

# Contents

<b>1</b>	<b>Setting the Stage</b>	<b>1</b>
1.1	Web Communications	2
1.2	Markup	3
1.3	Markup Languages	6
1.4	Document Type Definition	10
1.5	Types of XML Use	11
1.5.1	Documents and Web Pages	12
1.5.2	Other Primary Data	13
1.5.3	Metadata	14
1.5.4	Data Interchange and Web Services	15
1.6	Case Study: Communicating Via News Feeds	16
	References	19
<b>2</b>	<b>Fundamentals</b>	<b>21</b>
2.1	Formal Grammars	22
2.2	Processors and Applications	24
2.3	XML Documents	27
2.3.1	Logical Structure	27
2.3.2	Physical Structure	33
2.3.3	Character Encoding	37
2.4	Declaring and Constraining Structures	38
2.4.1	DTD and Markup Declarations	38
2.4.2	Element Type Declarations	40
2.4.3	Attribute List Declarations	43
2.4.4	Entity and Notation Declarations	46
2.4.5	XML Processor Treatment of Entities and References	48
2.4.6	XML Schema	52
2.4.7	RELAX NG	61

2.5	Processing Models .....	62
2.5.1	Stream Processing .....	63
2.5.2	Tree Processing .....	64
2.5.3	Comparing Stream and Tree Processing .....	66
	References .....	66
<b>3</b>	<b>Why Use XML? .....</b>	<b>69</b>
3.1	Collaborative Standardization .....	70
3.1.1	Standardization at W3C .....	71
3.1.2	Sectoral Standardization .....	72
3.2	XML Family of Languages .....	73
3.2.1	Classification of the XML Languages .....	74
3.2.2	XML Accessories .....	75
3.2.3	XML Transducers .....	76
3.2.4	XML Applications .....	77
3.3	Variety of Software .....	84
3.4	Application-Independent Data Assets .....	85
3.5	Web-Enabled Access .....	86
3.6	Interoperability .....	87
3.7	Case Study: Business Applications .....	88
	References .....	90
<b>4</b>	<b>Document Management .....</b>	<b>93</b>
4.1	Structured Documents .....	94
4.1.1	Structure Versus Content Versus Layout .....	94
4.1.2	Characteristics of Structured Document Management .....	95
4.2	Transformations and XSLT .....	96
4.3	Rendering .....	100
4.3.1	Rendering with CSS .....	102
4.3.2	Rendering with XSL .....	104
4.4	Information Retrieval .....	104
4.4.1	Indexing .....	105
4.4.2	Retrieval Effectiveness and Ranking .....	107
4.4.3	Querying XML Data .....	108
4.5	Case Study: Storing and Accessing Dictionaries .....	109
	References .....	111
<b>5</b>	<b>Data-Centric and Multimedia Components .....</b>	<b></b>
5.1	Data Types in XML Schema .....	114
5.1.1	Classification of Data Types .....	115
5.1.2	Facets .....	117
5.1.3	Type Hierarchy .....	119
5.1.4	Example: Data Type Definitions for the UK Government .....	120
5.2	Numeric Data .....	121
5.3	Dates and Time .....	122

5.4	Graphics and Multimedia Data.....	123
5.4.1	Scalable Vector Graphics.....	123
5.4.2	Multimedia .....	130
5.5	Scientific Data .....	135
5.5.1	Mathematical Data.....	135
5.5.2	Geospatial Data .....	139
5.6	Data for Humanities and Social Sciences.....	141
5.6.1	Electronic Books .....	142
5.6.2	Text Encoding Initiative.....	143
	References .....	145
<b>6</b>	<b>Metadata.....</b>	<b>149</b>
6.1	XML as Metadata and XML for Metadata.....	150
6.2	Resource Discovery .....	152
6.3	Dublin Core .....	153
6.4	Resource Management .....	154
6.4.1	Learning Object Metadata .....	155
6.4.2	Metadata for Records Management.....	156
6.4.3	Metadata for Preservation.....	158
6.5	RDF: Resource Description Framework .....	158
6.6	Semantic Web.....	162
	References .....	166
<b>7</b>	<b>Data Interchange.....</b>	<b>169</b>
7.1	EDI.....	170
7.2	Frameworks for Business Interactions .....	173
7.2.1	ebXML .....	174
7.2.2	RosettaNet .....	175
7.2.3	Industry-Specific Frameworks.....	176
7.3	Web Services.....	178
7.4	Security in Data Interchange.....	179
7.5	The Status of Interchange Standards.....	182
	References.....	183
<b>8</b>	<b>Adopting XML for Large-Scale Information Systems.....</b>	<b>185</b>
8.1	Persistent Storage of XML Data .....	186
8.1.1	Special Characteristics and Requirements.....	186
8.1.2	XML Management Solutions .....	191
8.1.3	Migration into XML Format.....	194
8.2	When Not to Use XML .....	195
8.2.1	Not to Replace Database Technology Universally .....	196
8.2.2	Not to Replace Other Proven Technologies Arbitrarily .....	196
8.2.3	Risks in the Development and Deployment of New XML Applications .....	197

8.3 Case Study: Government Applications .....	198
8.3.1 The Case of the Finnish Parliament and Government Ministries .....	198
8.3.2 The Case of Massachusetts.....	201
8.4 Conclusions .....	202
References .....	203
<b>Appendix A Introduction to XHTML .....</b>	<b>207</b>
<b>Appendix B History of XML.....</b>	<b>209</b>
B.1 Origins of the Internet .....	209
B.2 Origins of SGML .....	210
B.3 From the Internet to the World Wide Web .....	210
B.4 From SGML to XML .....	211
Historical Readings.....	214
<b>Appendix C Extended Backus-Naur Form (EBNF) .....</b>	<b>215</b>
<b>Index.....</b>	<b>217</b>

Communicating with XML

Salminen, A.; Tompa, F.

2011, XIV, 226 p., Hardcover

ISBN: 978-1-4614-0991-5