505 Moscow time

In e-mail the following format for date and time setting is used:

$$EDATE ::= Day\_of\_week,\ Day\_of\_month\ Month\ Year\ Time\ Time\_zone$$

Here $EDATE$ is the name of date and time format, the text to the right from "::=" defines how date and time are written in this format. Below the descriptions of $EDATE$ fields are presented:

Day_of_week The name of a day of the week. Possible values: MON, TUE, WED, THU, FRI, SAT, SUN. The name is followed by "," character (a comma).

Day_of_month A day of the month. Set by two decimal digits.

$Month$ The name of the month. Possible values: JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC.

$Year$ Set by two or four decimal digits. If a year is set by two decimals it is assumed that this is a number of the year of the XX century. For instance, 74 and 1974 set a year of 1974.

$Time$ Local time in format *hours:minutes:seconds*, where hours, minutes and seconds are made up of two decimal digits. The time keeps within the limits from 00:00:00 to 23:59:59.

$Time\_zone$ Offset of local time from Greenwich mean time. It is set by the difference sign "+" or "–"and by sequence of four digits. First two digits set the hours and the last two the minutes of offset value. The absolute value of the difference does not exceed 24 hours. Time zone can also be presented by one of the following names:

Name	**Digital value**
UT	-0000
GMT	-0000
EDT	-0400
CDT	-0500
MDT	-0600
PDT	-0700

Each two adjacent fields of $EDATA$ are separated with exactly one space. Names of day of the week, month and time zone are written in capitals. For instance, 10 a.m. of the Contest day in St.Petersburg can be presented as

```
TUE, 03 DEC 96 10:00:00 +0300
```

Write a program which transforms the given date and time in $EDATE$ format to the corresponding date and time in Moscow time zone. So called "summer time" is not taken into consideration. Your program should rely on the predefined correctness of the given Day_of_week and $Time\_zone$.

A note

- Moscow time is 3 hours later than Greenwich mean time (time zone +0300)
- Months: January, March, May, July, August, October and December have 31 days. Months: April, June, September and November have 30 days. February, as a rule, has 28 days, save for the case of the leap year (29 days).
- A year is a leap year if valid one out of two following conditions:
  - its number is divisible by 4 and is not divisible by 100;
  - its number is divisible by 400.

For instance, 1996 and 2000 are the leap years, while 1900 and 1997 are not.

Input

Input data file contains date and time in $EDATE$ format in each line. Minimum permissible year in the input data is 0001, maximum 9998. Input $EDATA$ string does not contain leading and trailing spaces.

Output

Output must contain a single line for each one in the input file with date and time of Moscow time zone in $EDATE$ format. In output $EDATE$ string a Year must be presented with four decimal digits. The output string should not include leading and trailing spaces.

Sample Input

```
SUN, 03 DEC 1996 09:10:35 GMT
WED, 28 FEB 35 23:59:00 +0259
```

Sample Output

```
SUN, 03 DEC 1996 12:10:35 +0300
THU, 01 MAR 1935 00:00:00 +0300
```