CS 304 Homework Assignment 1

Due: 11:59pm, Thursday, January 23rd

This assignment is scored out of 59. It consists of 7 questions. The first 6 questions are to be completed on D2L as an online quiz. There is a programming question and you will need to put all your Java programs (`*.java`) as well as output files for this question in the folder named LastName_FirstName_CS304_HW1. Zip this folder, and submit it as one file to Desire2Learn. Do not hand in any printouts. Triple check your assignment before you submit. **If you submit multiple times, only your latest version will be graded and its timestamp will be used to determine whether a late penalty should be applied.**

Short Answers

Complete Quiz 1 on D2L by the due date. You might see there is a time limit of 120 minutes on this quiz but it is not enforced so you can ignore it. Before you complete all questions, DO NOT submit! Doing so will prevent any further changes to the answers. You can save your answers for as many times as you want before submission.

Programming Questions

(35pts) You are provided with a `Date` class and an incomplete `IncDate` class. The `IncDate` class inherits from the `Date` class and it is supposed to add a certain number of days to a date. This task is done by first creating an object of the `IntDate` class in the test driver with an initial date and then calling the `addDays` method on this object. For example, if the current `IntDate` object, say `myDate`, contains the date 1/1/2016, then after the `addDays(20)` method is called on `myDate`, the date in it would be 1/21/2016 because 20 days has been added to the original date. This is not a simple addition because you need to take care of different months as well as **leap years**.

a. Completing the `IncDate` class

Your task is to implement the `addDays` method in the `IncDate` class so that calling this method would add a certain number of days to the date contained in the current object. **Note that you are only supposed to touch this method. You are NOT allowed to create any other methods, instance variables, or make any changes to methods other than `addDays(int numDays)` or files other than "IncDate.java". Points will be taken off if you fail to follow this rule.**

b. Code Testing

You are provided with a test driver implemented by "`TestIncDate.java`" (**Do not make any changes to this file!**) so there is no need to write your own. You are also given a data file "`testDates.dat`" that contains 30 test dates. **This is a binary file and you will not be able to view its content using a text editor. We have not covered how to read and write this type of files so do not worry if you have no idea how it works. We will introduce the topic later this semester.**

Depending on your programming environment, the data file might need to be placed in different folders so that you test driver can read it. For iGRASP, you can leave the data file in the same folder as your java files. For NetBeans, you should place it in your project folder in which you see directories like **build**, **nbproject**, and **src**, etc.

Once you have completed the **addDays** method, you can run the test. You should create a plain text file named "**output.txt**", copy and paste the output (if your code crashes or does not compile, copy and paste the error messages) to this file and save it.

Grading Rubric:

Code does not compile: -10
Code compiles but crashes when executed: -5
Changes were made to things other than the **addDays** method: -5
Dates were hard-coded into the method: -35
Has output file: 5
Code passes 30 test cases: 30 (each test case worth 1 point)

Sample Output:

```
The current date is 1/30/2010 and 2 days are added.
The correct new date is 2/1/2010 and the one calculated by your
program is 2/1/2010.
Correct!

The current date is 2/28/2011 and 2 days are added.
The correct new date is 3/2/2011 and the one calculated by your
program is 3/2/2011.
Correct!

The current date is 2/28/2012 and 2 days are added.
The correct new date is 3/1/2012 and the one calculated by your
program is 3/1/2012.
Correct!

...

The current date is 12/8/2021 and 6392 days are added.
The correct new date is 6/9/2039 and the one calculated by your
program is 6/9/2039.
Correct!

Total test cases: 30
Correct: 30
Wrong: 0
```