1184 – Marriage Media

You run a marriage media. You take some profiles for men and women, and your task is to arrange as much marriages as you can. But after reading their bio-data you have found the following criteria.

1. No man will marry a woman if their height gap is greater than **12** inches.
2. No woman will marry a man if their age gap is greater than **5** years.
3. A couple can be formed if either both are not divorced or both are divorced.
4. Of course, a man can marry a single woman and vice versa.

Now you are given the bio-data of some men and women, you have to arrange the maximum number of marriages considering the given criteria.

Input

Input starts with an integer **T (≤ 200)**, denoting the number of test cases.

Each case contains two integer **m, n (1 ≤ m, n ≤ 50)**. Each of the next **m** lines will contain the information for a man, and each of the next **n** lines will contain the information for a woman. An information will contain three integers denoting the height in inches, age in years and **1** or **0** depending on they are divorced or not respectively. Assume that Height will be between **50** and **80**, age will be between **20** and **50**.

Output

For each case, print the case number and the maximum number of marriages you can arrange.

Sample Input	Output for Sample Input
2 2 2 70 30 0 60 20 0 71 25 0 71 35 0 1 1 70 30 1 70 30 0	Case 1: 2 Case 2: 0