

# CS23021 Computer Science I

## Project #5

Due by e-mail by 11:59pm on Monday, November 6, 2006

The assignment contains two parts. First part (Date) deals with developing the class for date manipulation. Second part (Timeline) requires you to write a program that outputs dates in sorted order.

**Date.** Write a class definition for dates. The class name should be `Date`. The class should include the following public functions.

- Void constructor
- Constructor that takes three integer parameters (day, month, year)
- Overloaded less than (<) comparison operator; note that the year for the date should be stored as 4 digits (e.g. 2006 for this year)
- Overloaded equality (==) operator
- Overloaded insertion and extraction (<<, >>) operator. Your overloaded extraction operator should accept three numbers (for month, day, and year). The function overloading the extraction operator should not issue any prompts, just accept the numbers from the stream passed to it as a parameter. The input is assumed to be three integers separated by whitespace for example 2 28, 2001 (no elaborate input processing is required). The insertion operator should output the date in format mm/dd/yyyy. To be more precise, the numbers for the month day and year should be output as they are input (if a user inputs 7 for a day leading zero is unnecessary.)

The constructors and extraction operator (note that you can call a constructor from the extraction operator to shorten your code) should make sure that the day number is between 1 and 31 and the month number is between 1 and 12. You can assume that every month has 31 days. Year should always be positive. "Future" years such as 3003 are acceptable. Note also that the extraction operator should accept 0/0/0 date as a sign of input termination (for the second part of the project). You can assume that user always enters three numbers for the date (i.e. you don't have to handle lack of input of year and such.)

Place class definition in `date.h` and class function definitions in `date.cpp`

I put program `testdate.cpp` in Project5 subdirectory in the subversion repository. This program asks the user to input two dates and prints which date is greater. This program should work with your class definition.

**Timeline.** Write a program that uses your class definition and does the following. Asks the user for today's date. Then asks the user to input a list of dates. The program loops accepting the user input. The user signals the end of input by entering date 0 0 0. You can assume that the user cannot input more than 20 dates. Your program should print the word "Past" and then the past dates (the dates that are earlier than the user input today's date) in sorted order (earliest first). Then, it should print the future dates. Do not output the 0/0/0 date. Note that the user may not input either future or past dates at all.

The dates should be placed in an array of objects of class `Date`. Note that you can either keep the array sorted or, at output time, continuously search through the array to find the smallest unprinted date. Note that in the latter case, your program has to distinguish printed from unprinted dates. For example, by storing zeroes in the printed dates.

You should place your program in file `sortdates.cpp`

The files needed for submission are: `date.h` `date.cpp` and `sortdates.cpp`