



## Problem K. Mahdi Wanted to Apply

Mahdi, our lovely chairman, wanted to continue his higher education at some prestigious university. After being rejected so many times, he decided to seek help from a wizard. Unfortunately, as soon as the wizard drew some magical circles on the ground, he suddenly disappeared. Mahdi has seen that these circles do not touch nor intersect each other.

Mahdi must light up all of these magical circles to make the curse works, but he dose not know in which order he should do that to maximise the curse effect. When a circle is lighted up, it becomes red, and magically, it changes the color of any circle inside it from red to blue, and from blue to red, simultaneously. It has no effect on the circles which are inside but has not been lighted up yet.

Each time the color of a circle is changed, it changes the curse effect by some value. Help Mahdi find the optimal order for lighting up magical circle to maximise the effect of the wizard's curse.

### Input

The input contains several test cases. The first line contains one integer  $t$  ( $1 \leq t \leq 100$ ) — the number of test cases.

The first line for each test case contains one integer  $n$  ( $1 \leq n \leq 5000$ ) — the number of drawn magic circles.

Each of the next  $n$  lines contains integers  $-5000 \leq X, Y, R \leq 5000$ , the position and radius of the corresponding magic circle, and  $-1000 \leq RTB, BTR \leq 1000$ , the changes of the curse effect each time the magic circle change its color from red to blue, and from blue to red, respectively.

### Output

For each test case, print the maximum possible effect of the curse, and the lexicographically first permutation of lighting up magic circles to achieve the maximum effect.

### Examples

test	answer
1	70
4	4 3 1 2
3 2 1000 -10 -10	
2 3 100 -1 -1	
1 1 10 -10 50	
1 2 1 10 10	