CS1341 – Lab #2 Due Saturday 09/24/2022 at 6:00 am

PRE-LAB [10 points]

Must be done prior to your lab session and brought to your lab class to be graded.

Create a java program that prompts the user for their birth year, current year, and planned retirement age. Using those values, calculate the age turned this year, the retirement year, and total years until retirement. Match the sample output below:

```
% java MyYears
Enter the year were you born: 1975
Enter the current year: 2022
Enter the age you wish to retire: 65
You turn 47 this year and will retire in 2040.
You have 18 years until retirement
```

Bring the compiled program (*.class file)* along with the *.java* source file to your lab session. Demonstrate the working program to your lab instructor for pre-lab credit.

Grading Rubric

NOTES: Use the given notes as a guide for the program logic. These comments must be included in the programs to explain the logic followed. Each program should compile without errors and should run to produce outputs described for each exercise.

The following points will be discounted if the related element is missing or incorrect:

- Proper output formatting [20 points]
- Proper names for classes and variables [15 points]
- Comments [15 points]
- Program doesn't compile [5 points for each minor error up to 5 errors provided that after fixing the errors the program compiles. If the program does not compiler after the 5 errors are fixed, partial credit will be given not to exceed 50 points]
- Source code (java file) missing [15 points each]
- All java files and class files missing [90 points]

Plagiarism or collaboration with anyone other than your professor, lab instructor, or CS help desk personnel will result in no credit for the assignment and possible honor code violation. Plagiarism is inclusion of any line of code that was created by another person, regardless of the source.

LAB [90 points]

Due: Saturday 09/24/2022 6:00am

The following programs are derived from portions of the spreadsheet assignment you completed for lab 1. Complete the code for each of them so they compile and run successfully. Submit all the java and class files (4 files in total) via Canvas (as a single zip-file). Include a comment block at the top of each Java file that includes your name, student id number, and "**Lab 2-Fall 2022**".

1) [20 points] Planetary Age

Create the Planetary Age problem from Lab 1 as a Java program. You will prompt the user to enter their current age, and calculate relative age on earth for each of the planets in our solar system. Use the same sun orbit years value from Lab 1, and use printf with formatting symbols to match the sample output below with fixed column sizes below:

Sample run:

```
% java PlanetaryAge
What is your current age? 60
    Year Sun Orbit Years Age on Earth
 Mercury              0.24       250.00
   Venus              0.62        96.77
   Earth              1.00        60.00
    Mars              1.88        31.91
 Jupiter             11.80         5.08
  Saturn             29.40         2.04
  Uranus             84.00         0.71
 Neptune            164.00         0.37
   Pluto            248.60         0.24
```

Note: highlighted text indicates data entered by user at runtime.

2) [20 points] Checkout

Create a Java program that prompt the user to enter price, quantity, and sales tax rate. Use these values, calculate subtotal (price * quantity), sales tax amount (subtotal * sales tax %), and total (subtotal + sales tax amount.) Match the sample output shown below:

```
% java CheckOut
Enter price: 65.43
Enter quantity: 3
Enter sales tax %: 8.25
Subtotal:   $  196.29
Sales tax:  $   16.19
Total:      $  212.48
```

3) [20 points] Salary

Create a Java program that prompt the user to enter annual salary and income tax rate. Using those values, calculate income tax amount, FICA amount (7.5%), and net income (salary – income tax amount – FICA amount.) Match the sample output shown below:

```
% java Salary
Enter annual salary: 95450
Enter income tax rate: 22
  Income tax $ 20,999.00
 FICA (7.5%) $  7,158.75
  Net income $ 67,292.25
```

4) [20 points] Contract

Create a Java program that prompt the user to enter contract hourly rate, monthly health insurance cost, total holidays per year, and total vacation days per year. Using those values, calculate gross contract income, income tax amount (use 22% of gross income) , self employment tax (use 15% of gross income), holiday income lost (# holiday days * 8 hrs/day * contract hourly rate), vacation income lost (vacation days * 8 hrs/day * contract hourly rate), annual health insurance cost (monthly health insurance cost * 12 months), and net contract income (gross contract income minus all the deductions.) Match the sample output shown below:

```
% java Contract
Enter contract hourly rate: 80
Enter cost of health insurance/month: 1500
Enter total holidays per year: 8
Enter total vacation days per year: 15
         Gross contract income $ 166,400.00
             Income tax (22%)  $  36,608.00
    Self employment tax (15%)  $  24,960.00
              Unpaid holidays  $   5,120.00
              Unpaid vacation  $   9,600.00
       Annual health insurance $  18,000.00
           Net contract income $  72,112.00
```