

The Annotated C Reference Manual

This reference manual of ANNA is another volume addressed to the ADA community. ANNA is a language extension of ADA to include facilities for formally specifying the intended behavior of ADA programs. It is designed to meet a perceived need to augment ADA with precise machine-processable annotations so that well established formal methods of specification and documentation can be applied to ADA programs. The current ANNA design includes annotations of all ADA constructs except tasking. Similar extensions for formal specification can be made to other Algol-like languages such as Pascal, PL/1, Concurrent Pascal, and Modula; essentially, these extensions would be subsets of ANNA. The design of ANNA was undertaken from the beginning with four principal considerations: 1. Constructing annotations should be easy for the ADA programmer and should depend as much as possible on notation and concepts of ADA. 2. ANNA should possess language features that are widely used in the specification and documentation of programs. 3. ANNA should provide a framework within which the various established theories of formally specifying programs may be applied to ADA. 4. Annotations should be equally well suited for different possible applications during the life cycle of a program. Such applications include not only testing, debugging and formal verification of a finished program, but also specification of program parts during the earlier stages of requirements analysis and program design.

Object-Oriented Design and Programming with C++: Your Hands-On Guide to C++ Programming, with Special Emphasis on Design, Testing, and Reuse provides a list of software engineering principles to guide the software development process. This book presents the fundamentals of the C++ language. Organized into two parts encompassing 10 chapters, this book begins with an overview of C++ and describes object-oriented programming and the history of C++. This text then introduces classes, polymorphism, inheritance, and overloading. Other chapters consider the C++ preprocessor and organization of class libraries. This book discusses as well the scope rules, separate compilation, class libraries, and their organization, exceptions, browsers, and exception handling. The final chapter deals with the design of a moderately complex system that provides file system stimulation. This book is a valuable resource for readers who are reasonably familiar with the C programming language and want to understand the issues in object-oriented programming using C++.

Foreword by Bjarne Stroustrup Software is generally acknowledged to be the single greatest obstacle preventing mainstream adoption of massively-parallel computing. While sequential applications are routinely ported to platforms ranging from PCs to mainframes, most parallel programs only ever run on one type of machine. One reason for this is that most parallel programming systems have failed to insulate their users from the architectures of the machines on which they have run. Those that have been platform-independent have usually also had poor performance. Many researchers now believe that object-oriented languages may offer a solution. By hiding the architecture-specific constructs required for high performance inside platform-independent abstractions, parallel object-oriented programming systems may be able to combine the speed of massively-parallel computing with the comfort of sequential programming. Parallel Programming Using C++ describes fifteen parallel programming systems

based on C++, the most popular object-oriented language of today. These systems cover the whole spectrum of parallel programming paradigms, from data parallelism through dataflow and distributed shared memory to message-passing control parallelism. For the parallel programming community, a common parallel application is discussed in each chapter, as part of the description of the system itself. By comparing the implementations of the polygon overlay problem in each system, the reader can get a better sense of their expressiveness and functionality for a common problem. For the systems community, the chapters contain a discussion of the implementation of the various compilers and runtime systems. In addition to discussing the performance of polygon overlay, several of the contributors also discuss the performance of other, more substantial, applications. For the research community, the contributors discuss the motivations for and philosophy of their systems. As well, many of the chapters include critiques that complete the research arc by pointing out possible future research directions. Finally, for the object-oriented community, there are many examples of how encapsulation, inheritance, and polymorphism can be used to control the complexity of developing, debugging, and tuning parallel software.

Practical Guidance on the Efficient Development of High-Quality Software Introduction to Software Engineering, Second Edition equips students with the fundamentals to prepare them for satisfying careers as software engineers regardless of future changes in the field, even if the changes are unpredictable or disruptive in nature. Retaining the same organization as its predecessor, this second edition adds considerable material on open source and agile development models. The text helps students understand software development techniques and processes at a reasonably sophisticated level. Students acquire practical experience through team software projects. Throughout much of the book, a relatively large project is used to teach about the requirements, design, and coding of software. In addition, a continuing case study of an agile software development project offers a complete picture of how a successful agile project can work. The book covers each major phase of the software development life cycle, from developing software requirements to software maintenance. It also discusses project management and explains how to read software engineering literature. Three appendices describe software patents, command-line arguments, and flowcharts.

The puzzles and problems in Exceptional C++ not only entertain, they will help you hone your skills to become the sharpest C++ programmer you can be. Many of these problems are culled from the famous Guru of the Week feature of the Internet newsgroup comp.lang.c++, moderated, expanded and updated to conform to the official ISO/ANSI C++ Standard. Try your skills against the C++ masters and come away with the insight and experience to create more efficient, effective, robust, and portable C++ code. Constraint programming aims at supporting a wide range of complex applications, which are often modeled naturally in terms of constraints. Early work, in the 1960s and 1970s, made use of constraints in computer graphics, user interfaces, and artificial intelligence. Such work introduced a declarative component in otherwise-procedural systems to reduce the development effort. To fully appreciate new methods developed in the area of machine vision it is necessary to have facilities which allow experimental verification of such methods. Experimental research is typically a very expensive task in terms of manpower, and consequently it is desirable to adopt standard facilities/methods which allow more efficient experimental investigations. In this volume a range of

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different experimental environments which facilitate construction and integration of machine vision systems is described. The environments presented cover areas such as robotics, research in individual machine vision methods, system integration, knowledge representation, and distributed computing. The set of environments covered include commercial systems, public domain software and laboratory prototype, showing the diversity of the problem of experimental research in machine vision and providing the reader with an overview of the area.

This volume contains the proceedings of the seventh European Conference on Object-Oriented Programming (ECOOP '93). The conference attracted 146 submissions from around the world, and the selected papers range in topic from programming language and database issues to analysis and design and reuse, and from experience reports to theoretical contributions. The volume opens with an abstract of the keynote address, "Intimate computing and the memory prosthesis: a challenge for computer systems research?" by M.G. Lamming, and continues with selected papers organized into parts on framework and reuse, concurrency and distribution, types and subtypes, languages and inheritance, time-dependent behavior, object-oriented analysis and design, and reflection. The volume also contains an invited talk, "The OSI manager-object model" by C. Ashford, and the position statements from a panel discussion.

It is unlikely that any frontier of economics/econometrics is being pushed faster, further than that of computational techniques. The computer has become a tool for performing as well as an environment in which to perform economics and econometrics, taking over where theory bogs down, allowing at least approximate answers to questions that defy closed mathematical or analytical solutions. Tasks may now be attempted that were hitherto beyond human potential, and all the forces available can now be marshalled efficiently, leading to the achievement of desired goals. Computational Techniques for Econometrics and Economic Analysis is a collection of recent studies which exemplify all these elements, demonstrating the power that the computer brings to the economic analysts. The book is divided into four parts: 1 -- the computer and econometric methods; 2 -- the computer and economic analysis; 3 -- computational techniques for econometrics; and 4 -- the computer and econometric studies.

The TeX Reference Manual is the first comprehensive reference manual written by a programmer for programmers. It contains reference pages for each of TeX's 325 primitive control sequences. Over 80% of its reference pages contain examples that range from simple to challenging. Each example is typeset verbatim in a style which is easy to read and experiment with. TeX Reference Manual also just typesets the example, so you can see what it makes, and explains how the example works. The description on each primitive's reference page is an annotated discussion of The TeXbook's treatment of the primitive. That means a TeX user will find it natural to move back and forth between the two books. One of TeX Reference Manual's innovative features is families. They simplify the search for the primitive which performs a particular task. Primitive Control Sequences, Family Name Type Description, Box (29) Logic (20) C Command (163), Character (16) Macro (20) D Derived Command (17), Debugging (25) Marks (4) IQ Internal Quantity (42), File I/O (13) Math (69) PI Parameter (integer) (55), Fonts (5) Page (13) PD Parameter (dimen) (21), Glue (12) Paragraph (30) PG Parameter (glue) (15), Hyphenation (11) Penalties (12) PM Parameter (muglue) (3), Inserts (8)

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Registers (11) PT Parameter (token) (9), Job (11) Tables (9), Kern (7). TeX Reference Manual has appendices which provide a comprehensive discussion of: verbatim material, PostScript fonts, and two-column material. In particular, one word describes its font macros, elegant. The TeX Reference Manual is an invaluable tool for both the experienced and new users of TeX.

Software -- Programming Languages.

The "Handbook of Programming Languages" series provides a complete reference on the fundamentals of programming languages and methodologies. Volume 2 covers four important Imperative Languages.

This book introduces the art of programming in C++. The topics covered range from simple C++ programmes to programme features such as classes, templates, and namespaces. Emphasis is placed on developing a good programming technique and demonstrating when and how to use the advanced features of C++. This revised and extended second edition includes: the Standard Template Library (STL), a major addition to the ANSI C++ standard; full coverage of all the major topics of C++, such as templates; and practical tools developed for object-oriented computer graphics programming. All code program files and exercises are ANSI C++ compatible and have been compiled on both Borland C++ v5.5 and GNU/Linux g++ v2.91 compilers. They are available from the author's web site.

This collection of articles by well-known experts was originally published in 2000 and is intended for researchers in computer science, practitioners of formal methods, and computer programmers working in safety-critical applications or in the technology of component-based systems. The work brings together several elements of this area that were fast becoming the focus of much research and practice in computing. The introduction by Clemens Szyperski gives a snapshot of research in the field. About half the articles deal with theoretical frameworks, models, and systems of notation; the rest of the book concentrates on case studies by researchers who have built prototype systems and present findings on architectures verification. The emphasis is on advances in the technological infrastructure of component-based systems; how to design and specify reusable components; and how to reason about, verify, and validate systems from components. Thus the book shows how theory might move into practice.

Content Description #Includes bibliographical references and index.

The Annotated C++ Reference Manual Addison-Wesley Professional

Many Linux and Unix developers are familiar with the GNU debugger (GDB), the invaluable open source tool for testing, fixing, and retesting software. And since GDB can be ported to Windows, Microsoft developers and others who use this platform can also take advantage of this amazing free software that allows you to see exactly what's going on inside of a program as it's executing.

This new pocket guide gives you a convenient quick reference for using the debugger with several different programming languages, including C, C++, Java, Fortran and Assembly. The GNU debugger is the most useful tool during the testing phase of the software development cycle because it helps you catch bugs in the act. You can see what a program was doing at the moment it crashed, and then readily pinpoint and correct problem code. With the GDB Pocket Reference on hand, the process is quick and painless. The book covers the essentials of using GDB in a testing environment, including how to specify a target for debugging

and how to make a program stop on specified conditions. This handy guide also provides details on using the debugger to examine the stack, source files and data to find the cause of program failure-and then explains ways to use GDB to make quick changes to the program for further testing and debugging. The ability to spot a bug in real time with GDB can save you hours of frustration, and having a quick way to refer to GDB's essential functions is key to making the process work. Once you get your hands on the GDB Pocket Reference, you'll never let go!

This concise guide covers the fundamental aspects of the numerical analysis, basing upon it the construction of its routines for solving nonlinear equations, linear and nonlinear systems of equations, and eigenvalue problems. Focusing on software development, this book emphasizes software tools, OOP techniques for handling vectors, polynomials, and matrices. Using actual examples to demonstrate reusable tools, the book enables readers to solve broad classes of software development and programming challenges. It adopts a balanced approach between OOP techniques and quick and dirty number crunching, and emphasizes the use of OOP features in implementing vector, polynomial and matrix algebra. As a practical reference, it will help developers and consultants setting up applications programs for electrical, electronic engineering and physical sciences who need to develop clean, efficient C++ programs in minimal time.

Object-oriented programming techniques have quickly gained widespread use and popularity. The proceedings of ECOOP '91 include papers discussing language design, specification, databases, concurrency, types, and software development.

This book provides a comprehensive guide to upgrading software applications from 16-bit win16 to 32-bit programs designed to run under Windows NT or Windows 95 (Chicago). Readers are assumed to have a solid grounding in Windows programming, but this may be their first introduction to the win32 API layer. The author begins by introducing the new Win32 systems and describes the six main areas of difficulties in applications to Win32 environments. He describes a method for planning the transition of regarding the design of C and C++ programs for portability. Also suitable for Pascal and Modula-2 developers. There are detailed discussions of Windows data types, header files, the Kernel, User, and GDI modules, and DLL programming. The final chapter discusses in depth the usage of the new 32-bit development tools and the process of creating Win32 applications.

The inventor of C++ gives perhaps the most important introduction to programming ever written.

The Handbook of Software for Engineers and Scientists is a single-volume, ready reference for the practicing engineer and scientist in industry, government, and academia as well as the novice computer user. It provides the most up-to-date information in a variety of areas such as common platforms and operating systems, applications programs, networking, and many other problem-solving tools necessary to effectively use computers on a daily basis. Specific platforms and environments thoroughly discussed include MS-DOS®, Microsoft® Windows™, the Macintosh® and its various systems, UNIX™, DEC VAX™, IBM® mainframes, OS/2®, Windows™ NT, and NeXTSTEP™. Word processing, desktop publishing, spreadsheets, databases, integrated packages, computer presentation systems, groupware, and a number of useful utilities are also covered. Several extensive sections in the book are devoted to mathematical and statistical software. Information is provided on circuits and control simulation programs, finite element tools, and solid modeling tools.

This text on numerical computing, presented through the medium of the C++ language, is designed for students of science and engineering

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who are seriously studying numerical methods for the first time. It should also be of interest to computing scientists who wish to see how C++ can be used in earnest for numerical computation. The mathematical prerequisites are those which an undergraduate student of science or engineering might be expected to possess after the earlier years of study: elementary calculus, linear algebra, and differential equations. In computing, a good knowledge, such as Basic, Fortran, or Pascal, is assumed, while a working knowledge of C would be an advantage. However, no prior knowledge of C++ is assumed. The language is developed in step with its numerical applications. Features of the language not used here are ignored. What remains, however, is a powerful framework for numerical computations and more than enough for an introductory text.

Comparative Programming Languages identifies and explains the essential concepts underlying the design and use of programming languages and provides a good balance of theory and practice. The author compares how the major languages handle issues such as declarations, types, data abstraction, information hiding, modularity and the support given to the development of reliable software systems. The emphasis is on the similarities between languages rather than their differences. The book primarily covers modern, widely-used object-oriented and procedural languages such as C, C++, Java, Pascal (including its implementation in Delphi), Ada 95, and Perl with special chapters being devoted to functional and logic languages. The new edition has been brought fully up to date with new developments in the field: the increase in the use of object-oriented languages as a student's first language? the growth in importance of graphical user interfaces (GUIs); and the widespread use of the Internet.

A first book for C programmers transitioning to C++, an object-oriented enhancement of the C programming language. Designed to get readers up to speed quickly, this book thoroughly explains the important concepts and features and gives brief overviews of the rest of the language. Covers features common to all C++ compilers, including those on UNIX, Windows NT, Windows, DOS, and Macs

The object oriented paradigm has become one of the dominant forces in the computing world. According to a recent survey, by the year 2000, more than 80% of development organizations are expected to use object technology as the basis for their distributed development strategies. Handbook of Object Technology encompasses the entire spectrum of disciplines and topics related to this rapidly expanding field - outlining emerging technologies, latest advances, current trends, new specifications, and ongoing research. The handbook divides into 13 sections, each containing chapters related to that specific discipline. Up-to-date, non-abstract information provides the reader with practical, useful knowledge - directly applicable to the understanding and improvement of the reader's job or the area of interest related to this technology. Handbook of Object Technology discusses: the processes, notation, and tools for classical OO methodologies as well as information on future methodologies prevalent and emerging OO languages standards and specifications frameworks and patterns databases metrics business objects intranets analysis/design tools client/server application development environments

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