

Chapter 4

Technique for Transformation of Data From RDB to XML Then to RDF

Kaleem Razzaq Malik

University of Engineering and Technology Lahore, Pakistan

Tauqir Ahmad

University of Engineering and Technology Lahore, Pakistan

ABSTRACT

This chapter will clearly show the need for better mapping techniques for Relational Database (RDB) all the way to Resource Description Framework (RDF). This includes coverage of each data model limitations and benefits for getting better results. Here, each form of data being transform has its own importance in the field of data science. As RDB is well known back end storage for information used to many kinds of applications; especially the web, desktop, remote, embedded, and network-based applications. Whereas, EXtensible Markup Language (XML) in the well-known standard for data for transferring among all computer related resources regardless of their type, shape, place, capability and capacity due to its form is in application understandable form. Finally, semantically enriched and simple of available in Semantic Web is RDF. This comes handy when with the use of linked data to get intelligent inference better and efficient. Multiple Algorithms are built to support this system experiments and proving its true nature of the study.

DOI: 10.4018/978-1-5225-2483-0.ch004

INTRODUCTION

Transformation of data depends on data models along with their limitations and dependencies. Data modeling plays the most crucial part for all what we see around us even in business, government, economics, social and daily life entities for analyzing facts and producing results. Data models like hierarchal, network and relational have their own importance and long history. But above all others relational data model gained its importance due to its record keeping capabilities along with maintaining the data integrity. Due to which majority of data found in the world are kept and stored in Relational Database (RDB). A relation in RDB is build-up on a combination of rows and columns where each cell represents a single piece of information titled under a field. A field represents a column and a row represents an instance of record concerning current relation in a table. Data model of RDB is a combination of the datatype, constraint, and functional dependency on data (Codd, 1970). Information concerning each element of data against a relation is kept in the form of the schema (structure defined for data to be stored in a relation) and data values (actual literals stored in table cells). In web, RDB is used at backend for storage of data. Inventions like the internet in networking imposed the need of intermediate language which can make data supported among all systems attached nearby. Which also brought the creation of XML as an intermediate language. Having said so, it became most common language after 0's and 1's bits, which actually are close to machine with high-level understanding and interpretation, used as machine-processable language. Support of data types among RDB, XML, and RDF during mapping play necessary role when trying to transforming one's data model into another. Customization of data types are possible in XML Schema (XMLS) (Biron, Malhotra, & Consortium, 2004).

When it comes to importance, XML as a standard for the data transformation is commonly and majorly used among applications, devices, operating systems and computers. For the Web as HTML rules are built in XML and XML is a language freely customizable by other to support their data in any other electrical network supported device. Which makes it more and more useful all over where remote access to data comes. Now almost all smart devices support XML. This is the reason that's why XML became most famed and well-known standard for data-based communication all around the World. Whereas, a web page is less organized and semi-structured while making searching of data complicated and more inaccurate (Rusu et al., 2013). In web, for searching and accessing resources like people, videos, audios, and images etc. search engines are used as a tool on the web (Hepp, Leymann, Domingue, Wahler, & Fensel, 2005). Despite gradual improvement introduced in these search engines, a dramatic increase in the volume of web contents produces loss of technological improvements. To resolve this issue, representation of web contents are required to be transformed into machine processable format. Semantic

20 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/technique-for-transformation-of-data-from-rdb-to-xml-then-to-rdf/178367

Related Content

Data

(2023). *Principles and Theories of Data Mining With RapidMiner* (pp. 35-49).
www.irma-international.org/chapter/data/323367

Preprocessing Perceptrons and Multivariate Decision Limits

Patrik Eklund and Lena Kallin Westin (2009). *Data Mining and Medical Knowledge Management: Cases and Applications* (pp. 108-120).
www.irma-international.org/chapter/preprocessing-perceptrons-multivariate-decision-limits/7529

A New Spatial Transformation Scheme for Preventing Location Data Disclosure in Cloud Computing

Min Yoon, Hyeong-il Kim, Miyoung Jang and Jae-Woo Chang (2014). *International Journal of Data Warehousing and Mining* (pp. 26-49).
www.irma-international.org/article/a-new-spatial-transformation-scheme-for-preventing-location-data-disclosure-in-cloud-computing/117157

Big Data Warehouse Automatic Design Methodology

Francesco Di Tria, Ezio Lefons and Filippo Tangorra (2016). *Big Data: Concepts, Methodologies, Tools, and Applications* (pp. 454-492).
www.irma-international.org/chapter/big-data-warehouse-automatic-design-methodology/150179

Exploring Critical Success Factors Towards Adoption of M-Government Services in Tanzania: A Web Analytics Study

Fredrick Ishengoma (2021). *New Opportunities for Sentiment Analysis and Information Processing* (pp. 117-139).
www.irma-international.org/chapter/exploring-critical-success-factors-towards-adoption-of-m-government-services-in-tanzania/286907