

## 1. PROGRAM 1 INSTRUCTIONS, CS102, PROF. LOFTIN DUE MONDAY, SEPTEMBER 14, 2009

Write a class `Date.java` which contains the following public methods:

```
Date (int m, int d)
String toString()
Date tomorrow()
```

Here constructor sets the month to the integer `m` and sets the day to the integer `d`. Assume that it is not a leap year, so that for February (`m = 2`) the valid range for the day is 1 to 28; for April, June, September, and November (`m = 4,6,9,11`), the valid range for the day is 1 to 30; and for the other months, the valid range for the day is 1 to 31.

The `toString` method should return the date in the usual English form, such as `March 10` if the month is 3 and the day is 10. The `toString` method should return a message such as `Invalid Date` if the day and/or the month is out of range. (i.e., when the month is 4, and the day is 31, since April 31 is not a valid date).

The `tomorrow` method should return the day after the given date. So, if the current day stored in a `Date` object `dat` is April 30, then the return value of the `tomorrow` method, `dat.tomorrow()`, should be May 1.

## 2. HOW TO DO IT

In addition to the public methods listed above, your program should have `private` variables representing the month and day. It will probably also be useful to have a `private` method

```
private boolean valid()
```

which checks to see if the given date (month and day) is valid. You may also include any other private data or methods as you see fit.

You may also want to store the names of the months—"January", "February", "March", etc.—and the number of days in each month—31, 28, 31, etc.—in arrays. Should these arrays be `static`? `final`? `private`?

## 3. PROGRAM REQUIREMENTS

Turn in your Java class called `Date.java` to me by emailing it to me, as an attachment, at `loftin@rutgers.edu`.

Your `Date.java` class should work with the following driver class `DateDriver.java`, which you should copy verbatim. (Your `Date.java`

class should of course also work with other driver classes which call the public methods of your class.)

```
import java.util.Scanner;
public class DateDriver{
    public static void main (String[] args){
        Scanner scan = new Scanner(System.in);
        for (int i=0; i<4; i++){
            System.out.print("Enter 2 integers, month and day: ");
            int m = scan.nextInt();
            int d = scan.nextInt();
            Date dat = new Date(m,d);
            System.out.println("This day is " + dat +
                               ", and the next day is " +
                               dat.tomorrow() + ".");
        }
    }
}
```

#### 4. TO RUN YOUR PROGRAM

You should have both the file `DateDriver.java` and your file `Date.java` in the same directory. Type `javac DateDriver.java` to compile your program, and `java DateDriver` to run it.

#### 5. SAMPLE OUTPUT

If the user inputs

```
4 2
12 31
4 31
11 30
```

the output of your program should be something like this:

```
Enter 2 integers, month and day: 4 2
This day is April 2, and the next day is April 3.
Enter 2 integers, month and day: 12 31
This day is December 31, and the next day is January 1.
Enter 2 integers, month and day: 4 31
This day is Invalid Date, and the next day is Invalid Date.
Enter 2 integers, month and day: 11 30
This day is November 30, and the next day is December 1.
```