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Preface

In writing this book, my goal was to create an easy-to-read, clearly-written, friendly tutorial that covers the fundamentals of computer science and the C++ programming language. Rather than focus solely on C++, the book covers important data structures and algorithms, which better equips students to create more professional software.

Introduction to Computer Science Using C++ includes hands-on exercises integrated into the flow of the chapters. Realistic, yet imaginative, programs, problems, and interdisciplinary projects are presented throughout the book.

This book is based on the belief that students should master the basics of C++ before learning about object-oriented programming. Therefore, the course builds a strong foundation of structured programming before introducing students to the concept of object-oriented programming. After object-oriented programming is introduced, students will use ready-made classes to simplify work with strings, arrays, stacks, and queues.

Introduction to Computer Science Using C++ is designed for use in a variety of courses. The instructor's manual includes course schedules for 6-week, 12-week, one-semester (18-week), and two-semester courses. The order of the material allows optional coverage of the advanced topics.

This book is also well-suited for an Advanced Placement Computer Science course. The classes used in this book are compatible with the classes used on the AP exam.

COMPILERS AND SYSTEMS SUPPORTED

This book was written with a focus on programming fundamentals, rather than specific features of any operating system. C++ is designed to be a portable language. The programs in the exercises of this book will compile successfully under MS-DOS, Windows, and the MacOS. This book has been tested with major compilers and minor inconsistencies are noted in the instructor's manual.

A COMPLETE INSTRUCTIONAL PACKAGE

Introduction to Computer Science Using C++ is a complete instructional package. In addition to this student textbook, there are other components to supplement the text and provide additional reinforcement. These components include:

- A consumable student workbook with additional questions, problems, coding and debugging exercises, and vocabulary reinforcement.
- A template disk that includes the source code and data files necessary to complete the exercises in the textbook.
- A regularly-updated Internet Web site at <http://www.ProgramCPP.com> devoted entirely to supplementing this book and providing up-to-date information, additional case studies, and links to important resources on the Internet.