

CONTENTS

| | |
|---|-------------|
| About the Authors | xv |
| About the Technical Reviewer | xvi |
| Acknowledgments | xvii |
| Introduction | xix |

PART ONE: INTRODUCING FLASH USABILITY

| | |
|---|-----------|
| Chapter 1: Flash: Then, Now, Later | 1 |
| The brief, turbulent history of Flash | 2 |
| Flash MX 2004 and the release of ActionScript 2.0 | 3 |
| New features introduced by ActionScript 2.0 | 4 |
| Usability benefits of ActionScript 2.0 | 4 |
| The advantages (and disadvantages) of Flash over HTML | 4 |
| Flexibility | 5 |
| Cross-browser and cross-platform compliance | 6 |
| Asynchronous processing and state management | 6 |
| Robust design capabilities | 7 |
| Flash vs. Ajax | 8 |
| Breaking the Flash usability stigma | 8 |
| Why Flash usability is important | 9 |
| Current trends in web development | 10 |
| Future developments | 11 |
| Summary | 11 |
| Chapter 2: Setting Up Your Flash Environment | 13 |
| Setting up the source directory structure | 14 |
| Creating a classpath | 15 |
| Applying a Flash library structure | 16 |
| Summary | 17 |

PART TWO: THE USABILITY SOLUTIONS

| | |
|---|-----------|
| Chapter 3: A Basic Selection System | 19 |
| Selection systems in HTML vs. Flash | 20 |
| Introducing the Flash selection system | 22 |
| Blueprinting the selection system solution | 22 |
| Examining the base classes for the selection system | 24 |
| The UIButton base class | 24 |
| The SelectionSystem base class | 28 |
| Using and customizing the selection system | 30 |
| Creating the book item button clip | 31 |
| Creating the book selection system movie clip | 32 |
| Adding the initialization code | 32 |
| Creating the BookItemButton class | 33 |
| Creating the BookSelectionSystem class | 37 |
| Wrapping up | 38 |
| Summary | 39 |
| Chapter 4: Navigation Menus | 41 |
| Exploring the HTML menu conundrum | 42 |
| The simple text menu | 42 |
| The select box list | 44 |
| The customized drop-down menu | 44 |
| Devising an optimal Flash menu solution | 45 |
| Building the Flash solution | 48 |
| Building the scrolling menu frame | 48 |
| Creating the panel clip | 49 |
| Creating the menu holder clip | 50 |
| Creating the tab area assets | 50 |

CONTENTS

| | |
|--|-----------|
| Bringing the menu to life with ActionScript | 51 |
| Starting the ScrollingMenuFrame class | 52 |
| Setting the scrolling menu's runtime events | 53 |
| Enabling and disabling the menu | 54 |
| Implementing the mouse watch methods | 56 |
| Implementing the menu scrolling methods | 56 |
| Building the menu loading method | 61 |
| Adjusting the menus' appearance | 62 |
| Putting the pieces together | 62 |
| Summary | 65 |
| Chapter 5: Content Loading | 67 |
| Understanding HTML's inherent loading problem | 69 |
| Developing a Flash loader solution | 69 |
| The design of loaders | 70 |
| Ensuring accuracy | 70 |
| Adding visual appeal | 71 |
| Allowing users to multitask | 71 |
| General loader functionality | 72 |
| Commonly streamed objects | 72 |
| The Sound object | 72 |
| The MovieClip object | 73 |
| The MovieClipLoader class | 73 |
| The XML object | 75 |
| The LoadVars object | 75 |
| Creating a usable audio clip loader | 75 |
| Laying out the loader features | 76 |
| Building the audio player | 77 |
| Adding the progress bar clip | 78 |
| Adding the seeker clip | 79 |
| Building the information display text fields | 80 |
| Adding the volume button clip | 80 |
| Adding audio player buttons | 81 |
| Creating the time position indicator clip | 82 |
| Using the Model-View design pattern | 82 |
| Building the loader model | 84 |
| Building the loader view | 89 |
| Putting it all together | 96 |
| A note on the Model-View design implementation | 96 |
| Building a reusable movie clip loader | 96 |
| Setting up the loader graphics | 98 |
| Coding the reusable loader clip | 99 |
| Building the MovieClipLoaderUI class | 99 |
| Defining MovieClipLoader's event handlers | 100 |
| Putting the loader clip to work | 102 |

| | |
|---|------------|
| A case study: A basic image gallery | 103 |
| Loading the thumbnails | 104 |
| Loading the full-size image | 105 |
| Summary | 107 |
| Chapter 6: Inventory Views and Selection Devices | 109 |
| A brief interlude into metaphor-based design | 110 |
| Understanding the HTML shopping cart metaphor | 112 |
| Devising a better shopping cart solution in Flash | 115 |
| Building the Flash solution | 118 |
| Creating the Flash UI assets | 118 |
| The cart layer | 118 |
| The product detail layer | 119 |
| The product grid layer | 120 |
| The thumbnail item clip | 121 |
| The draggable thumbnail item clip | 122 |
| Coding the solution | 122 |
| Creating the grid layout structure | 123 |
| Setting the position of the thumbnails | 125 |
| Creating the drag-and-drop functionality | 126 |
| Building the droppable UI areas | 131 |
| Putting it all together | 135 |
| Summary | 136 |
| Chapter 7: Data Filtering | 139 |
| Examining the limitations of standard searches | 140 |
| Improving filtering with Flash | 143 |
| Storing data on the client | 143 |
| Using sliders to filter search criteria | 144 |
| Fading in and out inventory results | 146 |
| Reviewing the filtering enhancements | 147 |
| Building the Flash solution | 147 |
| Creating the Flash UI assets | 147 |
| The filtering slider | 148 |
| The product grid | 149 |
| Building the filtering slider code | 149 |
| Building the DataFilterManager class | 150 |
| Creating the DataFilterSlider class | 152 |
| Using the EventDispatcher object | 156 |
| Implementing the EventBroadcaster class | 158 |
| Modifying the ThumbItemButton class | 159 |
| Putting the pieces together | 160 |
| Summary | 160 |

| | |
|--|------------|
| Chapter 8: Forms | 163 |
| Humanizing forms | 164 |
| Improving form validation | 165 |
| On-the-fly validation | 165 |
| Unobtrusive error handling | 165 |
| Smarter validation | 166 |
| Improving form workflow | 168 |
| Tabbing | 168 |
| Positioning | 168 |
| Creating a better form experience | 168 |
| Self-scrolling | 169 |
| Dynamic and smart validation | 170 |
| Building the Flash solution | 171 |
| Creating the Flash UI components | 171 |
| The text input wrapper clip | 172 |
| The text area wrapper clip | 173 |
| The state combo box wrapper clip | 173 |
| The check box wrapper clip | 174 |
| The validation control | 175 |
| The form container | 176 |
| Coding the solution | 176 |
| Building the form element wrapper code | 177 |
| Using a Strategy pattern to create reusable validation logic | 180 |
| Creating the validation strategy interface | 182 |
| Validating text | 183 |
| Validating a Boolean | 184 |
| Validating a phone number | 184 |
| Validating a zip code | 186 |
| Creating the component wrapper subclasses | 187 |
| Building the validation control class | 188 |
| Building the form container class | 189 |
| Summary | 193 |
| Chapter 9: State Management and Storage | 197 |
| Remembering state in Flash applications | 198 |
| Introducing the local shared object | 199 |
| Creating a local shared object | 200 |
| Customizing the location of the shared object | 201 |
| Reading and writing data from a local shared object | 201 |
| Building a skip intro feature | 202 |
| Remembering visited links | 202 |
| Adding the history functionality to the code | 204 |
| Adding a clear history function | 206 |
| Summary | 206 |

| | |
|---|------------|
| Chapter 10: Help Tips | 209 |
| Examining the limitations of the HTML title text solution | 210 |
| Improving help tips with Flash | 212 |
| Toggle feature | 213 |
| Mobility | 213 |
| Fade in/snap out | 213 |
| Building the Flash solution | 214 |
| Creating the movie clips | 214 |
| The help tip clip | 214 |
| The toggle clip | 215 |
| Building the code | 216 |
| Building the help tip clip class | 216 |
| Building the HelpTipManager class | 219 |
| Building the toggle functionality | 221 |
| Putting it all together | 222 |
| Some help tip usability guidelines | 224 |
| Summary | 225 |
| Chapter 11: Browser History | 227 |
| Reviewing the Flash back button issue | 228 |
| Determining where to go | 229 |
| Creating a simple Flash solution | 230 |
| Understanding how browser histories work | 231 |
| Tracking history and changing state | 231 |
| Building the SWF file | 234 |
| Scripting the page watcher code | 234 |
| Creating the page states | 235 |
| Coding the main HTML page | 235 |
| Coding the history HTML page | 237 |
| Enabling browser history in the Flash selection system solution | 239 |
| Deciding which page states to track | 240 |
| Modifying the book selection system code | 241 |
| Adding the watch method in Flash | 241 |
| Modifying the history and main pages | 242 |
| Examining Flash's named anchors | 243 |
| Summary | 244 |
| Chapter 12: Liquid Layouts | 247 |
| Exploring the fixed-width vs. liquid-width layout dilemma | 248 |
| Designing a usable liquid layout | 249 |
| Building liquid layouts in HTML: The CSS problem | 250 |
| Using the Flash Stage object to create liquid layouts | 251 |
| Designing a liquid layout in Flash | 252 |

CONTENTS

| | |
|--|-----|
| Building the Flash solution | 254 |
| Designing the UI components | 254 |
| The content area movie clips | 254 |
| The header bar clip | 255 |
| The navigation items | 255 |
| Setting up component data | 256 |
| Delegating layout responsibilities | 257 |
| Building the content area class | 257 |
| Building the stage manager class | 261 |
| Setting the size of the content areas | 263 |
| Setting the positions of the content areas | 264 |
| Creating the resize event handler | 265 |
| Modifying the navigation item positions | 265 |
| Summary | 267 |

Chapter 13: Embedding Flash **271**

| | |
|--|-----|
| Optimizing usability when embedding Flash movies | 272 |
| Browser compatibility | 272 |
| Flash sniffing | 273 |
| Choosing an embedding method | 274 |
| The default Flash-generated HTML method | 274 |
| The Flash Satay method | 275 |
| The nested object method | 276 |
| The Flash Player Detection Kit | 277 |
| The FlashObject method | 277 |
| Using FlashObject with Express Install | 279 |
| Writing the HTML code | 280 |
| Checking for the ExpressInstall component | 281 |
| Summary | 282 |

PART THREE: PUTTING THE PIECES TOGETHER

Chapter 14: Planning for Usability **285**

| | |
|---|-----|
| Setting the bar for Flash usability | 286 |
| RIA usability: A new paradigm | 288 |
| The usability team members | 289 |
| Preparing for development | 291 |
| Defining the application's purpose | 291 |
| Creating an application map | 291 |
| Exploring interactions through interaction models | 292 |
| Designing wireframes for the application states | 292 |

| | |
|--|------------|
| Usability testing | 293 |
| The phases of usability testing | 294 |
| Concept/experience design | 294 |
| Screenshot design | 294 |
| Prototyping | 295 |
| Beta release | 295 |
| Public release | 295 |
| Testing materials | 296 |
| Summary | 297 |
| Chapter 15: The Usable Bookstore | 299 |
| Navigating through the application | 300 |
| Arriving at the Book Shopper | 301 |
| Finding help | 301 |
| Selecting a category of books | 302 |
| Filtering the book catalog | 303 |
| Learning about books in a category | 303 |
| Adding and modifying items in your cart | 304 |
| Submitting your billing and shipping information | 305 |
| Synthesizing the usability solutions | 306 |
| Summary | 307 |
| Appendix: Recommended Reading | 309 |
| ActionScript 2.0 (and OOP) programming | 310 |
| Usability design | 311 |
| Flash usability (historical) | 311 |
| Web resources | 312 |
| Index | 315 |