Chapter 9
Meta Data Representation

ABSTRACT
In the ocean of information that gets transferred over the supply chain, it is difficult to get what is required for the customer. Toward this end, a description of the information is necessary. This chapter explains how metadata describes the information. In addition, it provides the framework for service description and message exchange in web services. Hierarchical representation of data abstractions to cater for the services is introduced.

INTRODUCTION
In the previous chapter, the different techniques of generating the quality data consuming less storage space are provided. The data is still large and requires universally accepted description or tagging before it is ready for use. Here, the usage of Metadata in general and XML in particular for the description of the data is provided.

Metadata (David C. Hay, 2006, Erik Duval, et al, 2002, Martha Baca, 2005) is the descriptive data used to record the characteristics or attributes of the information (Amy Brand, Frank Daly and Barbara Meyers, 2003). It helps in the identification, discovery, organization, retrieval and management of the information being described.

The content acquired from the source or data mart will be useful only if the description of the information is available in the form of metadata. It also helps in content search operations. On the other hand, without a metadata description associated with a file, its visibility and use would be limited. Hence all files containing audio, video, image, software etc will have metadata associated with them.

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The metadata description depends up on the language chosen for the description. A good description should be able to help to retrieve the specific information or object from the file under some criteria (David Marco, 2000). If a file contains a list of items, the metadata should also describe the relationship between these items, if any and retrieval of any of them should help in retrieving others based on some criteria.

The metadata provides data about the data stored in the form of tables, programs etc. The metadata often contains the complete description about the data, including the source of the data, creation, modifications done, location, access technologies, keywords, limitations etc.

Along the supply chain, the databases get changed dynamically. As the database gets updated with changes, metadata also follows the same. Sophisticated, user centric languages such as XML are used to support the metadata. The metadata contains information about the source, context of the data generated, the time of data creation and updation. With the inclusion of the context, the data gets converted in to useful information. The metadata is useful in describing the data quality (Michael H. Brackett, 2000) and used in all applications that make use of the data. The metadata provides useful information about the data abstractions along the supply chain.

In this chapter, various issues associated with the Metadata description language, integration and fusion of the associated data are brought out. The hierarchical representation of data is related with metadata. The example of XML metadata is considered as it is extensively used. This chapter is expected to be useful for describing data architecture, integration, handling queries in search engines, data and rights description etc.

**BACKGROUND**

The data from different sources available in heterogeneous format calls for modularity in the metadata description. The users can make use of the existing schemas rather than defining something new from the scratch.

The support for interoperability allows the data from different schemas for the seamless syntax and semantic integration. This helps in re usability of the module in different applications.

**Case Study: HTML**

HTML based metadata is popularly associated with the content and services associated with the web. Although it is simple, it fails to provide the description in a structured fashion.

**Case Study: XML Markup**

It supports the structured data although used in a small scale. Like XML, it is modular and extensible and interoperable.

**Case Study: RDF**

The Resource Description Framework (RDF) provides the description of the content on the web. It supports the semantic description of the content and the services and referenced in W3C standard. RDF
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