

# Minimum Bounding Rectangle

Compute the Minimum Bounding Rectangle (MBR) that surrounds the given set of 2D objects, i.e., the axis-aligned rectangle, which contains all of the specified objects and is the one with minimum area among all rectangles with this property.

## Input

First, you are given  $t$  ( $t < 100$ ) - the number of test cases.

Each of the test cases starts with one integer  $n$  ( $n < 100$ ) - the number of objects in the set. In the successive  $n$  lines, the descriptions of the objects follow.

Each object is described by one character and some parameters:

- a point:  $p\ x\ y$ , where  $x$  and  $y$  are point coordinates.
- a circle:  $c\ x\ y\ r$ , where  $x$  and  $y$  are the center coordinates and  $r$  is the radius of the circle.
- a line segment:  $l\ x_1\ y_1\ x_2\ y_2$ , where  $x_j, y_j$  are the coordinates of the endpoints of the line.

Successive test cases are separated by an empty line.

## Output

For each of the test cases output four numbers - the coordinates of the two points that correspond to the lower left and the upper right corner of the MBR, in the following order: first the  $x$ -coordinate of the lower left corner, then the  $y$ -coordinate of the lower left corner, the  $x$ -coordinate of the upper right corner and the  $y$ -coordinate of upper right corner.

You can assume that all object parameters are integers and that  $-1000\ -1000\ 1000\ 1000$  is a bounding rectangle for all of them.

## Example

**Input:**

```
3
1
p 3 3

2
c 10 10 20
c 20 20 10

1
l 0 0 100 20
```

**Output:**

```
3 3 3 3
-10 -10 30 30
0 0 100 20
```

## Test case description

test 1: points only (2 pts)  
test 2: circles only (2 pts)  
test 3: lines only (2 pts)  
test 4: mixed (2 pts)  
test 5: mixed (2 pts)