User Interaction: XML and JSON

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What might a design notebook be like?
What does a design notebook entry look like?

[Image of a design notebook entry with sketches and handwriting]

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1989: Tim Berners-Lee invents the Web with HTML as its publishing language
- Based on SGML
  - Separates data from presentation
  - No hypertext
1993: Mosaic browser is released
1994: World Wide Web Consortium is formed
1995: HTML 2.0 published IETF
1997: HTML 3.2 published by W3C
1995: Internet Explorer is released
1999: HTML 4.01 standardized and released
2000: XHTML standard released
2010: HTML 5 Draft Standard Released
• HTML, XML and JSON
  • Structured Data Formats that evolved with the web
  • Text with a syntax applied
  • They can represent a huge variety of information
  • They enable data transport
  • Different systems and technologies and programming languages depend on the syntax being standardized
<?xml version="1.0"?>
<note>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
What is XML?

- XML stands for “eXtensible Markup Language”
- XML was designed to in the context of separating
  - data from display
- XML tags are not predefined
  - You define your own tags
- XML is designed to be self-descriptive
The Difference Between XML and HTML

XML
- designed to transport and store data
- It looks like HTML
- The focus is on what the data is

HTML
- designed to display data
- it typically is “broken-XML”

XHTML is
- HTML that conforms to XML standard
- The focus is on how data looks
• XML Does not DO Anything
  • It is a data format
  • A program must be written to manipulate the data
    • To search the data
    • To display the data
    • To change the data
  • Even though the data seems to be associated with a task it is still just data.
• XML is Just Plain Text
  • There is nothing fancy about the storage
  • A program that can read and write text can read and write XML
• an XML-aware application
  • Expects a valid tag structure
  • Interprets the tags in a particular way
• With XML You Invent Your Own Tags
  • `<from>` and `<to>`
    • are not defined anywhere official
    • they are invented by the author
  • There are no predefined tags
• In contrast, HTML has predefined tags
  • `<p>` `<href>` etc.,
• In XML the author defines the tags and the structure
  • within the bounds of a “valid XML document”
• XML is Not a Replacement for HTML
  • XML complements HTML
  • XHTML is an XML syntax compliant version of HTML
  • It has tags defined by a standards body
• XML Separates Data from HTML
• XML Simplifies Data Sharing
• XML Simplifies Data Transport
• XML Simplifies Platform Changes
• XML Makes Your Data More Available
XML is Used to Create New Internet Languages
- XHTML the latest version of HTML
- WSDL for describing available web services
- WAP and WML as markup languages for handheld devices
- RSS languages for news feeds
- RDF and OWL for describing resources and ontology
- SMIL for describing multimedia for the web
• XML uses a tree structure
  • with a root element
  • and child elements
• tags indicate the start and end of an element
• opening tag looks like this:
  • <tag>
• a closing tag looks like this:
  • </tag>
• A valid XML document has exactly one closing tag for every opening tag
<bookstore>
  <book category="COOKING">
    <title lang="en">Everyday Italian</title>
    <author>Giada De Laurentiis</author>
    <year>2005</year>
    <price>30.00</price>
  </book>
  <book category="CHILDREN">
    <title lang="en">Harry Potter</title>
    <author>J K. Rowling</author>
    <year>2005</year>
    <price>29.99</price>
  </book>
  <book category="WEB">
    <title lang="en">Learning XML</title>
    <author>Erik T. Ray</author>
    <year>2003</year>
    <price>39.95</price>
  </book>
</bookstore>
Schema
Tags
Characters
<!DOCTYPE bookstore [

<!ELEMENT bookstore (book+)>
<!ELEMENT book (title, author, year, (price)+)>
<!ELEMENT title (CDATA)>
<!ELEMENT author (CDATA)>
<!ELEMENT year (CDATA)>
<!ELEMENT price (CDATA)>

<!ATTLIST book category CDATA #REQUIRED>
<!ATTLIST title lang CDATA #IMPLIED>

]>
Details

- All XML Elements Must Have a Closing Tag

HTML

- <p>This is a paragraph</p>
- <p>This is another paragraph</p>

XML

- <p>This is a paragraph</p>
- <p>This is another paragraph</p>