Important Notes

- Electronic submission is due on Monday, Sept 29, 2014 11:59pm.
  Hard copy is due on Tuesday, Sept 30, 2014, in class.
- Submission command: submit -c 246 -p **3** -d YourDirectory
- **This assignment is to be done on your own.** If you need help, see the instructor or TA.
- Please start the assignment as soon as possible and get your questions answered early.
- Read through this specification completely before you start.
- Some aspects of this specification are subject to change, in response to issues detected by students or the course staff.

Design and implement a program to calculate the number of days between two entered dates. For this problem, a program design is required. (Total: 100pts)

1. *Part 1: Design Document, 15pts* (due in class on Tuesday, Sept 30, 2014)
   Before you start to write your program, write a program design document containing skeleton code and the logic (pseudocode) that represents the implementation of your actual program. All functions are represented by prototypes only, except for main(), which should be fleshed out with appropriate calls and local variable declarations.

2. *Part 2: Electronic Submission, 70pts* (due Monday, Sept 29, 2014 11:59pm)
   Write a program that calculates the number of days between two entered dates. If the second date is later than the first date, the number of days is negative; if the first date is later than the second date, the number of days is positive.

   Here are rules for deciding a leap year:

   - Every year divisible by 4 is a leap year.
   - However, every year divisible by 100 is not a leap year.
   - However, every year divisible by 400 is a leap year after all.

   Note that days in a month may differ. January, March, May, July, August, October and December each has 31 days, Febuary has 28 days if current year is not a leap year, 29 if it is. All the rest of the months have 30 days.

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Enter the first date (mm/dd/yyyy):6/30/2006
Enter the second date (mm/dd/yyyy):10/28/2018
Number of days between 6/30/2006 and 10/28/2018 is -4503

Enter the first date (mm/dd/yyyy):10/28/2018
Enter the second date (mm/dd/yyyy):06/30/2006
Number of days between 10/28/2018 and 6/30/2006 is 4503
```

   Pay special attention to designing your functions and your program organization. Your project will be graded on its organization and modularity as well as functionality. You should have at least the following functions, but probably more:

- A function that takes a year and decides if it is a leap year or not.
- A function that compares two dates and returns 0 if date1 is same as date 2, a negative number if date1 is earlier than date2, and a positive number if date1 is later than date2.
- A function that computes the number of days between two entered dates.

Error handling: You should NOT assume that users always enter dates correctly. Upon incorrect input, your program either terminates or asks user to enter again. Proper error message should be displayed for user-friendliness.

3. *Part 3 Project Summary, 15pts* (due in class on Tuesday, Sept 30, 2014)
Write how your final implementation differs from your program design, if any, and why. Submit a printout including your original design document and the source code.