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LINQ Quickly User Manual

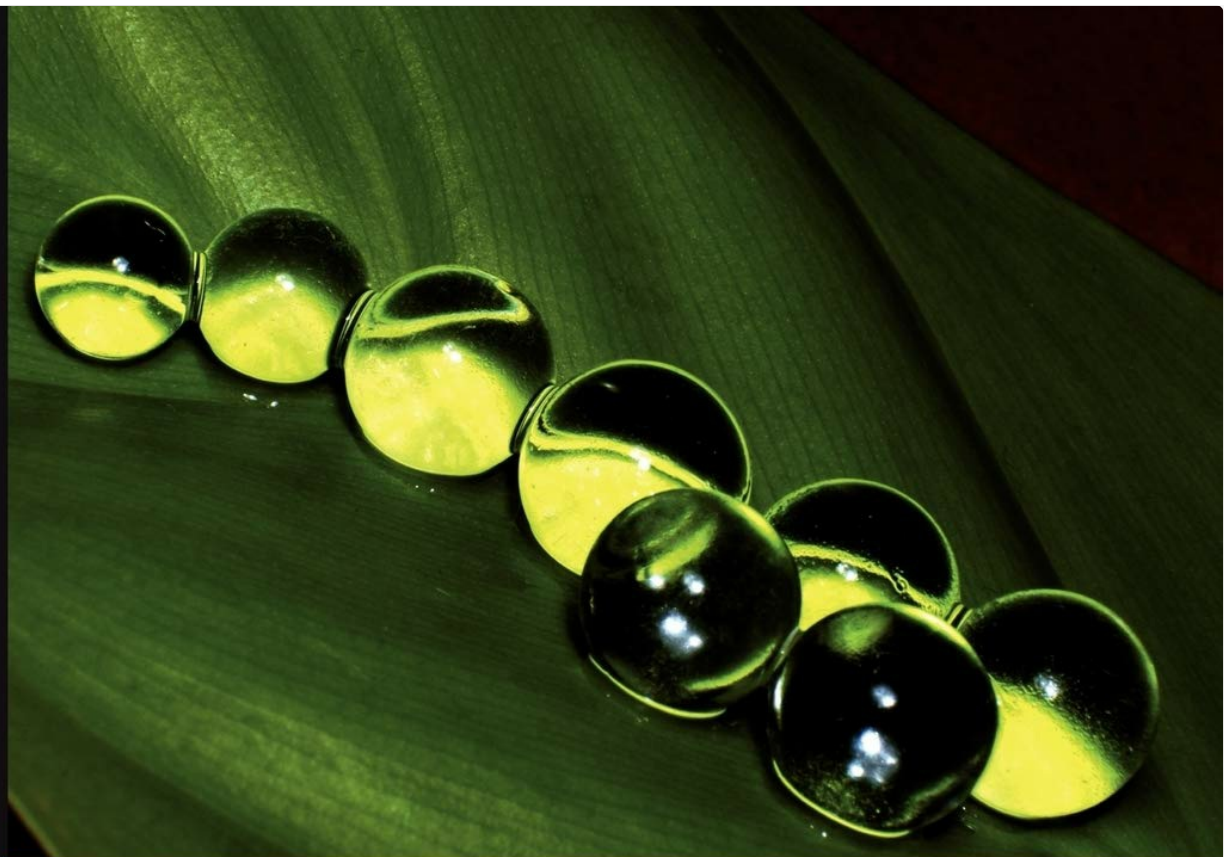
A Practical Guide to Programming Language Integrated Query with C#

1. INTRODUCTION

1.1 About LINQ Quickly

This manual provides an overview and guide to the "LINQ Quickly" book, designed to introduce readers to Language Integrated Query (LINQ) and its application within the .NET Framework 3.0. The book aims to simplify programming tasks by leveraging new features in Visual Studio 2008, specifically focusing on LINQ's capabilities with C# and Visual Basic.

The content is structured into seven chapters, each dedicated to a specific LINQ feature and its practical usage in real-world scenarios. It covers LINQ provider assemblies for various data sources, including in-memory collections, SQL relational databases, ADO.NET Datasets, and XML documents.



From Technologies to Solutions

LINQ Quickly

A practical guide to programming Language Integrated Query with C#

N Satheesh Kumar

PACKT
PUBLISHING

Figure 1.1: Front cover of the "LINQ Quickly" book, published by Packt Publishing.

1.2 What You Will Learn

Upon completing the book, readers will gain knowledge in the following areas:

- Understanding partial methods, expressions, anonymous types, initializers, and implicitly typed local variables.
- Accessing in-memory data structures using LINQ.
- Querying collections and filtering values.
- Creating and manipulating XML data through .NET using XElement and XAttribute.

- Importing and exporting data from dictionaries, databases, objects, and CSV files.
- Working with stored procedures, user-defined functions, handling concurrency conflicts, and transactions.
- Working with .NET framework data providers and DataSets.
- Working with typed and un-typed XML trees using XSD.
- Examining, implementing, and using the standard query operators provided by the LINQ.

1.3 Who This Book is Written For

This book is intended for .NET developers who wish to understand LINQ, its functionalities, and how to program with it effectively.

1.4 Prerequisites

A sound knowledge of XML, ADO.NET, and .NET data access is presumed for readers of this book.

2. GETTING STARTED WITH LINQ

2.1 Environment Setup

To effectively follow the examples and concepts presented in "LINQ Quickly," ensure you have the following development environment set up:

- **Visual Studio 2008:** This integrated development environment (IDE) is essential as LINQ is a new feature introduced in Visual Studio 2008.
- **.NET Framework 3.0:** The book leverages new features from this framework version. Ensure it is installed and configured correctly on your system.

These tools provide the necessary language extensions (C# and Visual Basic) and LINQ provider assemblies to work with various data sources.

3. KEY CONCEPTS AND USAGE

3.1 Language Integrated Query (LINQ) Overview

LINQ is a powerful set of extensions to the .NET Framework that adds native data querying capabilities to .NET languages. It allows developers to write queries directly within C# or Visual Basic code, providing a unified programming model for querying data from various sources.

3.2 LINQ Providers

The book details how LINQ interacts with different data sources through specific LINQ providers. These include:

- **LINQ to Objects:** For querying in-memory collections (e.g., arrays, lists).
- **LINQ to SQL:** For interacting with SQL relational databases.
- **LINQ to XML:** For querying and manipulating XML documents.
- **LINQ to ADO.NET Datasets:** For working with ADO.NET DataSets.

3.3 Language Extensions

The book primarily focuses on the implementation of LINQ language extensions in Visual C# and Visual Basic.

These extensions enable the use of query syntax directly within your code, making data manipulation more intuitive and readable.

3.4 Standard Query Operators API

LINQ utilizes a new standard query operators API, which serves as the query language for any collection that implements IEnumerable. The book provides a thorough look at these operators, which are fundamental to constructing LINQ queries.

3.5 Example Scenarios

The book includes practical examples to illustrate LINQ's power and flexibility. These include:

- Creating a web site that uses LINQ to populate data grids and form elements.
- Using LINQ against the Outlook object model to retrieve contact details.
- Utilizing LINQ to SQL with stored procedures, a feature highlighted for its effectiveness.

4. TROUBLESHOOTING AND TIPS

While "LINQ Quickly" provides a solid foundation, some readers have noted areas that might require extra attention. Here are some tips to enhance your learning experience:

- **Example Code Verification:** Some examples in the book may require minor adjustments to run as published. If you encounter issues, carefully review the code for typos or context-specific requirements. Experiment with the code to understand its intended behavior.
- **Conceptual Clarity:** If certain concepts seem difficult to grasp on first read, try re-reading the paragraphs or consulting official Microsoft documentation for additional context.
- **Focus on Operators:** The final chapter, which details the Standard Query Operators, is highly valuable. Consider it a key reference for understanding the core of LINQ.
- **Practical Application:** While the book provides examples, consider building small personal projects to apply the LINQ concepts. This hands-on approach can solidify your understanding.

5. SPECIFICATIONS

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6. PUBLISHER AND AUTHOR INFORMATION

6.1 About the Author

N. Satheesh Kumar holds a Bachelor's Degree in Computer Science Engineering and possesses over eleven years of experience in software development life cycle, project, and program management. His career spans developing applications with Borland products, customizing Great Plains Dynamics, and designing software using Microsoft products. He has also held roles in Project Management and Program Management. Currently, he serves as a Technical Architect for a major retail company in the United States, specializing in the latest Microsoft technologies and having published numerous articles on LINQ and other .NET features.

For more information about the author, you can visit his Amazon author page:[N. Satheesh Kumar on Amazon](#).

6.2 Publisher Information

The book "LINQ Quickly" is published by Packt Publishing. Packt Publishing is known for its practical, hands-on books for developers and IT professionals.

LINQ Quickly

Language Integrated Query (LINQ) is a new feature in Visual Studio 2008 that extends its query capabilities, using C# and Visual Basic. Visual Studio 2008 comes with LINQ provider assemblies that enable the use of LINQ with data sources such as in-memory collections, SQL relational databases, ADO.NET Datasets, XML documents, etc.

In Visual Studio 2008, Visual C# and Visual Basic are the languages that implement the LINQ language extensions. LINQ language extensions use the new standard query operators API, which is the query language for any collection that implements `IEnumerable<T>`.

This book gets you started with LINQ and shows how it will make your programming life easier by making use of new features from the .NET Framework 3.0. It introduces the reader to the basic concepts of LINQ, and takes them through using LINQ with an example-driven approach. This book is split into seven chapters, each of which is dedicated to presenting a feature of LINQ and its usage in real-life scenarios.

Who this book is written for

This book is for .NET developers who want to find out exactly what LINQ is, what it can do for them, and how to program with LINQ.

This book presumes a sound knowledge of XML, ADO.NET, and .NET data access—No knowledge of LINQ is presumed.



What you will learn from this book

- Partial methods, expressions, anonymous types, initializers, and implicitly typed local variables
- Accessing in-memory data structures using LINQ
- Querying collections and filtering values
- Creating and manipulating XML data through .NET using XElement and XAttribute
- Importing and exporting data from dictionaries, databases, objects, and CSV files
- Working with stored procedures, user-defined functions, handling concurrency conflicts, and transactions
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Figure 6.1: Back cover of the "LINQ Quickly" book, detailing learning objectives and publisher information.

For more information about Packt Publishing and their range of books, please visit their official website:
www.PacktPub.com.

