Programming Assignment 8 - Honors

http://clip4art.com/calendar-clipart.png/free-calendar-clipart-clip-art-pictures-graphics-illustrations-intended-for-calendar-clipart-calendar-clipart

Objectives:

- Practice two-dimensional arrays

Assignment:

In this assignment, you are going to create a single month of a calendar based on user input. You need to ask the user for the year, month, a day from that month, and the day of the week of the day is on. From this information, you will generate the calendar for that month. You will need to make sure that the month has the correct number of days, thus you will also need to check if the year entered is a **leap year**. You will need to make sure that the days of the month are on the correct day of the week.

Programming Notes:

- You **MUST** store the days for the calendar in a two-dimensional integer array. It should have 6 rows and 7 columns.
- You **MUST** display the values stored in the two-dimensional array when displaying the days of the calendar.
- You **MUST** do input validation for all of the user input.
    - Numbers must be integers (no floating-point numbers or words)
        - You **MUST** use exception handling for this.
    - Numbers must be in the correct range.
    - When entering the day, you will need to show them the correct range of numbers they can enter based on the year and month.
        - Ex: May 2017: range is 1 – 31. February 2016: range is 1 – 29.

Sample Execution 1: No Errors

```
Create a Calendar
=================

Enter Year: 2016

Choose Month
------------
1. January     5. May        9. September
2. February    6. June      10. October
3. March       7. July      11. November
4. April       8. August    12. December

Enter Month (1 - 12): 2

Enter Day (1 - 29): 13

Choose Day of Week
------------------
1. Sunday        5. Thursday
2. Monday        6. Friday
3. Tuesday       7. Saturday
4. Wednesday

Enter Day of the Week (1 - 7): 7


 February         2016
 --------------------
  S  M  T  W  T  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
```

Sample Execution 2: Errors

```
Create a Calendar
=================

Enter Year: sldf
Enter Year: -234324
Enter Year: 0.234
Enter Year: 2017

Choose Month
------------
1. January     5. May        9. September
2. February    6. June      10. October
3. March       7. July      11. November
4. April       8. August    12. December

Enter Month (1 - 12): 0
Enter Month (1 - 12): 13
Enter Month (1 - 12): sfllkj
Enter Month (1 - 12): 0.34
Enter Month (1 - 12): 4

Enter Day (1 - 30): 0
Enter Day (1 - 30): 31
Enter Day (1 - 30): -13132
Enter Day (1 - 30): 9.34
Enter Day (1 - 30): aslfj
Enter Day (1 - 30): 24

Choose Day of Week
------------------
1. Sunday        5. Thursday
2. Monday        6. Friday
3. Tuesday       7. Saturday
4. Wednesday

Enter Day of the Week (1 - 7): 0
Enter Day of the Week (1 - 7): 8
Enter Day of the Week (1 - 7): sldf
Enter Day of the Week (1 - 7): 0.234
Enter Day of the Week (1 - 7): 2


 April            2017
 --------------------
  S  M  T  W  T  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
```

Requirements:

- Use an updated comment block
- Your program should use the following comment block at the very beginning of your program.

```
// Name:  Your Name                    Date Assigned: Fill in
//
// Course:  CSCI 2003 60357            Date Due:  Fill in
//
// Instructor: Ms. Greer
//
// File name:  Fill in
//
// Program Description:  Brief description of what the program does.
```

- Use appropriate comments throughout the program
- Make good use of whitespace
- Your output should look exactly like the sample output if using the same data.

Deliverables:

- Calendar.java file, Upload 1 file to Moodle

Grading:

Total Points	15 points
Calendar class	**15 points**
Gets year correctly	0.5 points
Displays month options	0.5 points
Gets month correctly	0.5 points
Checks if year is leap year	1 points
Determines number of days in the month chosen	1 points
Gets day correctly showing correct range in the prompt	0.5 points
Displays day of the week options	0.5 points
Gets day of the week options correctly	0.5 points
Does error checking for ALL input	2 points
Creates calendar correctly	
Stores the days in a two-dimensional array	1 points
Stores correct number of days	1 points
Stores days on the correct day of the week	1 points
Displays calendar correctly	
Shows correct month	0.5 points
Shows correct year	0.5 points
Shows the header with the days of the week	1 points
Displays the values in the two-dimensional array	1 points
Shows correct number of days	1 points
Shows days on the correct day of the week	1 points
Not enough comments/whitespace	**-1 point**
Output does not match the sample executions given in the assignment	**-1 point**
Bad variable names, method names, and/or class names	**-1 point**