Optional Homework Assignment #7

Not due

Objectives:

1. To develop your own XML application
2. To write well-formed and valid XML documents with respect to a given DTD

Create EmailML: your own XML application.

In this part of the assignment, you are to create your own Document Type Definition saved as `emailml.dtd` abiding by the following specifications:

The root element should be named `emailml`. It should have a fixed `version` attribute with value `1.0` and one or more `email` elements.

The `email` element should contain precisely one `to` element, followed by precisely one `from` element, followed by an optional `subject` element, followed by precisely one `message` element and then followed by precisely one `sentInfo` element. The `email` element has an optional attribute called `opened` with no default value.

The `to` element just has the recepients' email addresses as content (PCDATA).

The `from` element just has the sender's email address as content (PCDATA).

The `subject` element just has the email's subject as content (PCDATA)

The `message` element has mixed content. Its children can be any number of `username`, `password`, `confirmationNumber`, and `balance` elements. Order of the children does not matter.

The `username` element just has the customer's username as content (PCDATA).

The `password` element just has the customer's password as content (PCDATA). It has an optional attribute called `encryption` The default value is `"none"`.

The `confirmationNumber` element just has the customer's 12-digit confirmation number as content (PCDATA).

The `balance` element just has the customer's balance as content (PCDATA).

The `sentInfo` element has a complicated content model. It is a sequence. The first thing in the sequence is a choice between two options. The choice is either
1) a sequence of precisely one `datesent` element followed by precisely one `timesent` element
or 2) precisely one `datetimesent` element.
The choice is followed in the outer sequence by precisely one `emailid` element.

The `datesent`, `timesent`, datetimesent have PCDATA content and `emailid` element has no content. It has a required attribute called `number` with no default.

Once, you create the DTD write a valid XML document called `email.xml` that uses `emailml.dtd` as an external dtd and

To validate an XML document with an external DTD simply go to [W3.org validator](#) and validate using the URL of your XML file. If the external DTD is correctly linked the validator will check the XML file against the DTD.