C Pointers And Dynamic Memory Management

Learning a language--any language--involves a process wherein you learn to rely less and less on instruction and more increasingly on the aspects of the language you've mastered. Whether you're learning French, Java, or C, at some point you'll set aside the tutorial and attempt to converse on your own. It's not necessary to know every subtle facet of French in order to speak it well, especially if there's a good dictionary available. Likewise, C programmers don't need to memorize every detail of C in order to write good programs. What they need instead is a reliable, comprehensive reference that they can keep nearby. C in a Nutshell is that reference. This long-awaited book is a complete reference to the C programming language and C runtime library. Its purpose is to serve as a convenient, reliable companion in your day-to-day work as a C programmer. C in a Nutshell covers virtually everything you need to program in C, describing all the elements of the language and illustrating their use with numerous examples. The book is divided into three distinct parts. The first part is a fast-paced description, reminiscent of the classic Kernighan & Ritchie text on which many C programmers cut their teeth. It focuses specifically on the C language and preprocessor directives, including extensions introduced to the ANSI standard in 1999. These topics and others are covered: Numeric constants Implicit and explicit type conversions Expressions and operators Functions Fixed-length and variable-length arrays Pointers Dynamic memory management Input and output The second part of the book is a comprehensive reference to the C runtime library; it includes an overview of the contents of the standard headers and a description of each standard library function. Part III provides the necessary knowledge of the C programmer's basic tools: the compiler, the make utility, and the debugger. The tools described here are those in the GNU software collection. C in a Nutshell is the perfect companion to K&R, and destined to be the most reached-for reference on your desk.

C is a general-purpose programming language that is extremely popular, simple and flexible. It is machine-independent, structured programming language which is used extensively in various applications. This ebook course teaches you basic to advance level concept of C Programming to make you pro in C language. Here is what is covered in the book – Table Of Content Chapter 1: What is C Programming Language? Basics, Introduction and History What is C programming? History of C language Where is C used? Key Applications Why learn 'C'? How 'C' Works? Chapter 2: How to Download & Install GCC Compiler for C in Windows, Linux, Mac Install C on Windows Install C in Linux Install C on MAC Chapter 3: C Hello World! Example: Your First Program Chapter 4: How to write Comments in C Programming What Is Comment In C Language? Example Single Line Comment Example Multi Line Comment Why do you need comments? Chapter 5: C Tokens, Keywords, Identifiers, Constants, Variables, Data Types What is a Character set? Token Keywords and Identifiers What is a Variable? Data types Integer data type Floating point data type Constants Chapter 6: C Conditional Statement: IF, IF Else and Nested IF Else with Example What is a Conditional Statement? If statement Relational Operators The If-Else statement Conditional Expressions Nested If-else Statements Nested Else-if statements Chapter 7: C Loops: For, While, Do While, Break, Continue with Example What are Loops? Types of Loops While Loop Do-While loop For loop Break Statement Continue Statement Which loop to Select? Chapter 8: Switch Case Statement in C Programming with Example What is a Switch Statement? Syntax Flow Chart Diagram of Switch Case Example Nested Switch Why do we need a Switch case? Rules for switch statement: Chapter 9: C Strings: Declare, Initialize, Read, Print with Example What is a String? Declare and initialize a String String Input: Read a String String Output: Print/Display a String The string library Converting a String to a Number Chapter 10: Storage Classes in C: auto, extern, static, register with Example What is a Storage Class? Auto storage class Extern storage class Static storage class Register storage class Chapter 11: C Files I/O: Create, Open, Read, Write and Close a File How to Create a File How to Close a file Writing to a File Reading data from a File Interactive File Read and Write with getc and putc Chapter 12: Functions in C Programming with Examples: Recursive, Inline What is a Function? Library Vs. User-defined Functions Function Declaration Function Definition Function call Function Arguments Variable Scope Static Variables Recursive Functions Inline Functions Chapter 13: Pointers in C Programming with Examples What is a Pointer? How does Pointer Work? Types of a pointer Direct and Indirect Access Pointers Pointers Arithmetic Pointers and Arrays Pointers and Strings Advantages of Pointers Disadvantages of Pointers Chapter 14: Functions Pointers in C Programming with Examples Chapter 15: C Bitwise Operators: AND, OR, XOR, Shift & Complement (with Example) What are Bitwise Operators? Bitwise AND Bitwise OR Bitwise Exclusive OR Bitwise shift operators Bitwise complement operator Chapter 16: C Dynamic Memory Allocation using malloc(), calloc(), realloc(), free() How Memory Management in C works? Dynamic memory allocation The malloc Function The free Function The calloc Function calloc vs. malloc: Key Differences The realloc Function Dynamic Arrays Chapter 17: TypeCasting in C: Implicit, Explicit with Example What is Typecasting in C? Implicit type casting Explicit type casting

Rust is a new systems programming language that combines the performance and low-level control of C and C++ with memory safety and thread safety. Rust's modern, flexible types ensure your program is free of null pointer dereferences, double frees, dangling pointers, and similar bugs, all at compile time, without runtime overhead. In multi-threaded code, Rust catches data races at compile time, making concurrency much easier to use. Written by two experienced systems programmers, this book explains how Rust manages to bridge the gap between performance and safety, and how you can take advantage of it. Topics include: How Rust represents values in memory (with diagrams) Complete explanations of ownership, moves, borrows, and lifetimes Cargo, rustdoc, unit tests, and how to publish your code on crates.io, Rust's public package repository High-level features like generic code, closures, collections, and iterators that make Rust productive and flexible Concurrency in Rust: threads, mutexes, channels, and atomics, all much safer to use than in C or C++ Unsafe code, and how to preserve the integrity of ordinary code that uses it Extended examples illustrating how pieces of the language fit together

One of the most difficult and important thing in C is pointers. However, the concept of pointers often is not explained in detail in most C textbooks. This book is designed to provide an understanding about pointers in depth. Try this book, If you have a trouble with pointers

Understanding and Using C Pointers

Buch
Optimized C++
A Friendly Introduction to C+ Language and C+11 to C+20 Standards
Advanced R
Virtual Machines

Improve your programming through a solid understanding of C pointers and memory management. With this practical book, you'll learn how pointers provide the mechanism to dynamically manipulate memory, enhance support for data structures, and enable access to hardware. Author Richard Reese shows you how to use pointers with arrays, strings, structures, and functions, using memory models throughout the book. Difficult to master, pointers provide C with much flexibility and power—yet few resources are dedicated to this data type. This comprehensive book has the information you need, whether you're a beginner or an experienced C or C++ programmer or developer. Get an introduction to pointers, including the declaration of different pointer types Learn about dynamic memory allocation, de-allocation, and alternative memory management techniques Use techniques for passing or returning data to and from functions Understand the fundamental aspects of arrays as they relate to pointers Explore the basics of strings and how pointers are used to support them Examine why pointers can be the source of security problems, such as buffer overflow Learn several pointer techniques, such as the use of opaque pointers, bounded pointers and, the restrict keyword

Learn how to program using the updated C++17 language. You'll start with the basics and progress through step-by-step examples to become a working C++ programmer. All you need are Beginning C++17 and any recent C++ compiler and you'll soon be writing real C++ programs. There is no assumption of prior programming knowledge. All language concepts that are explained in the book are illustrated with working program examples, and all chapters include exercises for you to test and practice your knowledge. Code downloads are provided for all examples from the text and solutions to the exercises. This latest edition has been fully updated to the latest version of the language, C++17, and to all conventions and best practices of so-called modern C++. Beginning C++17 also introduces the elements of the C++ Standard Library that provide essential support for the C++17 language. What You'll Learn Define variables and make decisions Work with arrays and loops, pointers and references, strings, and more Write your own functions, types, and operators Discover the essentials of object-oriented programming Use overloading, inheritance, virtual functions and polymorphism Write generic function templates and class templates Get up to date with modern C++ features: auto type declarations, move semantics, lambda expressions, and more Examine the new additions to C++17 Who This Book Is For Programmers new to C++ and those who may be looking for a refresh primer on the C++17 programming language in general.

Pointers On C brings the power of pointers to your C programs. Designed for professionals and advanced students, Pointers on C provides a comprehensive resource for those needing in-depth coverage of the C programming language. An extensive explanation of pointer basics and a thorough exploration of their advanced features allows programmers to incorporate the power of pointers into their C programs. Complete coverage, detailed explanations of C programming idioms, and thorough discussion of advanced topics makes Pointers on C a valuable tutorial and reference for students and professionals alike.Highlights: Provides complete background information needed for a thorough understanding of C. Covers pointers thoroughly, including syntax, techniques for their effective use and common programming idioms in which they appear. Compares different methods for implementing common abstract data structures. Offers an easy, conversant writing style to clearly explain difficult topics, and contains numerous illustrations and diagrams to help visualize complex concepts. Includes Programming Tips, discussing efficiency, portability, and software engineering issues, and warns of common pitfalls using Caution! Sections. Describes every function on the standard C library. 0673999866B04062001

Numerical software is used to test scientific theories, design airplanes and bridges, operate manufacturing lines, control power plants and refineries, analyze financial derivatives, identify genomes, and provide the understanding necessary to derive and analyze cancer treatments. Because of the high stakes involved, it is essential that results computed using software be accurate, reliable, and robust. Unfortunately, developing accurate and reliable scientific software is notoriously difficult. This book investigates some of the difficulties related to scientific computing and provides insight into how to overcome them and obtain dependable results. The tools to assess existing scientific applications are described, and a variety of techniques that can improve the accuracy and reliability of newly developed applications is discussed. Accuracy and Reliability in Scientific Computing can be considered a handbook for improving the quality of scientific computing. It will help computer scientists address the problems that affect software in general as well as the particular challenges of numerical computation: approximations occurring at all levels, continuous functions replaced by discretized versions, infinite processes replaced by finite ones, and real numbers replaced by finite precision numbers. Divided into three parts, it starts by illustrating some of the difficulties in producing robust and reliable scientific software. Well-known cases of failure are reviewed and the what and why of numerical computations are considered. The second section describes diagnostic tools that can be used to assess the accuracy and reliability of existing scientific applications. In the last section, the authors describe a variety of techniques that can be employed to improve the accuracy and reliability of newly developed scientific applications. The authors of the individual chapters are international experts, many of them members of the IFIP Working Group on Numerical Software.

Pointers on C
Understanding Pointers in C & C++: Fully Working Examples and Applications of Pointers (English Edition)
A Brain-Friendly Guide
Memory as a Programming Concept in C and C++
Pointers in C Programming
Accuracy and Reliability in Scientific Computing

"I'm an enthusiastic supporter of the CERT Secure Coding Initiative. Programmers have lots of sources of advice on correctness, clarity, maintainability, performance, and even safety. Advice on how specific language features affect security has been missing. The CERT® C Secure Coding Standard fills this need." -Randy Meyers, Chairman of ANSI C "For years we have relied upon the CERT/CC to publish advisories documenting an endless stream of security problems. Now CERT has embodied the advice of leading technical experts to give programmers and managers the practical guidance needed to avoid those problems in new applications and to help secure legacy systems. Well done!" -Dr. Thomas Plum, founder of Plum Hall, Inc. "Connectivity has sharply increased the need for secure, hacker-safe applications. By combining this CERT standard with other safety guidelines, customers gain all-round protection and approach the goal of zero-defect software." -Chris Tapp, Field Applications Engineer, LDRA Ltd. "I've found this standard to be an indispensable collection of expert information on exactly how modern software systems fail in practice. It is the perfect place to start for establishing internal secure coding guidelines. You won't find this information elsewhere, and, when it comes to software security, what you don't know is often exactly what hurts you." -John McDonald, coauthor of The Art of Software Security Assessment Software security has major implications for the operations and assets of organizations, as well as for the welfare of individuals. To create secure software, developers must know where the dangers lie. Secure programming in C can be more difficult than even many experienced programmers believe. This book is an essential desktop reference documenting the first official release of The CERT® C Secure Coding Standard . The standard itemizes those coding errors that are the root causes of software vulnerabilities in C and prioritizes them by severity, likelihood of exploitation, and remediation costs. Each guideline provides examples of insecure code as well as secure, alternative implementations. If uniformly applied, these guidelines will eliminate the critical coding errors that lead to buffer overflows, format string vulnerabilities, integer overflow, and other common software vulnerabilities.

It Introduces The C Programming Language To Both The Computer Novices And To The Advanced Software Engineers In A Well Organized And Systematic Manner. It Does Not Assume Any Preliminary Knowledge Of Computer Programming Of A Reader. It Covers Almost All Topics With Numerous Illustrative Examples And Well Graded Problems. Some Of The Chapters Such As Pointers, Preprocessors, Structures, Unions And The File Operations Are Thoroughly Discussed With Suitable Number Of Examples. The Source Code Of The Editor Package Has Been Included As An Appendix Of The Book.

This quick C++17 guide is a condensed code and syntax reference to the popular programming language, fully updated for C++17. It presents the essential C++ syntax in a well-organized format that can be used as a handy reference. In the C++17 Quick Syntax Reference, you will find short, simple, and focused code examples. This book includes a well laid out table of contents and a comprehensive index allowing for easy review. You won't find any technical jargon, bloated samples, drawn out history lessons, or witty stories in this book. What you will find is a language reference that is concise, to the point and highly accessible. The book is packed with useful information and is a must-have for any C++ programmer. What You'll Learn Use template argument deduction for class templates Declare non-type template parameters with auto- folding expressions and auto deduction from braced-init-list Apply lambdas and lambda capture by value Work with inline variables, nested namespaces, structured bindings, and selection statements with initializer Use utf-8 character literals Carry out direct-list initialization of enums Use these new C++17 library features or class templates from std::variant, optional, any, string_view, invoke, apply and more Do splicing for maps and sets, also new to C++17 Who This Book Is For Experienced C++ programmers. Additionally, this is a concise, easily-digested introduction for other programmers new to C++.

The two volume set LNCS 6415 and LNCS 6416 constitutes the refereed proceedings of the 4th International Symposium on Leveraging Applications of Formal Methods, ISoLA 2010, held in Heraklion, Crete, Greece, in October 2010. The 100 revised full papers presented were carefully revised and selected from numerous submissions and discuss issues related to the adoption and use of rigorous tools and methods for the specification, analysis, verification, certification, construction, test, and maintenance of systems. The 46 papers of the first volume are organized in topical sections on new challenges in the development of critical embedded systems, formal languages and methods for designing and verifying complex embedded systems, worst-case traversal time (WCTT), tools in scientific workflow composition, emerging services and technologies for a converging telecommunications / Web world in smart environments of the internet of things, Web science, model transformation and analysis for industrial scale validation, and learning techniques for software verification and validation. The second volume presents 54 papers addressing the following topics: EternalS: mission and roadmap, formal methods in model-driven development for service-oriented and cloud computing, quantitative verification in practice, CONNECT: status and plans, certification of software-driven medical devices, modeling and formalizing industrial software for verification, validation and certification, and resource and timing analysis.

An Active Learning Approach

A Pocket Guide to the Language, APIs and Library
Secure Coding in C and C++
C++ Pointers and Dynamic Memory Management
C in a Nutshell
Linux Device Drivers

C++: An Active Learning Approach provides a hands-on approach to the C++ language through active learning exercises and numerous programming projects. Ideal for the introductory programming course, this text includes the latest C++ upgrades without losing site of the C underpinnings still required for all computing fields. With over 30 years combined teaching experience the authors understand potential pitfalls students face and aim to keep the language simple, straightforward, and conversational. The topics are covered in-depth yet as succinctly as possible. The text provides challenging exercises designed to teach students how to effectively debug a computer program and Team Programming exercises urge students to read existing code, adhere to code specifications, and write from existing design documents. Examples are provided electronically allowing to students to easily run code found in the text.

This document is intended to introduce pointers to beginning programmers in the Cprogramming language. Over several years of reading and contributing to variousconferences on C including those on the FidoNet and UseNet, I have noted a largenumber of newcomers to C appear to have a difficult time in grasping the fundamentalsof pointers. I therefore undertook the task of trying to explain them in plain language withlots of examples.

Covers advanced features of Perl, how the Perl interpreter works, and presents areas of modern computing technology such as networking, user interfaces, persistence, and code generation.

"The bulk of the book is a complete ordered reference to the Delphi language set. Each reference item includes: the syntax, using standard code conventions; a description; a list of arguments, if any, accepted by the function or procedure; tips and tricks of usage - practical information on using the language feature in real programs; a brief example; and a cross-reference to related keywords."--Jacket.

Pointers in The C Programming Language
C++Pointers and Dynamic Memory ...
Leveraging Applications of Formal Methods, Verification, and Validation
Advanced Perl Programming
C++ Cookbook
Dive Into Systems

Gain a better understanding of pointers, from the basics of how pointers function at the machine level, to using them for a variety of common and advanced scenarios. This short contemporary guide book on pointers in C programming provides a resource for professionals and advanced students needing in-depth hands-on coverage of pointer basics and advanced features. It includes the latest versions of the C language, C20, C17, and C14. You'll see how pointers are used to provide vital C features, such as strings, arrays, higher-order functions and polymorphic data structures. Along the way, you'll cover how pointers can optimize a program to run faster or use less memory than it would otherwise. There are plenty of code examples in the book to emulate and adapt to meet your specific needs. What You Will Learn Work effectively with pointers in your C programming Learn how to effectively manage dynamic memory Program with strings and arrays Create recursive data structures Implement function pointers Who This Book Is For Intermediate to advanced level professional programmers, software developers, and advanced students or researchers. Prior experience with C programming is expected.

Using techniques developed in the classroom at America Online's Programmer's University, Michael Daconta deftly pilots programmers through the intricacies of the two most difficult aspects of C++ programming: pointers and dynamic memory management. Written by a programmer for programmers, this no-nonsense, nuts-and-bolts guide shows you how to fully exploit advanced C++ programming features, such as creating class-specific allocators, understanding references versus pointers, manipulating multidimensional arrays with pointers, and how pointers and dynamic memory are the core of object-oriented constructs like inheritance, name-mangling, and virtual functions. Covers all aspects of pointers including: pointer pointers, function pointers, and even class member pointers Over 350 source code functions—code on every topic OOP constructs dissected and implemented in C Interviews with leading C++ experts Valuable money-saving coupons on developer products Free source code disk Disk includes: Reusable code libraries—over 350 source code functions you can use to protect and enhance your applications Memory debugger Read C++ Pointers and Dynamic Memory Management and learn how to combine the elegance of object-oriented programming with the power of pointers and dynamic memory!

In today's fast and competitive world, a program's performance is just as important to customers as the features it provides. This practical guide teaches developers performance-tuning principles that enable optimization in C++. You'll learn how to make code that already embodies best practices of C++ design run faster and consume fewer resources on any computer--whether it's a watch, phone, workstation, supercomputer,

or globe-spanning network of servers. Author Kurt Guntheroth provides several running examples that demonstrate how to apply these principles incrementally to improve existing code so it meets customer requirements for responsiveness and throughput. The advice in this book will prove itself the first time you hear a colleague exclaim, "Wow, that was fast. Who fixed something?"Locate performance hot spots using the profiler and software timersLearn to perform repeatable experiments to measure performance of code changesOptimize use of dynamically allocated variablesImprove performance of hot loops and functionsSpeed up string handling functionsRecognize efficient algorithms and optimization patternsLearn the strengths--and weaknesses--of C++ container classesView searching and sorting through an optimizer's eyeMake efficient use of C++ streaming I/O functionsUse C++ thread-based concurrency features effectively

Provides information on writing a driver in Linux, covering such topics as character devices, network interfaces, driver debugging, concurrency, and interrupts.

A Tutorial on Pointers and Arrays in C

Delphi in a Nutshell

The CERT C Secure Coding Standard

4th International Symposium on Leveraging Applications, ISoLA 2010, Heraklion, Crete, Greece, October 18-21, 2010, Proceedings

Beginning C++17

C++17 Quick Syntax Reference

"The security of information systems has not improved at a rate consistent with the growth and sophistication of the attacks being made against them. To address this problem, we must improve the underlying strategies and techniques used to create our systems. Specifically, we must build security in from the start, rather than append it as an afterthought. That's the point of Secure Coding in C and C++. In careful detail, this book shows software developers how to build high-quality systems that are less vulnerable to costly and even catastrophic attack. It's a book that every developer should read before the start of any serious project." --Frank Abagnale, author, lecturer, and leading consultant on fraud prevention and secure documents Learn the Root Causes of Software Vulnerabilities and How to Avoid Them Commonly exploited software vulnerabilities are usually caused by avoidable software defects. Having analyzed nearly 18,000 vulnerability reports over the past ten years, the CERT/Coordination Center (CERT/CC) has determined that a relatively small number of root causes account for most of them. This book identifies and explains these causes and shows the steps that can be taken to prevent exploitation. Moreover, this book encourages programmers to adopt security best practices and develop a security mindset that can help protect software from tomorrow's attacks, not just today's. Drawing on the CERT/CC's reports and conclusions, Robert Seacord systematically identifies the program errors most likely to lead to security breaches, shows how they can be exploited, reviews the potential consequences, and presents secure alternatives. Coverage includes technical detail on how to Improve the overall security of any C/C++ application Thwart buffer overflows and stack-smashing attacks that exploit insecure string manipulation logic Avoid vulnerabilities and security flaws resulting from the incorrect use of dynamic memory management functions Eliminate integer-related problems: integer overflows, sign errors, and truncation errors Correctly use formatted output functions without introducing format-string vulnerabilities Avoid I/O vulnerabilities, including race conditions Secure Coding in C and C++ presents hundreds of examples of secure code, insecure code, and exploits, implemented for Windows and Linux. If you're responsible for creating secure C or C++ software--or for keeping it safe--no other book offers you this much detailed, expert assistance.

"Improve your programming through a solid understanding of C pointers and memory management. With this practical book, you'll learn how pointers provide the mechanism to dynamically manipulate memory, enhance support for data structures, and enable access to hardware. Author Richard Reese shows you how to use pointers with arrays, strings, structures, and functions, using memory models throughout the book. Difficult to master, pointers provide C with much flexibility and power--yet few resources are dedicated to this data type. This comprehensive book has the information you need, whether you're a beginner or an experienced C or C++ programmer or developer. Get an introduction to pointers, including the declaration of different pointer types; learn about dynamic memory allocation, de-allocation, and alternative memory management techniques; use techniques for passing or returning data to and from functions; understand the fundamental aspects of arrays as they relate to pointers; explore the basics of strings and how pointers are used to support them; examine why pointers can be the source of security problems, such as buffer overflow; and learn several pointer techniques, such as the use of opaque pointers, bounded pointers, and the restrict keyword."--Back cover.

Learn key topics such as language basics, pointers and pointer arithmetic, dynamic memory management, multithreading, and network programming. Learn how to use the compiler, the make tool, and the archiver.

Learn the basics of the modern C++ programming language from scratch, including the C++11 to C++20 standards, no experience necessary. You'll work with expressions and statements, variables, libraries, arguments, classes, functions, memory handling, and much more.Each section is filled with real-world examples and advice on how to avoid common mistakes. Modern C++ for Absolute Beginners will teach you more than just programming in C++20. It will provide you with a set of C++ skills, which will serve you if you ever decide to deepen your knowledge in C++, computer science, or learn more about advanced C++ techniques. The author will take you through the C++ programming language, the Standard Library, and the C++11 to C++20 standard basics. Each chapter is accompanied by the right amount of theory and plenty of source code examples. You will work with C++20 features and standards, yet you

will also compare and take a look into previous versions of C++. You will do so with plenty of examples and real code writing to gain an even better level of understanding. What You Will Learn Use the basics of C++: types, operators, variables, constants, expressions, references, functions, classes, I/O, smart pointers, polymorphism, and more Set up the Visual Studio development environment where you can write your own code Declare and define functions, classes, and objects Discover object-oriented programming: classes and objects, encapsulation, inheritance, polymorhism, and more using the most advanced C++ features Employ best practices in organizing source code, controlling program workflow, C++ language dos and donts, and more Program using lambda, modules, inheritance, polymorphism, smart pointers, templates, contracts, STL, concepts, and exceptions Who This Book Is For Beginner or novice programmers who wish to learn C++ programming. No prior programming experience is required.

Core Techniques for Memory Management

Proven Techniques for Heightened Performance

A Modern Approach to Memory Management, Recursive Data Structures, Strings, and Arrays

A Gentle Introduction to Computer Systems

C Programming Cookbook

Programming In C

This guide was written for readers interested in learning the C++ programming language from scratch, and for both novice and advanced C++ programmers wishing to enhance their knowledge of C++. The text is organized to guide the reader from elementary language concepts to professional software development, with in depth coverage of all the C++ language elements en route.

Learn C quickly with this concise book that teaches you all the essentials about C programming step by step. Written for people who are beginners. Zoom in on the most essential concepts with examples. We cover the following topics: Introduction Our First C Program using Xcode4 Comments Variables Input and Output Selection Loops Functions Arrays Pointers and Arrays Memory Management Strings

Pointers in C provides a resource for professionals and advanced students needing in-depth but hands-on coverage of pointer basics and advanced features. The goal is to help programmers in wielding the full potential of pointers. In spite of its vast usage, understanding and proper usage of pointers remains a significant problem. This book's aim is to first introduce the basic building blocks such as elaborate details about memory, the compilation process (parsing/preprocessing/assembler/object code generation), the runtime memory organization of an executable and virtual memory. These basic building blocks will help both beginners and advanced readers to grasp the notion of pointers very easily and clearly. The book is enriched with several illustrations, pictorial examples, and code from different contexts (Device driver code snippets, algorithm, and data structures code where pointers are used). Pointers in C contains several quick tips which will be useful for programmers for not just learning the pointer concept but also while using other features of the C language. Chapters in the book are intuitive, and there is a strict logical flow among them and each chapter forms a basis for the next chapter. This book contains every small aspect of pointer features in the C language in their entirety. What you'll learn The concept of pointers and their use with different data types Basic and advanced features of pointers Concepts of compilers, virtual memory, data structures, algorithms and string processing Concepts of memory and runtime organization Referencing and dereferencing of pointer variables NULL pointers, Dangling pointers, VOID pointers and CONST qualifiers Workings of dynamic data structures Pointers to pointers Triple, and quadrupal pointers Self referential structures, structure padding, and cache based optimization techniques. Who this book is for Professional programmers, advanced students of computer science, and enthusiasts of the C language. Embedded systems programmers will also find the advanced knowledge of pointers offered in this book very helpful. Table of Contents1.Memory, Run-time Memory Organization, and Virtual Memory 2.Pointer Basics 3.Pointer Arithmetic and Single Dimension Arrays 4.Pointers and Strings 5.Pointers and Multidimensional Arrays 6.Pointers to Structures 7.Function Pointers 8.Pointers to File I/O 9.Pointers to File I/O

While compilers for high-level programming languages are large complex software systems, they have particular characteristics that differentiate them from other software systems. Their functionality is almost completely well-defined – ideally there exist complete precise descriptions of the source and target languages, while additional descriptions of the interfaces to the operating system, programming system and programming environment, and to other compilers and libraries are often available. The implementation of application systems directly in machine language is both difficult and error-prone, leading to programs that become obsolete as quickly as the computers for which they were developed. With the development of higher-level machine-independent programming languages came the need to offer compilers that were able to translate programs into machine language. Given this basic challenge, the different subtasks of compilation have been the subject of intensive research since the 1950s. This book is not intended to be a cookbook for compilers, instead the authors' presentation reflects the special characteristics of compiler design, especially the existence of precise specifications of the subtasks. They invest effort to understand these precisely and to provide adequate concepts for their systematic treatment. This is the first book in a multivolume set, and here the authors describe what a compiler does, i.e., what correspondence it establishes between a source and a target program. To achieve this the authors specify a suitable virtual machine (abstract machine) and exactly describe the compilation of programs of each source language into the language of the associated virtual machine for an imperative, functional, logic and object-oriented programming language. This book is intended for students of computer science. Knowledge of at least one imperative programming language is assumed, while for the chapters on the translation of functional and logic programming languages it would be helpful to know a modern functional language and Prolog. The book is supported throughout with examples, exercises and program fragments.

Programming Rust

Learn C Programming in 24 Hours

Computer Programming with C++

42 Specific Ways to Improve Your Use of C++11 and C++14

Modern C++ for Absolute Beginners

Dive into Systems is a vivid introduction to computer organization, architecture, and operating systems that is already being used as a classroom

textbook at more than 25 universities. This textbook is a crash course in the major hardware and software components of a modern computer system. Designed for use in a wide range of introductory-level computer science classes, it guides readers through the vertical slice of a computer so they can develop an understanding of the machine at various layers of abstraction. Early chapters begin with the basics of the C programming language often used in systems programming. Other topics explore the architecture of modern computers, the inner workings of operating systems, and the assembly languages that translate human-readable instructions into a binary representation that the computer understands. Later chapters explain how to optimize code for various architectures, how to implement parallel computing with shared memory, and how memory management works in multi-core CPUs. Accessible and easy to follow, the book uses images and hands-on exercise to break down complicated topics, including code examples that can be modified and executed.
The overwhelming majority of bugs and crashes in computer programming stem from problems of memory access, allocation, or deallocation. Such memory related errors are also notoriously difficult to debug. Yet the role that memory plays in C and C++ programming is a subject often overlooked in courses and in books because it requires specialised knowledge of operating systems, compilers, computer architecture in addition to a familiarity with the languages themselves. Most professional programmers learn entirely through experience of the trouble it causes. This 2004 book provides students and professional programmers with a concise yet comprehensive view of the role memory plays in all aspects of programming and program behaviour. Assuming only a basic familiarity with C or C++, the author describes the techniques, methods, and tools available to deal with the problems related to memory and its effective use.
Designed for the way many developers work, this practical problem-solving guide balances the need for rapid development with a trusted source of information.
Coming to grips with C++11 and C++14 is more than a matter of familiarizing yourself with the features they introduce (e.g., auto type declarations, move semantics, lambda expressions, and concurrency support). The challenge is learning to use those features effectively—so that your software is correct, efficient, maintainable, and portable. That’s where this practical book comes in. It describes how to write truly great software using C++11 and C++14—i.e. using modern C++. Topics include: The pros and cons of braced initialization, noexcept specifications, perfect forwarding, and smart pointer make functions The relationships among std::move, std::forward, rvalue references, and universal references Techniques for writing clear, correct, effective lambda expressions How std::atomic differs from volatile, how each should be used, and how they relate to C++'s concurrency API How best practices in "old" C++ programming (i.e., C++98) require revision for software development in modern C++ Effective Modern C++ follows the proven guideline-based, example-driven format of Scott Meyers' earlier books, but covers entirely new material. "After I learned the C++ basics, I then learned how to use C++ in production code from Meyer's series of Effective C++ books. Effective Modern C++ is the most important how-to book for advice on key guidelines, styles, and idioms to use modern C++ effectively and well. Don't own it yet? Buy this one. Now". -- Herb Sutter, Chair of ISO C++ Standards Committee and C++ Software Architect at Microsoft
Over 40 Recipes Exploring Data Structures, Pointers, Interprocess Communication, and Database in C
Head First C
From Novice to Professional
Fast, Safe Systems Development
Compiler Design
A Complete Guide to Programming in C++
A comprehensive guide with curated recipes to help you gain a deeper understanding of modern C. Key Features Learn how to make your applications swift and robust by leveraging powerful features of C Understand the workings of arrays, strings, functions, and more down to how they operate in memory Master process synchronization during multi-tasking and server-client process communication Book Description C is a high-level language that's popular among developers. It enables you to write drivers for different devices, access machine-level hardware, apply dynamic memory allocation, and much more. With self-contained tutorials, known as recipes, this book will guide you in dealing with C and its idiosyncrasies and help you benefit from its latest features. Beginning with common tasks, each recipe addresses a specific problem followed by explaining the solution to get you acquainted with what goes on under the hood. You will explore core concepts of the programming language, including how to work with strings, pointers, and single and multi-dimensional arrays. You will also learn how to break a large application into small modules by creating functions, handling files, and using a database. Finally, the book will take you through advanced concepts such as concurrency and interprocess communication. By the end of this book, you'll have a clear understanding and deeper knowledge of C programming, which will help you become a better developer. What you will learn Manipulate single and multi-dimensional arrays Perform complex operations on strings Understand how to use pointers and memory optimally Discover how to use arrays, functions, and strings to make large applications Implement multitasking using threads and process synchronization Establish communication between two or more processes using different techniques Store simple text in files and store data in a database Who this book is for If you're a programmer with basic experience in C and want to leverage its features through modern programming practices, then this book is for you.
Introduces the features of the C programming language, discusses data types, variables, operators, control flow, functions, pointers, arrays, and structures, and looks at the UNIX system interface
Know the fully working examples and applications of Pointers Key Features Strengthens the foundations, as a detailed explanation of concepts are given Focuses on how to think logically to solve a problem Algorithms used in the book are well explained and illustrated step by step Help students in understanding how pointers Description Pointers are bread and butter of a C Programmer without knowledge of pointers is like a fish which doesn't know how to swim. He needs command over pointers to be able to exploit their immense potential. Pointers are all about power and punch and this book covers everything that has anything to do anything with pointers in a simple, easy to understand way. What will you learn Pointer Terminology Pointers and Arrays Pointers and Structures Pointers and Dynamic Memory Allocation Pointers to Functions Pointers and Variable Argument Lists Pointers and Command-line Arguments Pointers and Linked Lists Pointers and Stacks & Queues Pointers and Trees & Graphs Practical use of Pointers Pointers in C++ Who this book is for Students, Programmers, researchers, and software developers who wish to learn the basics of Data structures. Table of Contents 1. Introduction To Pointers 2. Pointers And Arrays 3. Pointers and Strings 4. Pointers and Structures 5. Pointers and Data Structures 6. Pointers

Miscellany 7. Applications Of Pointers 8. Pointers in C++ 9. Appendix A 10. Index About the Author Yashavant Kanetkar Through his books and Quest Video Courses on C, C++, Java, Python, Data Structures, .NET, IoT, etc. Yashavant Kanetkar has created, moulded and groomed lacs of IT careers in the last three decades. Yashavant's books and Quest videos have made a significant contribution in creating top-notch IT manpower in India and abroad. Yashavant's books are globally recognized and millions of students/professionals have benefitted from them. Yashavant's books have been translated into Hindi, Gujarati, Japanese, Korean and Chinese languages. Many of his books are published in India, USA, Japan, Singapore, Korea and China. Yashavant is a much sought-after speaker in the IT field and has conducted seminars/workshops at TedEx, IITs, IIITs, NITs and global software companies. Yashavant has been honoured with the prestigious "Distinguished Alumnus Award" by IIT Kanpur for his entrepreneurial, professional and academic excellence. This award was given to top 50 alumni of IIT Kanpur who have made a significant contribution towards their profession and betterment of society in the last 50 years. In recognition of his immense contribution to IT education in India, he has been awarded the "Best .NET Technical Contributor" and "Most Valuable Professional" awards by Microsoft for 5 successive years. Yashavant holds a BE from VJTI Mumbai and M.Tech. from IIT Kanpur. Yashavant's current affiliations include being a Director of KICIT Pvt Ltd. And KSET Pvt Ltd. His LinkedIn profile: linkedin.com/in/yashavant-kanetkar-9775255

An Essential Reference for Intermediate and Advanced R Programmers Advanced R presents useful tools and techniques for attacking many types of R programming problems, helping you avoid mistakes and dead ends. With more than ten years of experience programming in R, the author illustrates the elegance, beauty, and flexibility at the heart of R. The book develops the necessary skills to produce quality code that can be used in a variety of circumstances. You will learn: The fundamentals of R, including standard data types and functions Functional programming as a useful framework for solving wide classes of problems The positives and negatives of metaprogramming How to write fast, memory-efficient code This book not only helps current R users become R programmers but also shows existing programmers what’s special about R. Intermediate R programmers can dive deeper into R and learn new strategies for solving diverse problems while programmers from other languages can learn the details of R and understand why R works the way it does.

The C Programming Language

Beginning C Programming - Tutorials for the Beginner

C++

Pointers in C

A Hands on Approach

Effective Modern C++

Dear readers this tutorial is prepared to give you a clear idea about pointers in c programming language. Some c programming tasks are performed more easily with pointers, and other tasks such as dynamic memory allocation, cannot be performed without using pointers. So in order to become a serious c programmer it is important to learn pointers.

"Provides an in-depth explanation of the C and C++ programming languages along with the fundamentals of object oriented programming paradigm"--