## SGS Open Programming Challenge P5 - Toy in Psychology Class

**Points:** 17 **Time limit:** 1.0s **Memory limit:** 256M

The author of this problem is exploring ways how toys impact a person's happiness level in psychology class. His studying subject is a person named Jamie.

Jamie can select N toys from the store to be his birthday gifts, and he can switch toys with his friends. There are M kinds of toys. For the ith toy 1≤i≤N, Jamie can only select at most the number of Si from the store, and it has a happiness value of Hi to Jamie. However, if Jamie owns multiple of the same toys, the happiness value of the second one will be 12 of Hi, and the third one will become 13, and so on. It is worth noting if the happiness value is a decimal, round down the value to the nearest integer. Jamie has K friends. Each friend support switching the toy from Ai to Bi, but Jamie needs to spend some happiness value of Di for one switching where 1≤i≤K. Furthermore, a variable Ci exist for every toy exchange. If Ci=1, Jamie will keep his happiness value for the previous toy even though he already exchanged it. You need to help Jamie to decide the maximum sum of happiness values.

#### **Constraints**

1≤N,M,K≤100

1≤Hi≤106

1≤Si≤100

1≤Ai,Bi≤M

1≤Di≤106

1≤Ci≤2

#### **Input Specification**

The first line includes three integers, N, M, and K.

The following M line includes two integers for each line, Hi, and Si.

The following K line includes three integers for each line, Ci, Ai, Bi, and Di.

#### **Output Specification**

Print an integer that represents the maximum sum of happiness values Jamie can select.

#### **Sample Input 1**

4 5 2

100 1

20 2

30 1

200 0

10 4

0 5 4 150

0 3 2 5

#### **Sample Output 1**

200

#### **Sample 1 Explanation**

Jamie selected toys of 1,2,3,5 for one each, and he switch a toy from 5 to 4 from his friend.

#### **Sample Input 2**

4 5 2

100 1

20 2

30 1

200 0

10 4

1 5 4 150

0 3 2 5

#### **Sample Output 2**

210

#### **Sample 2 Explanation**

Jamie selected toys of 1,2,3,5 for one each, and he switch a toy from 5 to 4 while keep 10 unit of happiness from his friend.