Lesson – 2- Home Work Assignment

Problem - 1

Create a class called `Prog1`. In the `main` method of the class, output to the console the result of doing the following two computations:

1. get a random number x in the range 1 .. 9 and compute π^x.
2. get a random number y in the range 3 .. 14 and compute y^{π}.

Use the RandomNumbers.java class that has been provided for you as an attachment. (Do not use the Random class directly.) Use Math API to solve π^x and y^{π}.

Problem – 2

Create a class `Prog2`. Inside its `main` method, create `float` variables to store each of the following numbers:

```
1.27, 3.881, 9.6
```

Output to the console the following two values:

1. the sum of the `floats` as an integer, obtained by casting the sum to type `int`
2. the sum of the `floats` as an integer, obtained by rounding the sum to the nearest integer, using the `Math.round` function

Problem – 3

The records of a database table `Product` have been stored in text format as s string in your given program using delimiters ":" and "," in the following way: Different rows are separated by ":" and, within a particular record, different column entries are separated by ",". In each record, the first column is always `productId`.

Write a program (called Prog3) that will read from the string records and extract all the product id's that occur in the String. Here records works as text file. Your program should then output ALL the product id these values to the console in the following form: (this is a typical example)

231A

113D

521W

009G

```
public class Prog3 {

      public static void main(String[] args){

//column names: productId, name,numInStock,provider,pricePerUnit
                String records = "231A,Light Bulb,123,Wilco,1.75:"+
                                 "113D,Hairbrush,19,Aamco,3.75:"+
                                 "521W,Shampoo,24,Acme,6.95:"+
```

```
                                    "440Q,Dishwashing Detergent,20,Wilco,1.75:"+
                                    "009G,Toothbrush,77,Wilco,0.85:"+
                                    "336C,Comb,34,Wilco,0.99:"+
                                    "523E,Paper Pad Set,109,Congdon and Chrome,2.45:"+
                                    "888A,Fake Diamond Ring,111,AmericusDiamond,3.95:"+
                                    "176A,Romance Nove1 1,20,Barnes and Noble,3.50:"+
                                    "176B,Romance Nove1 2,20,Barnes and Noble,3.50:"+
                                    "176C,Romance Nove1 3,20,Barnes and Noble,3.50:"+
                                    "500D,Floss,44,Wilco,1.25:"+
                                    "135B,Ant Farm,5,Wilco,8.00:"+
                                    "211Q,Bicycle,9,Schwinn,75.95:"+
                                    "932V,Pen Set,50,Congdon and Chrome,9.95:"+
                                    "678Q,Pencil 50,123,Congdon and Chrome,9.95:"+
                                    "239A,Colored Pencils,25,Congdon and Chrome,4.75:"+
                                    "975B,Shower Curtain,25,Wilco,6.50:"+
                                    "870K,Dog Bowl,15,Wilco,4.75:"+
                                    "231S,Cat Bowl,15,Wilco,4.75:"+
                                    "562M,Kitty Litter,15,Wilco,3.25:"+
                                    "777X,Dog Bone,15,Wilco,4.15:"+
                                    "933W,Cat Toy,15,Wilco,2.35:"+
                                    "215A,Hair Ball,0,Little Jimmy,0.00:";

        // Implement the code

        }

    }
```

Problem – 4

Write a program (called Prog4) that asks the user to input a String. The output is the characters of this String in reverse order, which should be written to the console. (For example, if the input string is "`Hello`", the ouptut string would be "`olleH`") (Do not use arrays and do not create a new String object. In particular, you may not use Java API library functions that peform the reverse operation for you, such as the reverse functions found in StringBuilder and StringBuffer.)Implement your own logic, NO API.

Problem – 5

Write a program that generates a random set of 8 addition problems (intended for a child in elementary school). Numbers to be added should be randomly chosen from the range 1..99 [Use the RandomNumbers.java class to produce random number in the range of 1..99]. Each run of the program should result in a different set of problems (actually, there is a tiny probability that two runs of the program will produce the same set of problems, but I don't expect anyone will encounter this). Console output should be formatted like this:

```
   8        23        31        99
+ 10     + 17     +  9     + 42
 _____    ____     ____     ____
```

```
  83        67        39        5
+ 17     +  7     + 19     + 49
 _____    ____     ____     ____
```

Hint : Use Multi-Dimensional array to store the random numbers in [4 x 4] matrix.

Problem – 6

Write a program called `RemoveDups. Create an array which` accepts an array of `Strings` only. Creates a new array in which all duplicate `Strings` in the original input array have been removed.

For example, if the input array is

```
["horse", "dog", "cat", "horse","dog"]
```

then the output would be the following array:

```
["horse","dog","cat"]
```

Problem – 7

Write a program to accept the string inputs from Command line arguments and perform the following.

a. Print the length of each string input.

b. Count the string inputs starts with ‘A’.

Problem – 8

Create a class Prog8 that outputs the minimum of an array of ints.

Example: Input array : [2, -21, 3, 45, 0, 12, 18, 6, 3, 1, 0, 22]

Output : -21

Note: Get the input of an array either using console or by direct assignment.

NOTE: You may not use the sorting tools available in the Java libraries; for instance, you may not call Arrays.sort() to sort the input array. (No credit if you do it this way).