

CSI3108-01

2015. 09. 19

Programming HW#2

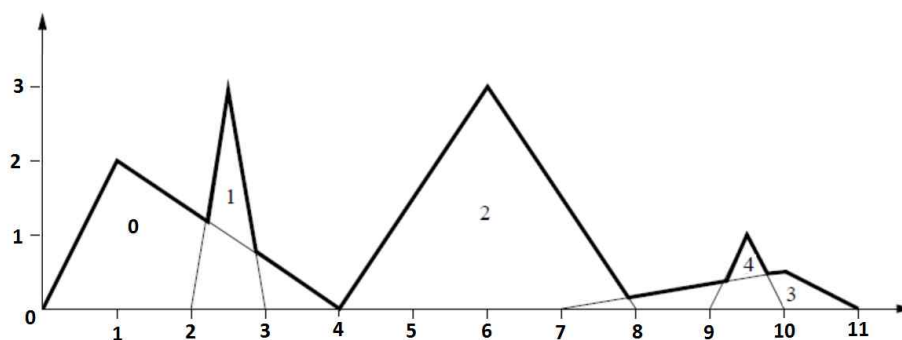
Max 35 points

Due on Sept. 30 (Friday), 2016, by 5 pm

There was an ancient city in which all buildings are of triangle shapes. The city's skyline is the outer contour of the silhouette formed by all the buildings in the city when viewed from a distance.

Now suppose you are given the set of coordinates of N buildings as in the table below, write a Java program to output the skyline formed by these buildings collectively.

Buildings	left	top	right
0	(0, 0)	(1, 2)	(4, 0)
1	(2, 0)	(2.5, 3)	(3, 0)
2	(4, 0)	(6, 3)	(8, 0)
3	(7, 0)	(10, 1)	(11, 0)
4	(9, 0)	(9.5, 1)	(10, 0)



Input

The test cases consist of the following format. In the first line, the number of test cases is given. From the next line, each test case is provided in $N+1$ lines. The first line of each test case has a single integer N , where $1 \leq N \leq 100$. The next N lines have the x - and y -coordinates of $3N$ points (the left, top, and right coordinates of a building in real

numbers per line). Note that the x - and y -coordinates of a point are **non-negative real numbers**. Assume that there are NO degenerate triangles in the input.

Output

For each test case, print out **the x - and y -coordinates of the skyline points, from left to right in a single line**; that is, print the points in the ascending order of x -coordinates. You must round off the answers to the nearest hundredths.

Sample Input

```
20
5
0 0 1 2 4 0
2 0 2.5 3 3 0
4 0 6 3 8 0
7 0 10 1 11 0
9 0 9.5 1 10 0
```

Buildings	left	top	right
0	(0, 0)	(1, 2)	(4, 0)
1	(2, 0)	(2.5, 3)	(3, 0)
2	(4, 0)	(6, 3)	(8, 0)
3	(7, 0)	(10, 1)	(11, 0)
4	(9, 0)	(9.5, 1)	(10, 0)

...

Sample Output

```
0 0 1 2 2.2 1.2 2.5 3 2.9 0.7 4 0 6 3 7.8 0.3 9.4 0.8 9.5 1 9.6 0.9 10 1 11 0
```

...