13.1: EXTENSIBLE MARKUP LANGUAGE - XML

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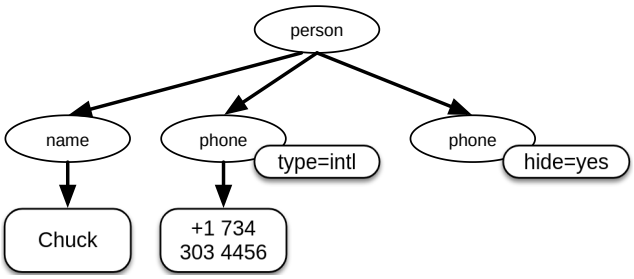
XML looks very similar to HTML, but XML is more structured than HTML. Here is a sample of an XML document:

```
<person>
  <name>Chuck</name>
  <phone type="intl">
     +1 734 303 4456
   </phone>
   <email hide="yes"/>
</person>
```

Often it is helpful to think of an XML document as a tree structure where there is a top tag `person` and other tags such as `phone` are drawn as *children* of their parent nodes.



A Tree Representation of XML

PARSING XML

Here is a simple application that parses some XML and extracts some data elements from the XML:

CODE 13.1.1 (PYTHON):

```
%%python3

import xml.etree.ElementTree as ET

data = '''
<person>
  <name>Chuck</name>
  <phone type="intl">
     +1 734 303 4456
   </phone>
   <email hide="yes"/>
</person>'''

tree = ET.fromstring(data)
print('Name:', tree.find('name').text)
print('Attr:', tree.find('email').get('hide'))

# Code: http://www.py4e.com/code3/xml1.py
```

run restart

Calling `fromstring` converts the string representation of the XML into a "tree" of XML nodes. When the XML is in a tree, we have a series of methods we can call to extract portions of data from the XML.

The `find` function searches through the XML tree and retrieves a *node* that matches the specified tag. Each node can have some text, some attributes (like hide), and some "child" nodes. Each node can be the top of a tree of nodes.

```
Name: Chuck
Attr: yes
```

Using an XML parser such as `ElementTree` has the advantage that while the XML in this example is quite simple, it turns out there are many rules regarding valid XML and using `ElementTree` allows us to extract data from XML without worrying about the rules of XML syntax.