	**Computer Science Department/College of Engineering and Computer Science** **CSc 20: Programming Concepts and Methodology II** **Lab 3 – Java statements (Spring 2018)**

Objective:

In this lab, you are to write a Java program to accept an integer, indicating a year, from the command line and then print the calendar for that year. If an integer is not available from the command line, your program will use the current year as input (no hardcode value please!). Scanner class is not allowed to used in this lab. A sample output is given below.

Preparation: (at home)

For each call to the following method, indicate what output is produced.

```
public void mystery(int n) {
   print(n + " ");
   if (n > 0) {
      n = n - 5;
   }
   if (n < 0) {
      n = n + 7;
   } else {
      n = n * 2;
   }
   println(n);
}
```

```
mystery(8);
mystery(-3);
mystery(1);
mystery(0);
```

Test your work with the following web site:

https://www.codestepbystep.com/problem/view/java/ifelse/ifElseMystery1

Lab work: (in school laboratory)

This lab's objective is to exercise with usages of Java's control statements. You are suggested to use exactly one while loop statement, one for loop statement and one switch statement. You will also practice on how to use formatting techniques of method printf().

Activities:

1. Copy instructor's JulianDate class from CSUS's Canvas into your working directory. Note that the JulianDate class is not readable but it can be integrated with you program by placing it in the same directory as your source program under Jgrasp.

The JulianDate class is used to determine the day of the week for the 1st day of January.

```
JulianDate JD = new JulianDate();
int date = JD.toJulian(2018,1,1);
int dayOfWeek = (date+1)%7; // 0 means Sunday, 1 means Monday, etc.
```

2. Develop your program according the pseudo code given in class. You are welcome to develop your program from afresh. You can name this program as PrintCalendar.java.

Additional Requirements:

1. No arrays are allowed in this lab.

2. Your output should be closely similar to the output of the instructor's sample program (see below).

3. To determine whether a year is a leap year or not:

   a. If the year is a century year, the year must be divisible by 400.
   b. If the year is not a century year, the year only needs to be divisible by 4.

4. To determine the current year, please use this code.

```
currentYear = Calendar.getInstance().get(Calendar.YEAR);

(note: please import java.util.Calendar; )
```

5. Allow user to input the selected year using Jgrasp's "run argument" as an option, if an user chooses to do so.

6. To indicate the current month, if the input year matches the current year i.e. that is 2018, mark the current month (i.e Febuary) with dashed-lines (top/bottom lines). Otherwise, the marker lines should not be displayed.

```
----------------------
       February

  S  M  Tu W Th  F  S
              1  2  3
  4  5  6  7  8  9 10
 11 12 13 14 15 16 17
 18 19 20 21 22 23 24
 25 26 27 28
----------------------
```

7. For the leap year calendar, please place a text "(Leap year)" next to the year. For example, 2016 (Leap year)

Sample output: (Example shows only from January to May months)

```
----jGRASP exec: java PrintCalendar

         2018

        January

  S  M  Tu W Th  F  S
     1  2  3  4  5  6
  7  8  9 10 11 12 13
 14 15 16 17 18 19 20
 21 22 23 24 25 26 27
 28 29 30 31
----------------------
       February

  S  M  Tu W Th  F  S
              1  2  3
  4  5  6  7  8  9 10
 11 12 13 14 15 16 17
 18 19 20 21 22 23 24
 25 26 27 28
----------------------
        March

  S  M  Tu W Th  F  S
              1  2  3
  4  5  6  7  8  9 10
 11 12 13 14 15 16 17
 18 19 20 21 22 23 24
 25 26 27 28 29 30 31


        April

  S  M  Tu W Th  F  S
  1  2  3  4  5  6  7
  8  9 10 11 12 13 14
 15 16 17 18 19 20 21
 22 23 24 25 26 27 28
 29 30

         May

  S  M  Tu W Th  F  S
        1  2  3  4  5
  6  7  8  9 10 11 12
 13 14 15 16 17 18 19
 20 21 22 23 24 25 26
 27 28 29 30 31
```

Deliverables:
(1) Demonstrate your preparation work from the website https://www.codestepbystep.com/problem/view/java/ifelse/**ifElseMystery1** to your instructor.

(2) Demonstrate your program **PrintCalendar's** execution to your instructor.

(3) Upload your source program(s) (Java program text) and its execution output (in PDF) to Canvas for grading.