Problem H

The Sightseeing Tour

Skyrk is now living in an old town, full of ancient tales and wonders to behold. No surprise this town became one of the biggest tourist attractions in the world. Unfortunately, it is rather difficult to move around the town, since it is very old and surrounded by mountains, its streets are narrow, full of turns and ups and downs. But this was rather fortunate for Skyrk. He thought a lot of tourists would rather see the touristic places looking from the top of the mountains instead of adventuring in the old town. He decided to set sightseeing binoculars on some spots of the biggest mountain near the town, and of course, charge for their use.

The town has N touristic places, looking from the mountain, they seem to line up from left to right. Skyrk set up M sightseeing binoculars, each can cover the view from touristic place A up to B and cost C coins to use. A group of tourists arrived to do a sightseeing tour, and they want to see all touristic places paying the minimum price. Skyrk knows in advance the price each tourist is willing to pay for the tour. In order to maximize his profit, he will tell the tourist that only a subset of binoculars are working, so that when the tourist choose the ones he wants, he ends up paying more.

Input

The first line contains T ($T \leq 100$) – the number of test cases, after this line T test cases follows. Each test case starts with a line with three integers N, M, K ($1 \leq N \leq 10^9$; $1 \leq M \leq 30$; $1 \leq K \leq 10^4$) – the number of touristic places, sightseeing binoculars and groups of tourists, respectively. Then there will be M lines with three integers A, B, C ($1 \leq A \leq B \leq N$; $1 \leq C \leq 10$) – the first and last touristic place the binocular can see and its price, respectively. Then there are K lines with two integers X,Y ($1 \leq X \leq Y \leq 10^9$) – there will be a group of tourists where the first is willing to pay X, the second X+1, the third X+2 and so on until the last one who is willing to pay Y. Every touristic place can be seen by at least one binocular.

Output

For each test case print a line containing "Case #X: Y", where X is the case number, starting at 1, and Y is the maximum profit Skyrk can get.

Sample Input	Sample Output
2 3 4 2 1 1 4 1 2 1 2 3 2 3 3 1 1 3 10 10 5 6 2 1 2 5 2 2 1 3 5 10 3 4 10 4 5 10 5 5 5	Case #1: 11 Case #2: 135

12 17 23 26	

Consider the first test case, there are 3 touristic places, 4 binoculars and 2 groups of tourists. The first group of tourists go as follows: The first tourist can pay at most 1 coin. There is no subset Skyrk can choose that satisfy the tourist, so the tourist don't take the tour and pays nothing. The second tourist can pay at most 2 coins, the only choice Skyrk has is to put the binoculars 2 and 4 on the subset, the tourist then chooses binoculars 2 and 4 and pays 2 coins. The third tourist can pay at most 3 coins. Skyrk can put binoculars 1, 2 and 3 on the subset, the tourist then chooses binoculars 2 and 3 and pays 3 coins. The second group of tourists go as follows: The first tourist can pay at most 10 coins. Skyrk can put binoculars 1 and 3 on the subset, the tourist then chooses binoculars 1 and 3 and pays 6 coins. The maximum profit Skyrk can get is 2+3+6 = 11 coins.

Author: Davi Duarte Pinheiro