

## **Lab 2 (14 points total)**

The purpose of this lab is to Chapter 2 concepts. There are several learning objectives to this assignment

- Use Variables and Expressions along with the String class.
- Obtaining keyboard I/O from users
- Obtaining GUI I/O from users
- Incorporating documentation and style into your code

### **Lab 2 Part 1 (6pts) – Create three separate java files**

#### **Imprecision (2pts)**

This problem illustrates imprecision when using large numbers. Define three double variables x, y, and z. Assign x the value of **12345.6789e200**. Assign y the value of 1/x. Assign z the value of x\*y. Display (print to console) the value of x, y, x, and the result of 1-z. **NOTE – The small amount of impression with the result of 1-z.**

```
The value of x is: 1.23456789E204
The value of y is: 8.10000007371E-205
The value of z (x*y) is: 0.9999999999999999
The value of 1 - z is: 1.1102230246251565E-16
```

**Prog Chall 3 – pg 106 (2pts)** – Max sure you read the fine print – the output is displayed on separate output lines, but use only a **single print or println statement**. **HINT – \n is your friend**

**Prog Chall 4 – pg 106 (2pts)** – **HINT: This is just a bunch of print statements and should be 7 stars on line 4.**

```
  *
 ***
*****
*****
*****
***
  *
```

### **Lab 2 Part 2 (8pts+2pts XC) – Create three or four separate java files**

**Prog Chall 2 – pg 106 (2pts)** – With the following exceptions. Use a console (Scanner) class and appropriate Scanner methods to ask the user for firstName, middleName, and lastName. *Check out the Lab2 Reference Card. This will be helpful throughout the course for Scanner and String methods.* Use String methods to take the first letter of each name and assign to the chars, firstInit, middleInit, lastInit – *hint charAt()*. NOTE: if you are like me and do not have a middle name create one that you always wanted, Norman is better than NMN 😊.

```
Enter your first name: Rico
Enter your middle name: Norman
Enter your last name: Cassoni
```

```
My name is: Rico Norman Cassoni
My initials are: RNC
```

#### **Prog Chall 12 – pg 107 (2pts)**

```
Enter a city: San Diego
```

```
The city entered has: 9 chars
In upper case: SAN DIEGO
In lower case: san diego
First character: S
```

**Prog Chall 13 – pg 107 (XC-2pts) – tax and tip should be created as final vars (Constants)**

Enter meal amount: \$25.50

The tax is: \$1.72

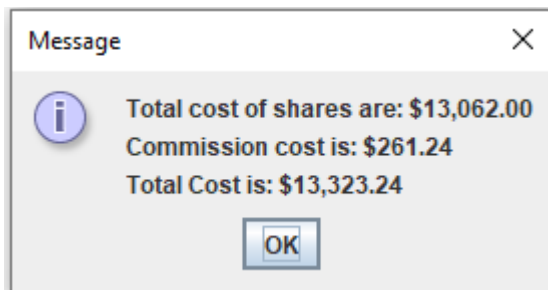
The tip is: \$5.44

The meal cost with tax and tip is: \$32.67

For those that will lose sleep not having a nice format, you can use `String.format("$%,.2f", <double var>)` or `printf( )` in the overall String output message including `"\n"` to nicely format the output. We will cover this in Ch3.

**Prog Chall 15 – pg 108 (4pts)** – use `JOptionPane` for input and output. The commission should be created as a constant (final). You should ask the user for the price per share and number of shares purchased. You can display the commission amount and total paid (stock + commission) in a single output dialog. Make sure you include `System.exit(0)` in your code as this will close the swing thread. **HINT-The output of dialog boxes are String literals. Use `int yourVarInt = Integer.parseInt(yourVariable)` to convert a String to an integer. You can do the same for doubles except use `Double.parseDouble()` to convert a String to a double.**

At a minimum, complete one calculation using **600 shares and 21.77 as the price per share**. Your output should look something like below. Do not worry if your decimal places are not nicely formatted. In Ch3, we will cover formatting. For those that will lose sleep not having a nice format, you can use `String.format("$%,.2f", <double var>)` in the overall "String output message including `\n`" to nicely format the output. For example, `"Total cost of shares are: " + String.format("$%,.2f", totalCostShares)...` along with `\n` for new lines.



**Submitting your work**

For all labs you will need to provide a copy of all .java files. **Please do not provide .class files. I cannot read these.** **NOTE – For Replit, please update Main.java to another name such as Imprecision.java, ProChall3.java, etc.** In addition to your .java files, you will need to provide output files of your console. The name of the output file should match the class name and have the .txt extension such as `ImprecisionOutput.txt`, `ProChall3Output.txt`. For GUIs such as `JOptionPane`, you will instead need to create screenshots. For Windows users, Snipping Tool is a great way to do this. Chromebook - Shift+Ctrl+Show Windows. Mac OS users, you can see how to take screenshots using the following url - <https://support.apple.com/en-us/HT201361>.