**CMSC 113 – COMPUTER SCIENCE 1 (Prof. Kumar)**
**Lab2: Data Types, and Library Functions**

Before you begin this lab, please make sure to have read Section 1.2 from your text.

**Task#1:** Is a given year a leap year.

First recall, what is a leap year:

A year is a leap year if it is divisible by 4 (e.g. 2020), unless it is divisible by 100 in which case it is not (e.g. 1900, 2100), unless it is divisible by 400 (e.g. 2000).

One way to do the computation above is by using Boolean expressions in the order shown below (following the description above):

**isLeapYear is a Boolean variable, year is the input year.**
**Set isLeapYear ← year is divisible by 4.**
**Set isLeapYear ← isLeapYear AND year is not divisible by 100.**
**Set isLeapYear ← isLeapYear OR year is divisible by 400.**
**Output the value of isLeapYear.**

AND and OR used above are Boolean operations (i.e. in Java, AND is **&&** and OR is **||**).

Next, write a Java program called, **LeapYear**, that inputs a year on the command line, and outputs **true/false** depending on whether the input year is a leap year or not. For example

```
[xena@codewarrior ~]$ java-introcs LeapYear 2024
true
[xena@codewarrior ~]$ java-introcs LeapYear 2025
false
```

The program is provided on page 28 of your text (Program 1.2.4). Please make sure you understand the program before you enter and run it.

Once you have completed your program, test it on the above inputs. Additionally, test it on the following years: 1600 (true), 1900 (false), 2000 (true), 2020 (true), 2100 (false), and 2021 (false).

**Task#2:** Write a java program called, **MaxOfThree**, that takes three integers as command line arguments. The program prints out the maximum of the three numbers. For example:

```
[xena@codewarrior ~]$ java-introcs MaxOfThree 47 78 -5
The max of 47, 78, and -5 is 78
```

**Note:**

There is a useful library function in the **Math** module that you will use: **Math.max(x, y)** returns the largest of **x** and **y**. Think about how you would use this function to compute the maximum of three numbers. Ask your instructor for help in the lab.