Every year, several universities arrange inter-university national programming contests. ACM ICPC Dhaka site regional competition is held every year in Dhaka and one or two teams are chosen for ACM ICPC World Finals.

By observing these, MMR (Mission Maker Rahman) has made a plan to open a programming school. In that school, $N$ courses are taught. Each course is taught every day (otherwise, programmers may forget DP while learning computational geometry!). You will be given the starting time $A_i$ and finishing time $B_i$ (inclusive) of each course $i$ ($1 \leq i \leq N$). You will be also given the number of students registered for each course, $S_i$ ($1 \leq i \leq N$). You can safely assume no student has registered to two different courses. MMR wants to hire some rooms of a building, named *Sentinel Tower*, for running that school. Each room of Sentinel Tower has a capacity to hold as much as $M$ students. The programmers (students) are very restless and a little bit filthy! As a result, when $course_i$ is taken in a class room, after the class is finished, it takes $clean_{ij}$ time to clean the room to make it tidy for starting teaching $course_j$ immediately just after coursei in the same room.

Your job is to help MMR to decide the minimum number of rooms need to be hired to run the programming school.

## Input

Input starts with an integer $T$ ($T \leq 100$) denoting the number of test cases. Each case starts with two integers $N$ ($1 \leq N \leq 100$), number of courses and $M$ ($1 \leq M \leq 10000$), capacity of a room. Next $N$ lines will contain three integers $A_i$, $B_i$ ($0 \leq A_i \leq B_i \leq 10000000$) and $S_i$ ($1 \leq S_i \leq 10000$), starting and finishing time of a course. Next $N$ lines will contain the clean time matrix, where the $i$-th row will contain $N$ integers $clean_{ij}$ ($1 \leq i \leq N$, $1 \leq j \leq N$, $0 \leq clean_{ij} \leq 10000000$, $clean_{ii} = 0$).

## Output

For each case, print the test case number, starting from 1, and the answer, minimum number of rooms needed to be hired.

## Sample Input

```
3
1 5
1 60 12
0
4 1
1 100 10
50 130 3
150 200 15
80 170 7
0 2 3 4
5 0 7 8
9 10 0 12
13 14 15 0
2 1
1 10 1
12 20 1
0 2
5 0
```

## Sample Output

```
Case 1: 3
Case 2: 22
Case 3: 2
```