print how many blaze rods do you need to spend at least to make all the spatiotemporal teleportation of each timeline in the correct chronological order.

Data Range

- $1 \leq N \leq 1000000$

Input Example 1
```
4
1 2 3 4
```

Output Example 1
```
0
```

Input Example 2
```
3
2 3 1
```

Output Example 2
```
2
```

Input Example 3
```
4
2 1 4 3
```

Output Example 3
```
2
```

Example Explanation:

In example 1, all of machines are sorted in right chronological order, so you don't need an additional blaze rod for any exchange.

In example 2, you need to exchange 2 and 3 with blaze rod first, so that the sequence becomes 2 3 1. And then exchange 1 and 3 with the second blaze rod, so that sequence becomes 1 2 3.

In example 3, you need to exchange 2 and 1 with blaze rod first, so that the sequence becomes 1 2 4 3. And then exchange 4 and 3 with the second blaze rod, so that sequence becomes 1 2 3 4.