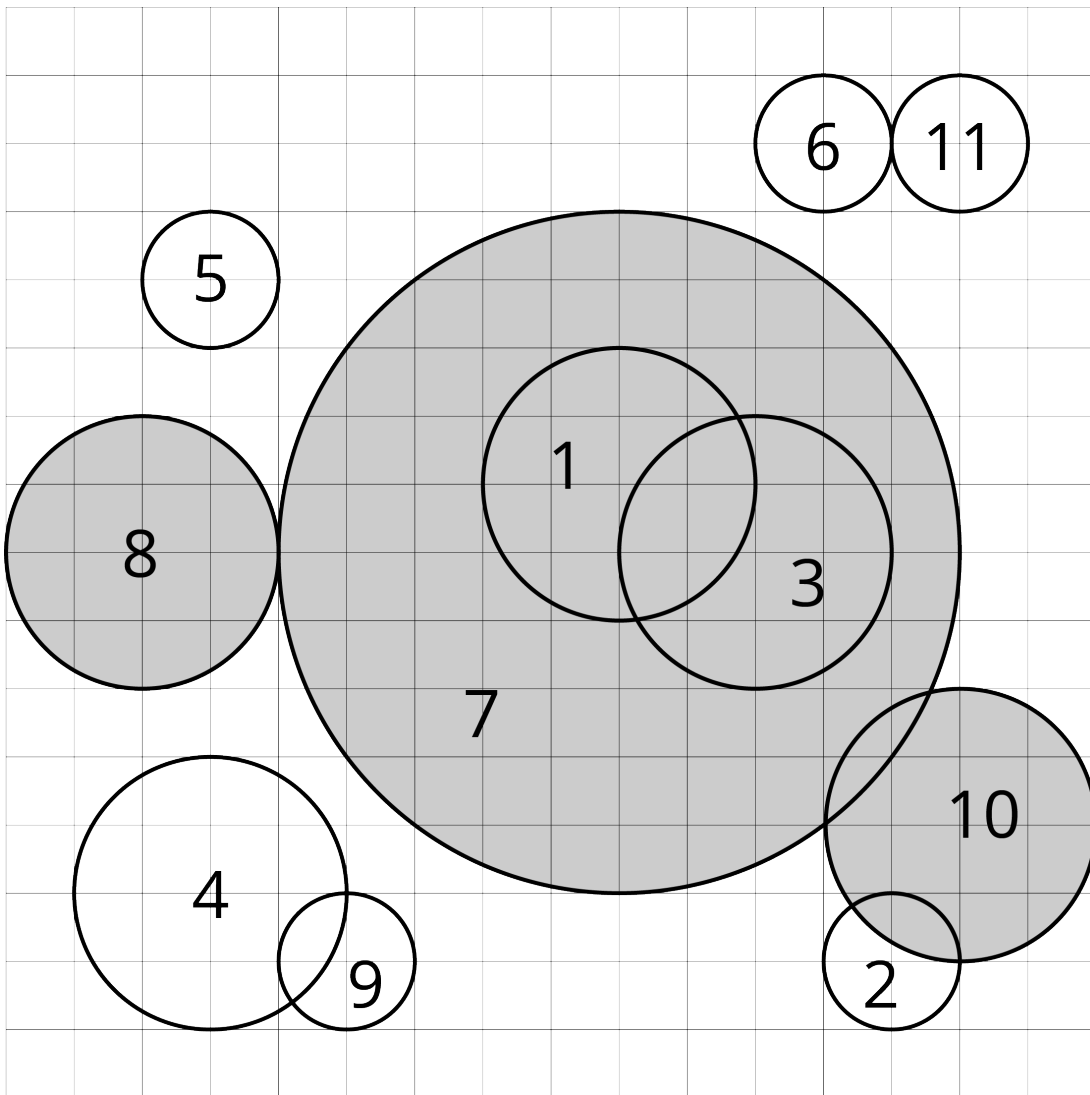


## Problem B. Circle selection

Time limit: 3 seconds  
Memory limit: 1024 megabytes

Given  $n$  circles  $c_1, c_2, \dots, c_n$  on a flat Cartesian plane. We attempt to do the following:

1. Find the circle  $c_i$  with the largest radius. If there are multiple candidates all having the same (largest) radius, choose the one with the smallest index. (i.e. minimize  $i$ ).
2. Remove  $c_i$  and all the circles intersecting with  $c_i$ . Two circles intersect if there exists a point included by both circles. A point is included by a circle if it is located in the circle or on the border of the circle.
3. Repeat 1 and 2 until there is no circle left.



We say  $c_i$  is eliminated by  $c_j$  if  $c_j$  is the chosen circle in the iteration where  $c_i$  is removed. For each circle, find out the circle by which it is eliminated.

### Input

The first line contains an integer  $n$ , denoting the number of circles ( $1 \leq n \leq 3 \cdot 10^5$ ). Each of the next  $n$  lines contains three integers  $x_i, y_i, r_i$ , representing the x-coordinate, the y-coordinate, and the radius of the circle  $c_i$  ( $-10^9 \leq x_i, y_i \leq 10^9$ ,  $1 \leq r_i \leq 10^9$ ).

## Output

Output  $n$  integers  $a_1, a_2, \dots, a_n$  in the first line, where  $a_i$  means that  $c_i$  is eliminated by  $c_{a_i}$ .

## Scoring

### Subtask 1 (points: 7)

$n \leq 5000$

### Subtask 2 (points: 12)

$n \leq 3 \cdot 10^5$ ,  $y_i = 0$  for all circles

### Subtask 3 (points: 15)

$n \leq 3 \cdot 10^5$ , every circle intersects with at most 1 other circle

### Subtask 4 (points: 23)

$n \leq 3 \cdot 10^5$ , all circles have the same radius.

### Subtask 5 (points: 30)

$n \leq 10^5$

### Subtask 6 (points: 13)

$n \leq 3 \cdot 10^5$

## Example

input	output
11	7 2 7 4 5 6 7 7 4 7 6
9 9 2	
13 2 1	
11 8 2	
3 3 2	
3 12 1	
12 14 1	
9 8 5	
2 8 2	
5 2 1	
14 4 2	
14 14 1	

## Note

The picture in the statements illustrates the first example.