7_召喚到異世界 (Summoned to Another World)

(8分 /17分)

時間限制: 3 seconds
記憶體限制: 256 MB

題目敘述

YTP 國是異世界的一個國家，它由 N 個島嶼和 M 座雙向大橋組成，每座橋會連接兩個不同的島嶼，注意兩個島嶼之間可能有不只一座大橋。

最近 YTP 國受到魔王軍的騷擾，對於所有 $1 \leq i \leq M$，魔王在第 i 座大橋上放置了一隻等級 l_i 的魔物，這種魔物就算死了，一到隔天就會復活。不只如此，在接下來 Q 天中，第 i 天會有一位魔王軍幹部在島嶼 y_i 發動襲擊。

YTP 國為了應對魔王軍的襲擊，接下來 Q 天的每一天都會召喚一位勇者。每次召喚的勇者的等級可以是任意的**非負整數**，而且每一位勇者都會獲得一個神聖道具，這個道具可以在一次戰鬥中，將勇者自身的等級暫時變成無限大，但戰鬥完就變回原本的等級，並且僅能使用一次。不過召喚魔法並不完善，所以有諸多缺點，其中最重要的就是第 i 位勇者一定會被召喚到島嶼 x_i 上。

勇者僅能通過大橋以抵達相鄰的島嶼，而想要通過一座大橋就必須擊敗橋上的魔物。想成功擊敗一隻等級 k 的魔物，勇者自身的等級必須至少是 k。

因為召喚的勇者等級越高越費魔力，所以 YTP 國希望每次召喚的勇者等級越低越好。請幫 YTP 國計算出第 i 位勇者等級至少需要是多少才能成功抵達 y_i，或是告訴 YTP 國此勇者無論如何都無法抵達島嶼 y_i。

註：你可以假設勇者們戰鬥以及通過橋和島嶼所需的時間趨近於 0，而且每一位勇者在當天結束時就會回到他原本的世界，還有，你不用考慮勇者的等級能否擊敗魔王軍幹部。

輸入格式

第一行輸入三個正整數 N, M, Q。

接下來輸入 M 行，第 i 行輸入三個整數 u_i, v_i, l_i，代表第 i 座大橋連接島嶼 u_i, v_i，而且橋上有一隻等級 l_i 的魔物。

接下來輸入 Q 行，第 i 行輸入兩個正整數 x_i, y_i，代表第 i 位勇者一定會被召喚到的島嶼 x_i，以及魔王軍幹部會在第 i 天襲擊島嶼 y_i。

輸出格式

輸出 Q 行，第 i 行輸出一個整數 k_i，如果第 i 位勇者無論如何都無法抵達 y_i，則 $k_i = -1$，否則 k_i 代表第 i 位勇者的等級至少需要是 k_i。

資料範圍

- $2 \leq N \leq 10^5$
- $1 \leq M \leq 10^5$
- $1 \leq Q \leq 10^5$
- $1 \leq u_i, v_i, x_i, y_i \leq N$

- $0 \le l_i \le 10^9$
- $u_i \ne v_i$
- $x_i \ne y_i$

子任務

- 子任務 1 滿足 $N, Q \le 1000, M \le 5000$
- 子任務 2 沒有其他限制

測試範例

輸入範例 1

```
10 10 5
1 4 1
2 3 3
1 2 2
2 5 2
5 3 2
5 4 4
6 7 8
7 8 455
8 9 10
9 10 6
1 5
3 4
6 10
7 8
1 9
```

輸出範例 1

```
1
2
10
0
-1
```

範例說明

第一位勇者可以依序走第 $1, 6$ 座大橋，並選擇在第 6 座大橋使用神聖道具。

第二位勇者可以依序走第 $5, 6$ 座大橋，並選擇在第 6 座大橋使用神聖道具。

第三位勇者可以依序走第 $7, 8, 9, 10$ 座大橋，並選擇在第 8 座大橋使用神聖道具。

第四位勇者可以依序走第 8 座大橋，並選擇在第 8 座大橋使用神聖道具，注意到等級一定要是非負整數。

第五位勇者無論如何都走不到目的地。

7_Summoned to Another World

(8 points /17 points)

Time Limit: 3 seconds
Memory Limit: 256MB

Statement

YTP is a country in another world, consisting of N islands and M bidirectional bridges. Each bridge connects two different islands. There may be more than one bridge between two islands.

Recently, YTP has been harassed by the Demon King's army. The Demon King has placed a level l_i monster on the i-th bridge for all $1 \leq i \leq M$. These monsters, even if killed, will respawn at the beginning of the next day. Furthermore, a high-ranking officer of the Demon King's army will launch an attack on island y_i on the i-th day of the next Q days.

To counter the attacks from the Demon King's army, YTP will summon a hero each day for the next Q days. The summoned hero's level can be any **non-negative integer**, and each hero will receive a holy item. This item can make the hero's level infinite for one battle. But after the battle, his/her level returns back to the original value. The holy item can only be used once for each hero. However, the summoning magic isn't perfect. It has many flaws. The most important flaw of them all is that the i-th hero will have to be summoned to island x_i.

Heroes can only cross bridges to reach adjacent islands. To cross a bridge, they must defeat the monster on the bridge. To successfully defeat a monster with level k, the hero's level must be at least k.

Since summoning heroes with higher levels consumes more magic power, YTP wants to summon heroes with the lowest possible levels each time. Please help YTP Country calculate the minimum level needed for the i-th hero to successfully reach y_i on the i-th day. Also, if it is impossible for the hero to reach island y_i regardless of their level, report this issue to YTP.

Note: You can assume that the time it takes to battle monsters, cross bridges, and travel through islands is practically 0. Also, each hero will return to their original world at the end of the i-th day. You do not need to consider whether the heroes can defeat the high-ranking officers of the Demon King's army.

Input Format

The first line of input contains three positive integers N, M, Q.

The next M lines contain three integers u_i, v_i, l_i. The i-th bridge connects islands u_i, v_i, and there is a monster with level l_i on the bridge.

The next Q lines contain two integers x_i, y_i. The i-th hero will be summoned to island x_i, and a high-ranking officer of the Demon King's army will attack island y_i on the i-th day.

Output Format

Output Q lines. The i-th line should contain an integer k_i. If the i-th hero can't reach y_i regardless of their level, then $k_i = -1$. Otherwise, k_i represents the minimum level needed for the i-th hero.

Constraints

- $2 \leq N \leq 10^5$
- $1 \leq M \leq 10^5$
- $1 \leq Q \leq 10^5$
- $1 \leq u_i, v_i, x_i, y_i \leq N$
- $0 \leq l_i \leq 10^9$
- $u_i \neq v_i$
- $x_i \neq y_i$

Subtasks

- Subtask 1 satisfies that $N, Q \leq 1000, M \leq 5000$. (8 points)
- Subtask 2 has no additional constraint. (17 points)

Test Cases

Input 1

```
10 10 5
1 4 1
2 3 3
1 2 2
2 5 2
5 3 2
5 4 4
6 7 8
7 8 455
8 9 10
9 10 6
1 5
3 4
6 10
7 8
1 9
```

Output 1

```
1
2
10
0
-1
```

Illustrations

The first hero can go through bridges $1, 6$ and choose to use the holy item on bridge 6.

The second hero can go through bridges $5, 6$ and choose to use the holy item on bridge 6.

The third hero can go through bridges $7, 8, 9, 10$ and choose to use the holy item on bridge 8.

The fourth hero can go through bridge 8 and choose to use the holy item on bridge 8. Note that the hero's level has to be a non-negative integer.

The fifth hero can never reach his desired destination.