# 3314 Give 'til it Feels Good

The Altruistic Blood Center (ABC), a local blood bank with several donor centers, has noticed an increase in donors following last year's hurricane season.

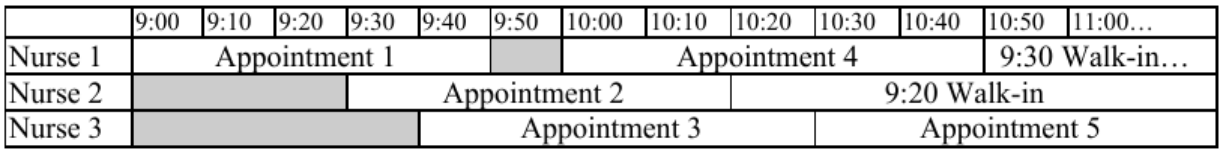
Each donor center has a number of nurses to process donors. For the sake of this problem, assume each nurse stays with his or her donor for the entire donation time. Centers are open from 9:00 AM to 6:00 PM. It takes 50 minutes to handle a donor. In order to ensure the blood can be shipped out at the end of the day, no donors can begin processing after 5:10.

There are two kinds of donors: those who have appointments and walk-ins. Appointments can be set up for any time from 9:00 AM to 5:10 PM, on the hour or at the 10, 20, 30, 40, or 50 minute mark past the hour. There may be more than one appointment set up for the same time, but there will never be more appointments made than can be handled at a time. For example, if a center can handle 3 concurrent donors, there may be appointments for 9:00, 9:30, and 9:40, but once these three appointments are made, there will not be another appointment until 9:50 or later.

We need a program to handle the walk-in donors. Rather than have them wait, the ABC wants to tell them when to come back and let them go about their business. When a walk-in donor arrives, s/he will be processed immediately if there is a nurse available that will not be needed to handle an appointment in the next 50 minutes. Otherwise, s/he will be given an appointment at the next available time that will not cause a conflict. (This appointment does *not* have to be at one appointment slots at :00, :10, :20, etc.) If the walk-in cannot be scheduled on the current day, they should be asked to make an appointment for the following day.

For example, suppose a donor center can process three concurrent donors and has appointments set up for 9:00, 9:30, 9:40, 10:00 and 10:30. A walk-in donor who arrives at 9:20 will need to wait until 9:50 for the 9:00 donor to be finished, but cannot start then because there wouldn't be a nurse available for the donor with an appointment at 10:00. Instead, the donor who arrives at 9:20 would be processed at 10:20, when the nurse working with the 9:30 donor was finished. If another walk-in donor arrives at 9:30, s/he could not be processed until 10:50.

Graphically, the nurses would handle the donors in the order below:




where the shaded areas are when the nurse is not working with a donor.

## Input

The input will consist of one or more data sets, each representing a different independent donor center.

Each data set starts with a line containing a single integer, $n$, $0 \leq n \leq 20$, the number of nurses available at the donor center. There will then be eight lines, each with six integers separated by one or more blanks. The first line represents the six appointment times available during the 9 AM hour, with the first number representing the number of appointments at 9:00, the second the number of appointments at 9:10, etc. The second through eighth lines represent the appointments for the 10 AM through 4 PM hours. There will then be a line with just two integers, representing the number of

appointments for 5:00 and 5:10. These lines will be followed by an integer, $d$, $1 \leq d \leq 100$, representing the total number of walk-in donors to process.

Each walk-in donor is represented a line with the time at which a donor arrives, in twenty-four hour format, '$hhmm$', $09 \leq hh \leq 17$, $00 \leq mm \leq 59$. These will be in non-descending order, and must be handled first-come-first-serve.

The last data set will have a single line with $n = 0$. This set should not be processed.

## Output

For each data set (corresponding to a donor center), print a line of the form

`Donor center` $n$`:`

where $n$ is the center number, starting with 1. Then, for each walk-in donor at this center, output a line in one of three forms as appropriate:

`Donor` $d$`: Please make an appointment for tomorrow`

if the donor could not be processed on the current day, or

`Donor` $d$`: We can handle you immediately`

if there is no waiting required, or

`Donor` $d$`: Please come back at` $t$

with $d$ being the donor number, again starting with 1 for the current center, and $t$ being the time the donor should return, in twelve-hour format ('$h$`:`$mm$', where $1 \leq h \leq 12$, and $00 \leq mm \leq 59$).

Each data set's output should be followed by a blank line.

## Sample Input

```
3
1 0 0 1 1 0
1  0 0 1 0 0
0  0  0  0  0  0
0  0  0  0  0  0
0  0  0  0  0  0
0  0  0  0  0  0
0  0  0  0  0  0
0  0  0  0  0  0
0  2
4
0920
0930
1637
1700
1
0 0 0 0 0 0
0  0 0 0 0 0
0  0  0  0  0  0
1  0  0  0  0  0
0  0  0  0  0  0
0  0  0  0  0  0
0  0  0  0  0  0
0  0  0  0  0  0
```

```
0  0
4
1127
1158
1516
1517
0
```

## Sample Output

```
Donor center 1:
Donor 1: Please come back at 10:20
Donor 2: Please come back at 10:50
Donor 3: We can handle you immediately
Donor 4: Please make an appointment for tomorrow

Donor center 2:
Donor 1: Please come back at 12:50
Donor 2: Please come back at 1:40
Donor 3: We can handle you immediately
Donor 4: Please come back at 4:06
```