HW1

W3101: Programming Languages, C++: Homework 1

- **Due Sep 23.**
- Please submit your solutions in Courseworks, do not mail them to me.
- Please submit ONLY your source (.cpp) files, not the entire project.
- Please call your file < YourName >_HW1.cpp to help TAs identify your files quickly.

In this homework, you will implement a class called **myCalendar**. It should have the following:

1. Two private integers -- year and firstDayOfYear. The first of these represents the year (e.g., 2016). The second one represents the day of Jan 01 and takes an integer value in the range 1 to 7, where 1 represents Sunday, 2 represents Monday, ..., 7 represents Saturday.
2. A public constructor "myCalendar (int y, int first)" that sets "year" to "y" and "firstDayOfYear" to "first".
3. A function called "int findNumberOfDays(int month)" that returns the number of days in the month. Obviously, month should have a value in the range [1, 12].
4. A function called "int findFirstDayOfMonth (int month)" that returns the day of the first of that month. For example, if the value of the parameter "month" is 12, find the day of Dec 01. The value returned should be in the range [1, 7], indicating Sunday, or Monday, etc.
5. A function called "void printMonth(int numberOfDays, int firstDay)" that prints the month as in a calendar. Here the parameter "numberOfDays" indicates the number of days in the month and parameter "firstDay" indicates the first day of the month. It takes a value in the range [1, 7] for Sunday, Monday, ..., Saturday. The output should of this function should look something like what is shown below:

   ```
   Su Mo Tu We Th Fr Sa
                   1  2
   3  4  5  6  7  8  9
   10 11 12 13 14 15 16
   17 18 19 20 21 22 23
   24 25 26 27 28 29 30
   31
   ```

6. A function called "void printYear( )" that finds the number of days and the first day of each of the twelve months and prints the calendar for that month using the printMonth(..) function.

7. A function called "int findDay (int month, int day)" that finds the day (Sunday or Monday, etc.) of the week for the given input of month and day. You need to return an answer in the range [1,7].
8. In the main program, do the following:
    i. Ask the user to enter an year and the day of Jan 01. Create an object of myCalendar using these two values.
    ii. Print the calendar of the entire year using "printYear( )" function.
    iii. Ask the user to enter a month and day. Print the day of the month as integer in the range [1, 7] using the "findDay (month, day)" function.

Something to think about: How can you extend the above program? Can you have some features of popular calendars like Google calendar? That is, how would you store and retrieve appointments? Can you find conflicts of appointments? How would you extend this class for the above? How can you implement them?

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