Lesson – 2- Home Work Assignment

Note: To print your output on the console, practice String Template also print the regular + for concatenation.

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 Math API to solve π^x and y^{π}. To get the random numbers, apply the knowledge gained from the Random Generator. Print the result two digits after decimal using System.out.prinf().

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 is 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 work as text file. Your program should then output ALL the product id 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. Create an array that accepts only an array of Strings. Creates a new array in which all duplicate Strings in the original input array have been removed. **You should not use any APIs like HashSet, TreeSet, etc.,** Write your own logic. Also, your result should not contain null values.

For example, if the input array is ["horse", "dog", "cat", "horse", dog"]

then the output would be the following array:

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

Problem – 5

Create a class Prog5 and implement the given method, which takes the two arrays of inputs and combines the two arrays into a single array without using API. Write your own logic.

public static int[] combine(int[] a, int[] b);

Example: Input array a : [5,6,-4,3,1]

Input array b: [3,8,9,11]

Output arrays: [5,6,-4,3,1, 3,8,9,11]

Problem-6

Create a Java method to find the second minimum value. Write your own logic without API usage.

```
public static void secondMin(int[] arrayOfInts)
```

(in a class Prog6) that outputs the second minimum of an array of `int`s.

Example: The method prints the result of second minimum 1 for the given array of int inputs.

```
[2, 21, 3, 45, 0, 12, 18, 6, 3, 1, 0, 22]
```

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.)

Interview Practice

Try individually the Interview problems from leetcode.com, Neet code, or Hacker Rank at least two problems from the concepts of Arrays and Strings using loops. You can talk about your logic during the interview discussion session in the afternoon class. Not necessary to submit.

Lesson-1-Interview Reading Questions

1. Explain the execution flow of a Java Program.
2. What are source code and byte code files in Java?
3. Why is Java termed as a platform-neutral or independent language?
4. What is the role of JRE?
5. What are the components of JRE and its functionalities?
6. What is the importance of JIT?
7. What is the difference between JVM, JRE, and JDK?