Object Oriented Programming: Java

Programming Assignment – Week 1

All solution files [Exercises 1 – 4] must be submitted at CodeGrade enabled Link in Moodle for grading on or before 17th of January 2022 at 11:59 PM

Exercise 1

(i) Download and Install JDK 8 or higher version and IDE (Apache NetBeans 11.3 for example)

(ii) Write a program that display "Welcome to CT60A2411 ","Welcome to Java", and "First lecture".

(iii) The expected output will be

```
run:
Welcome to CT60A2411 Welcome to Java
First lecture
BUILD SUCCESSFUL (total time: 0 seconds)
```

(iv) Upload the file ["Exercise1.java"] at CodeGrade link-Moodle like you did in the Python course.

Exercise 2

Java programming language is a statically typed language. That is, every variable and every expression should be declared with data type (primitive and non-primitive) to assign value or expression to it. For example:

int x = 20 → here x is declared as integer data type variable.

Similarly, java supports various primitive data types such as byte, long, float, double, boolean, char and String (non-primitive).

The program given below was written in Python. Rewrite the program by using Java coding standard and submit it.

```
1  x = 1990
2  y = 2022
3  print("Your age is:",(y-x))
4  w = 100.0
5  h = 1.66
6  bmi = (w)/(h*h)
7  print("Your bmi is:",round(bmi,2))
```

```
Shell
Python 3.7.9 (bundled)
>>> %Run yourAge2.py
 Your age is: 32
 Your bmi is: 36.29
```

It should be noted, a variable must be declared with its datatype. Refer lecture slides. Ignore round function. In particular, every coding line must end with semicolon (;)

The expected output of rewritten Java program (Yourage.java) will be:

```
run:
Your age is:32
Your bmi is:36.289738
BUILD SUCCESSFUL (total time: 0 seconds)
```

Exercise 3

As noted earlier, Java is an object-oriented programming and has rich set of libraries that includes input (Scanner - class) and output (System. out). Hence, it requires importing utilities library that contain Scanner object for input statement. Check the sample code given below:

```
*/
package week1project;
import java.util.*;
/**
 *
 * @author z102339
 */
public class sample1 {
    public static void main(String[] args) {
        // creating instance of scanner (input) object to get input for selected variables
        Scanner sc = new Scanner(System.in); // here sc is an instance of scanner -->input
        System.out.print("Enter your birth year:");
        int x = sc.nextInt(); // if x is float then sc.nextFloat()
        System.out.print("Enter the current year:");
        int y = sc.nextInt();
        System.out.println(y-x);


    }
}
```

```
ut - Week1Project (run) ×
run:
Enter your birth year:1990
Enter the current year:2022
32
BUILD SUCCESSFUL (total time: 7 seconds)
```

Write a java program to compute the volume of a cylinder: Prompt the user that asks for radius and length of the cylinder and compute the area and volume of it. The formulas are:

$$area = radius^2 * \prod$$

$$volume = area * length$$

The sample output is:

```
Output - Week1Project (run) ×
run:
radius:5
length:12
Area: 78.5
Volume: 942.0
BUILD SUCCESSFUL (total time: 3 seconds)
```

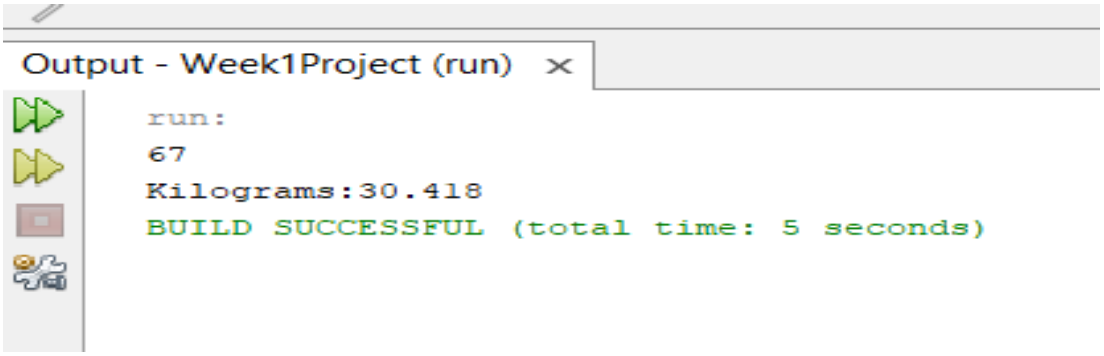
Your solution code requires importing util.* library and Scanner for user input. Refer aforenoted example to proceed further. [Hint: There is a difference between float and double data type although both represents float data type]

Exercise 4 (self-study: refer lecture slide 13-Week 1A)

Create a static void method called **PoundstoKg(double p)** that take any double value as an argument. Then converts it into kilograms and displays the result. One pound is 0.454 kilograms. The main method should prompt the user to enter pounds as input and call the PoundstoKg(double p) to attain the solution. The structure of the program will be:

```
import ___________;
public class Exercise4 {s
            public static void _________________ {
                  // your code here
               }
               public static void main(String[] args) {
                        // your code here
               }
}
```

The sample input and output are:



Exercise / task Number	File name that should be uploaded in the CodeGrade-Moodle*	Points / Marks
1	Exercise1.java → Exercise1_Week1 link	10
2	yourAge.java→ Exercise2_Week1 link	20
3	Exercise3.java→ Exercise3_Week1 link	30
4	Exercise4.java → Exercise4_Week1 link	40
* You are free define own filenames (class) for each exercise		