

Computer Science 12: Lab 5

Inheritance

WORK WITH A PARTNER ON THE FIRST PART OF THIS LAB

cp \$cs112Home/lab5/* .

or

git clone https://github.com/jerager/lab5

- a. Compile and run TestDate.java. Then examine TestDate.java, DateFactory.java and GregorianCalendar.java. Make sure that both of you understand the programs. (This has nothing to do with inheritance.)
- b. Try to compile RussiaDate.java. It will not (neither will ScotlandDate.java), try to figure out why. If you cannot, please ask for an explanation.
- c. Modify RussiaDate and ScotlandDate so that they will compile, and so that their constructors will set the day, month, and year fields in GregorianCalendar correctly.
- d. Discuss with your partner how to modify DateFactory so that createDate will return a GregorianCalendar, a ScotlandDate or a RussiaDate depending on the value of the parameter where. (No coding)

Discuss what will happen if you override (in RussiaDate or ScotlandDate) one or more of the methods isLeap, isLastday and isChangedForSpecialDay, but do NOT change makeTomorrow. For example, what is the effect of adding a version of isLeap in RussiaDate? (No coding)

Tell me or a TA what you decided.

By the time you break up with your partner, you should understand how makeTomorrow works with the other methods.

Now work on our own. (You will need to fix RussiaDate and ScotlandDate in your account if you have not yet done so.)

- e. Modify createDate so that it works as described above, and modify TestDate so that it generates test cases of each type of date. Be sure to choose dates that will test makeTomorrow for Scotland and Russia.

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f. Modify RussiaDate and ScotlandDate so that makeTomorrow works correctly for all three (as it did in Lab 2). **Do not change or override** makeTomorrow. You will need to override other methods. There should not be any if statements depending on the location outside of DateFactory. You will need to add appropriate getter/setter methods to GregorianCalendar.

Note: Many of you made errors in the implementation of the date algorithms for Russia and Scotland. You do NOT need to fix those errors in this lab. I will not take off for such errors in this lab. However, you must at least try to get it right.

When you compile this lab, make sure that you compile like this:

```
javac *.java
```

If you do not, some of your classes may not be recompiled.

Submit this to CS112Lab5