The objective of this lab is to:

1. Understand and practice classes, data hiding and abstraction concepts.
2. Practice good coding conventions e.g commenting, meaningful variable and functions names, properly indented and modular code.

Instructions!

1. This is a **graded** lab, you are strictly **NOT** allowed to discuss your solutions with your fellow colleagues, even not allowed asking how is he/she is doing, it may result in negative marking. You can **ONLY** discuss with your TAs or with me.
3. Strictly follow good coding conventions (commenting, meaningful variable and functions names, properly indented and modular code.
4. Save your work frequently. Make a habit of pressing **CTRL+S** after every line of code you write.

Task 01: [20 Marks]

You are required to implement a time class. Internally, it will store the time of a day in a twenty-four-hour format. Implement the following public member functions:

```
class time {
   int hours;
   int minutes;
   int seconds
};
```

Note: Add all necessary checks for time.

1. ***void setHour(int h);*** set the current hour
2. ***void setMinute(int m);*** set the current minutes from 0-59
3. ***void setSecond(int m);*** set the current seconds
4. ***void setTime(int h = 0, m = 0, s = 0);*** set all three variables in a single function
5. ***int getHour( ); int getMinutes( ); int getSeconds( );*** functions to get current time.
6. ***void printTwentyFourHourFormat( );*** print time in 24 hour format
7. ***void printTwelveHourFormat( );*** print time in 12 hour format
8. ***void incSec(int s = 1);*** Increments time by given seconds, the function should increment minutes if needed and hours if needed (use a functional approach)
9. ***void incMin(int m = 1);*** Increment time by given minutes the function should increment hours if needed.
10. ***void incHour(int h = 1);*** Increment time by given hours, reset the day if needed.

Write menu driven main program to test above class.

Task 02: [15 Marks]

Design a simple class called *Date*. The class should store a date in three private integer data members: month, day, and year. Write appropriate mutator/setters and accesser/getter functions for all the data members. There should be three more member functions to print the date in the following forms:

12/25/2012
December 25, 2012
25 December 2012

Demonstrate the class by writing a complete program implementing it.
Input Validation: Do not accept values for the day greater than 31 or less than 1. Do not accept values for the month greater than 12 or less than 1.