Summary

In this practical you write a program that determines if certain events occurred during the year given by the user. For this task you will use if/else statements and boolean logic operators such as “&&” or “||”. Finally, using the “git add”, “git commit”, and “git push” commands you will upload your source code and the output you obtain from running your program to your Git repository hosted by Bitbucket.

Review the Textbook

You may refer to sections 5.1–5.2 in your textbook to read about if/else statements and boolean expressions.

A Program Inspired by “Through All the Years”

This section’s title is a quotation from Allegheny College’s Alma Mater. You will write a program that, given the user’s input, determines which of the following events occurs that year:

- it is designated as a leap year
  A year is a leap year if it is divisible by 4, unless it is a century year. If it is a century year, it is a leap year if it is divisible by 400. For instance, 1968 and 1972 are leap years since they are divisible by 4; 1967 and 1970 are not. The year 2000 is a leap year because it is divisible by 400; however, 1900 is not (even though 1900 is divisible by 4—century years are treated differently).

- the emergence of the 17-year cicadas (more specifically, Brood II)
  The 17-year cicadas emerge from underground every 17 years. There are several “broods”—the one in which we have interest emerged most recently in 2013. That is, any year that differs from 2013 by a multiple of 17 is also an emergence year for Brood II (e.g., 2040, 1996, 1928, and 3713).
• it is predicted to be a peak year of sunspot activity

Sunspot activity usually peaks every 11 years. The year 2013 was supposed to be such a “solar max” year. This means that any year that differs from 2013 by a multiple of 11 should also be a solar max year. For instance, 2002, 2024, and 1793 are all years predicted to exhibit peak activity.

Here is the sample output from running the program with the year 1452 as input:

```
jjumadinova@aldenv113:~/practical5 $ java YearChecker

Enter a year between 1000 and 3000: 1452
1452 is a leap year
It’s an emergence year for Brood II of the 17-year cicadas
It’s a peak sunspot year.
Thank you for using this program!
```

In addition to regularly compiling your program, you should thoroughly test it as well! Try the above date, the other dates mentioned in the assignment, and some of your own as well.

Completing the Practical Assignment

To finish this assignment and earn a “checkmark”, you should submit the YearChecker.java program in your Bitbucket repository by using appropriate git commands. You also need to submit an output file with five runs of your program.

General Guidelines for Practical Sessions

• Submit Something. Your grade for this assignment is a “checkmark” indicating whether you did or did not complete the work and submit something to the Bitbucket repository using the “git add”, “git commit”, and “git push” commands.

• Update Your Repository Often! You should add, commit, and push your updated files each time you work on them, always including descriptive messages about each code change.

• Review the Honor Code Policy on the Syllabus. Remember that while you may discuss your work with other students in the course, code that is nearly identical to, or merely variations on, the work of others will be taken as evidence of violating the Honor Code.