**Lab 6 (File IO)**

**Problem A**

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| **Radio** |
| - channels : Channel[] - volume : int  |
| + Radio(channels : Channel[], volume : int) + setChannels(channels : Channel[]) : void + getChannels() : Channel[]+ setVolume(volume : int) : void + getVolume() : int + saveChannelsToFile(filename : String) : void  |

|  |
| --- |
| **Channel** |
|  - frequency : double  - name : String  |
|  + Channel(frequency : double, name : String)  + setFrequency(frequency : double) : void + getFrequency() : double  + setName(name : String) : void + getName() : String + toString() : String  |

You have to implement the previous two classes. The class Channel has two private variables, a constructor, setters and getters, and a toString mthod. The class Radio has an array of channels and a volume.

In the tester class, you are required to read input from a file called "channels.txt" using a Scanner. The first line in the input file is the number of channels. Each additional line in the input file represents the name of the channel and its frequency.

After reading the number of channels, you need to create an array of Channels and its length would be the number of channels.

For each additional line you read, you need to create a new channel and add it to the array.

After reading the input, you should create a new Radio object an give it the read channels array as a parameter. Then, you should call the method saveChannelsToFile(String filename) to save the channels array to a file called "radio.txt" using a Formatter.

**Sample Input File:**

2

MixFM 104.4

 RadioOne 105.5

**Sample Output File:**

 MixFM 104.4

 RadioOne 105.5

Solution: <http://www.javaproblems.com/2013/12/reading-text-file-in-java-classes.html>

**Problem B**

Using a FilelnputStream, you should read a list of strings from a file called "strings.txt". The first line in the file will represent the number of lists. After reading the lists and storing them in a String array, you should use a FileOutputStream and save the lists to a file called "stringsUp.txt". The string should be saved in upper case.

**Sample Input File:**

3

The quick brown fox

 Java is King

This lab is awesome

THE QUICK BROWN FOX

 JAVA IS KING

THIS LAB IS AWESOME

**Solution:** [**http://www.javaproblems.com/2013/12/capitalize-string-using.html**](http://www.javaproblems.com/2013/12/capitalize-string-using.html)

**Problem C**

Using a scanner, you should read a 2D array from a file called "numbers.txt". The first line in the file will have two integers which are the number of rows and columns respectively. After reading the two integers, you should create a 2D array in your code that has the same number of rows and columns read. Then, you continue reading the 2D array from the file.

After reading the 2D array, you need to add the value of the previous column on the current row to the current column on the current row. (Hint: ADM] += A[i][j-1])

Finally, save your array to a file called "newNumbers.txt" using a formatter.

**Sample Input File:**

 43

 123

 234

456

678

136

 259

 4915

 61321

Solution: <http://www.javaproblems.com/2013/12/manipulating-2d-array-from-file-in-java.html>