

CS1020 Take-home Lab #0

Exercise #2: Date Conversion

http://www.comp.nus.edu.sg/~cs1020/3_ca/labs.html

Objectives:

1. Input/output in Java
2. Using **String** class and **Integer** class
3. Writing user-defined method



Task statement:

There are two common formats used for a date. For example “December 25, 2012” is more commonly used in the UK, whereas “25 December 2012” is more popular with the Americans.

Write a program **DateConvert.java** that reads a string in the UK date format and outputs the equivalent American format, and also whether the year is a leap year.

The input consists of the month, a space, the day, a comma, a space, and the year. You may assume that all inputs follow this format, and that the input date is a valid date.

You are to define a class method **isLeapYear(int)** that takes in an integer parameter which represents the year, and returns **true** if it is a leap year, or **false** otherwise. A year is a leap year if it satisfies one of the following two conditions (this has been covered in CS1010):

- It is divisible by 400; or
- It is divisible by 4 but not by 100

For example, 2012, 1996, and 2000 are leap years, but 1998, 2013, 2100 and 2200 are not.

Note that you are not allowed to use the **Date** class, the **SimpleDateFormat** class or any other date formatter class in the API.

Hint: After extracting the year from the input date (eg: “December 25, 2012”) into a String variable say `yearStr` (“2012”), it needs to be converted into an integer (2012) to be passed into the **isLeapYear(int)** function. To do this, you may use the **valueOf()** method in the **Integer** class (read up **Integer** class on the API) as follows:

```
int year = Integer.valueOf(yearStr);
```

Sample runs:

```
Enter date in UK format: December 25, 2012
Date in American format: 25 December 2012
2012 is a leap year.
```

```
Enter date in UK format: March 7, 2013
Date in American format: 7 March 2013
2013 is not a leap year.
```