6437 Power Plant

Indonesia is the world's largest archipelago with approximately 17,000 islands scattered for more than 5,000 km from Sabang (west most) in Sumatra island to Merauke (east most) in Papua island. Thus, providing electricity in all cities and towns across all islands is a challenging problem for the government.

Power plants, cities, towns and all other important sites can be represented as a graph where each node represents a site and each edge which connects two different sites represents a cable transferring electricity between the two sites in both directions. You may assume that all sites are connected through some cables and for each pair of sites there is at most one cable connecting them. There is of course a cost to maintain each cable and some of them probably have a very high cost to maintain.

The government has a plan to calculate the minimum total cost to maintain only necessary cables such that all sites are connected to at least one power plant, except for the power plants (which are already 'connected' to themselves). A site is considered connected to a power plant if and only if there is a path which consists of only maintained cables from the site to a power plant.

Consider the following example. There are 9 sites and 3 of them are power plants (A, H and I). The connectivity and the cost of each cable are shown in Figure 1.

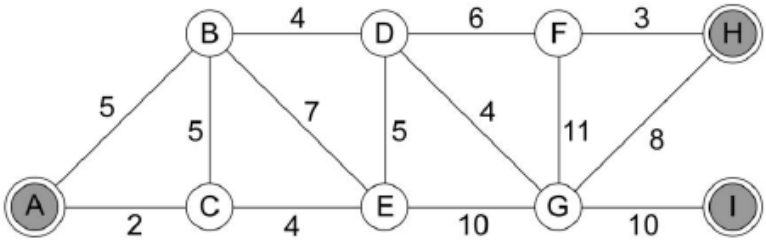

Figure 1

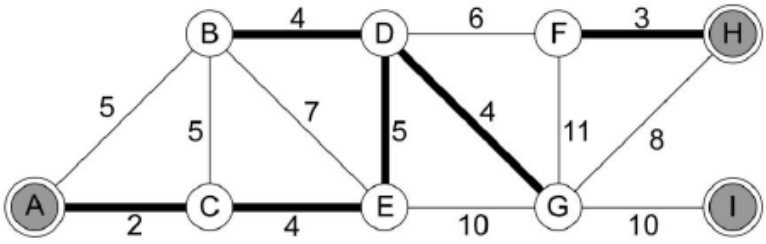

Figure 2

The minimum total cost to maintain the cables in this example is 22 as shown in Figure 2.

Given an undirected graph which represents the connectivity between all sites, determine the minimum total cost needed to maintain cables such that all sites except power plants are connected to at least one power plant.

Input

The first line of input contains an integer T ($T \leq 100$) denoting the number of cases. Each case begins with three integers N, M and K ($1 \leq K \leq N \leq 200$) denoting the number of sites, the number of cables and the number of power plants respectively. All sites are numbered from 1 to N. The following line contains integers P_i ($1 \leq P_i \leq N$; $P_i \neq P_j$ for all $i \neq j$) denoting the sites which are power plants.

The next M lines each contains three integers a_i, b_i, c_i ($1 \leq a_i, b_i \leq N$; $a_i \neq b_i$; $1 \leq c_i \leq 10^6$) denoting that there is a cable connecting site a_i and b_i with cost of c_i. Assume that there is at most one cable connecting site a_i and b_i and all sites are connected to each other.

Output

For each case, output '`Case #`X`:  `Y', where X is the case number starts from 1 and Y is the minimum total cost needed to maintain the cables such that all sites except power plants are connected to at least one power plant.

Notes:

- Explanation for 1st sample case

  This sample corresponds to example in the problem statement.

Sample Input

```
3
9 14 3
1 8 9
1 2 5
1 3 2
2 3 5
2 4 4
2 5 7
3 5 4
4 5 5
4 6 6
4 7 4
5 7 10
6 7 11
6 8 3
7 8 8
7 9 10
4 5 1
1
1 2 5
1 3 5
1 4 5
2 3 10
3 4 10
10 9 5
1 4 6 9 10
1 2 3
2 3 8
3 4 5
4 5 1
5 6 2
6 7 6
7 8 3
8 9 4
9 10 1
```

Sample Output

```
Case #1: 22
Case #2: 15
Case #3: 16
```