Michael Wells

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Assignment 4 Design

**1)**

Within my **main** method I first declare month and year variables are integers. I then prompt the user to input a number 1-12 for the corresponding months and the year. These two variables are the parameters for the **printMonthCalendar** method, which contains 2 the **printMonthHeader** method and the **printMonthBody** method, both of these methods take in both the month and year variables. The **printMonthHeader** method first converts the month integer value to a string of the full month name by using the **getMonthName** method, which is just a simple switch case for each possible integer value and the corresponding month name. Then the month name, the year, the line separator, and days of the week are printed to the console.

For the **printMonthBody** method we fitst need to know how many days are in the desired month. The **getNumDaysInMonth** method is a switch statement similar to **getMonthName** but with integers regarding the number of days. After the switch statement I have an if statement that if the boolean variable leapYear from the **isLeapYear** method is true and the daysInMonth variable from the switch statement is 28 then it changes daysInMonth to 29. The **isLeapYear** method takes in the year variable returns a boolean value (true = leap year false = common year) based on the year divisibility by 400, 100, and 4. Now that I know the number of days I set day equal to one and use a for loop to go through each day of the month. If day equals 1 I use a switch statement to output the first day with the correct white space. If the dayLocation is equal to 6 then I need to start a new line for the next week. If the day is less than 10 I use 4 spaces (1+3 from the days of the week) if it is 10 or greater I only user 3 spaces.

**2)**

Problem 2 uses the same methods used in problem 1, except this time I am only getting the user to enter the year and outputting the calendar for every month of that year. To do this I start by setting the month variable to 1 and I call the **printMonthCalendar** method within a for loop that loops from month equals 1 to month equal 12. It then prints each month every iteration outputting the whole year.

