Purpose

The purpose of this assignment is to give you practice with if statements and also to start using while loops.

Scenario

There are approximately 365.2422 days in a solar year, our calendar has 365 days in a standard year and occasionally has a leap year of 366 days to account for the fractional part. In -46 B.C the Julian calendar established that those years that are divisible by 4 will be leap years. This scheme over-estimates the length of the solar year by approximately one day every 128 years. By 1753 we had adopted the Gregorian calendar with a more complicated leap year formula that corrects for this.

Here is the definition of a Gregorian leap year:
For years 1753 A.D and after when Gregorian calendar is in effect, most years that are a multiple of 4 are leap years. However, if it is a multiple of 100, it is NOT a leap year unless it is ALSO a multiple of 400.

Problem

Write a program to read a year value from the input and determine whether it is a leap year or not. The process is the following: First prompt the user to enter a year and read in the value. Next, determine if the given year is a leap year or not and print out a suitable message which includes which calendar is in effect (Julian or Gregorian). You only need to check for years between -46 and 5000. Anything outside of this range is printed out as an Invalid year. Any value beyond values -9999 and 9999 will stop the program.

Your program continuously prompts the user for input (for Year) and stops only when the input is beyond -9999 or 9999. You must use a While Loop to achieve this.

To start this program, you should create a folder called 2P under your cs410 folder. In this new folder 2P you can create a C source file from scratch using any editor of your choice. If you prefer to copy an older program that you have already completed and modify it, you can do that as well.

Input

The input will come from standard input, that is, from a user at the keyboard. You will test input redirected from an input file.

Output

Output will be sent to standard output (the screen). Print the year entered by the user, whether it is a leap year or not, and what calendar is in effect (or if it's an Invalid year, print this message).

Testing

On all your assignments, including this one, it is crucial that you test your program thoroughly. Sample input and output files will provided which you can use for your testing and verifying your program output.

Programs that don't run receive a maximum of about 20 points (although I may give them a zero if it looks like all you need to do is change one or two things and resubmit). Do not add additional features that are not being asked for, since your program may not run against test inputs that I have created.

Details & Comments

- You must follow all the coding style rules as specified in our "coding guidelines". In particular:
  - You must put your name enclosed in a comment box at the top along with a brief description of what the program does, and add any other comments that are appropriate throughout the program.
  - Keep lines to a maximum length that's easy to read.
  - You must use good names for any variables you create (a full word that describes what it is there for).
- Details that you do not follow are penalized after other scored items are added up, so even if you got a 100 for the functionality of your program, you can still get a lower score because you did not follow all the other requirements for the assignment.