

7846 Printer Scheduling

There are n files to be printed using m identical printers. The files are numbered from 1 to n . The printers are numbered from 1 to m . Assuming each page takes one unit of time to print, for each file i , we have the following information:

- The number of pages it contains, p_i (i.e. the time it takes to print file i);
- Ready time r_i (the printing of file i cannot be started before time r_i);
- Finish time d_i (the printing for file i has to be completed no later than time d_i).

We can assume that $d_i - r_i \geq p_i$, $i = 1, 2, \dots, n$. The printing process of a file can be interrupted between pages. In other words, while printing file f , the printer can interrupt this job and move to print a different file. The printing process of file f can be resumed on any available printer afterwards. We can assume that:

- The time it takes to move the printing of a file from one printer to another printer is negligible.
- The starting time for printing the files is 0.

A schedule of printing n files using m printers has to satisfy the following requirements:

- The printing of each file j cannot be started before the ready time r_j ;
- The printing of each file j has to be completed no later than the finish time d_j ;
- At any one time, the printing of file j can be processed by at most one printer and the total amount of printing time of file j , i.e. its number of pages, is p_j ;
- At any one time, each printer can only process at most one page of one file.

Your task is to find if there exists a schedule to print n files using m printers satisfying the requirements.

Input

The input consists of several datasets. The first line of the input contains the number of datasets, which is a positive number and is not greater than 100. The following lines describe the datasets.

Each dataset is described by the following lines:

- The first line contains 2 integers n, m ($1 \leq n, m \leq 200$);
- The i -th line in the following n line contains 3 positive integers p_i, r_i, d_i ($p_i, r_i, d_i \leq 30,000$ for $i = 1, 2, \dots, n$).

Output

For each dataset, write out on one line the string 'YES' if there exists a schedule and 'NO' otherwise.

Sample Input

```
1
4 2
4 2 7
3 3 8
3 4 7
5 1 10
```

Sample Output

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YES
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