

936 Mars for Sale

For some time now, there have been several businesses dedicated to the sale of extraterrestrial real estate on the planet Mars. The problem is that, as there is no centralised database, the same property may have been sold twice, or several properties, owned by different people, may intersect each other.

Every property has a rectangular shape and one of its sides runs alongside one of the major Martian roads. Moreover, the length of the sides that are perpendicular to the road are fixed for every road. Mars roads are straight lines. So, a property may be identified by the name and the side of the road, and the coordinates of the two corners next to the road.

Two properties *intersect* if the corresponding rectangles intersect and the intersection area is positive.

Write a program that, given a sequence of properties on the same side of a road, determines whether at least two of them intersect.

Input

The first line contains an integer T ($1 \leq T \leq 32$), which is the number of test cases. The following lines contain T test cases.

The first line of a test case contains an integer N ($1 \leq N \leq 50000$), which is the length of the sequence of properties.

Each of the following N lines contains four non-negative integers, X_1 , Y_1 , X_2 and Y_2 , separated by a space. These integers do not exceed $2^{31} - 1$.

The pairs (X_1, Y_1) and (X_2, Y_2) specify the x -coordinate and the y -coordinate of the two property corners next to the road.

Output

The output consists of T lines. The i -th line contains the message:

- 'No problem', if no two distinct elements of the i -th sequence of properties intersect; or
- 'Difficult problem(s)', otherwise.

Sample Input

```
3
4
100 214 120 254
55 124 20 54
12045 24104 12046 24106
56 126 100 214
5
4141 4196 4123 4196
761 4196 759 4196
757 4196 760 4196
0 4196 2 4196
144 4196 145 4196
4
60 30 22 11
```

214 107 256 128

48 24 46 23

214 107 256 128

Sample Output

No problem

Difficult problem(s)

Difficult problem(s)