Task: XAP
Experimental Assault Pigeons

After helping with the Universal Signalling System, Byteman has been promoted higher in the ranks of Byteland's IT Task Force and is now overseeing the computerised mission control system for the Bytelandian Air Force. The hottest innovation in aerial operations? *Pigeons*.

BAF wants to use specially trained pigeons for its experimental Rapid Aerial Payload Delivery programme. In theory they could be used to deliver messages, electronic interference devices, small explosives, or smaller military animals[1], while remaining undetected in enemy territory. This "undetected" part is Byteman's assignment right now – he needs to help XAP units evade radar.

Byteman has access to a training area simulating the territory to inflitrate. From a bird's eye view, the area is a rectangular 2D grid divided into three areas along the X axis. The top and bottom area spanning y values $[0, 100]$ and $[w + 100, w + 200]$ are radar arrays – there are n radars in total, and each has a circular detection radius. The edge of the detection range is still dangerous and can detect a pigeon. The flight path is restricted to the middle area of width w. The pigeons start at $x = 0$ and any $y \in (100, w + 100)$, while its goal is to reach l on the X axis. The third dimension does not matter – the radars' operating range is much higher than the maximum altitude of any pigeon.

Fortunately, unlike regular pigeons, the XAP units are smart and agile fliers. They can turn sharp angles in an instant to evade radar detection – their trajectory forms an arbitrary polygonal chain. The catch is that a well-designed radar network might make navigating through the entire territory *impossible*. XAP units might require preliminary strikes – a number of radars to be taken down before the operation begins. To make operations cost-effective, though, the BAF wants to *minimise* the number of destroyed radars.

Input

In the first line of standard input there are three integers n, w, l, in order: the number of radars, the width of the middle area, and the target x coordinate.

The next n lines contain the description of the radar system. In the i-th line there are three integers, x_i, y_i, r_i, describing the coordinates of the i-th radar and its detection radius, respectively.

There is always at least two radars, one in each array. The x coordinates are always between 0 and l, whereas the y coordinates are always in $[0, 100] \cup [w + 100, w + 200]$.

Output

Your program should output two lines. The first line should contain one integer $0 \leq k \leq n$ – the minimal number of radars that have to be removed to clear a valid flight path.

In the next line there should be k unique integers between 1 and n, denoting which of the radars need to be destroyed, in ascending order. If $k = 0$ then the line must be left blank.

While the minimal k is well defined, there might be more than one correct set of radars of size k that can be destroyed. Your program may output any of them.

[1] Test of XAR (Experimental Assault Rats) are currently underway.

Example

For the input:

```
7 200 700
175 88 100
362 44 200
548 88 125
100 312 62
294 312 106
456 308 127
553 326 88
```

one of the correct outputs is:

```
2
2 6
```

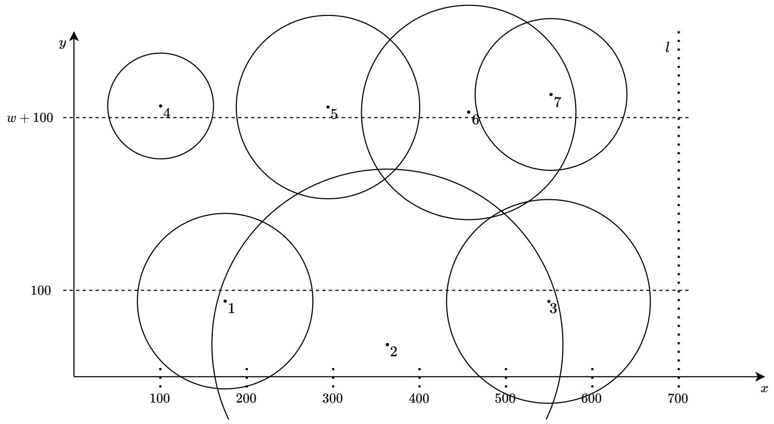

Figure 1: Test setup with 3 radars in the lower and 4 in the upper area. There is no clear path through the radars.

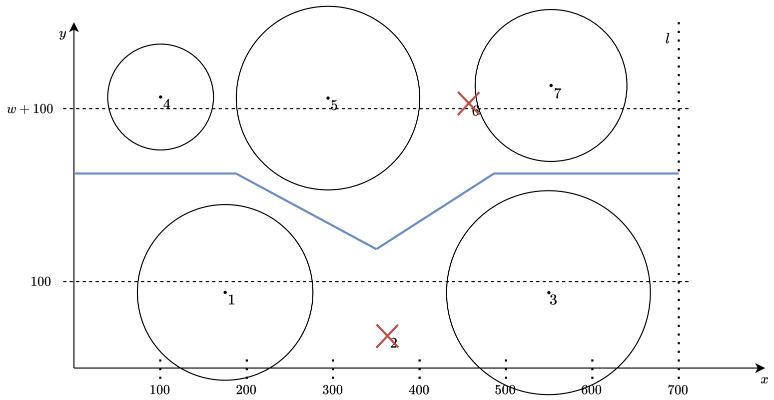

Figure 2: Two destroyed radars (2 and 6) clear the flight path (in blue).

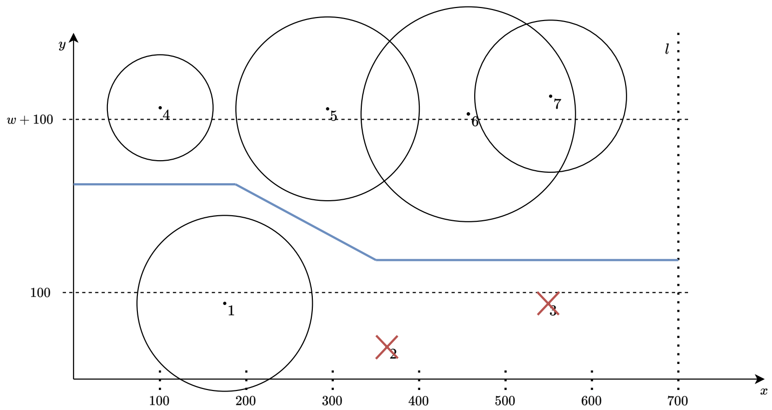

Figure 3: Alternative correct solution where radars 2 and 3 are destroyed.

Additional examples

The following initial tests are also available:

- `0b` – sample for Subtask 1, $n = 10$, $w = 100$, $l = 200$; the answer is 0;
- `0c` – sample for Subtask 2, $n = 40$, $w = 200$, $l = 400$; the answer is 20;

- `0d` – sample maximal test, $n = 5{,}000$, $w = 2{,}500$, $l = 40{,}000$; the radar positions are symmetrical, each third radar on upper array has radius $2{,}000$, each fourth radar on the lower array has radius $1{,}500$, all other radars have radius $1{,}000$.

Limits

Your solution will be evaluated on a number of hidden test cases divided into groups. Points for a group are awarded if and only if the submission returns the correct answer for each of the tests in the group within the allotted time limit. These groups are organised into subtasks with the following limits and points awarded.

In all tests each radar radius is limited by $10{,}000$.

Partial points

If your solution outputs the correct number of radars (first line of output), and the second line is left blank or not correct, it will receive 50% of the points for a given test group.

Subtask	Limits	Points
1.	$2 \le n \le 20$, $1 \le w \le 800$, $1 \le l \le 1{,}000$	2
2.	$2 \le n \le 40$, $1 \le w \le 800$, $1 \le l \le 4{,}000$	2
3.	$2 \le n \le 1{,}000$, $1 \le w \le 800$, $1 \le l \le 25{,}000$	4
4.	$2 \le n \le 5{,}000$, $1 \le w \le 2{,}500$, $1 \le l \le 40{,}000$	2