E – Equal Schedules

Time limit: 1 s *Memory limit: 256 MiB*

You are one of the people on-call for a high-availability service that offers users to solve programming tasks. As an organized team, you have an on-call schedule specifying who is responsible for the service at which time. A colleague sends you a new schedule, and you want to make sure that everyone has the same amount of on-call time as before, or print any differences.

The on-call schedule is specified with lines of form s_i e_i t_i, where s_i and e_i represent the start and end offsets of the on-call shift for a teammate t_i from some start hour.

Given a sample schedule

```
0 7 jan
7 14 tomaz
14 20 jure
20 24 jan
24 25 tomaz
25 26 jure
```

we can see that `jan` is on-call for the first 7 hours (hour 0, 1, 2, 3, 4, 5, and 6), `tomaz` for next 7, ... In total, `jan` is on-call for 11 hours, `tomaz` for 8 and `jure` for 7.

Input data

The input contains two schedules separated by a horizontal line `------`. Each schedule contains one or more lines of form s_i e_i t_i, where integers s_i and e_i specify that teammate t_i is on-call for hours from s_i up to and excluding e_i. A final line `======` is printed after the second schedule.

Input limits

For each schedule, the following holds:

- $s_1 = 0$
- $s_i < e_i$
- $s_{i+1} = e_i$
- $e_i \leq 1000$
- Name t_i will consist of lowercase letters from the English alphabet.
- $3 \leq |t_i| \leq 20$

Output data

Output the differences between two schedules, in form t_i $\pm d_i$, where d_i is the difference between the second and the first schedule for the teammate t_i. The output should be sorted alphabetically by teammates' names and teammates with no differences should be omitted, otherwise the difference should be printed with a `+` or a `-` sign. If no differences are found, print "`No differences found.`" (without the quotes).

Examples

Input

```
0 7 jan
7 14 tomaz
14 20 jure
20 24 jan
24 25 tomaz
25 26 jure
------
0 9 tomaz
9 20 jan
20 26 jure
======
```

Output

```
jure -1
tomaz +1
```

Input

```
0 7 nino
7 14 bgs
14 21 ines
------
0 7 ines
7 14 nino
14 21 bgs
======
```

Output

```
No differences found.
```

Input

```
0 3 vid
3 6 maks
6 9 janez
------
0 1 vid
1 2 vid
2 3 vid
3 4 maks
4 5 maks
5 6 maks
6 7 janez
7 8 janez
======
```

Output

```
janez -1
```