6213   Shift Differential

For hourly employees in union shops, there are various things that can adjust pay. One of these is called "Shift Differential." Shift differential is a cash add-on to an hourly rate to compensate an employee for working outside of standard business hours. Usually there are two categories: one for the evening or "swing" shift and one for the overnight or "graveyard" shift. Swing and graveyard shift hours and the rules for payment are defined in the collective bargaining agreement.

Example: Assume a base hourly rate of $15/hour.

Swing Shift Differential: $1.25   Swing Shift Hourly Rate: $16.25
Graveyard Shift Differential: $2.00   Graveyard Shift Hourly Rate: $17.00

Your team is working for a company that pays shift differential. They would like you to calculate the shift differential pay owed to their hourly employees.

Rules for the company's collective bargaining agreements:

1. Specific times of day are defined as "swing" and "graveyard" periods. The graveyard period starts when the swing period ends. These periods are defined as contiguous four to eight hour blocks defined by start and end times.

2. Employees are assigned to regularly scheduled eight-hour base shifts. The base shift times may include hours in the swing and/or graveyard periods.

3. An employee is defined as regularly working graveyard shift if at least four hours of his/her base shift fall in the graveyard period. This is true even if the other four hours fall in the swing period.

4. An employee is defined as regularly working swing shift if at least four hours of his/her base shift fall in the swing period, unless the employee is in the graveyard shift category.

5. An employee that is not defined as regularly working swing or graveyard shifts is defined as regularly working day shift.

6. An employee may be assigned to different work hours on any given day, and those hours may span more than one shift period.

7. An employee who regularly works graveyard shift will receive the graveyard shift differential for all hours worked.

8. An employee who regularly works swing shift will receive the swing shift differential for all hours worked, except for any hours that fall in the graveyard period. The employee will receive the graveyard shift differential for those hours.

9. An employee who regularly works day shift will receive shift differential for any hours worked during the defined swing or graveyard periods.

10. If overtime (work for more than eight hours) occurs during hours when a person is receiving shift differential, the shift differential is paid at the overtime rate. Time worked from eight up to twelve hours in a shift is paid at 1.5 times the usual rate ("time-and-a-half"). Time above twelve hours is paid at double the usual rate. No employee will work more than sixteen consecutive hours on a given day.

Shift differential is often paid as a separate check after the work is completed and time reported. The company you are working for follows this practice.

Your team is to write a program that calculates the weekly shift differential payments owed to a group of hourly employees based on a given collective bargaining agreement. Each employee will work five days during the week.

Input

Input to your program is as follows:

- The first line defines the swing and graveyard period parameters. The fields are: Swing Shift Start Time ($HH\!:\!MM$), Swing Shift End Time ($HH\!:\!MM$), Graveyard Shift End Time ($HH\!:\!MM$), Swing Shift Differential Pay (dollars and cents), and Graveyard Shift Differential Pay (dollars and cents), all separated by commas.

- Second line: Employee ID (string of up to forty non-comma characters), employee base shift start time (HH:MM), employee base shift end time (HH:MM), all separated by commas.

- Next five lines: Work Date ($YYYYMMDD$), Actual Start Time ($HH\!:\!MM$), and Actual End Time ($HH\!:\!MM$), all separated by commas.

- Eighth and subsequent lines will repeat lines 2-7.

All input will start at the beginning of the line and there will be no whitespace except possibly embedded in employee IDs. Input is terminated by end-of-file.

Output

Output will be a list, one per line, of the employee IDs who are owed shift differential, a single space, and the amount of the differential owed. The amount owed is to be printed in dollars and cents, rounded to the nearest cent. It is guaranteed that at least one person will be owed shift differential. No leading or trailing whitespace is to appear on an output line.

Times are given using a twenty-four hour clock. Midnight will be shown as '00:00'. You do not need to be concerned about handling transitions to and from Daylight Savings Time.

Sample Input

```
18:00,00:00,06:00,1.25,2.00
Wendell Bipken,08:00,16:00
20120109,08:00,16:00
20120110,08:00,16:00
20120111,08:00,18:00
20120112,08:00,18:00
20120113,08:00,19:00
Breanna Shock,08:00,16:00
20120109,12:00,20:00
20120110,10:00,18:00
20120111,10:00,18:00
20120112,08:00,16:00
20120113,11:00,19:00
Theodora Reeghbuckle,18:00,02:00
20120109,18:00,02:00
20120110,18:00,02:00
```

```
20120111,18:00,02:00
20120112,16:00,02:00
20120113,18:00,04:00
```

Sample Output

```
Wendell Bipken 1.88
Breanna Shock 3.75
Theodora Reeghbuckle 68.00
```