Problem F. Yet Another Point Searching Problem

Input file:	`minwdist.in`
Output file:	`minwdist.out`
Time limit:	2 seconds
Memory limit:	256 mebibytes

You are given n points on the plane: $A_1, A_2, \cdots, A_n$. Point i has weight w_i. Find such point B that the maximum weighted distance $\max\limits_{i=1}^{n} w_i \cdot |A_i B|$ is minimal possible.

Input

The input consists of one or more test cases.

On the first line of each test case, there is an integer n: the number of points ($1 \le n \le 500\,000$). Each of the next n lines contains three integers: x_i, y_i and w_i. Each of these numbers does not exceed 10^7 by absolute value. All weights are strictly positive.

The test cases follow one another without any gaps. The input is terminated by a line containing a single integer 0. This line must not be considered a test case. The sum of all n in the input does not exceed 500 000. There are no more than 1000 test cases in the input.

Output

For each test case, print two real numbers: the coordinates of point B. Your answer will be considered correct if the absolute or relative error of the maximum weighted distance will be less than 10^{-9}.

Example

minwdist.in	minwdist.out
2 2 2 1 0 0 1 3 0 0 1 6 0 2 0 6 3 0	1.0 1.0 2.4 3.6