XML

Note that this lesson does not contain any html so we will be writing notes in notepad.

What is XML?

XML (Extensible Markup Language) is a markup language used to describe data. This allows us to use an information format and electronically share data via the internet. XML follows the characteristics portrayed in HTML, defining elements between <>. The file extension is defined as .xml . Another popular format for interchanging data is JSON (JavaScript Object Notation). All XML must be validated with a DTD, this will be explained later. To Check our XML we may use a XML validator.
https://www.truugo.com/xml_validator/

Example:

```xml
<?xml version="1.0" encoding="UTF-8"?>
    <studentList>
        <student>
            <firstName>John</firstName>
            <lastName>Smith</lastName>
            <email>jsmith@gmail.com</email>
        </student>
        <student>
            <firstName>Mary</firstName>
            <lastName>Jane</lastName>
            <email>mjane@gmail.com</email>
        </student>
    </studentList>
```

Description:

All XML files must begin with the XML declaration, `<?xml version="1.0" ?>`
 This defines the document version and contains important parameters. If this is not placed on the first line the code will fail.

The first tag is called the root element, this must contain all other child elements. Here we can see that the student list contains the student element.

Within the student element, we have further children that define relevant data.

All opened XML tags must be closed, Unlike html XML will not work if elements are left opened.

Attributes:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<dailyTransaction date="24/02/2015">
    <person staffDbId="103" operation="update">
        <firstName>John</firstName>
        <lastName>Smith</lastName>
        <mobile>0211223344</mobile>
    </person>
    <person staffDbId="-1" operation="add">
        <firstName>Mary</firstName>
        <lastName>Jane</lastName>
        <mobile>0244556677</mobile>
    </person>
</dailyTransaction>
```

Attributes can be listed within the element, these must always be closed within quotes. While we can use these for any child elements attributes generally contain Metadata only. Metadata is any information about the data itself, within this example we can see that the attributes tell us what to do with the person element.

Extra information:

Much like HTML, an entity reference must be used for characters such as <>. These are mostly the same between the two. Comments are also used the same way.