C212/A592 Spring 17 Lab 7

Intro to Software Systems

Instructions:

- Review the requirements given below and Complete your work. Please submit all files (including UML diagrams as well as main to test your work) through Canvas.
- The grading scheme is provided on Canvas

UML Diagrams

1. Draw UML diagrams (activity diagram and class diagrams) for DoB class as defined below:

   Define a class called **Month** that represents a calendar month. Your class will have one member variable of type *Integer* to represent a month (1 for January, 2 for February, and so forth). Include all the following member methods:

   - a constructor to set the month using the first three letters in the name of the month as three arguments,
   - another constructor to set the month using an integer as an argument (1 for January, 2 for February, and so forth),
   - a default constructor,
   - an input function that reads the month as an integer,
   - an input function that reads the month as the first three letters in the name of the month,
   - an output function that outputs the month as an integer,
   - an output function that outputs the month as the first three letters in the name of the month and
   - a member function that returns the next month as a value of type Month.

   Define another class called **Day** that is an abstract Data type for a Day. Similarly define a class **Year**. Define appropriate constructors, input and output functions.

   Finally define a class **DoB** which represents a typical Date of Birth. This class will have three member variables of Type **Month, Day** and **Year** as defined above. Also define appropriate constructors as well as input and output functions for using Date of Birth.

   Now write a main to test all of the code.

2. Can you re-write all classes as abstract data type (ADT)?

   What is ADT?
   The ADT (Abstract Data Type) is a class that is designed to separate the interface and the implementation of the class. All class definitions should be ADTs. If you wish to define a class as an ADT, then you should separate the specification of how the class is used from

the details of how the class is implemented. The separation must be such that you can change the implementation and any program that uses the class can still use it without a need to make any change.

Note: You can use free software called StarUML which can be downloaded from http://staruml.sourceforge.net/en/download.php or a similar software.