The City College of New York
Department of Compute Science
CSc 221: Software Design Laboratory

Assignment 1 – Fall 2019

The goal of this assignment is to write a simple Java program to kick-start your Java programming skills. This assignment accounts for 8% of your final grade. First, install and configure your preferred Java IDE. If you choose to, you may work with a simple text editor like Notepad or TextEdit and compile and run your code from a command line terminal, but I do NOT recommend it.

Note: please do your own work, sharing and/or copying code and/or solution ideas with/from others will result in a grade of 0 and disciplinary actions for all involved parties. If you run into any problems and have done your best to solve them, please see me before/after class or e-mail me.

The assignment consists of two Java classes.

I. $Painting$. This class is classified as a POJO class (see https://en.wikipedia.org/wiki/Plain_old_Java_object). It is a simple information and operations container class. The $Painting$ class contains the following members:
   1) $artistName$: a private variable of type $String$.
   2) $name$: a private variable of type $String$.
   3) $price$: a private variable of type $double$.
   4) $year$: a private variable of type int.
   5) $default\ constructor$: initializes $String$ variables to " − " and numeric variables to 0.
   6) $non-default\ constructor$: accepts 4 parameters to initialize the 4 private variables.
   7) Setters and getters for all 4 private variables
   8) $getMinimumDiscountPrice$, returns the price discounted by 15%
   9) $getMaximumDiscountPrice$, returns the price discounted by 10%
   10) $getAge$, returns the age of the paining. This is simply the current year minus the value of the variable $year$. You must extract the current year from the system. Do NOT hard-code the year (2019). Hint, use the classes form the Java library (e.g. $GregorianCalendar$ class).

II. $TestPainting$. This class is the driver class which has the task of testing the functionalities of the POJO class. The class contains the $main$ method only and performs the following steps.
   1) Create an instance of type $Painting$ using the *default* constructor. Update the information in this instance as follows:

artistName	Mark Rothko
name	No. 6 (Violet, Green and Red)
price	186,000,000
year	1951

   2) Use the Scanner class to prompt the user to enter values for $artistName$, $name$, $price$, and $year$. Before each prompt, display a message to the user to explain each required input. Remember to properly close the Scanner object
   3) Create an instance of type $Painting$ using the *non-default* constructor and use the values entered in the previous step. The example in Figure 1 uses the following test values:

artistName	Paul Cezanne
Name	The Card Players
price	300,000,000
year	1892

   4) Using the String formatting methods, format and print the information from the second instance such that:
      - ✓ The output is exactly as shown in Figure 2.
      - ✓ Each label is right aligned in a column of 24 characters
      - ✓ Floating-point values are printed using the thousands separator and two digits after the decimal point.
      - ✓ Integral values are printed as is.

Grades

Note: your code must compile and run in order for it be graded.

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$Non-Default\ constructor$	8
$Setter/getters$	8
$getMinimumDiscountPrice$	5
$getMaximumDiscountPrice$	5
$getAge$	8
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```
Artist Name: Paul Cezanne
Name: The Card Players
Price: 300,000,000
Year: 1892
```

Figure 1: Prompts explain to the user what is required
(The black text is the prompt label while the green text is the input – highlighted by my Eclipse)

```
Artist Name: Paul Cezanne
       Name: The Card Players
      Price: 300,000,000.00
       Year: 1892
        Age: 127
Discounted Price Range: 255,000,000.00 - 270,000,000.00
```

Figure 2: Formatted output