

XML Data Modelling

Exercise 1: XML Documents

- a). Copy the content of this document in a text editor and specify its structure using XML tags. (title, header, footer, sections). Also mark specific styles (such as italic) inside the text.
- c) Open the sample document **sample.doc** in Microsoft Word 2003, and save it as XML (Save As... XML Document (*.xml)). Open it in a text editor or in Microsoft Internet Explorer.
- d) Do the same exercise by opening the **sample.doc** document in OpenOffice and save it in OpenOffice format. Change the extension of the file from .write to .zip. Extract from the zip file the **content.xml** file. Open it in a text editor.

Questions:

Which format is better? Microsoft Office, Open Office, or yours?
Is this data structured, unstructured or semi-structured?

You need to implement a software for a flight company. The data must be expressed in XML, for ensuring compatibility with other flight companies.

A n international flight company operates flights between several airports. When a passenger books a ticket, the flight company registers a date, his or her name, address, passport number and credit card number(for the booking only).A flight has an id, number of seats, and a date. Each airport is characterised by its name, code, and tax value, in dollars. Create a software which is able to retrieve all reservations on a given date, the passengers flying through a certain airport on a given date [etc.]

Exercise 2: XML Data

- a). Build an XML document containing some sample data corresponding to the text.
- b) How can you stop a user of the document from adding data entities which do not correspond to the requirements (such as... *the types of pasta served at his favourite restaurant around the corner*) Should you apply restrictions?
- c) Use XML Spy, oXygen or Stylus Studio to model the XML data.

Exercise 3: XML Schema Modelling

- a). * Build an E/R or UML Model of this specification. (*optional, but very useful*)
- b). Identify problems occurring in the attached document.(**AirportFlight_messy.xml**)
- c). Model the XML Schema type of the following entities:
 - a. Passenger
 - b. Flight
 - c. Airport.

and give an example of XML data instances corresponding to each of these types.

- b). Use XML Spy, oXygen or Stylus Studio to model the data and to write the XML Schema. (trial versions available for download)

Exercise 4: Comparison with Relational Databases

- a). Identify primary key constraints, and express them using XML Schema.
- b) Identify foreign key constraints and express them using XML Schema.
- c). Identify a M:N relationship in the E/R diagram. Express it using XML Schema.
- d). Eliminate redundancies.
- e) Which constraints can you express using a DTD instead of an XML Schema?

Exercise 5: Model the elements and constraints which are valid in XML Schema, using an XML Schema.