INTRODUCTION TO COMPUTER SCIENCE I

LAB 2

Absolute Values and Leap Years

1 Getting started

First, login to one of the college servers (remus/romulus) using your X11 Windows Server (XQuartz/VcXsrv). See Lab-1 if you’re forgotten how to do that.

Next, get some source code into a new directory for this lab by using the following commands at the shell prompt:

$ mkdir lab-2
$ cd lab-2

If you list the files in your directory (ls -l), you should see two Java source code files: AbsVal.java and LeapYear.java. We will work with each of these in turn.

2 Your assignments

2.1 Calculating an absolute value

Open the source code for this program in Emacs (and don’t forget the trailing ampersand!):

$ emacs AbsVal.java &

The source code that you will see will contain only part of the program. Specifically, the existing code will prompt the user to enter a number, and will then read that number and assign it into the variable f; at the program’s end, it will print the value of f. In between, you must write the code that insures a non-negative value for f, thus making what is printed in the last step the absolute value of what was entered by the user.

As usual, be sure that each time you change the source code and want to test it, that you . . .

1. Save your changes in Emacs.

2. Compile your new source code:

   $ javac AbsVal.java

3. Run the new version of the program (if the compilation completed without errors):

   $ java AbsVal
2.2 Determining a leap year

Next, open the other source code file:

    $ emacs LeapYear.java &

The existing code does only the simple job of prompting the user to enter a year, and then assigning
the user’s entry into the variable `year`. From there, you code must determine whether the year
entered is a leap year, based on the following rules: A given year is a leap year if it is divisible
(i.e., with no remainder) by 4, but not by 100, except if it is by 400. Thus, running the program and
providing the following year numbers should yield the following results:

    $ java LeapYear
    Enter a year: 2016
    Yes, every 4th

    $ java LeapYear
    Enter a year: 2019
    No, not a 4th

    $ java LeapYear
    Enter a year: 2100
    No, not every 100th

    $ java LeapYear
    Enter a year: 2000
    Yes, every 400th

3 How to submit your work

Submit your `AbsVal.java` and `LeapYear.java` files using the `cssubmit` command, like so:

    $ cssubmit AbsVal.java LeapYear.java

You may also access the CS submissions systems through your web browser at the submission sys-
tem web page at [www.cs.amherst.edu/submit](http://www.cs.amherst.edu/submit) where you can check whether and when you
have submitted work for each assignment. Note that you may submit work multiple times; each
submission is separately logged, and I will grade the most recent submission for each assignment.

This assignment is due on Thursday, Feb-14, 11:59 pm.