Time Coordinator

Computer Science Society
Programming Contest
Fall 2008

People in different time zones represent the same point in time differently. For example, 8:00 a.m. in California represents the same point in time as 11:00 a.m. in New York. If we all used the same representation, then 12:00 noon would occur around the planet simultaneously, but for some the sun would be up and for others the sun would be down. If you ask me, that would be an improvement since we'd all agree about how to represent the same point in time and would only disagree about how much sunlight accompanies that representation, which varies anyway due to clouds, eclipses, solstices and such.

To accomodate local time representations, we have standard time formats that include offsets for time zones. A *standard time format* has the form

$$H{:}M{:}S \quad (+|-)HM$$

where $H{:}M{:}S$ is the *local time*, $(+|-)HM$ is the *offset*, and hours H, minutes M and seconds S are 2-digit numbers satisfying

$$\begin{aligned} 00 \le H &< 24, \\ 00 \le M &< 60, \\ 00 \le S &< 60. \end{aligned}$$

The local time and offset can be viewed of as a number of seconds past midnight and a number of seconds adjustment, respectively. Local time is converted to Coordinated Universal Time (UTC) by subtracting the offset from the local time. As I write this, it is 9:30 p.m. Pacific Standard Time (PST), which is represented by the standard time format `21:30:00 -0800`.

Input Format

Each line of input contains a standard time format.

Output Format

Output the original lines of input, sorted so that the points in time represented by the standard time formats are output in chronological order. If two standard time formats represent the same point in time, sort them alphabetically. Do not use any special-purpose time-handling libraries or methods.

Input Sample

```
22:22:12 +0100
13:00:30 -0800
14:22:12 -0700
21:05:14 +0000
23:20:30 +0100
10:22:12 -1100
13:40:00 -0730
```

Output Sample

```
13:00:30 -0800
21:05:14 +0000
13:40:00 -0730
10:22:12 -1100
14:22:12 -0700
22:22:12 +0100
23:20:30 +0100
```