CS 210 – WINTER 2019

– ASSIGNMENT 1 –

METHODS

DUE: **01/15/2019**, 11:58:59 P.M.

(line break, 11 pt)

I) (20 pts.) - Methods - This assignment familiarizes you with one of the most basic building blocks of the Java language (and programming more generally) - "Methods". Methods are an effective tool for managing redundant operations, and will be critically important in managing the complexity of your programs in the future.

(line break, 11 pt)

A) (5 / 20 pts.) - Download the attached file "Assg01_A_Methods.java". Use this to perform the following:

1) Change the methods `first()`, `second()`, and `third()` to produce the following output:

(line break, 11 pt)

```
first method
third method
third method
second method
first method
third method
third method
```

(line break, 11 pt)

2) Use only additional method calls. Do not use System.println statements.

3) Save your file as "Assg01_A_Methods.java" and upload to Canvas.

(line break, 11 pt)

B) (5 / 20 pts.) - Download the attached file "Assg01_B_Metric.java". Use this to perform the following:

1) Modify the program using a minimum of 4 static methods to eliminate redundancy.

2) The `main( )` method should contain only method calls.

3) Save your file as "Assg01_B_Metric.java" and upload to Canvas.

C) (5 / 20 pts.) – Write a Java program to perform the following:
   1) Using method calls to reduce redundancy, draw the following:

```
o-----G
o-----G
o-----G
o-----A
  o---T
   /-T
    G
   /-A
  o---C
o-----T
O-----O
T-----o
  C---o
  A /
   G
   /-A
  o---C
o-----T
O-----O
T-----o
  C---o
  A /
   G
   /-A
  o---C
o-----T
O-----O
T-----o
  C---o
  A /
   G
   /-A
  o---C
o-----T
O-----O
T-----o
  C---o
  A /
   G
   /-T
  o---T
o-----A
o-----G
o-----G
o-----G
```

   2) Save your file as "Assg01_C_DrawDNA.java" and upload to Canvas.

D) (5 / 20 pts.) - Include appropriate program documentation and formatting including:
    1) Your first and last name
    2) Your contact information
    3) Your student ID number
    4) The date
    5) A short description of the program's function
    6) Comments necessary to explain the operation of your program
    7) Proper indentation

II) A Sample log of execution is as follows (user inputs are in **bold and underlined**):
*Note: No user inputs are involved in this assignment.

Section A output:
```
first method
third method
third method
second method
first method
third method
third method
```

Section B output:
```
The Metric Song

Oh, metric. You're the one.
You make measuring more fun.
Based on ten. Let's start again
And go the metric way.

There was once a family of giants
And Kilo was their name.
They were all so huge and tall
And no two were the same.

Oh, metric. You're the one.
You make measuring more fun.
Based on ten. Let's start again
And go the metric way.

There also were some tiny elves
Who had the name of Milli.
One one thousandth—they're so small
To think of them seems silly!

Oh, metric. You're the one.
You make measuring more fun.
Based on ten. Let's start again
And go the metric way.
```

Now milligrams, they don't weigh much.
And millimeters are short.
A milliliter's a tiny drop
Of liquid they report.

Oh, metric. You're the one.
You make measuring more fun.
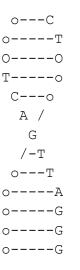Based on ten. Let's start again
And go the metric way.

So, grams you may have noticed
Are things you can weigh.
Length is meter, liquid's liter.
That's the metric way.

Section C output:

```
    o-----G
    o-----G
    o-----G
    o-----A
     o---T
      /-T
       G
      /-A
     o---C
    o-----T
    O-----O
    T-----o
     C---o
      A /
       G
      /-A
     o---C
    o-----T
    O-----O
    T-----o
     C---o
      A /
       G
      /-A
     o---C
    o-----T
    O-----O
    T-----o
     C---o
      A /
       G
      /-A
```

```
  o---C
 o-----T
 O-----O
 T-----o
  C---o
   A /
    G
   /-T
  o---T
 o-----A
 o-----G
 o-----G
 o-----G
```

III) Tips:

1) Chapter 1 of "Building Java Programs" is of particular pertinence to this assignment.

2) Self-check problems 21 - 28 should prepare you for section A.

3) Case study 1.5 should prepare you for section C.

4) When "drawing" white space, replacing the whitespace with a placeholder character can sometimes help you identify what your program is doing while you're programming. Remember to reset the placeholder to a whitespace before submission!

IV) FAQ: Common problems students have had

1) In section A, recall that computer programs execute one line at a time, from top to bottom (unless directed elsewhere by a method call or return).

2) In section B, don't forget to print your title and line breaks between stanzas.