



Table of Contents

Introduction	xi
Chapter 1: Introduction to Web Technologies	1
Introduction to OSI Model and its Layers.....	2
Web System Architecture.....	4
One-Tier Architecture	5
Two-Tier Architecture.....	6
Three-Tier Architecture.....	6
N-Tier Architecture	7
The URL and Domain Name System.....	7
Overview of HTTP and FTP.....	8
The Hypertext Transfer Protocol.....	9
The File Transfer Protocol.....	10
Cross Browser Compatibility Issues.....	10
W3C Validators.....	11
Website Design Issue.....	13
Planning a Website.....	13
Publishing of Website.....	14
Web Server.....	15
Summary.....	15
Exercises.....	16
True or False	16
Multiple Choice Questions.....	16
Short Questions/ Answers.....	18
Chapter 2: Client-Side Programming – HTML 5.0, CSS, and JavaScript.....	21
Introduction.....	22
Introducing HTML.....	22
Understanding Elements.....	23
Introducing HTML Document Structure	23
Creating a Simple HTML Web Page.....	26

Table of Contents

Formatting Text with HTML Elements	29
Creating Hyperlink Using the Anchor Element.....	34
Inserting Images in a Web Page.....	35
Displaying List.....	36
Using the TABLE Element	37
Using the DIV Element.....	39
Using the SPAN Element	40
Creating a Frame	41
Introducing Forms.....	42
Introducing CSS.....	45
Understanding the Syntax of CSS.....	45
Inserting CSS in an HTML Document.....	47
Exploring Font Properties in CSS	48
Applying CSS to Text.....	52
Applying CSS to Background	56
Exploring Link Properties in CSS	58
Positioning an HTML Element in CSS.....	58
Introducing JavaScript.....	61
Using JavaScript in an HTML Document.....	61
Exploring Programming Fundamentals of JavaScript.....	63
Exploring Objects in JavaScript.....	70
Properties of an Object	70
Methods of an Object.....	71
Exploring the Standard/Built-in JavaScript Objects.....	72
Exploring Browser Objects in JavaScript.....	82
Document Object Model	89
Exploring Events	92
Validating an HTML Form Using JavaScript	93
Exploring Cookies	96
Introducing JQuery.....	99
Basics of jQuery Programming	100
Validating an HTML Form Using JQuery.....	104
Summary.....	106
Exercise	106
True/False.....	106
Multiple Choice Questions.....	107
Short Answer Type Questions	108
Debugging Exercise.....	110
Chapter 3: Server-Side Programming I: ASP.NET and JSP.....	113
Introduction to C#	114
ASP.NET Essentials	116

Table of Contents

Exploring New Features of ASP.NET 4.5.....	116
The ASP.NET Technologies	120
Life Cycle of ASP.NET Application.....	121
Life Cycle of ASP.NET Applications on IIS 7.5.....	121
Life Cycle of an ASP.NET Web Page.....	123
Developing Web Forms Using ASP.NET	125
Creating a Sample ASP.NET 4.5 Web Form Application.....	125
Creating a Sample ASP.NET 4.5 Web Form Site.....	128
ASP.NET 4.5 Coding Models.....	132
ASP.NET 4.5 Directives.....	134
Working with Server Controls.....	135
Structure of an Application.....	137
Session Tracking.....	141
Application State	142
Session State.....	142
View State	143
HTTP Handlers.....	143
Postback and Cross-Page Posting.....	144
Server-Side Programming Using Java Servlet and JSP.....	148
Introduction to Servlet and JSP.....	148
Introduction to Servlet	149
Working of Servlet.....	150
Servlet Life Cycle.....	150
The init() Method.....	152
The service() Method.....	152
The destroy() Method.....	153
Understanding Servlet Configuration.....	154
Introduction to JSP	155
Advantages of JSP over Servlets	156
Introducing the JSP Tag-Based Approach.....	158
The JSP Architecture.....	158
JSP Life Cycle.....	159
The Page Translation Stage.....	160
The Compilation Stage	162
The Loading and Initialization Stage.....	162
The Request Handling Stage.....	163
The Destroying Stage	163
Creating Simple JSP Pages	163
Working with JSP Basic Tags and Implicit Objects.....	166
JSP Scripting Tags.....	166
JSP Basic Objects.....	170

Table of Contents

Summary.....	176
Exercise	176
True/False.....	176
Multiple Choice Questions.....	177
Short Answer Type Questions.....	178
Debugging Exercise.....	182
Chapter 4: Server-Side Programming II: PHP	187
Features of PHP	188
Data Types in PHP	189
Determining Variable Data Type.....	190
Using Type Casting	191
Control Structures	192
Conditional Statements.....	192
Looping Statements.....	198
Break, Continue, and Exit Statements	202
Built-In Functions in PHP	204
String Manipulation Functions	204
Date and Time Functions in PHP	208
Mathematical Functions	212
Building Web Applications Using PHP.....	215
Tracking Users.....	215
Introduction to PHP Framework.....	221
Summary.....	222
Exercises.....	222
True or False	222
Multiple choice questions	223
Short Questions/ Answers.....	224
Debugging Questions.....	227
Chapter 5: Server-Side Database Connectivity.....	231
Introduction.....	232
Introducing Databases.....	232
Exploring Relational Database Model, Records, and Primary Keys.....	233
Understanding Logical Relationships of Tables and Concept of Foreign Keys	233
Using ADO.NET.....	234
Architecture of ADO.NET.....	236
Creating Connection Strings.....	236
Syntax for Connection Strings.....	239
Data Source and Data-Bound Controls	240
Displaying Data by Using the Code-Behind File	241
Displaying Data Using the Wizard.....	243

Table of Contents

Using JDBC	247
Components of JDBC	248
JDBC Specification.....	248
JDBC Architecture	249
Exploring the JDBC Drivers.....	250
Describing JDBC APIs.....	253
Exploring JDBC Processes with the java.sql Package	258
Using PHP and MySQL.....	266
Connecting to Database.....	266
Selecting a Database	267
Adding Table in a Database.....	268
Altering a Table in a Database	269
Inserting Data in a Table	270
Modifying Data in a Table	270
Retrieving Data.....	271
Summary.....	272
Exercise	273
True and False.....	273
Multiple Choice Questions.....	273
Short Answers.....	275
Debugging Exercise	277
Chapter 6: Web Extensions	281
Introduction.....	282
Introducing XML.....	282
XML Basics.....	283
XML Syntax.....	283
XML Declaration.....	284
XML Elements	284
Nested Elements.....	284
Empty Elements.....	285
Escaping Delimiter Characters.....	285
XML Attributes.....	286
Viewing XML.....	286
XML Parser	288
Introducing XSL.....	290
Introducing XSLT	290
Exploring XSLT Elements and Attributes	290
Exploring XSLT Variables and Parameters	297
Transforming an XML Document Using XSLT.....	298
Introducing Web Feeds	300
Introducing RSS Feed.....	301

Table of Contents

Introduction to Web Services.....	303
Summary.....	304
Exercise	305
True/False.....	305
Multiple Choice Questions.....	305
Short Answer Type Questions.....	307
Debugging Exercise.....	309
Practicals.....	313
Index	343
Online Resource Available with the Book.....	345