	2997 - Intersecting Dates
	World Finals - Prague - 2003/2004

A research group is developing a computer program that will fetch historical stock market quotes from a service that charges a fixed fee for each day's quotes that it delivers. The group has examined the collection of previously-requested quotes and discovered a lot of duplication, resulting in wasted money. So the new program will maintain a list of all past quotes requested by members of the group. When additional quotes are required, only quotes for those dates not previously obtained will be fetched from the service, thus minimizing the cost.

You are to write a program that d etermines when new quotes are required. Input for the program consists of the date ranges for which quotes have been requested in the past and the date ranges for which quotes are required. The program will then determine the date ranges for which quotes must be fetched from the service.

Input

There will be multiple input cases. The input for each case begins with two non-negative integers NX and NR, ($0 \leq NX, NR \leq 100$). NX is the number of existing date ranges for quotes requested in the past. NR is the

number of date ranges in the incoming requests for quotes. Following these are $NX + NR$ pairs of dates. The first date in each pair will be less than or equal to the second date in the pair. The first NX pairs specify the date ranges of quotes which have been requested and obtained in the past, and the next NR pairs specify the date ranges for which quotes are required.

Two zeroes will follow the input data for the last case.

Each input date will be given in the form *YYYYMMDD*. *YYYY* is the year (1700 to 2100), *MM* is the month (01 to 12), and *DD* is the day (in the allowed range for the given month and year). Recall that months 04, 06, 09, and 11 have 30 days, months 01, 03, 05, 07, 08, 10, and 12 have 31 days, and month 02 has 28 days except in leap years, when it has 29 days. A year is a leap year if it is evenly divisible by 4 and is not a century year (a multiple of 100), or if it is divisible by 400.

Output

For each input case, display the case number (1, 2, ...) followed by a list of any date ranges for which quotes must be fetched from the service, one date range per output line. Use the American date format shown in the sample output below. Explicitly indicate (as shown) if no additional quotes must be fetched. If two date ranges are contiguous or overlap, then merge them into a single date range. If a date range consists of a single date, print it as a single date, not as a range consisting of two identical dates. Display the date ranges in chronological order, starting with the earliest date range.

Sample Input

```
1 1
19900101 19901231
19901201 20000131
0 3
19720101 19720131
19720201 19720228
19720301 19720301
1 1
```

```
20010101 20011231
20010515 20010901
0 0
```

Sample Output

```
Case 1:
    1/1/1991 to 1/31/2000

Case 2:
    1/1/1972 to 2/28/1972
    3/1/1972

Case 3:
    No additional quotes are required.
```

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