

# Extra Credit #1

**Out:** April 18, 2023

**Due:** April 25, 2023

## Pseudo-Code Debugging (30 points)

Below is the pseudo-code outline for a portion of the Zune™ system software. The code fragment computes the current day of the year and current year given the number of days since December 31, 2004 (thus January 1, 2005 is day 1). This is the piece of code that caused the players to hang on December 31, 2008. In the outline days is initially the number of days since December 31, 2004 and at the end of the code it should be the day number (January 1st is 1) in the current year. Also year is the computed current year and IsLeapYear(y) is a procedure that returns TRUE if the passed argument (y) is a leap year and FALSE otherwise. For example, if days is initially 367 then year will be 2006 and days will be 2 (indicating January 2, 2006) at the end of the code.

```
year = 2005
WHILE (days > 365)
    IF (IsLeapYear(year)) THEN
        IF (days > 366) THEN
            days = days - 366
            year = year + 1
        ENDIF
    ELSE
        days = days - 365
        year = year + 1
    ENDIF
ENDWHILE
```

Find the bug in the outline. Describe what the error in the code is and what the result of that error will be. Then rewrite the outline to fix the bug. There are many ways to fix the bug, try to find the *cleanest* (simplest) and best structured solution. Remember that the current year and current day of the year must be computed by this code.

## Extra Credit #1 Resources

- [Homework Q&A](#)

---

*Last updated April 12, 2023 03:34 PM by [glen@caltech.edu](mailto:glen@caltech.edu)*

copyright © 2009 - 2023, [Glen George](#). All rights reserved. Reproduction of all or part of this work is permitted for educational or research use only, provided that this copyright notice is included in any copy.