

Microsoft LINQ Using Visual C# 2008

Table of Contents

INTRODUCTION.....	INTRO-1
Prerequisites.....	INTRO-2
Installing the Practice Files	INTRO-3
Software Requirements	INTRO-3
Sample Database	INTRO-3
Security	INTRO-4
Installation.....	INTRO-5
Demonstration Applications	INTRO-5
About the Authors	INTRO-6
INTRODUCING LINQ.....	1-1
Language Integrated Query.....	1-2
Data Access, Historically	1-2
LINQ to the Rescue	1-4
LINQ Providers	1-4
Structure of a LINQ Query	1-7
The Three Stages of a LINQ Query	1-7
Returning Multiple Values	1-11
Deferred Execution	1-17
Some LINQ Examples	1-23
LINQ to Objects	1-23
LINQ to SQL	1-31
LINQ to XML	1-42
LAB 1: INTRODUCING LINQ	1-51
Lab 1 Overview.....	1-52
Use LINQ to Objects.....	1-53
Use LINQ to SQL.....	1-57
Use LINQ to XML.....	1-62
LANGUAGE EXTENSIONS FOR LINQ	2-1
LINQ and Languages.....	2-2
The Sample Application	2-2
Modifying the Sample	2-4
Implicitly Typed Local Variables and Object Initializers	2-7
Implicit Type Declarations.....	2-7

Table of Contents

Object Initializers.....	2-9
Lambda Expressions, Extension Methods, and Anonymous Types.....	2-14
Lambda Expressions	2-14
Extension Methods	2-23
Anonymous Types	2-29
LAB 2: LANGUAGE EXTENSIONS FOR LINQ.....	2-35
Lab 2 Overview.....	2-36
Add Implicit Type Declarations and Object Initializers.....	2-37
Add Lambda Expressions.....	2-42
LINQ TO OBJECTS.....	3-1
Using LINQ with In-Memory Collections	3-2
What Can You Query?.....	3-2
Arrays.....	3-3
Generic Lists	3-8
Generic Dictionaries.....	3-13
Strings.....	3-15
Other Collections (Non-Generic Collections)	3-17
LINQ Operators and Extension Methods.....	3-21
Working with Data	3-22
Creating Sequences	3-23
Selecting Sequences	3-25
Retrieving a Single Element.....	3-27
Filtering Sequences	3-34
Ordering Sequences	3-37
Verifying Sequences	3-37
Converting Sequences.....	3-43
Positioning within Sequences	3-46
Calculating Sequences	3-48
Set Operations	3-55
LAB 3: LINQ TO OBJECTS.....	3-65
Lab 3 Overview.....	3-66
Retrieve a Unique List of Words Beginning with Consonants from a Text File.....	3-67
Create a Dictionary of Words and Word Counts.....	3-73
LINQ TO SQL.....	4-1
LINQ and Relational Data.....	4-2
Creating an Object Model	4-4

The DataContext Class.....	4-12
Entity Classes	4-13
Associations Between Entities	4-16
Querying Data.....	4-18
Simple Queries	4-19
Scalar Functions	4-27
Aggregate Functions.....	4-29
Querying Related Tables	4-33
Lambda Expressions	4-42
Extension Methods	4-46
Grouping	4-47
Joins.....	4-53
Modifying Data.....	4-60
Using Stored Procedures.....	4-72
Configuring the Update Behavior of Entity Classes	4-83
LINQ to SQL vs DataSets.....	4-90
 LAB 4: LINQ TO SQL	4-95
Lab 4 Overview.....	4-96
Create an Object Model.....	4-97
Query Data	4-107
Modify Data.....	4-115
 MORE LINQ TO SQL	5-1
LINQ to SQL Advanced Features	5-2
Deferred Loading	5-2
Read-Only Queries	5-7
Compiled Queries	5-10
Direct Execution of Queries	5-13
Transactions	5-17
Cascading Deletes.....	5-20
Tracking Changes.....	5-23
Creating and Deleting Databases	5-26
Validating Data.....	5-29
Using LINQ to SQL in a Windows Application	5-36
Exploring the Data Layer	5-37
Exploring the User Interface	5-40
Using LINQ to SQL in a Web Application	5-53
Working with Customers	5-53

Table of Contents

Working with Orders	5-59
Working with Products	5-61
 LAB 5: MORE LINQ TO SQL	5-69
Lab 5 Overview.....	5-70
Validate Data	5-71
Use LINQ to SQL in a Windows Application.....	5-81
Use LINQ to SQL in a Web Application	5-91
 LINQ TO DATASET.....	6-1
Review of DataSets	6-2
Retrieving and Modifying Data.....	6-3
Querying Data with LINQ to DataSet.....	6-5
Querying Data in Tables	6-6
Querying Tables in Untyped DataSets.....	6-14
Querying Tables in Typed DataSets	6-18
LINQ to DataSet and DataViews	6-24
Binding to Data	6-32
Exploring the Sample Application	6-33
Convert Query Results to a List	6-36
Copy Query Results to a DataTable	6-38
Create a DataView from Query Results	6-42
 LAB 6: LINQ TO DATASET	6-47
Lab 6 Overview.....	6-48
Query Data in an Untyped DataSet	6-49
Query Data in a Typed DataSet.....	6-58
Bind to Data in a Typed DataSet	6-67
 LINQ TO XML.....	7-1
Creating and Manipulating XML Content.....	7-2
Creating XML Content	7-3
Traversing XML.....	7-10
Updating XML Content.....	7-15
Verifying XML Content Using a Schema.....	7-18
Using LINQ to Query XML Content	7-23
Simple LINQ Queries	7-23
Anonymous Types in LINQ to XML.....	7-24
Using Extension Methods with LINQ to XML	7-25
LINQ to XML and Lambda Expressions.....	7-26

Transforming XML Using LINQ.....	7-28
Creating New Output	7-29
Filling in the Details.....	7-30
 LAB 7: LINQ TO XML	7-39
Lab 7 Overview.....	7-40
Query XML Content.....	7-41
Transform XML Content	7-50
 LINQ TO ENTITIES	8-1
Overview of the Entity Framework.....	8-2
Creating an Entity Data Model.....	8-5
The ObjectContext Class	8-19
Entity Classes	8-20
Associations Between Entities	8-21
Querying Data.....	8-26
Simple Queries	8-26
Scalar Functions	8-31
Aggregate Functions.....	8-34
Querying Related Tables	8-36
Lambda Expressions	8-46
Grouping	8-49
Joins.....	8-54
Differences Between LINQ to Entities and LINQ to SQL	8-58
Modifying Data.....	8-59
Using Stored Procedures.....	8-67
Configuring the Update Behavior of Entity Classes	8-75
 LAB 8: LINQ TO ENTITIES	8-85
Lab 8 Overview.....	8-86
Create an Entity Data Model.....	8-87
Query Data	8-94
Modify Data.....	8-100
 INDEX.....	INDEX-1

Table of Contents
