
by Craig S. Booher

XML (Extensible Markup Language) schema languages formalize constraints in the form of rules or structure models in order to define a class of XML documents. They come in a variety of shapes. Some, such as DTDs (Document Type Definition) and RELAX NG (a schema language for XML), are grammar-based. Others, like Schematron, are ruled-based. Finally, there are object-oriented XML schema languages. The W3C’s (World Wide Web Consortium) XML Schema recommendation falls into the last category and is the focus of this book.

Although not explicitly arranged into sections, the book has three major components. The first two-thirds of the book present a systematic study of the W3C XML Schema building blocks. This is followed by two thorough and extensive reference guide chapters, one for elements and the other for datatypes. Finally, several brief appendices flesh out the schema landscape by providing succinct comparative overviews of some of the other primary XML schema languages and other W3C schema-related projects. A very useful glossary of over 100 terms, considerately included by the author, concludes the book.
The book begins with a discussion of a simple schema. First, van der Vlist introduces the reader to the four types of content models – empty, simple, complex and mixed. From here, he quickly moves to contrast simple type and complex type elements. To illustrate these concepts, the author provides an example of a basic library file used to describe a book, its author and its characters. This example will be expanded and reshaped throughout the remainder of the book in order to clarify the meaning and use of the W3C XML Schema components. When doing so, it would have been helpful if the new or revised sections of the examples had been highlighted. Some of these examples cover several pages and identifying the specific section that illustrates the current feature under discussion was occasionally challenging.

Chapter 4 covers predefined datatypes. Following an explanation of lexical and value spaces and whitespace processing, van der Vlist groups the datatypes into four categories: string, numeric, date and time, and list. In most cases, he provides a short description of the datatypes in each category along with an example. Because of the challenges associated with date and time datatypes, the author devotes a little more energy to covering these. Although the information in this chapter often overlaps that found in the datatype reference guide offered later in the book, the two chapters do serve different purposes and can justifiably coexist in the same publication. The narration in this chapter helps the reader understand the big picture while the reference guide provides detail on each datatype.

The next two chapters address the creation of simple datatypes from existing datatypes through a process known as derivation. The three derivation methods are derivation by restriction, derivation by list and derivation by union. Facets are introduced as the mechanism for processing whitespace (e.g., on xs:string and xs:normalizedString), working on the lexical space or constraining the value space. As with the datatypes in the previous chapter, each facet is briefly presented along with one or more examples. Regular expressions, which can be used to restrict the lexical space of simple datatypes, are also explored. Here, an extremely useful section on common patterns provides the reader with a number of examples on how to use regular expressions to constrain the lexical form of strings, numeric types, and date/times.

Creating complex datatypes is, well, complex. They can be created with simple content models or complex content models. In each case, derivation can be via extension or restriction. Complex datatypes with complex content models are further governed by two rules: the Unique Particle Attribution Rule and the Consistent Declaration Rule. Through careful reading of the text and study of the examples, especially by contrasting them with examples of the same elements in earlier chapters, the reader can begin to understand the underlying philosophy that governs the use of these datatypes.

Having discussed the basic building blocks, the ensuing chapters explore techniques for enhancing their use. Schema libraries are introduced and the reader learns how to reuse the basic elements between schemas by applying xs:include and xs:redefine. Two approaches for identifying and referencing pieces of information about an XML document are revealed. One uses xs:ID and xs:IDREF while the other uses XPath expressions. A chapter on namespaces explains why it is difficult to use namespaces with DTDs, how namespaces are declared and qualified, and the impact of namespaces on the inclusion of schemas.

The book also includes discussion of the object-oriented features of XML Schema (substitution groups, abstract elements, and final datatypes). Creating extensible schemas and some thoughts on documenting schemas round out the primary narrative part of the book.

In the preface, the author anticipates the audience for this work to be those who need to create W3C XML schemas or those who want to understand or modify existing W3C XML schemas. The work is admirably tailored towards this audience. The writing is tight, the coverage is detailed, and the examples are
illuminating. The author uses his experience as an XML consultant and developer to deliver a systematic presentation of the W3C XML Schema.

Of particular value are the occasions when the author suspends his focus on the fundamental schema components and analyzes some of the ambiguous and more challenging aspects of the W3C XML Schema Recommendation. For example, in practice xs:choice mechanisms can only be restricted while substitution groups can only be extended; yet, the Recommendation says they are equivalent. Van der Vlist spends several pages discussing this dichotomy in order to help the reader gain a better understanding of the differences between these two features.

Craig S. Booher (cjbooher@athenet.net) has over 20 years experience as an information professional designing, developing, and implementing information systems in academic libraries and corporate information centers.

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by Kwan-Yau Lam

This book provides an overview of a wide variety of technologies that are having significant influence on education. As stated in its preface, this book is intended to be an introduction to educational technologies for educators (that is, teachers, trainers, school library media specialists, and educational administrators) who are interested in educational applications of technologies or in bridging the technology gap. Since this is an introductory book, prior knowledge or familiarity with computer hardware concepts does not seem necessary to understand the contents of this book.

The organization of this book is clear and straightforward, and its coverage is quite comprehensive. The table of contents, with its detailed listing of topics discussed under each chapter, helps provide a clear outline of every chapter as well as the entire book. It also helps the reader locate specific topics or information, in addition to a thorough 14-page index found at the end of the book.

There are nine chapters in the book. Each chapter is designed to be read independently of the others. The first chapter, Teaching with Technology, serves as an introduction to educational technology in general. The remaining eight chapters provide up-to-date information on seven different types of educational technologies, namely, computer graphics, digital audio, digital video, local area networks, telecommunications, distance learning, and assistive technologies. The inclusion of a chapter on assistive technologies seems to have made this book more comprehensive and more complete. Readers who are interested in how technologies can help students with disabilities in their learning may find this chapter a very useful start.
All nine chapters in the book follow the same format. At the beginning of each chapter is a real life scenario that illustrates the use of technology in education. At the end of each chapter, the reader can find a summary, glossary (except the first chapter), and a list of resources. Some chapters also include a list of references and recommended readings. Apparently, such a format gives the book an advantage for it enhances readability and thereby understanding of the subject matter. In addition, the glossaries are very useful tools for those who are not very familiar with various technical terms.

Despite the advantages of clear organization, comprehensiveness, and a format that is easy to follow as mentioned above, this book does have some weaknesses. As an example, although graphics and illustrations are found throughout the book, none of them are printed in color. While black and white pictures can serve the purpose of illustrating most of the ideas and concepts discussed in the book, they do not seem to be quite adequate or effective in illustrating at least some, if not all, concepts of computer graphics. For example, the differences between uncompressed and compressed pictures, between JPEG and GIF files, can be much better illustrated by color pictures than by those in black and white.

Another weakness of this book is a lack of theoretical discussion on integrating instructional technologies into educational settings. Most of the chapters are quite technologically oriented, focusing on explanation of technology operations and concepts. Without any doubt, it is very important for educators to have a sound technical understanding of technological concepts and how different technologies actually work. Nonetheless, though necessary, such an understanding in itself is not sufficient to guarantee successful educational applications of technologies. In fact, as noted in chapter one of the book, technology operations and concepts is only one of the six areas of ISTE (International Society for Technology in Education) technology standards and performance indicators for teachers. Other ISTE areas of concerns related to implementation of educational technology include design of learning experience, instructional and learning strategies, as well as assessment and evaluation.

This reviewer believes that inclusion of some theoretical discussions about the educational significance or implications of various types of technologies could make this book a much more practical guide for educators. Indeed, in chapter one of the book, the authors acknowledge "technology is not the determining factor in effective education. The important issue is what is done with the technology; the instructional methods must be based on sound learning principles" (p. 8). It seems therefore reasonable for a reader to expect some kind of discussion on how different technologies can further different educational objectives based on learning and instructional theories. For example, a discussion on why and how multimedia technology could help promote multi-sensory, active learning based on some cognitive or constructivist learning theory would definitely provide an educator with many more practical insights about how to creatively integrate multimedia into the curriculum.

A third weakness of this book is its lists of resources. All of them are nothing more than lists of pertinent Web sites. Except in chapter 2, none of those selected Web sites are annotated, even though they are classified into different groups in two other chapters. Furthermore, the criteria for selecting the Web sites are not specified in the book.

One final, though somewhat trivial, shortcoming of this book is that no information about the authors can be found anywhere in the book. After reading a chapter or the whole book, one is left wondering curiously who the authors are, what their professional or academic experience may be, or what their areas of expertise are.
In summary, this book is well organized and it is comprehensive in coverage. The glossaries provide handy reference and explanation of a wide variety of technical terms. On the other hand, there seems to be some room for improvement. Specifically, this book could have been a much more practical guide if it included discussions on how different technologies can be applied educationally from the perspective of instructional and learning theories.

Largely, this is a good introductory book and a useful resource for educators who are looking for just some ideas to get started in applying technologies in their classrooms. Those who are looking for theoretical rationales underlying practical applications of educational technologies, however, may want to find another book.

Kwan-Yau Lam (klam@ccc.edu) is an Assistant Professor/Librarian and an adjunct Member on the Computer and Information Science faculty at Truman College, City Colleges of Chicago.

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by Stefanie Morrill

Every day, millions use the Internet and other electronic networks to get things done. Businesses order things from suppliers. Consumers purchase things from online merchants. Individuals read their newspaper subscriptions and search for other information. We depend on this electronic world. But the issues surrounding the security of our personal data and the networks we use increase every day: personal data can be sold, stolen, or compromised. Networks we rely on can be abused by hackers or by disgruntled employees. What are an individual's rights and what are the responsibilities of companies in protecting those rights in our electronic world? Jeffrey H. Matsuura addresses some of these questions in his book, Security, Rights, and Liabilities in E-Commerce.

Matsuura is an attorney specializing in information technology, telecommunications, and digital media. He advises clients in these areas and serves on an advisory panel to the Virginia legislature on issues related to technology. He is sharing his expertise by offering businesses (and other organizations) practical and concrete information to help them understand their liabilities and to create an organization where possible liabilities are minimized through proper planning, network security, and employee training. He focuses on five areas:

1. Documents and records: A description of records management issues, including the importance of knowing what records are created and retained by an organization, and the laws regarding record retention.

2. Unauthorized access: A discussion of different types of network access by unauthorized parties, how to prevent this access from occurring, and the criminal penalties associated with unauthorized access.

3. System misuse: An explanation of liabilities that a corporation may face due to inappropriate use of data and networked resources by employees, including harassment and personal data disclosures.
4. Protecting data: A discussion of intellectual property rights and privacy rights of customers, including suggestions on how to protect sensitive information.


While Matsuura's intended audience is businesses, he provides information that is useful to any organization that has customers interacting with them digitally. Understanding what legal responsibilities an organization has to its customers, and how to fulfill these responsibilities is important, however, the complexities of the laws and the issues can seem overwhelming. Matsuura does a good job of clearly explaining the issues, using legal terms only when necessary, and then carefully defining these terms. He includes information on laws, pending legislation, and court cases to clearly show the origins of the rights of the customers and the subsequent responsibilities of the businesses. He often explains the laws of different countries and jurisdictions, providing interesting contrasts and comparisons. Most importantly, he provides practical suggestions for the creation of policies, training plans and other tools to protect an organization from liability.

Unfortunately, there are some problems with *Security, Rights, and Liabilities in E-commerce*. The most serious problem is the timeliness of the work. While the copyright date is 2002, Matsuura makes references to regulations that are to be "completed during 2001." Clearly, the writing of the book was finished before the end of that year. Because the book is over a year old, much of the information related to pending court cases and regulations has changed dramatically since its publication. When this book was written, the Napster litigation had "not been resolved" and the decision from the Microsoft antitrust litigation was "on appeal." Matsuura devotes a number of pages to UCITA, (Uniform Commercial Information Transactions Act) a statute to regulate the sale of software, which, at the time, was "being considered for adoption in many states." UCITA has not been adopted by any states since the time the book was written, and is not likely to be adopted, even after extensive revision. In at least one case, "Gentry v. Ebay," Matsuura's speculation about the outcome of the case (he expects Ebay to be found liable for fraudulent merchandise sold on their site) is contradictory to the true outcome (which found Ebay not liable). In this instance, the information provided is simply incorrect. Matsuura certainly couldn't be expected to predict the future, but because laws and regulations surrounding these issues change rapidly, and have changed significantly since the publication of this book, the validity of some of his information and conclusions is suspect.

The publication of this book at the end of 2001 also means that information related to the September 11th attacks is not included in the work. The events of September 11th, and subsequent legislation, including the Patriot Act and the Homeland Security Act, have had a significant impact in the areas of privacy, records management, and network security. The lack of information about these changes leaves a large hole in the knowledge a reader can gain from this book.

Another problem is the organization of the text itself. Each chapter contains a main body followed by appendices that either summarize the information from a section of the chapter or offer more step-by-step guidance for creating policies, plans, and other materials. The theory of this organization is good. Readers have an additional opportunity for quick review of the concepts and a place to refer to for instructions on creating materials. However, in practice, the organization does not work well. The information in the appendices is completely disconnected from the body of the chapter because no page references are made between the two. If readers would like clarification or expansion of what is being read in an appendix, they must hunt for it. More importantly, the appendices that summarize sections of the chapters sometimes include factual information not in the body of the chapter. Readers must read both parts or risk missing
important knowledge. The inclusion of all of the important factual information in the main body of the chapters, and shorter, more outline or worksheet-like appendices, would have been easier to understand and more helpful.

Because of the complexities of legislation and regulations relating to security, privacy and other areas in this book, Matsuura cannot be expected to provide all of the necessary information in 250 pages. Readers need to be given resources for further study. Matsuura occasionally provides Web addresses in the body of the text, but primarily expects readers to find more information using the bibliography. The bibliography is extensive (almost eight pages,) but it is not organized by chapter or topic. This leaves readers with the task of wading through almost 150 references to find the one relevant cite. Having applicable references at the end of each chapter or having specific numbered references with footnotes or endnotes would give readers a better chance of finding the additional information he needs.

Although it could be organized in a more effective way, Security, Rights, and Liabilities in E-commerce still provides helpful and interesting overview of some of the issues that organizations need to think about and plan for in our digital age. The practical information regarding policy development and other tools is very helpful. However, because the laws and regulations in this area change rapidly, and with the intensity of this change heightened because of the events of September 11th, readers are advised to use this book only as an overview and to seek more up-to-date information about legislation and regulations.

Stefanie Morrill (smorrill@scls.lib.wi.us) is the Library Development Coordinator at South Central Library System in Madison, Wisconsin.

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by Lydia Ievins

This book has undergone enough of a facelift that readers of the first edition might not recognize it immediately. Most noticeably, it has shed as its old title (MySQL & mSQL) as part of a refocusing effort that demotes mSQL to the briefest of walk-on appearances, a very brief dismissal in the first chapter: "mSQL does not compare with MySQL on any level" (p.9). Despite this narrowing of scope, however, the book still covers significant territory, from introductory tutorial to programmers' reference manual.

There are four logical sections in this book, and predictably enough, the first offers an introduction of various sorts. After the expected overview of relational database concepts and developmental history of MySQL, the book provides installation instructions for MySQL on Solaris/Linux/Win32 (both binary and source installations), with minimal embellishment beyond the information contained in the MySQL documentation itself. This is a handy service to provide in the interest of complete treatment of MySQL -- but if completeness were indeed the argument, it would have been kind of the authors to include at least a brief mention of other sources for OS X users here, rather than just leaving that segment of their audience with the cavalier assertion that "the Solaris/Linux instructions apply to most Unix-based operating systems"
There follows a tutorial chapter about "SQL According to MySQL," accessible to readers who have no prior familiarity with SQL (MySQL supports the ANSI SQL2 standard) while remaining useful as a refresher or reference for intermediate SQL users.

The first section of the book ends with a chapter about database administration, covering basics like server configuration, starting and stopping the server (instructions here do include specifics for OS X), and backup and recovery. The second section of the book deals with MySQL administration, with chapters about performance tuning, security, and database design. Most of this information is new to this edition, and its presence represents a major enhancement; the security chapter in particular provides a much-needed overview. Programmers who have not learned more about database design elsewhere may wish to seek out more in-depth treatments than the mere 16 diagram-rich pages offered here, and anyone whose primary job involves MySQL database administration will likely wish for additional sources as well.

The third section discusses MySQL programming, beginning with a chapter about database applications in general and then devoting a chapter each to the most popular languages used for building MySQL interfaces—Perl, Python, PHP, C, and Java. The Perl chapter assumes general familiarity with the language: it begins by introducing the DBI and CGI modules, which are the most common Perl tools for a MySQL implementation, presenting them in a series of simple examples. In a somewhat surprising jump, it then goes on to add a much more advanced object-oriented implementation as well, first describing the Model/View/Controller (MVC) methodology and then providing a robust, reusable Model layer, complete with cache mechanism, and a sample application showing how to use this code with an example database of publishers. The PHP chapter stays at a more beginner-accessible level, starting with an introduction to the language and instructions for installation. It then illustrates the basic types of interaction—including executing MySQL queries from PHP, presenting query results in HTML, handling MySQL errors, handling security issues, and managing user sessions—using code examples from a simple application for a wedding gift registry. The presentation of PHP concludes with a helpful bibliography.

The last chapter in this section, "Extending MySQL," discusses how to write your own user-defined functions, with examples ranging from returning the content of an image file, given its filename, to adding complex character set support for Elvish. The fourth and final section of the book provides reference materials: SQL syntax, MySQL data types, operators and functions, and MySQL-specific language references for PHP, C, and Python. (Interestingly, the first edition's reference sections for Perl and Java have been dropped rather than updated.) These reference sections are generously peppered with helpful examples of how each command or function is used.

Overall, this book offers a solid foundation for programmers who are new to MySQL, and useful reference material for those who have some experience with MySQL already. It takes on quite a broad domain, and does so with some unevenness but still reasonable success.

References:
A few sources that assist with MySQL installation for OS X:


Lydia Ievins (ievins@alumni.si.umich.edu) is a freelance information professional in western Massachusetts.

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