

Computer Science 121

Lab 5

100 Points

In this lab, you have two questions. For all of the questions you will be using **switch statements** for multi-way selection.

You need to finish question1 in the lab and demonstrate to your instructor. You need to submit question 2 in ecampus before the next lab and you can demonstrate during the next lab.

Also include the following comment at the beginning of your code:

```
/*  
* Your Name  
* Submission Date  
* CS 121 Lab  
* Name of Program  
*  
* Describe what the program does in one to two sentences.  
*/
```

Q1. (50 Points)

Write a well commented program named Seasons that prompt user to enter a month in numbers (1 through 12, 1 for January ... 12 for December). Your program then prints out the season.

For example: If the input is 5 your program needs to print Spring

Requirements:

- 1) You cannot use if or if else statements for this question, use only switch statements for multi-way selection
- 2) If entered month is wrong you need to notify user with an error statement, such as "Invalid Month"

```
> run Seasons
```

```
Please enter the Month in numbers
```

```
5
```

```
Season is Spring
```

Q2. (50 Points)

Write a well commented program named DaysInMonth that prompt user to enter a month as a number (1 through 12, 1 for January ... 12 for December), then enter the year. Your program then prints out the year, month number and number of days at that month.

For example: Number of days in 2017 month 1 is 31

Additional Requirements:

- 1) You must use switch statements for multi-way selection of months.
- 2) You must check for invalid inputs. Only a month between 1 and 12 is valid. Only a year greater than 1000 is valid. If user input is invalid, you must print "Invalid input. Months must be between 1 and 12, year must be greater than 1000." and print nothing else.
- 3) You can use if/else/else for validating inputs and handling leap year.

Hint:

A year is a leap year if it is divisible by 4 but not by 100, or it is divisible by 400.

You can use the condition

```
(year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)
```

to check if year is leap year or not.

You can try to find out how many days each month has using internet search.

Examples:

```
> run DaysInMonth
```

```
Please enter the Month in numbers
```

```
Please enter the Year
```

```
Number of Days in year 2020 and month 2 is 29
```

```
> run DaysInMonth
```

```
Please enter the Month in numbers (between 1 and 12)
```

```
Please enter the Year (Greater than 1000)
```

```
Invalid input. Months must be between 1 and 12, year must be greater than 1000.
```

```
> run DaysInMonth
```

```
Please enter the Month in numbers (between 1 and 12)
```

```
Please enter the Year (Greater than 1000)
```

```
Invalid input. Months must be between 1 and 12, year must be greater than 1000.
```

Submitting your Code

When you are done, you will need to submit your code for both questions on eCampus. When logging onto eCampus, be sure to select your corresponding lab session instead of T01. When you actually submit your code, be sure to submit the .java file, not the .java~ or .class files.