



BUILDING WEB APPLICATIONS WITH UML SECOND EDITION

JIM CONALLEN

Foreword by **Grady Booch**



Contents

Foreword *xiii*

Preface *xv*

Part One: Overview of Modeling and Web-Related Technologies 1

Chapter 1	Introduction	3
	What This Book Is About	3
	Role of Modeling	4
	Role of Process	6
	Influences of Architecture	6
Chapter 2	Web Application Basics	9
	HTTP	10
	Document Identification	10
	Domain Names	11
	Resource Identifiers	13
	Fault Tolerance	13
	HTML	14
	Anchors	17
	Forms	18
	Frames	21
	Web Applications	22
	Client State Management	23
	Enabling Technologies	26

Chapter 3	Dynamic Clients	31
	Document Object Model	33
	Scripting	36
	JavaScript Objects	37
	Custom JavaScript Objects	39
	Events	40
	Java Applets	43
	ActiveX/COM	45
Chapter 4	Beyond HTTP and HTML	49
	Distributed Objects	49
	RMI / IIOP	52
	DCOM	55
	XML	57
	Web Services	63
	SOAP	64
	UDDI	65
	WSDL	66
Chapter 5	Security	71
	Types of Security Risk	72
	Technical Risk	73
	Server-Side Risks	77
	Client-Side Risks	79
	Cookies	79
	JavaScript	80
	Java	81
	ActiveX	83
	Plug-ins and MIME Types	84
	Security Strategies	85
	Encryption	86
	Best Practices	88
	Modeling Secure Systems	89

Part Two: Building Web Applications 93

Chapter 6	The Process	95
	Overview of Software Development	96
	Software Development for Web Applications	100
	Develop Software	101
	Iterate	104
	Software Iteration	105

	The Artifacts	108
	Project Management Set	111
	Domain Set	113
	Requirements Set	114
	Analysis Set	117
	Design Set	120
	Implementation Set	123
	Test Set	127
	Deployment Set	128
Chapter 7	Defining the Architecture	133
	Architectural Viewpoints	135
	Requirements Viewpoint	135
	Design Viewpoint	136
	Realization Viewpoint	136
	Test Viewpoint	137
	Viewpoint Mappings	138
	Architecture Activities	139
	Examining and Prioritizing Use Cases	139
	Developing Candidate Architectures	141
	Prototyping: Knowing When to Stop	142
	Web Application Presentation Tier:	
	Architectural Patterns	143
	Thin Web Client	145
	Thick Web Client	149
	Web Delivery	155
Chapter 8	Requirements and Use Cases	161
	The Vision	161
	Requirements	164
	Glossary	167
	Gathering and Prioritizing Requirements	168
	Use Cases	173
	The Use Case Model	176
	Avoiding Functional Decomposition	179
	Use Case Model Structure	183
	The User Experience	185
Chapter 9	The User Experience	187
	Artifacts of the UX Model	188
	Screens	189
	Storyboards	192
	Navigational Paths	192

	UX Modeling with UML	193
	Screen Flow	196
	User Input	200
	Screen Compartments	203
	Storyboard Realizations	204
	Navigational Map	210
	UX Model Stereotype Summary	210
Chapter 10	Analysis	215
	Iteration	216
	Analysis Model Structure	217
	Defining the Top-Level Model	218
	Analysis Elements	221
	Structural Elements	222
	Behavioral Elements	225
	UX Model Mapping	230
	Architecture Elaboration	231
Chapter 11	Design	233
	Web Application Extension for UML	236
	Logical View	237
	Component View	242
	Designing Web Applications	246
	Thick Web Client Applications	246
	Web Delivery Web Applications	247
	Identifying Web Pages	247
	Client-Side Scripting	253
	Mapping to the UX Model	257
	Integrating with Content Management Systems	260
	Guidelines for Web Application Design	261
Chapter 12	Advanced Design	265
	HTML Frames	265
	Advanced Client-Side Scripting	271
	Script Libraries	271
	Script Objects	273
	Virtual and Physical HTTP Resources	273
	JavaServer Page Custom Tags	281
Chapter 13	Implementation	287
	Number Store Main Control Mechanism	289
	Glossary Application Tag Libraries	300

Appendices

Appendix A	Web Application Extension Profile Version 2	315
	Overview	315
	HTML to UML	315
	URL Resolution	316
	Elements	318
	UML to HTML	347
	Component Packages	348
	Components	348
	Classes	349
	Association Class: «URL Parameters»	358
	Associations	358
	Mapping Web Elements to UML, and Vice Versa	363
	JavaServer Page to UML	363
	UML to JavaServer Page	369
Appendix B	The Number Store Reference Application	377
	Vision	377
	Background	377
	Requirements and Features	378
	Software Architecture Document	379
	Requirements View	379
	Use Case View	381
	User Experience View	382
	Design	385
	Component View	401
	Sample Screen Shots	406
Appendix C	Controlled Controllers Pattern	411
	Use Case View	411
	Analysis Model Classes	415
	Analysis Model Collaborations	418
Appendix D	Master Template Pattern	423
	Overview	423
	Use Case View	423
	Logical View	425
Appendix E	Glossary Application	429
	Introduction	429
	Requirements and Use Case Model	429
	User Experience Model	431

Design Model	431
Client Tier	431
Presentation Tier	435
Entity Tier	438
Data Tier	438
Component View	441
Sample Screen Shots	444
 Index	 449