Lesson 1: Markup languages; (X)HTML

Lesson goal

During this lesson you should have got familiar with electronic markup languages based on the example of HTML and the languages related to it (SGML, XHTML, XML). We are going to take a look at the HTML syntax and vocabulary. You should be also aware of the concept of meta-language (as represented by SGML or XML and the notions of document's well-formedness and validity.

Important details to investigate

- HTML (up to version 4.01) and XHTML are formally defined as the *applications* of standard meta-languages (SGML and XML respectively). Although we will revisit the topic later, you should already be aware of what language features come from such generic meta-languages, and what features are specific to a given language (like HTML). Make sure you understand the respective validity levels: well-formedness (respecting the overall syntax rules) and validity (here – additionally respecting the given language's defined vocabulary).
- Note the HTML clients are quite tolerant to various well-formedness and validity issues when presenting page content to users.
- How can you explain the data model (comparing e.g. to the relational or object-oriented one) resulting from the use of markup structure as in case of those languages?
- Make sure you distinguish the notion of element and attribute in markup languages and you are able to identify kinds of element content: empty element, element content, textual content, mixed content.
- Get a general familiarity with the HTML elements. You should be able to provide examples of HTML 5 newly defined elements from the one hand, and the deprecated elements from the other hand.

External resources in English

There are numerous tutorials and references available on HTML and on XML. Consider for example: www.w3schools.com .

For a more in-depth understanding of the HTML and XHTML, you may refer to the original specifications available at: www.w3.org .

Assignment

1. Create well-formed and valid HTML5 document. The document should include:

- Headings, paragraphs, a table, a bulleted list, a numbered list
- Image (please use an absolute URL link to some image available online so it doesn't need to be attached in your upload).

2. Additionally, include in the webpage content a brief description of your proposed topic for the course's semester project, which is going to be a simple Web application using a dynamic webpage technology and data persistence. The project (to be realized during the semester) should meet the following requirements:

- Providing a consistent set of functionality for a selected problem domain (e.g. supporting the activity of a given company, web community or institution),
- Using persistent data on the server-side,
- Processing data submitted by a client during their interaction with the website,
- Collaboration (data exchange) with another website (like e.g. providing price lists, checking currency rates etc.)

To illustrate the abovementioned requirements, let's consider a common example – an online shop website. In case that were the subject of your project, the following aspects would need to be considered:

- *website should offer some functionality (like e.g. performing purchases); it should not limit its functionality to just presenting the content*
- *both the data coming from the website owner as well as the data submitted by users should be stored in the database and used within the website's functionality*
- *some collaboration of the website with another websites or Web services should be implemented (either consuming of some query interface or providing some service interface).*

The topic proposal requested above is provisional and you may alter it later during the course, after getting more insight into the topic.

3. Make a copy of the abovementioned page and transform it into fully valid XHTML 1.0 Strict. Make sure both versions of the page validate successfully against their content types e.g. using the W3C online validator (http://validator.w3.org/).