Chapter II

The Foundations of XML and WSDL

XML stands for Extensible Markup Language (http://www.w3.org/XML/), and it has been adopted by industry for exchanging data in a platform, language, and protocol independent fashion. While XML has many benefits during the development stage, it has some performance disadvantages. This chapter provides a quick look at the following topics:

1. Overview of the standard and basic concepts;
2. Basic XML document structure;
3. Information about usage of Document Type Definition (DTD);
4. Structure and usage of XML Schema; and
5. Discussion about the design and performance issues when using XML documents with Web service.

XML plays an important role in the implementation of Web Services. Because XML is not in binary notation, it can be created and edited in any text editor (provided the character set complies with the Unicode\(^1\) in which XML documents are encoded). XML is also useful for storing small amounts of data. XML and stylesheet standards allow developers to dictate how the information will be displayed.

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Where can XML be used? The following list states several options relevant to this book:

- XML can contain data for a program to process with traditional data processing. XML is the answer for the exchange of all sorts of transactions as long as both the client and the provider agree on the XML markup.
- XML documents can be used as template containers that help build interfaces and applications from existing components. This approach is called document-driven programming.
- XML, in combination with DTD or one of the schema standards, defines the structure of documents. This approach allows code to be easily generated automatically. During this process, known as binding, classes are created according to the given schema specifications. Input data arriving in the XML document can be processed, and the response document is created also in XML.

For those readers who are familiar with XML concepts, the following section will not reveal anything new. We have included this section in order to provide consistent technical background to other chapters of this book, in particular the discussions relevant to Web Services, portals, and deployment issues.

**What is XML?**

XML is a markup language that enables hierarchical data content to be represented as a marked-up text document. The language uses tags to mark pieces of datum. Each tag assigns meaning to the data associated with it, thus transforming the data into meaningful information. XML aims to separate data from processing and presentation.

Although XML was not meant to be read by end users, the XML specification states that “XML documents should be human-legible and reasonably clear.” You can also view XML as a meta-language with appropriate grammar and vocabulary (called schema), which can be used to define other markup languages.

We start our quick tour with the essential background and properties of XML: