Lab Five

Objectives:

To format console output
To convert characters

To Prepare:

1. Open your **Lab Four** and, based on the feedback you were provided with and the answer key, make any modifications needed.
2. Once your program runs as expected, choose **Edit > Select All** and press CTRL + C (copy).
3. Choose **File > Close Project**
4. Paste the program code into a text editor (Notepad for Windows or TextEdit for Mac).

Assignment:

You will create a new program called **LastNameFirstInitialLab5**.

Add the necessary import statement(s), and the comments for the integrity statement, lab number, and programmer name and course name in the correct places. As always, it must also print out the lab #, programmer's name, course name and section #, and the program information.

Go to your text editor and copy the lines of code from the declarations of the numbers down to the line that prints the two variables integerNumber and realNumber5 into your new program.

```
double realNumber1 = 5.5;
double realNumber2 = 2.37;
double realNumber3 = 5.0;
double realNumber4 = 1.14;
double realNumber5 = 0.0;
int integerNumber = 0;

Scanner keyboard = new Scanner(System.in);  /*  added the keyboard as input device  */

System.out.println("\nThe ceiling is " + Math.ceil(realNumber1) + "\t\t\tThe floor is " + Math.floor(realNumber2) );
System.out.println("The square root is " + Math.sqrt(realNumber3) + "\tThe cosine is " + Math.cos(realNumber4) );

integerNumber = (int)(Math.random()* 50 + 1);
realNumber5 = 2.5 + Math.random()* 6.2;
System.out.println("integerNumber \'s value is " + integerNumber + "\t\t realNumber5\'s value is " + realNumber5);
```

Under the declaration for integerNumber, add the following variables with these initial values:

Variable name	Data type	Initial value
whereIs	int	0
myCharacter	char	0
letter	char	0
testing	Boolean	true
myWord	String	Supercalifragilisticexpialidocious

1. Under the line that prints the two variables integerNumber and realNumber5, ask a user to enter a character into **myCharacter**,
2. Use a selection statement to test the variable myCharacter to see if it is an upper case or lower-case character. If it is an uppercase letter, then assign **testing** to be true. If it is not an uppercase letter, then assign testing to be false.
3. Under the selection statement, print out testing.
4. Use the charAt() method to assign to the variable **letter** the index of 21 for **myWord**.
5. Use the indexOf() method to assign the variable **whereIs** the location in the variable myWord of where the letter x is.
6. Print the line that says:
   The 22nd letter in the word Supercalifragilisticexpialidocious is an x.
7. Use printf to format all of the variables listed in the following table (if a cell in the # of decimal places column is left blank, it means that the variable has no decimal places).

Variable	Data type for printf	# of decimal places
realNumber1	Floating point	1 decimal place
realNumber2	Floating point	1 decimal place
realNumber3	Floating point	4 decimal places
realNumber4	Scientific	2 decimal places
integerNumber	Integer	
realNumber5	Floating point	2 decimal places
myCharacter	Character	
testing	Upper case Boolean	
whereIs	Integer	
myWord	String	
letter	Character	

Notes:

- Your program must look like the sample using the same verbiage. I suggest that you look at the samples before you begin so you will know what this program will look like.
- Do not go above the objectives of the assignment. I will not expect to see the format() method used in place of printf, for example.
- Make sure your program uses proper indentation and wise use of whitespace. You can select Source from the menu and then select Format. This will automatically help with indentation and some whitespace issues. However, check it yourself afterward to be sure it is as readable as possible.
- The grading rubric is at the end of the assignment.

To Submit this lab:

In Canvas, upload the Java file to the assignment. This will be the file called **LastNameFirstInitialLab4.java**.

SAMPLE RUN SCREENS

Values shown in bolded blue are variables.

First time running the program: with a small letter d entered.

Lab Five
Christine Kikuchi
CSC 130, Sec #

This program will work with formatting.

Tabs

The ceiling is **6.0** The floor is **2.0**
The square root is **2.2361** The cosine is **4.18e-01**
integerNumber 's value is **44** realNumber5's value is **7.34**

Make sure that you have the necessary escape sequence characters, the **tabs** and the **single quote marks** that show the possessive for integerNumber and realNumber5

Enter a character: **d**
That **d** is an upper-case letter is **FALSE**

single quote marks

The **22**nd letter in the word **Supercalifragilisticexpialidocious** is an **x**

To get this to show as 22, use the whereIs variable + 1.

Second time running the program: with a capital letter G entered.

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CSC 130, Sec #

This program will work with formatting.

The ceiling is **6.0** The floor is **2.0**
The square root is **2.2361** The cosine is **4.18e-01**
integerNumber 's value is **36** realNumber5's value is **5.92**

Enter a character: **G**
That **G** is an upper-case letter is **TRUE**

The **22**nd letter in the word **Supercalifragilisticexpialidocious** is an **x**