.NET 4.5 Parallel Extensions Cookbook

By Bryan Freeman

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If you're an experienced C# developer, this book will give you the know-how to exploit the power of multicore processors. Its 80 recipes provide an in-depth guide to using .NET 4.5 to enhance application performance and scalability.

Overview

- Create multithreaded applications using .NET Framework 4.5
- Get introduced to .NET 4.5 parallel extensions and familiarized with .NET parallel loops
- Use new data structures introduced by .NET Framework 4.5 to simplify complex synchronisation problems
- Practical recipes on everything you will need to create task-based parallel programs

In Detail

.NET parallel extensions brings the power of parallel and asynchronous programming to a much wider developer audience than ever before. This book will give a developer with no multithreaded development experience the ability to write highly scalable parallel applications that take advantage of modern multicore processors.If you are an experienced .NET developer who wants to put parallel extensions to work in your applications, this book is for you.

".NET 4.5 Parallel Extensions" is a practical, hands-on guide that provides you with a number of clear step-by-step recipes that will introduce parallelism into your applications and take advantage of modern multicore processors. This book is a crash course in using the extensions, with theory and concepts kept to a minimum.

".NET 4.5 Parallel Extensions" offers a wide-ranging presentation of parallel development concepts, and provides a working knowledge of key technologies that are important to developers who want to take advantage of multi-core architectures.

You will learn how to compose a series of producer/consumer tasks into a pipeline that can process data elements received from a real-time event stream.

You will also learn how to connect the stages of pipelines together using the concurrent collections. You will learn everything you need to know to transform the multicore power found in modern processors into application performance and scalability.

What you will learn from this book

- Create a task using Parallel.Invoke, Task.Factory, and Task.Start
- Work with declarative data parallelism using Parallel Language Integrated Query (PLINQ) and its aggregate functions
- Perform independent operations on the member data of a collection using parallel loops
- Coordinate the activities of multiple tasks using new lightweight synchronization primitives
- Learn to use Visual Studio 2012 debugging and profiling capabilities related to parallel programming
- Maintain a responsive UI using asynchronous tasks
- Create a pipeline using multiple concurrent collections

Approach

This book contains practical recipes on everything you will need to create task-based parallel programs using C#, .NET 4.5, and Visual Studio. The book is packed with illustrated code examples to create scalable programs.

Who this book is written for

This book is intended to help experienced C# developers write applications that leverage the power of modern multicore processors. It provides the necessary knowledge for an experienced C# developer to work with .NET parallelism APIs. Previous experience of writing multithreaded applications is not necessary.

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Editorial Review

About the Author

Bryan Freeman

Bryan Freeman is a developer, architect, and writer on Parallel and Distributed Technologies. With over 15 years of experience delivering solutions across industry sectors such as healthcare, finance, and transportation, he specializes in technologies such as Microsoft .NET, Windows Communication Foundation, Windows Workflow, and Windows Azure to help clients deliver business value and drive revenue while reducing operational costs. As an active speaker, writer, and blogger, Bryan is a passionate community advocate for those who develop solutions based on .NET technologies. He is also an active member of the Scottsdale Institute and the Veterans of Foreign Wars.

Users Review

From reader reviews:

Michael Madden:

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