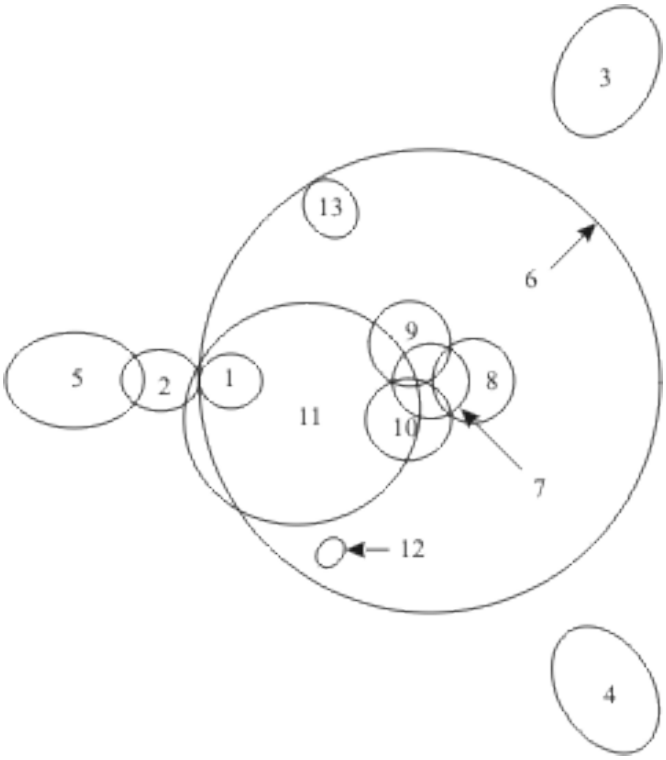
2693 - Ghost Busters

Europe - Northeastern - 2002/2003



The famous Ghost Busters team has decided to upgrade their Ectomobile (aka Ecto-1) with a powerful proton gun and an advanced targeting system. Egon has designed and built all the hardware which consists of ectoplasmic scanner and a proton gun that has two degrees of freedom and can automatically rotate and fire in a 90 degrees trihedral angle. You have been hired to write a prototype for the targeting software.

Ghosts are detected by ectoplasmic scanner and are represented as floating spheres. The coordinates of their centers and radii are delivered from the ectoplasmic scanner to the targeting software. The coordinate system is aligned is such a way, that the proton gun fires from the point (0, 0, 0) anywhere into $X \geq 0$, $Y \geq 0$, $Z \geq 0$ trihedral angle. The gun fires a proton ray in a straight line and is so powerful, that even a touch of its ray is enough to kill a ghost. The ray of the proton gun is able to kill a virtually unlimited number of ghosts on its way.

For the first prototype for the targeting software, you are asked to write a program that determines the maximal number of ghosts that can be killed with a single shot of the proton gun.

Input

The input begins with a single positive integer on a line by itself indicating the number of the cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive inputs.

On the first line of the input file there is a single integer number N ($0 \leq N \leq 100$) - the number of ghosts detected by the ectoplasmic scanner of Ecto-1. The following N lines describe detected ghosts - one ghost per line. The description of i-th ghost (ghosts are numbered from 1 to N) consists of 4 integer numbers X_i, Y_i, Z_i, and R_i, separated by spaces. X_i, Y_i, Z_i ($1 \leq X_i, Y_i, Z_i \leq 10000$) are the coordinates of the ghost's center, and R_i ($1 \leq R_i \leq \min(X_i, Y_i, Z_i)$) is the ghost's radius. Because ghosts are ectoplasmic, they can be arbitrarily placed in respect to each others. They can intersect, fit inside each other, coincide with each other, etc.

Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line.

On the first line of the output file write a single integer number - the maximal number of ghosts that can be killed with a single shot of the proton gun. On the second line of the output file write the identifying numbers of the ghosts to be killed in an arbitrary order separated by spaces. If there are multiple ways to kill this number of ghosts then write any one.

Sample Input

```
2

2
1200 1200 3900 300
160 160 820 60

13
1200 1200 3900 300
160 160 820 60
100 10 10 10
10 100 10 10
10 10 100 10
10 10 10 10
50 50 50 10
100 100 75 20
100 75 100 20
75 100 100 20
3000 4000 7000 2600
100 1000 1000 50
1000 100 1000 100
```

Sample Output

```
2
1 2

5
6 7 9 10 11
```

Notes:

a)

It is possible to kill both ghosts in the first sample only because the proton gun is so powerful that it kills ghosts by mere touch.

b)

The second sample has 11 more ghosts (for a total of 13). Picture shows the view of these ghosts through the ectoplasmic scope sight that Egon has attached to proton gun to calibrate it and to debug your targeting software. Outlines show ghosts as seen through the scope.

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