WORKSHEET 1-INTRODUCTION TO XML
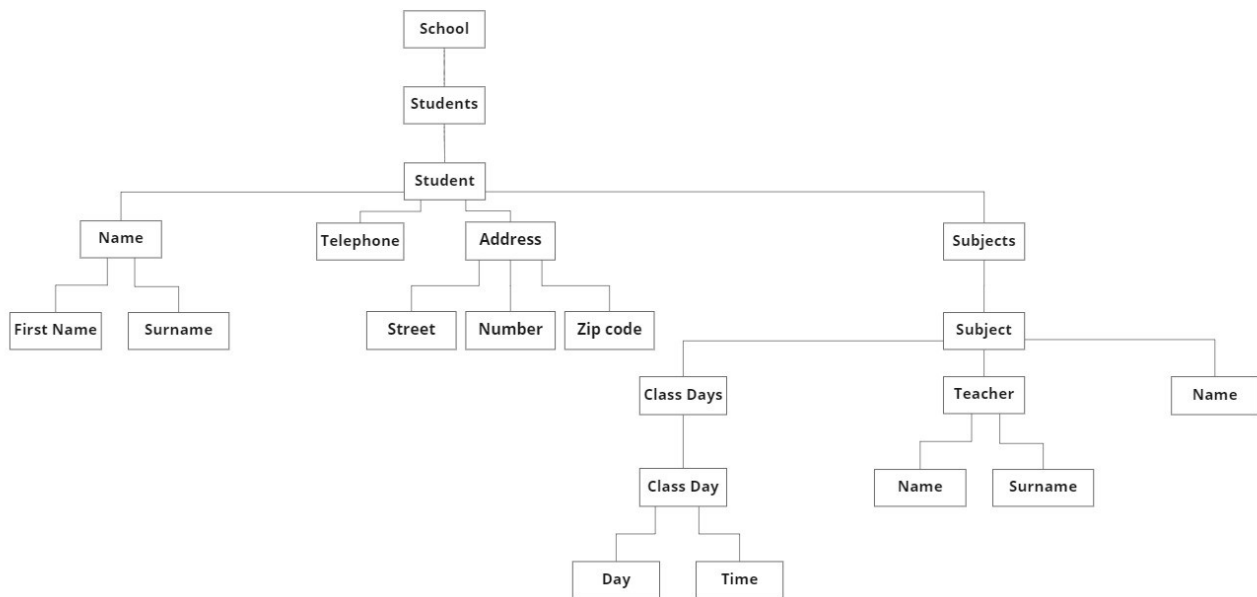
Submit a pdf with the answers of this worksheet

Exercise #1 – Information Structure

For the sample document provided below:

1. Create an XML document that represents the following student data: name, address and a student id, one or more subjects (computer science, law, chemistry, sociology etc)

Draw a tree representation of the structure.

Exercise #2 – Well-Formedness

Are the following document instances well-formed? Explain any NO answers.

```
<list><title>The first list</title><item>An item</list>
```

- No because XML elements must have a closing tag (<item> does not have a closing tag).

```
<item>An item</item><item>Another item</item>
```

- Yes.

```
<para>Bathing a cat is a <emph>relatively</emph> easy task as long
as the cat is willing.</para>
```

- Yes.

```
<bibl><title>How to Bathe a Cat<author></title>Merlin
Bauer<author></bibl>
```

- No because XML elements must be properly nested (<author> is opened after the titled but it is not closed before this tag). In addition the <author> tag is not closed properly (the / is missing).

Exercise #3 – Well Formedness

Here is a fragment of an XML document instance. Identify all the places where it fails to match the constraints for well-formedness.

```
<PROCEDURE><TITLEHow to Bathe a Cat</TITLE><OVERVIEW>This procedure
tells you how to bathe a cat. <WARNING></OVERVIEW>Cats don't like to
take baths. You could get hurt doing this. Be sure to obtain all the
required protective gear before you start.
</WARNING><EQUIPEMENT><ITEM>Hockey Mask <ITEM>Padded Full-body Kevlar
Armor</ITEM><ITEM>Tub full of warm water</ITEM><ITEM>Towels
</ITEM><ITEM>First Aid kit</ITEM><ITEM>Cat Shampoo</ITEM>
<EQUIPMENT><INSTRUCTIONS> <STEP> Locate the cat, who by now is hiding
under the bed.</STEP><STEP>Place the cat in the tub of water.</STEP>
<ITEM>Using the First Aid kit, repair the damage to your head and
arms.</STEP> <STEP>Place the cat back in the tub and hold it
down.</STEP> <STEP>Wash it really fast, then make an effort to dry it
with the towels.</STEP> <STEP>Decide not to do this again. </STEP>
</INSTRUCTIONS>
```

Solution:

```
<?xml version="1.0" encoding="UTF-8"?>        → MISSING

<PROCEDURE><TITLE>How to Bathe a Cat</TITLE><OVERVIEW>This procedure
tells you how to bathe a cat. <WARNING></OVERVIEW>Cats don't like to
take baths. You could get hurt doing this. Be sure to obtain all the
required protective gear before you start.  → </ITEM>
</WARNING><EQUIPMENT><ITEM>Hockey Mask<ITEM>Padded Full-body Kevlar
Armor</ITEM><ITEM>Tub full of warm water</ITEM><ITEM>Towels
</ITEM><ITEM>First Aid kit</ITEM><ITEM>Cat Shampoo</ITEM>
<EQUIPMENT><INSTRUCTIONS> <STEP> Locate the cat, who by now is hiding
under the bed.</STEP><STEP>Place the cat in the tub of water.</STEP>
<ITEM>Using the First Aid kit, repair the damage to your head and
arms.</STEP> <STEP>Place the cat back in the tub and hold it
down.</STEP> <STEP>Wash it really fast, then make an effort to dry it
with the towels.</STEP> <STEP>Decide not to do this again. </STEP>
</INSTRUCTIONS>
```

</PROCEDURE >

Exercise #4 – Well Formedness

Examine the following file. Circle all of it's syntactical errors, and write in the corrections.

```
<name>Oyster Soup</name>
<author>Eric Lease Morgan</author>
<copyright holder=Eric Lease Morgan>&copy; 2003</copyright>
<ingredients>
 <list>
  <item>1 stalk of celery
  <item>1 onion
  <item>2 tablespoons of butter
  <item>2 cups of oysters and their liquor
  <item>2 cups of half & half
 </list>
</ingredients>
<process>
 <P>Begin by sauteing the celery and onions in butter until soft.
 Add oysters, oyster liquor, and cream. Heat until the oysters float.
 Serve in warm bowls.</p>
 <p><i>Yummy!</p></i>
</process>
```

Solution:

- there must be a root tag.

- the © should be replaced with an © .

- the item tags are not closed

- the P tag must be in lower case

- the second p must be closed after the I tag is closed.

Exercise #5 – Attributes

Here is an example of the bibliography with no attributes. Convert this document into one with the same information, but including attributes wherever it is convenient. Explain the reason why you have decided to use an element or an attribute to represent the information.

```
<Bibliography>
    <Book>
      <Author>Tim Berners-Lee</Author>
      <Title>Weaving the Web</Title>
      <Publisher>Orion business</Publisher>
      <Year>1999</Year>
    </Book>
    <Standard>
      <Title>Extensible Markup Language (XML) 1.0</Title>
      <Organisation>World-Wide Web Consortium</Organisation>
      <Year>1998</Year>
    </Standard>
</Bibliography>
```

Solution:

```
<Bibliography>
    <Book year="1999">
      <Author>Tim Berners-Lee</Author>
      <Title>Weaving the Web</Title>
      <Publisher>Orion business</Publisher>
    </Book>
    <Standard year="1998">
      <Title>Extensible Markup Language (XML) 1.0</Title>
      <Organisation>World-Wide Web Consortium</Organisation>
      <Year>1998</Year>
    </Standard>
</Bibliography>

I chose to change the year element to an attribute because it did not
contain other elements nor multiple values.
```