CSCI 689 **Computer Assignment 7** **Spring 2016**
(30 points)

The Date Class
Phase 2

Write a C++ program to include the following additional member functions in your Date class from the previous computer assignment:

- Date (const Date& d): This is a public copy constructor that can be used to create a new Date object from the copy of the Date object d.

- Date& operator= (const Date& d): This is a public assignment operator that overwrites an existing Date object with the copy of the Date object d.

- Date& addDay (const int& n): This public function can be used to add n number of days to a Date object.

- Date& addMonth (const int& n): This public function can be used to add n number of months to a Date object. If the day of the resulting month is larger than the number of days in that month, then choose the following month with day = 1.

- Date& addYear (const int& n): This public function can be used to add n number of years to a Date object.

- int dayIndex ( ) const: This public function returns an index value for a Date object, which is simply equal to the number of days passed from the reference date of January 1, 1 with the index value 1. This implies that the index values for days after this date have positive values and the index values for days before this date have negative values. For example, the index value for January 2, 1 is 2 and the index value for December 31, −1 is −1 because there is no year 0.

- int monthIndex ( ): This private function returns the index value of a month from the months vector, which is between 0 and 11, and the returned index value can be used to get the month of a Date object.

You also need to have the non-member function: unsigned dateDiff (const Date& d1, const Date& d2) to get the number of days between the Date d1 and Date d2. Remember that the difference between the years −1 and 1 is 1 not 2. When you move from a date with a positive index value to a year with a negative index value or vice versa, you need to consider this fact in your computation.

A driver program is supplied to test your Date class. The source file of the driver program is prog7.cc. To use this source file, make a link from your program directory. To compile the source files prog7.cc and Date.cc, and link their object files with the system library routines, make a link to the makefile from your program directory and then execute: make N=7. To test your program, execute: make execute N=7. The files prog7.cc and the makefile

are located in directory: ~cs689/progs/16s/p7. The correct output file prog7.out is also located in the same directory.

The main ( ) routine tests the member functions of the Date class for several given dates. For each Date object d, it calls the non-member function bool printDate (const Date& d), This routine checks if d is a valid date, and if it's not, it prints an error message on stderr and it returns true; otherwise, it prints d on stdout and it returns false.

When your program is ready, mail its source and header files of your Date class to your TA by executing: mail_prog Date.cc Date.h.