XHTML: An Introduction

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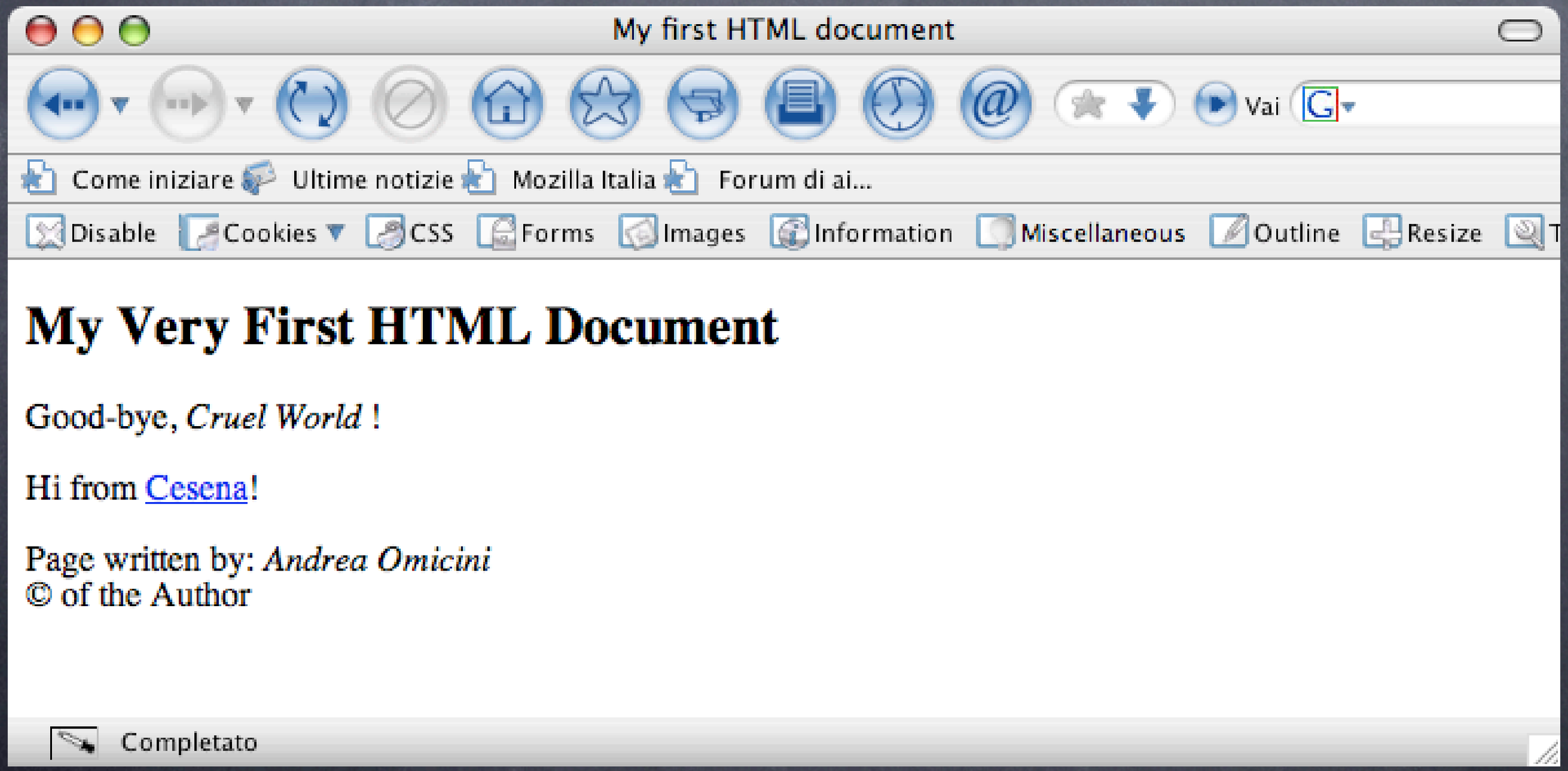
Good-bye Cruel World!

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<head>
    <title>My first HTML document</title>
</head>
<body>
<h2>My Very First HTML Document</h2>
<p>
    Good-bye, <i> Cruel World </i>!
</p>
<!-- "Hello World" did not seem enough -->
<p>
    Hi from <a href="http://www.ing2.unibo.it/">Cesena</a>!
</p>
<p>
    Page written by: <cite>Andrea Omicini</cite>
    <br />
    &#169; of the Author
</p>
</body>
</html>
```

We Obtain...


My first HTML document
Vai
Come iniziare
Ultime notizie
Mozilla Italia
Forum di ai...
Disable
Cookies
CSS
Forms
Images
Information
Miscellaneous
Outline
Resize
My Very First HTML Document
Good-bye, Cruel World !
Hi from Cesena!
Page written by: Andrea Omicini
© of the Author
Completato

What is HTML?

- It is a markup language
  - allows you to annotate text, and to embody annotations in along with text in a document
  - annotations provide text with properties
    - e.g., printing properties as annotations, in order to separate them from content
  - SGML subset
    - Standard Generalized Markup Language
- A family of standards
  - W3C: consortium in charge of Web standards
    - http://w3c.org/Markup
  - Develops over time
    - either official or proprietary extensions
    - proposals, drafts, releases and recommendations

Versions

- From 1.0, 2.0, 3.2, 4.0 to 4.01
  - HTML 4.01 is the last recommendation
  - http://www.w3.org/TR/html4/
- XHTML 1.0 current standard
  - defined based on HTML 4.01
  - as more or less its XML-compliant version
  - http://www.w3.org/TR/xhtml1/
- XHTML 2.0 still ongoing work
  - http://www.w3.org/TR/xhtml2/
  - 26/7/2006: last public Working Draft of XHTML 2.0 has been published
    - http://www.w3.org/TR/2006/WD-xhtml2-20060726

W3C Working Draft

XHTML™ 2.0

W3C Working Draft 26 July 2006

This version:
http://www.w3.org/TR/2006/WD-xhtml2-20060726
Latest version:
http://www.w3.org/TR/xhtml2
Previous version:
http://www.w3.org/TR/2005/WD-xhtml2-20050527
Diff-marked version:
xhtml2-diff.html

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This document is also available in these non-normative formats: Single XHTML file, PostScript version, PDF version, ZIP archive, and Gzip'd TAR archive.

From SGML to HTML

- SGML is a very intricated markup language
  - Web needs just a subset of it
- SGML is also a meta-markup language
  - can be used to define other markup languages
  - by defining their own DTD (Document Type Definition)
- HTML is defined via a SGML DTD
  - http://www.w3.org/TR/html4/sgml/dtd.html

HTML / XHTML Document

- Suffix .html (or .htm, for windoze fault)
  - Text file
- How can I create my own HTML file?
  - with any text editor, saving text with .html suffix
  - with any word processors allowing "Save as Text"
  - with any web-page creation tool
    - Composer, Dreamweaver, etc.
      - please no FrontPage
- How does computer see the HTML file?
  - in the same way as we do?
  - different levels of "perception"
    - OS ≠ editors ≠ browsers ≠ ...

Elements, Tags & Attributes

- An HTML document contains
  - **elements** & sections delimited by **tags**
- Generally, tags delimit start & end of a section / element
  - <tag>section or element</tag>
  - it is obviously useful to learn the main HTML tags
- Tags may contain further specifications called **attributes**
  - some of them **required**, some **optional**
  -
    - src is mandatory
    - no closing tag, /> is used
- Remind: tags and elements are in general different things
  - is a tag, Paragraph is an element

Some Details

- White spaces have no meaning
  - if not within strings
- HTML is not case sensitive
  - <p> or <P>, it is the same
- Please notice: the same does NOT hold for XHTML!
  - <p> is correct, <P> is wrong

Types of Tags

- Section tag
- Header tag
- Content tag
- Styling tag
- Empty elements (?)
- Anchor / Hyperlink tags

Section Tags

- dividing HTML document in sections
- root tag
  - <html> starts HTML document
    - may not be the beginning of the HTML file...
  - </html> ends it
    - while the file might go on...
- 2 sections: Header & Body

  <html>
  <head> ... </head>
  <body> ... </body>
  </html>

Header tags

- within the header, between <head> and </head>
  - not diplayed directly by the browser
- main header tags
  - <title> defines page title
    - in the title bar of the browser window
  - <meta /> carries meta-information on the document content
    - e.g.: <meta name="author" content="Andrea Omicini" />
    - like a comment, but can be referenced and used

Content tags

- within the body, between <body> and </body>
  - used by browser for display
- most of the useful tags
  - <p> for paragraphs
  - <table> for tables
  - <h1> for 1st-level headers
    - <h2>, <h3>, ... next levels
  - comments
    - <!-- this is a comment -->

Styling tags

- two kinds
  - based on the content nature
  - based on formatting
- content-based: examples
  - <blockquote> contains a block for a quotation
  - <cite> contains a reference to a citation
- format-based: examples
  - <b> bold, <i> italic
- sometimes no differences in display by browsers
  - , <cite>, <i>, <dfn>
    - but the source shows the differences in markup
    - that could be used anyway for some reasons

Empty tags

- In XHTML
  -
 line break
  - <hr /> horizontal rule
  - <img /> inline image
- In HTML ,
 & <hr> are ok
  - in XHTML they should be "closed" somehow
- Pay attention to attributes!
  - required & optional
    - e.g., attribute src in img is required
  - take a close look to specifications
    - check when needed
  - exploit tools!
    - along with their embedded knowledge

Anchor / Hypertext tags

- tag <a> for both
  - "anchor" denotes portions of a document
    - to be directly referred to with #
  - "hypertextual reference" denotes other docs
    - or portions of them
    - obviously contains an URL
- ...
- ...
  - relative / absolute URL
  - <a href="URL#NAME"> denotes an anchor within an href
- Pay attention to quotes!

Limits of HTML (1)

- Content intermixed with presentation
  - from 1.0 to 4.01 things have improved
  - but too many biases from browsers
    - to be absolutely AVOIDED
    - in general
      - here in this course for sure :)
- Not "well-formed"
  - as XML is instead
  - too much forgiving
    - elements can be interleaved, tag can be wrong, closing tags or attributes may be missing, etc...

Limits of HTML (2)

- It is more a sort of "structural" markup language
  - describes text structure
    - structural markup
  - rather than the nature of content
    - descriptive / semantic markup
  - not easy to adapt to the different natures of media
- That is why HTML moved toward XML
  - through XHTML
- Goal: a language aimed at being
  - disciplined and easy to check
  - powerful but simple
  - descriptive

XML in short

- Extensible markup language
  - to define markup languages
- XML application
  - a markup language defined via XML
    - XHTML is an XML application
- Essential remark: XML has no predefined tag / elements
  - anyone can define tags and structures that better fits the chosen contents

Fundamental Parts of a XML Document

1. XML Document (properly said)
   - content built according to XML rules
2. Document Type Definition (DTD)
   - which tags and their meaning
3. Style Sheet
   - for presentation

Benefits of XML

- Portable
  - text format, so that any platform is ok, and many applications are available to read & write XML
- Configurable / Extensible
  - anybody can define his/her own markup language
- Self-descriptive
  - an XML document is self-contained: presentation, meaning, data & their structure

XHTML = HTML + XML

- XHTML defined using XML as a meta-language
  - HTML defined instead in SGML
- vocabulary taken from HTML, syntax from XML
  - backward compatibility
    - in particular, in the "human legacy"
  - XML properties
    - well-formed, not error-prone, extensible via XML

XHTML - HTML = ?

- XML Prologue
  - first element of the XHTML document
  - `<?xml version="1.0" encoding="UTF-8"?>`
    - like corresponding <meta /> for old browser
- Document type declaration
  - what is the document DTD?
  - `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">`
  - address, or embedded DTD
- both before <html> tag

Other differences

- Recommendation: define the namespace
  - to give meaning to tags
  - we could write

    `<http://www.w3.org/1999/xhtml:p>` for <p> tag
    - and then the same all the others...
- however, it seems easier to write

  `<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">`
  - also, we could add our namespaces
  - and declare the languages
- Other
  - case sensitivity
  - full nesting
  - required elements: <head>, <body>, <html>, <title>

What should we learn from the lab activity?

- Structure of the HTML / XHMTL document
  - header, body, and their content
- Inline elements, comments, lists, special chars
- Attributes
  - shared by most elements
  - attributes to affect presentation
- Anchors / Hypertextual references
- Images
- Tables
- Forms
- Frames, perhaps