

# Preface

It gives me great pleasure to present the second edition of *Programming in C#*. During the years that the first edition has been in circulation, I have received a lot of favourable responses, comments and suggestions, and I have tried to keep them in mind while preparing the script of the second edition. The new edition has been updated with C# version 2005 and now contains updated topics and enhanced pedagogical features.

As stated earlier, this book has not been written keeping any specific syllabus in mind, rather it can be used by any one who is desirous of developing C# programs and will be very useful for the first course in C# taken by undergraduate students in Computers and Information Technology. The revised edition maintains the lucid flow and continuity which has been the strength of the book. The topics and the script in itself are well-graded and it takes the student through a step-by-step process, starting from simple programming problems to more complex and difficult ones. The specific improvements that have been added in the edition are the following:

- The book has been updated with C# version 2005. Validated HTML coding (part of Web 2.0) is used in the examples, which has been generated by the Visual Studio 2005 IDE
- Very important inclusion would be new chapters on ‘Multithreading’ and ‘Windows and Web-based Application Development on .NET’
- Two sample programs in each chapter using latest version of C#
- One case study per chapter
- Additional new problems/debugging exercises/programs and review questions
- Major and Mini projects
- Walkthrough of the major project

The book has been divided into twenty chapters. Chapter 1 introduces the C# language, its development, characteristics and evolution. Chapter 2 discusses the .NET Framework, its benefits and the relationship between C# and .NET. Chapter 3 introduces the reader to the first steps of building a C# program. Chapters 4 to 7 define literals, variables, data types, operators, expressions, decision making, branching and looping statements and how to use these in C# programs. Chapter 8 discusses declaring, invoking, nesting of methods and method overloading. Chapter 9 explains creation of arrays and the different types of arrays. Chapter 10 discusses string manipulation and Chapter 11 is on structures and enumerations.

The basic principles of object-oriented programming, classes, objects, constructors and destructors, are covered in Chapter 12. Chapter 13 explains inheritance and polymorphism in C# and Chapter 14 goes a bit further to introduce interfaces and multiple inheritance. Operator overloading is covered in Chapter 15 while delegates and events are discussed in Chapter 16. Chapter 17 deals with managing console I/O operations and their standard numeric format and custom numeric format. Chapter 18 discusses the various types of errors and exceptions occurring in C# and explains how to manage them. Chapter 19 extensively covers the concept of multithreading and finally, Chapter 20 discusses web-based applications and their development in .NET. Two major and two minor projects have been introduced in this edition, with one each being given in the book and the website respectively. The projects are elaborate case studies in themselves and offer ample hands-on practice to students at developing real-life C# applications.

The online learning center can be accessed at the <http://www.mhhe.com/balagurusamy/csharp2e> and has an exhaustive content which will prove very useful for both instructors and students alike.

**For the Instructor**

- Solutions to the debugging exercises.

**For the Student**

- Downloadable programs for students.
- Exclusive major (Employee Management System, Basic IO Example) and mini projects (Calculate Example, Random Number Application) for implementation with code, step-by-step description and user manual.
- Code for all major and mini projects. This would include code to the new major and mini projects as well.
- Web links to more information on C#.

I would like to thank all those who provided me with valuable feedback and inputs during the preparation of this book, and especially those at Tata McGraw-Hill, without whose help and cooperation, this book would not have had a timely release. The support, patience and inspiration that I got from my wife, Dr Sushila, is something which I cherish above all. And finally, a special thanks is also due to all my teacher friends and students for their encouragement.

Further suggestions for improvement will always be welcome.

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