Lab 9(25 points total)
The purpose of this lab is to apply practical experience to Chapter 9 concepts. There are several learning objectives to this assignment. Pseudocoding / sketching out your strategy for SalesAnalysis (Pro Chall 11) will be a MUST!

- Wrapper Classes including Numeric Data Types
- String and Character Methods - Review and New
- Passing arrays as arguments
- ArrayLists
- Tokening Strings
- File I/O processing

PasswordVerifier (Pro Chall5) (7pts)
Your output should indicate whether the password is valid or not valid. Your input and output can either be console or JOptionPane – showInputDialog and showMessageDialog()s. You pick.

PasswordVerifier Class (**5pts**)
1) Should have one instance field, a String password (password) and a constructor that accepts a String.
2) Create a boolean return method called testPassword() that does not have any params and returns boolean true if the conditions for length (at least 8 or greater), uppercase (at least one), lowercase (at least one), and number (at least one) are met. Otherwise boolean false is returned.
3) You MUST use Character wrapper class methods to test for digit, lower case, and uppercase. See pgs 559-562.

PasswordVerifierDemo application (**2pts**) that does the following:
1) Reads in a String and indicate whether the password is valid or not valid via a console window
2) Uses a do while loop to ask the user to check another password
3) Check the following passwords
    a. `Sh0rt` (0 is a zero)
    b. `lowercas3`
    c. `UPPERCAS3`
    d. `Th1sWorks` (1 is a one)

```
Enter a password, to check.
Valid passwords are 8+ chars have upper case, lower case, and a number: Sh0rt
Password entered is not valid
Enter yes to check another password: yes

Enter a password, to check.
Valid passwords are 8+ chars have upper case, lower case, and a number: lowercase3
Password entered is not valid
Enter yes to check another password: yes

Enter a password, to check.
Valid passwords are 8+ chars have upper case, lower case, and a number: UPPERCAS3
Password entered is not valid
Enter yes to check another password: yes

Enter a password, to check.
Valid passwords are 8+ chars have upper case, lower case, and a number: Th1sWorks
Password entered is valid
Enter yes to check another password: no
```

SalesAnalysis(Prog Chall11) – pg606-7 (18pts)
SalesAnalysis class has two inst vars: ArrayList<Double> weeklyNumber, String inputFile and a ***public final integer static int field called DAYS_OF_WEEK set to 7***. ***Only one constructor is needed since the user will always pass a file name, therefore a no arg constructor is not required.***

SalesAnalysis (**15pts**) has the following three methods **ALL ARE VOID**:

1) processFile() creates File and Scanner objects and while a line is present (.hasNextLine()), reads in the line (.nextLine()). For each line, 'split' the line and assign to a String array. Then, pass the array as an arg to a (private) helper method setArrayListElement(). Make sure to .close() the Scanner object in the method. NOTE: You will need to throws IOException and "pass the buck" to the method that called processFile() (hint this is main() from SalesAnalysisDemo class), main() will also need to throws IOException (patience, we are almost ready for an Exceptions discussion – Ch11) 5pts
2) setArrayListElement(String[ ] inArray), private method called by processFile(), uses an Enhanced for (for each) loop to parse / total all of the seven inputs for the corresponding line of the array. HINT – The for each loop should box (convert each String array element to a double and add the converted doubles together. Then you will need to add the double total (primitive) to the Double<ArrayList> using Autoboxing via **`weeklyNumber.add(total)`**. 2pts
3) writeOutput() processes weeklyNumber and provides the required output per PC11 reqts (pg 606) – see below for an example. You will need to create additional local vars such as double for min, max, dailySales, totalSales along with int minWeek and maxWeek, etc. ***HINT – The top section is for weeks (can use a for loop here). Since you need to assign indices for minWeek and maxWeek, a for each loop will be inconvenient. The bottom section is based on all weeks and is a summary***.

   HINT2 – remember that size() gets the number of entries in an ArrayList 8pts

SalesAnalysisDemo (**3pts**) class provides the user with a console input and asks the user to provide the path to the SalesData.txt file. NOTE: Always make sure to check to see if a file exist. This is a good check before passing the String file name to the SalesAnalysis class constructor. This information is used to create a SalesAnalysis object using the String provided by the user. Then calls/invokes SalesAnalysis processFile() followed by writeOutput(). Remember setArrayListElement() is a private (helper) method.

```
Enter the path to the SalesData.txt file:  SalesData.txt

Week1Info
Total Sales: $12,092.75
Avg Daily Sales for Week: $1,727.54

Week2Info
Total Sales: $35,000.00
Avg Daily Sales for Week: $5,000.00

Week3Info
Total Sales: $27,461.00
Avg Daily Sales for Week: $3,923.00

Week4Info
Total Sales: $12,058.34
Avg Daily Sales for Week: $1,722.62

Total Sales for all Weeks: $86,612.09
Avg Weekly Sales: $21,653.02
Week2 had the highest amount of sales
Week4 had the lowest amount of sales
```

Submitting your work

For all labs you will need to provide a copy of all .java files. **No need to provide .class files. I cannot read these.** ***NOTE – For Replit, please update Main.java to another name such as TempProb.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 TempProbOut.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.