Day of the Programmer

HackerRank

Marie invented a Time Machine and wants to test it by time-traveling to visit Russia on the Day of the Programmer (the 256^{th} day of the year) during a year in the inclusive range from 1700 to 2700.

From 1700 to 1917, Russia's official calendar was the Julian calendar; since 1919 they used the Gregorian calendar system. The transition from the Julian to Gregorian calendar system occurred in 1918, when the next day after January 31^{st} was February 14^{th}. This means that in 1918, February 14^{th} was the 32^{nd} day of the year in Russia.

In both calendar systems, February is the only month with a variable amount of days; it has 29 days during a *leap year*, and 28 days during all other years. In the Julian calendar, leap years are divisible by 4; in the Gregorian calendar, leap years are either of the following:

- Divisible by 400.
- Divisible by 4 and *not* divisible by 100.

Given a year, y, find the date of the 256^{th} day of that year *according to the official Russian calendar during that year.* Then print it in the format `dd.mm.yyyy`, where `dd` is the two-digit day, `mm` is the two-digit month, and `yyyy` is y.

For example, the given $year = 1984$. 1984 is divisible by 4, so it is a leap year. The 256^{th} day of a leap year after 1918 is September 12, so the answer is $\mathtt{12.09.1984}$.

Function Description

Complete the *dayOfProgrammer* function in the editor below. It should return a string representing the date of the 256^{th} day of the year given.

dayOfProgrammer has the following parameter(s):

- *year*: an integer

Input Format

A single integer denoting year y.

Constraints

- $1700 \le y \le 2700$

Output Format

Print the full date of *Day of the Programmer* during year y in the format `dd.mm.yyyy`, where `dd` is the two-digit day, `mm` is the two-digit month, and `yyyy` is y.

Sample Input 0

```
2017
```

Sample Output 0

```
13.09.2017
```

Explanation 0

In the year $y = 2017$, January has 31 days, February has 28 days, March has 31 days, April has 30 days, May has 31 days, June has 30 days, July has 31 days, and August has 31 days. When we sum the total number of days in the first eight months, we get $31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 = 243$. Day of the Programmer is the 256^{th} day, so then calculate $256 - 243 = 13$ to determine that it falls on day 13 of the 9^{th} month (September). We then print the full date in the specified format, which is `13.09.2017`.

Sample Input 1

```
2016
```

Sample Output 1

```
12.09.2016
```

Explanation 1

Year $y = 2016$ is a leap year, so February has 29 days but all the other months have the same number of days as in 2017. When we sum the total number of days in the first eight months, we get $31 + 29 + 31 + 30 + 31 + 30 + 31 + 31 = 244$. Day of the Programmer is the 256^{th} day, so then calculate $256 - 244 = 12$ to determine that it falls on day 12 of the 9^{th} month (September). We then print the full date in the specified format, which is `12.09.2016`.

Sample Input 2

```
1800
```

Sample Output 2

```
12.09.1800
```

Explanation 2

Since 1800 is leap year as per Julian calendar. Day lies on 12 September.