Problem 236: Tracking Effort

Difficulty: Medium

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Problem Background

Accurate timekeeping is important at major companies, and especially at Lockheed Martin. Every employee is responsible for tracking what projects they work on, and for how long. This ensures that Lockheed Martin can accurately bill their customers and create accurate estimates for future projects. As part of your internship at Lockheed Martin, your manager has asked you to create an application that can assist employees with accurately tracking their time.

Problem Description

Please note that this problem overrules the general guidelines for rounding numbers provided in the Reference Materials.

The application you've been asked to create will have a series of buttons for each task an employee has assigned. When an employee starts a task, they will click the corresponding button. The application will then record the name of that task along with the time at which the button was clicked. At the end of each workday, the employee can click an "End Day" button, which adds a final "End Day" entry to their time log. The application can then calculate how much time the employee spent on each task throughout the day, by finding the difference between the start time of one task and the start time of the next (or the "End Day" entry).

For each task, you'll need to calculate the total amount of time worked on that task, rounded down to the previous tenth of an hour in accordance with corporate policies (e.g. 59 minutes is 0.9 hours).

Sample Input

The first line of your program's input, received from the standard input channel, will contain a positive integer representing the number of test cases. Each test case will include:

- A line containing a positive integer, representing the number of unique tasks that will appear in the time log
- One or more lines that contain the name of a task (consisting of upper- and lower-case letters and spaces), a pipe character (|), and a time in 24-hour HHMM format, representing the time at which that task was begun. Tasks may appear more than once, but will not repeat in consecutive entries.
- A line containing the phrase "End Day", a pipe character (|), and the time (in 24-hour HHMM format) representing the time at which the employee stopped working.

```
2
3
Studying|0700
Class|0815
Studying|0900
Sports|1100
Class|1300
Studying|1500
End Day|1800
5
Answering Emails|0700
Writing SW|0730
Meeting|0900
Writing SW|0920
Meeting|1000
Writing SW|1030
Lunch|1200
Writing SW|1300
Testing SW|1500
Writing SW|1700
End Day|1800
```

Sample Output

For each test case, your program must print a list of tasks and the time spent on each of those tasks. Each task should be printed on a separate line in alphabetical order, in this format:

- The name of the task
- A dash (-)
- The total time spent working on the task, rounded down to the previous tenth of an hour. Always print one decimal place, even if the decimal is zero.

```
Class-2.7
Sports-2.0
Studying-6.2
Answering Emails-0.5
Lunch-1.0
Meeting-0.8
Testing SW-2.0
Writing SW-6.6
```