Task Datum

The exam season at University of Zagreb is over and students are doing what they love the most – sleeping. In the rare moments of wakefulness, they usually scroll over their Instagram feed. Fabijan is one of those students.

Recently, he read the following caption – the date `02.02.2020.` is the first palindromic date in the last 909 years.

He realized the caption was incorrect and this made him wonder about palindromic dates so he asked himself for each of the N dates what is the first palindromic date that comes after that date. The date is considered *palindromic* if , when disregarding the dots, it is the same when read from left-to-right as if it was read from right-to-left. For example, dates `02.02.2020.` and `12.10.0121.` are palindromic, while `03.02.2020.` and `12.07.1993.` are not.

Note: In this task it is important to take account of leap years which have 29 days in February. For the purposes of this task, we consider a year to be a leap year if it is divisible by 4. Otherwise, months have 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30 and 31 days in order.

Input

The first line contains an integer N ($1 \leq N \leq 10\,000$) from the task description.

The next N lines contain a valid date in format `DD.MM.YYYY`.

Output

For each date from the input, you should output the first palindromic date that comes strictly after it. That date should be printed in the `DD.MM.YYYY.` and we guarantee that the solution exists in this format.

Scoring

In the test cases worth a total of 10 points, each date in the output will have the same month and year as the corresponding date from the input. Also, N will be equal to 10.

In the test cases worth an additional 10 points, each date in the output will have the same year as the corresponding date from the input. Also, N will be equal to 10.

In the test cases worth an additional 20 points, $N = 10$ will hold.

Examples

input	input	input
1 02.02.2020.	2 01.01.1000. 31.12.2026.	3 01.01.0100. 05.07.0321. 05.05.0505.
output	**output**	**output**
12.02.2021.	10.01.1001. 03.02.2030.	10.10.0101. 10.01.1001. 10.01.1001.

Clarification of the first example: Although the given date is palindromic, Fabijan is interested in the first date that strictly comes after it. That date is `12.02.2021.`