Lab Assignment # 3

Programs must be named exactly as shown in this assignment.
Points will be deducted for incorrectly named files.

Program #1: Username.java Solve problem PP 3.1 in the textbook.

*** Modify the problem so that the username (output) is all lowercase letters, even if the user enters uppercase letters in their first and/or last name.

Example Input:

```
Enter your first name:

John

Enter your last name:

Smith
```

Example Output:

```
Your username is:

jsmith18
```

Include header comments (see the details in lab 2). Include inline comments (explain the steps in the program). Use consistent indentation of 3 spaces for each level.

Program # 2: Cubes.java Solve problem PP 3.2 in the textbook.

*** Use Math.pow to find the cubes.

*** Modify the problem so that instead of getting user input, you generate 5 sets of 2 random integers between 2 and 10. Print a table, neatly aligned, with the numbers and the sum of their cubes. Note: the numbers in the output will be different each time you run the program.

Example Output:

```
1st Number     2nd Number     Sum of Cubes
----------     ----------     ------------
         2              8              520
         6              5              341
         3              9              756
         9              4              793
         5              7              468
```

Include header comments (see the details in lab 2). Include inline comments (explain the steps in the program). Use consistent indentation of 3 spaces for each level.

Program # 3: StringFling.java

Create a Java program that will do the following (in this order):

a. Input a string from the user. You may assume that the user enters at least 5 characters. The string may contain spaces.
b. Convert the string to all uppercase, then print it.
c. Convert the string to all lowercase, then print it.
d. Using the lowercase version of the string, print the length of the string.
e. Using the lowercase version of the string, print the location of the first character 'a'.
f. Print the lowercase version of the string in reverse.
g. Using the lowercase version of the string, replace all of the occurrences of 'a' with 'e', then print the string.
h. Using the uppercase version of the string, print the last 3 characters of the string.
i. Using the original version of the string, swap the first character with the last character, then print the string.

Include header comments (see the details in lab 2). Include inline comments (explain the steps in the program). Use consistent indentation of 3 spaces for each level.

Program # 4: Sphere.java Solve problem PP 3.5 in the textbook.

*** radius, volume, and surface area should be double variables.

*** Modify the problem so that if the user enters a negative value for radius, the program prints an error message and does not print volume or surface area.

Include header comments (see the details in lab 2). Include inline comments (explain the steps in the program). Use consistent indentation of 3 spaces for each level.

Submit Username.java, Cubes.java, StringFling.java, and Sphere.java on Canvas.

*** Name your files exactly as shown. Capital letters are important.