Parallel Programming with C# and .NET

If you need to understand concurrency, this book is your guide to the fundamentals behind the advanced software you seek to implement to achieve highly responsive and scalable code. Support for parallel computation is an essential part of concurrency. Concurrency is an advanced concept and solutions are not straightforward. Many developers have been burned by it and are still being burned by it. This book aims to simplify the concept for C# developers. It tries to simplify the concept using the Task Parallel Library (TPL), Concurrent Collections, Parallel LINQ (PLINQ), Asynchronous Programming Patterns, and related topics.

The book starts with an overview of TPL and discusses Tasks. Understanding these areas is necessary to learn the concepts that follow in the book. You will go through special scenarios, such as handling exceptions and cancellations, followed by demonstrations of synchronization techniques and concurrent collections. You will see demonstrations of parallel loops to speed up the computations. And you'll understand PLINQ in detail. Finally, you'll learn how to simplify asynchronous programming using async and await keywords.

The book contains "Q&A sessions", review questions, and exercises (in .NET 8 and C#12). After reading the book, you will be able to understand advanced concepts in parallel programming and implement them in your code.

What You Will Learn

- Understand concurrent and multi-threaded development
- Understand how some modern-day C# features can promote parallel programming
- Demonstrate the latest patterns for parallel development

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User level:
Intermediate–Advanced

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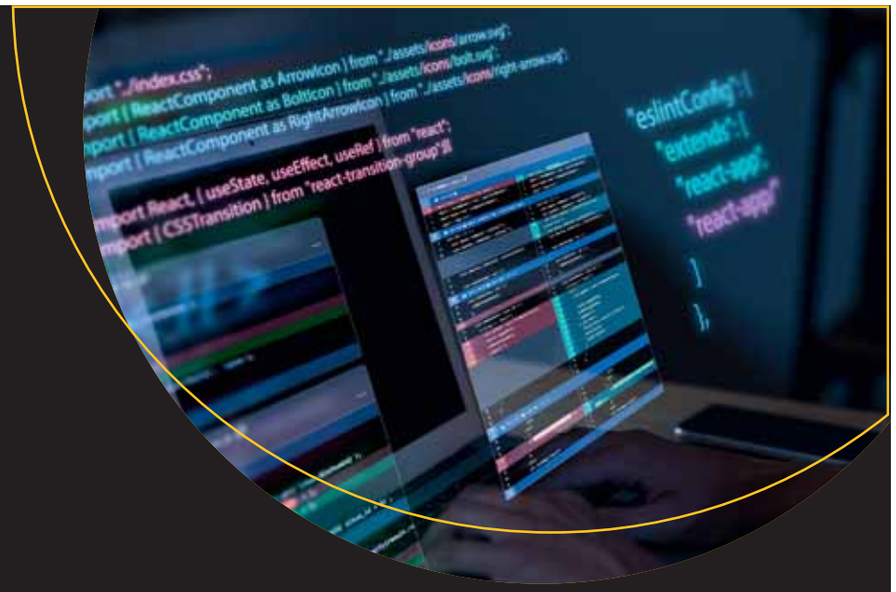

Parallel Programming with C# and .NET

Fundamentals of Concurrency and Asynchrony Behind Fast-Paced Applications

—

Vaskaran Sarcar

Foreword by Naga Santhosh Reddy Vootukuri

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