The Dating Game (20 points)

Due Wednesday, 4 October 2017
No late days!

You are to write a program that computes the day of the week for January 1, 3000. To do this, you must *implement* the DateInterface interface (on GitHub, in the DatingGame repository) with your own date class and use the Year3000 main class to run your program, which is also on GitHub.

You may work in groups of 2 for this project. You only need to turn in 1 copy of your code, but make sure that it includes everyone's names in the comments.

For this project, you must also include relevant JavaDoc comments.

Extra Credit

- (3 points) Write code for the yesterday() method, which moves the date back by one day. Modify the main program to print the day of the week for January 1, 1800. (Hint: back up to December 31, 1799 and then call tomorrow() once.)
- (3 points) Modify your code to account for the switch between the Julian and Gregorian calendars, which took place in the 1500s. You'll need to do some research on your own to properly implement this. Note that tomorrow() and yesterday() must still work correctly, no matter what date is stored. Finally, compute the day of the week for January 1, 1000.
- (3 points) The *Phantom Time Hypothesis* is a conspiracy theory which relates to the Holy Roman Emperor Otto III and his claim to the throne. Add a boolean attribute phandomTime to the DateInterface file to take into account this conspiracy theory. (I.E. if phantomTime is set to true, calculate your dates as if the Phantom Time Hypothesis is true). You'll have to do some research on your own to properly implement this. Modify the main method to additionally display the day of the week for the "real" New Years Day, 3000, and, if you did the first extra credit, the day of the week for January 1, 500, both assuming the Phantom Time Hypothesis to be true (see notes).

Hand-in and Notes

Inspired by a project given by Jon Sorenson.

A leap year is a year when February has 29 days. A year is a leap year if the year is divisible by 4, but not by 100, or if it is divisible by 100, it must also be divisible by 400. So 1900 was not a leap year, but 2000 was.

If you do all of the extra credit, you will be calculating the day of the week for the following:

1. (Phantom Time False) January 1, 3000
2. (Phantom Time False) January 1, 1800
3. (Phantom Time False) January 1, 1000
4. (Phantom Time True) January 1, 3000
5. (Phantom Time True) January 1, 500

Start early, and good luck!