XML

Introduction to Programming with XML

Introduction – Programming with XML

- XML documents, when parsed, are represented as a hierarchical tree structure.
  This structure can be accessed by a programming tool via an API.
  SAX and DOM are two dramatically different APIs for accessing information in XML documents.

Event-driven programming with Simple API for XML (SAX)

- SAX was developed by the W3C and released in 1998. SAX-based parsers invoke methods when markup (e.g. a start tag, an end tag, etc.) is encountered. No tree structure is created - data is passed to the application from the XML document as it is found. SAX parsers are typically used for reading XML documents that will not be modified.

- SAX-based parsers are available for a variety of programming languages; C++, Java, and Perl being the most popular. SAX is based on an event-driven model using call-backs to handle processing.

- What an event-driven program can do:
  – Search a document for an element containing a keyword
  – Print out formatted content
  – Modify an XML document by making small changes, such as fixing spelling and renaming elements
  – Read data to build a complex data structure
- What an event-driven program can't do:
  – Re-order the elements in a document
  – Resolve cross-references between elements
  – Verify ID-IDREF links
  – Validate an XML document

Event-driven programming with Document Object Model (DOM)

- The W3C provides a standard recommendation for building a tree structure in memory for XML documents called the XML *Document Object Model* (DOM). A DOM-based parser *exposes* (i.e. makes available) a library, called the DOM *Application Programming Interface* (API), that allows data in an XML document to be accessed and modified by manipulating the nodes in a DOM tree.

Event-driven programming with Asynchronous JavaScript and XML (Ajax)

- Ajax is a web development technique that makes use of a combination of:
  - HTML/XHTML and stylesheets (CSS) for data presentation.
  - The DOM is programmed using Javascript for dynamically displaying data.
  - An XMLHttpRequest object is used to exchange XML data asynchronously between a browser and a web server.

Concluding Remarks and Coursework Assignment

- Let's read the FMA assignment and clarify any questions you may have.

- Any Final Questions

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