Queens College
Computer Science Department

CS 212 – Fall 2016 – Project 2

Assigned: 20 October 2016
Due: 4 November 2016
Cutoff: 9 November 2016

Creating a Class for Dates

Create a class called *Date212* to represent a date. It will store the year, month and day as integers (not as a String), so you will need three private instance variables. Two constructors should be provided, one that takes three integer parameters, and one that takes a String (representing the date as in project 1). The constructor with the String parameter should validate the parameter as in project 1, and then use the *substring* method of class *String* to pull out the month, day and year, parse them as integers and call the three-argument constructor. The three-argument constructor should make sure that the month and day values are legal. To call another constructor from within a constructor, use the method *this*:

```
public Date212 (String d) {        // the one-argument constructor
…
    this(year, month, day)         // invokes the three-argument constructor.
…
}
```

The format of the input file will be the same as Project 1.

List of Dates

Create a class called *DateNode* which has fields for the *data* (a Date212) and *next* (DateNode) instance variables. Include a one-argument constructor which takes a Date as a parameter. (For hints, see the PowerPoint on "Static vs. Dynamic Structures".)

```
public DateNode (Date212 d) {  . . }
```

The instance variables should have protected access. There will not be any get and set methods for the two instance variables.

Create linked list class called *DateList.* This should be a linked list with head node as described in lecture. Modify it so that the data type in the nodes is *Date212*. The no-argument constructor should create an empty list with *first* and *last* pointing to an empty head node, and *length* equal to zero.

Include two methods in class DateList: append and insert. The append method will add the new node to the end of the list; the insert method will add the node in the proper position to keep the list sorted in order by date.

Instantiate two linked lists, and for every date read from the file, add it to the first list using append, and to the second list using insert. You will end up with the first list having the dates from the input file in the order they were read, and in the second list the dates will be in sorted order. Display the unsorted and sorted dates in the GUI just as in project 1.

ToString() for Class Date212.

Create a toString method in lass Date212 the will return the date in the form mm/dd/yyyy. Use this method to display the dates in the GUI.

Submitting the Project.

You should now have the following files to submit for this project:

```
Project2.java
Date212.java
DateGUI.java
DateNode.java
DateList.java
```

Submit a jar file.

Rather than upload all the files above separately, we will use Java's facility to create the equivalent of a zip file that is known as a **J**ava **AR**chive file, or "jar" file.

Instructions on how to create a jar file using Eclipse are on Blackboard. Create a jar file called **Project2.jar** and submit that.

Upload your project to BlackBoard by the due date for full credit.