CITC-1301 Introduction to Programming

Chapter 2 Lab – When is Easter?

Easter is celebrated on the Sunday immediately after the first full moon following the spring equinox. Because its date includes a lunar component, Easter does not have a fixed date in the Gregorian calendar. Instead, it can occur on any date between March 22 and April 25. The month and day for Easter can be computed for a given year using the *Anonymous Gregorian Computus* algorithm:

- Set a equal to the remainder when `year` is divided by `19`
- Set b equal to the floor of `year` divided by `100`
- Set c equal to the remainder when `year` is divided by `100`
- Set d equal to the floor of b divided by `4`
- Set e equal to the remainder when b is divided by `4`
- Set f equal to the floor of $\frac{b+8}{25}$
- Set g equal to the floor of $\frac{b-f+1}{3}$
- Set h equal to the remainder when $19a+b-d-g+15$ is divided by `30`
- Set i equal to the floor of c divided by `4`
- Set k equal to the remainder when c is divided by `4`
- Set l equal to the remainder when $32+2e+2i-h-k$ is divided by `7`
- Set m equal to the floor of $\frac{a+11h+22l}{451}$
- Set `month` equal to the floor of $\frac{h+l+7m+114}{31}$
- Set `day` equal to one plus the remainder when $h+l-7m+114$ is divided by `31`

```
# How to use floor function
from math import floor

b = floor(2033 / 100)

print(b)     # Outputs 20
```

Write a Python program that implements the Anonymous Gregorian Computus algorithm to compute the date of Easter for any given year. Your program should ask the user to input a numeric year, use the above algorithm to calculate the month and day Easter falls on, and output the date of Easter for that year.

Output example:

```
This program calculates what day Easter falls on for a given year.

Year? 2033 [ENTER]

In 2033, Easter falls on 4/17.
```

Submission Instructions

- Upload your Python script (i.e., your .py file) to the appropriate dropbox on eLearn.