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Translating between XML and Relational Databases

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Abstract

XML has received considerable attention as a standard for data interchange on the Internet. Since much data held by organisations is held in relational databases (RDBMS), an issue of research and development has been on how information can be converted between XML and relational models. Most RDBMS vendors now support to some extent the importing and exporting of XML from RDBMS, but approaches tend to be inflexible and there are no standards in use.

This project involves the study of how XML data, restricted by DTD or XML Schemas, may be stored in a RDBMS, and also study of the reverse process, i.e. extracting an XML representation of information held in RBDMS. Issues concerning object-relational databases could also be addressed.

0.1 Introduction

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This paper.... the purpose of this work... highlights... Extensive simulations.... Numerical Results ...

short written summary of the project's objectives

This project's aim is to:

- develop techniques for:
  - converting an XML Schema to a Relational Database Schema
  - importing data from an XML Document (constrained by an XML Schema or DTD) into a Relational Database
  - exporting data from a Relational Database to an XML Document
- implement tools in Java supporting the these techniques

a summary of the progress so far

- I have read research papers about the relationship between XML and Relational Databases
- I have been experimenting with various APIs for manipulating XML documents and schemas, as well as other Java libraries that are likely to be required by the application I wish to build (e.g. GUI toolkits, Database Viewers)
- Having no previous experience of using XML Schemas, I am in the process of learning the constructs through books and online tutorials

plan for the remainder of the project

There are 3 main areas to the project once the researching phase has been completed:

- Creating axioms for translating an XML Schema to an Entity Relationship Model as well as axioms for translating XML data to Relational Database data
- Implementing these transformations in Java code which will use XML APIs to read in XML Schemas and data, and also use JDBC to output

Database Schemas and import data into the database. Similar work is necessary for the reverse procedure of generating XML data from Relational Database data.

- Developing a GUI to allow users to carry out these transformations