Essential C++ for Engineers and Scientists (2nd Edition)

By Jeri R. Hanly

Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly

Essential C++ for Engineers and Scientists zeros in on the key elements of good programming and C++, using a multitude of interesting and appropriate engineering and scientific examples. This book covers the features of C++ needed for writing engineering programs, including many features of object-oriented programming. Early on, the book makes some simplifying assumptions that allow the use of C++ topics without lengthy explanation, and then later discusses the intricacies of the features. Readers will come away with the confidence needed to solve problems with C++. This book covers the essential features of C++, including control structures, one-dimensional and multidimensional arrays, and file manipulation. It contains over 80 engineering and scientific examples and programming projects drawn from interesting areas such as solar heating, environmentally sound power production, water conservation, automated manufacturing, and pipeline and power grid modeling. The new edition includes material on member operators and more coverage of member functions, as well as expanded coverage of files. Two new case studies demonstrate full algorithm development. All code has been updated to comply with ANSI C++ Standard. An appendix on C is also included for readers who want to use this language. This book is especially appropriate for engineers (but also for scientists, mathematicians, etc.) with no prior programming experience looking for an introduction to C++, focusing on the features of the language that can be applied to their industry.

Essential C++ for Engineers and Scientists (2nd Edition)

By Jeri R. Hanly

Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly

Essential C++ for Engineers and Scientists zeros in on the key elements of good programming and C++, using a multitude of interesting and appropriate engineering and scientific examples. This book covers the features of C++ needed for writing engineering programs, including many features of object-oriented programming. Early on, the book makes some simplifying assumptions that allow the use of C++ topics without lengthy explanation, and then later discusses the intricacies of the features. Readers will come away with the confidence needed to solve problems with C++. This book covers the essential features of C++, including control structures, one-dimensional and multidimensional arrays, and file manipulation. It contains over 80 engineering and scientific examples and programming projects drawn from interesting areas such as solar heating, environmentally sound power production, water conservation, automated manufacturing, and pipeline and power grid modeling. The new edition includes material on member operators and more coverage of member functions, as well as expanded coverage of files. Two new case studies demonstrate full algorithm development. All code has been updated to comply with ANSI C++ Standard. An appendix on C is also included for readers who want to use this language. This book is especially appropriate for engineers (but also for scientists, mathematicians, etc.) with no prior programming experience looking for an introduction to C++, focusing on the features of the language that can be applied to their industry.

Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly Bibliography

- Sales Rank: #708077 in Books
- Published on: 2001-10-18
- Original language: English
- Number of items: 1
- Dimensions: 9.00" h x 1.20" w x 7.20" l, 2.05 pounds
- Binding: Paperback
- 560 pages

Download and Read Free Online Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly

Editorial Review

From the Back Cover

Essential C++ for Engineers and Scientists focuses readers on the key elements of good programming and C++ using a multitude of engineering and scientific examples that are relevant to future engineers. The book covers the features of C++ needed for writing engineering programs, including many features of object-oriented programming. Early on, it makes some simplifying assumptions that allow the use of C++ topics without lengthy explanation, and then later discusses the intricacies of the features. Readers will come away with the confidence needed to solve problems with C++.

THIS SECOND EDITION FEATURES:

- Over 50% more programming projects than in the first edition.
- Two new case studies with complete algorithm development.
- Over 80 engineering and scientific examples and programming projects drawn from interesting areas such as solar heating, environmentally sound power production, water conservation, automated manufacturing, pipeline and power grid modeling, and others.
- Updated and enhanced coverage of many topics including member operators and member functions, files, and structs.
- Reference appendices on using the C programming language and about both the Borland and Visual C++ integrated development environments.
- Fundamentals of numerical methods that represent commonly used techniques for solving engineering and scientific problems.

About the Author
Jeri R. Hanly is a member of the computer science faculty at the University of Wyoming. She has developed software for target recognition in collaboration with naval researchers in China Lake, California and has taught software engineering seminars for professional developers of computing systems in the U.S. and Canada. 020188495XAB04062001

Excerpt. © Reprinted by permission. All rights reserved.

Essential C++ for Engineers and Scientists, Second edition, teaches the essentials of problem solving and programming using a subset of C++ as the implementation language. It includes many practical examples from a wide range of scientific and engineering disciplines. The text can be used for a first course in programming: It assumes no prior knowledge of computers or programming.

Although somewhat abbreviated, the C++ coverage in this book includes the features useful in typical engineering and scientific programs, and it demonstrates these features as they are actually used, not in isolation. Language topics are presented in an order common in teaching other languages: first the basic control structures (sequence, selection, and repetition), input/output operations, expression evaluation, and library functions, and then defining and calling the user's own functions. Next, the fundamental construct of an object-oriented C++ program, the class, is presented. After the chapter on classes, the text builds on the notion of object orientation while continuing the standard subject matter of an introductory programming course for engineers and scientists: arrays and strings, multidimensional arrays, a review of file

manipulation, and an introduction to selected numerical methods.

When C++ offers multiple ways of accomplishing the same goal, the text usually selects just one and uses it consistently. For example, it teaches the use of references for output parameters and limits coverage of pointers to array parameters and to dynamically allocated arrays.

Changes in the New Edition

Throughout the text, all programming examples have been updated to conform to standard C++ use of namespaces. We have improved the book in many other ways as well:

- Integrated introduction to input/output file use with loop coverage
- Added presentation of structs
- Added smaller scale first example of classes
- Added member operators while retaining friend operators
- Expanded coverage of dynamically allocated arrays, both one- and two-dimensional
- Integrated standard string class into data type coverage beginning in Chapter 2 (retained Cstring basics in array chapter)
- Expanded numerical methods coverage by adding a case study on the use of augmented matrices to solve systems of linear equations
- Added case studies using decision structures for finch classification and file use for database representation
- Included more examples of reference parameters
- Expanded input error recovery coverage
- Added 50% more programming projects
- Created new appendices in response to reviewer requests:
  - Introduction to C programming language
  - Laboratory-style introductions to two C++ integrated development environments—Microsoft Visual C++ and Borland C++ Builder

Flexible Ordering of Topics

Professors who prefer to present topics in an order different from the one in the textbook should check the dependencies shown in Table P.1 (in preface). Several sections of the text are completely optional, with no subsequent dependencies: Recursive Functions (5.6), Class Reuse (6.7), and Heap-Dynamic Array Allocation (7.6, 8.4). Figure P.1 (in preface) lists several different possible orderings of topics.

What About NO Objects?

A careful study of Fig. P.1 (in preface) shows that if you prefer not to cover objects at all, you can still present all other language topics except multidimensional arrays and dynamic array allocation. We have chosen to show function parameters that are multidimensional arrays only in the context of an object representation. This choice stems from our conviction that such a representation is simpler, since students can pass matrices as input and output parameters in exactly the same way as they pass simpler objects.

Software Engineering Concepts

This text presents many aspects of software engineering. Early chapters on control structures take a process-oriented approach to analysis and design and demonstrate algorithm development through stepwise refinement of pseudo-code. These chapters also include sections on tracing and debugging code. Chapter 5 introduces procedural abstraction through user-defined functions, and Chapter 6's introduction of classes is

interwoven with examples of the object-oriented design process first described in Chapter 1.

The book emphasizes early on the need for a consistent, readable coding style, and its examples demonstrate such a style throughout. The inside back cover of the text shows examples of most C++ constructs. In addition to serving as a quick reference to where these constructs are discussed in the book, this table can be used as a standard for style of indentation, bracket use, and naming conventions.

Pedagogical Features

This textbook uses a rich array of pedagogical features with which to engage the student.

Definitions of Important Terms. Important terms are defined in the margins of the text.

End-of-Section Review Questions. Most sections are followed by a set of questions that check the student's understanding of the material covered. Some questions call for the analysis and tracing of program fragments; others ask the student to write or to modify some code. Answers to the odd-numbered questions are in the Answers section; answers to the even-numbered questions are included in the on-line Instructor's Manual.

Programming Projects. Each chapter concludes with a set of programming projects. Answers to selected projects appear in the on-line Instructor's Manual, so instructors also have the option of distributing all or part of a solution and asking the students to complete, extend, or improve the solution.

Examples and Case Studies. The book contains a wide variety of examples and case studies specially selected to give the student glimpses of important science and engineering applications of computing. They are usually complete programs, functions, or class definitions rather than incomplete fragments.

Code and Input Highlighting. Many programming examples use shading to draw the student's eye to sections of the code that demonstrate the current topic of interest. Additionally, all examples of program runs shade user-entered input to distinguish it from computer-generated output.

Pitfalls and Chapter Reviews. Each chapter concludes with a discussion of common programming errors, followed by a summary of important points in the chapter, and a table of new C++ constructs.

Comprehensive Index. Every textbook has an index, but this book's index is truly a pedagogical feature. Constructed by hand, the index includes terms, concepts, and examples from all chapters and appendixes.

Appendixes and Supplements

Reference tables of C++ operator precedence and C++ constructs appear on the inside covers of the book. Appendix A compares C++ to its parent language, C; Appendix B gives selected run-time functions available in standard libraries; and Appendix C summarizes selected I/O facilities. Appendix D is a reference for the standard string class; Appendix E is a reference of C++ operators; and Appendix F is a list of ANSI C++ keywords. Appendixes G and H introduce popular C++ integrated development environments and Appendix I lists the ASCII and EBCDIC character sets.

The Instructor's Manual includes suggestions for teaching each chapter, two quizzes for each chapter, a bank of exam questions, solutions to even-numbered review questions, and solutions to selected programming projects. It is accessible by qualified instructors only. Please contact your sales representative through the World Wide Web.

The example program code is available online at **http://www.aw.com/cssupport** (follow the links from there). Within the text, the programs that can be downloaded from this website are marked with a "www" icon.

Acknowledgments

Users Review

From reader reviews:

Charles Beaudoin:

Exactly why? Because this Essential C++ for Engineers and Scientists (2nd Edition) is an unordinary book that the inside of the publication waiting for you to snap the idea but latter it will jolt you with the secret it inside. Reading this book close to it was fantastic author who all write the book in such remarkable way makes the content interior easier to understand, entertaining technique but still convey the meaning fully. So , it is good for you for not hesitating having this ever again or you going to regret it. This phenomenal book will give you a lot of advantages than the other book have such as help improving your talent and your critical thinking method. So , still want to hesitate having that book? If I have been you I will go to the book store hurriedly.

Jessica Wilson:

Reading can called imagination hangout, why? Because when you find yourself reading a book specifically book entitled Essential C++ for Engineers and Scientists (2nd Edition) your brain will drift away trough every dimension, wandering in most aspect that maybe not known for but surely can be your mind friends. Imaging each and every word written in a reserve then become one form conclusion and explanation that will maybe you never get ahead of. The Essential C++ for Engineers and Scientists (2nd Edition) giving you one more experience more than blown away your brain but also giving you useful data for your better life in this particular era. So now let us explain to you the relaxing pattern the following is your body and mind are going to be pleased when you are finished studying it, like winning a sport. Do you want to try this extraordinary paying spare time activity?

Helen Williams:

This Essential C++ for Engineers and Scientists (2nd Edition) is great guide for you because the content which is full of information for you who also always deal with world and also have to make decision every minute. This book reveal it information accurately using great organize word or we can point out no rambling sentences inside it. So if you are read the item hurriedly you can have whole details in it. Doesn't mean it only provides straight forward sentences but difficult core information with wonderful delivering sentences. Having Essential C++ for Engineers and Scientists (2nd Edition) in your hand like getting the world in your arm, details in it is not ridiculous 1. We can say that no reserve that offer you world in ten or fifteen moment right but this book already do that. So , this really is good reading book. Hello Mr. and Mrs. occupied do you still doubt in which?

Donald Freeman:

As we know that book is significant thing to add our knowledge for everything. By a e-book we can know everything we would like. A book is a group of written, printed, illustrated or perhaps blank sheet. Every year ended up being exactly added. This book Essential C++ for Engineers and Scientists (2nd Edition) was filled in relation to science. Spend your extra time to add your knowledge about your technology competence. Some people has distinct feel when they reading a new book. If you know how big benefit of a book, you can experience enjoy to read a e-book. In the modern era like today, many ways to get book that you simply wanted.

Download and Read Online Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly #1U0O9RBYNLA

Read Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly for online ebook

Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly books to read online.

Online Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly ebook PDF download

Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly Doc

Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly Mobipocket

Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly EPub

1U0O9RBYNLA: Essential C++ for Engineers and Scientists (2nd Edition) By Jeri R. Hanly