Practice Quiz (01/31/2019)
Topics: XML, Scheme basics, Algorithms

1. Name the basic parts (at least **4**) of an algorithm and try to give examples for each part from the almond butter and jelly example in class!

2. Write the output for the following Scheme expressions:

    ```
    > (+ 1 (* 1 1))
    ```

    ```
    > (string-length "I love CSC-151!")
    ```

    ```
    > (string-split "I love CSC-151!")
    ```

    ```
    > (+ 1 (* 1) 1)
    ```

3. Can you translate the following mathematical equations into code?

    ```
    a) 6 - 4 + 7
    ```

```
    b) a = 4
       b = 7
       a^2 + b^2
```

4. Write an XML file to store the following information such that one can extract some basic information from your XML file easily:

Stopping by Woods on a Snowy Evening
Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here
To watch his woods fill up with snow.

<div align="right">

Robert Frost,
1874 - 1963

</div>

Extras:

State whether the following are true/false:

1. XML documents must be hierarchical; any start tag that is within another tagged section of text must have a corresponding end tag within that section.

 2. You always need a CSS file along with XML to annotate texts with additional information.

3. <college name = "Grinnell"> is a valid XML expression.

4. <instructions> "Pay attention to your classes." </instructions> is a valid XML expression.

5. XML closely resembles Scheme syntax.

6. DrRacket is another updated version of Scheme programming language.

7. Scheme recognizes arithmetic expression in postfix order like (3 4 6 -).

Answers:

(1)
    1. Subroutines: Opening the jar, spreading the butter/jelly
    2. Variables: Knife, plate
    3. Input: Soy butter, jelly, bread
    4. Conditionals: If jar is right side up…
    5. Repetition: Spreading the butter/jelly
    6. Sequencing: Open bread before doing other things

(2) 2, 15, '("I" "love" "CSC-151!"), 3

(3)
> (+ 7 (- 6 4))

> (define a 4)
> (define b 7)
> (+ (* a a) (* b b))

(4)
True, False, False, True, False, False, False

(5)
<extract>
<title> Stopping by Woods on a Snowy Evening </title>
 <author> Robert Frost </author>
 <date> 1874-1963 </date>
 <paragraph>
   Whose woods these are I think I know.
   His house is in the village though;
   He will not see me stopping here
   To watch his woods fill up with snow.
 </paragraph>
</extract>