

Concepts Of Programming Languages By Robert W Sebesta 7th Edition

The official book on the Rust programming language, written by the Rust development team at the Mozilla Foundation, fully updated for Rust 2018. The Rust Programming Language is the official book on Rust: an open source systems programming language that helps you write faster, more reliable software. Rust offers control over low-level details (such as memory usage) in combination with high-level ergonomics, eliminating the hassle traditionally associated with low-level languages. The authors of The Rust Programming Language, members of the Rust Core Team, share their knowledge and experience to show you how to take full advantage of Rust's features—from installation to creating robust and scalable programs. You'll begin with basics like creating functions, choosing data types, and binding variables and then move on to more advanced concepts, such as: **Ownership and borrowing**, lifetimes, and traits **Using Rust's memory safety guarantees to build fast, safe programs** **Testing**, error handling, and effective refactoring **Generics**, smart pointers, multithreading, trait objects, and advanced pattern matching **Using Cargo**, Rust's built-in package manager, to build, test, and document your code and manage dependencies **How best to use Rust's advanced compiler with compiler-led programming techniques** You'll find plenty of code examples throughout the book, as well as three chapters dedicated to building complete projects to test your learning: a number guessing game, a Rust implementation of a command line tool, and a multithreaded server. New to this edition: An extended section on Rust macros, an expanded chapter on modules, and appendices on Rust development tools and editions.

This book (composed of two volumes) explores the syntactical constructs of the most common programming languages, and sheds a mathematical light on their semantics, providing also an accurate presentation of the material aspects that interfere with coding. Concepts and Semantics of Programming Languages 2 presents an original semantic model, collectively taking into account all of the constructs and operations of modules and classes: visibility, import, export, delayed definitions, parameterization by types and values, extensions, etc. The model serves for the study of Ada and OCaml modules, as well as C header files. It can be deployed to model object and class features, and is thus used to describe Java, C++, OCaml and Python classes. This book is intended not only for computer science students and teachers but also seasoned programmers, who will find a guide to reading reference manuals and the foundations of program verification.

Explains the concepts underlying programming languages, and demonstrates how these concepts are synthesized in the major paradigms: imperative, OO, concurrent, functional, logic and with recent scripting languages. It gives greatest prominence to the OO paradigm. Includes numerous examples using C, Java and C++ as exemplar languages Additional case-study languages: Python, Haskell, Prolog and Ada Extensive end-of-chapter exercises with sample solutions on the companion Web site Deepens study by examining the motivation of programming languages not just their features

A textbook that uses a hands-on approach to teach principles of programming languages, with Java as the implementation language. This introductory textbook uses a hands-on approach to teach the principles of programming languages. Using Java as the implementation language, Rajan covers a range of emerging topics, including concurrency, Big Data, and event-driven programming. Students will learn to design, implement, analyze, and understand both domain-specific and general-purpose programming languages. **Develops basic concepts in languages, including means of computation, means of combination, and means of abstraction.** **Examines imperative features such as references, concurrency features such as fork, and reactive features such as event handling.** **Covers language features that express differing perspectives of thinking about computation, including those of logic programming and flow-based programming.** **Presumes Java programming experience and understanding of object-oriented classes, inheritance, polymorphism, and static classes.** **Each chapter corresponds with a working implementation of a small programming language allowing students to follow along.**

PROGRAMMING LANGUAGE CONCEPTS, 3RD ED
Computer Programming Fundamentals

The C Programming Language
Programming Languages: Principles and Practices

Market_Desc: *Programmers' Students and Professors* **Special Features:** *Updated to cover programming languages such as LISP, Scheme (artificial intelligence based), Standard ML, and C++ (object oriented based). About The Book: This book explains and illustrates key concepts of programming by taking a breadth approach to programming languages. It uses C++ as the primary language throughout, demonstrating imperative, functional and object-oriented language concepts in C++. Plus, fourth generation languages, such as database and visual programming languages are covered in detail. This book explains and illustrates key concepts of programming by taking a breadth approach to programming languages. It uses C++ as the primary language throughout, demonstrating imperative, functional and object-oriented language concepts.*

For courses in computer programming. Evaluating the Fundamentals of Computer Programming Languages Concepts of Computer Programming Languages introduces students to the fundamental concepts of computer programming languages and provides them with the tools necessary to evaluate contemporary and future languages. An in-depth discussion of programming language structures, such as syntax and lexical and syntactic analysis, also prepares students to study compiler design. The Eleventh Edition maintains an up-to-date discussion on the topic with the removal of outdated languages such as Ada and Fortran. The addition of relevant new topics and examples such as reflection and exception handling in Python and Ruby add to the currency of the text. Through a critical analysis of design issues of various program languages, Concepts of Computer Programming Languages teaches students the essential differences between computing with specific languages.

This textbook offers an understanding of the essential concepts of programming languages. The text uses interpreters, written in Scheme, to express the semantics of many essential language elements in a way that is both clear and directly executable.

Concepts and Semantics of Programming Languages 2
Foundations of Programming Languages

A Semactical Approach with OCaml and Python

The Principles and Concepts of Programming Languages and the Best One for You to Learn

Essentials of Programming Languages

Key ideas in programming language design and implementation explained using a simple and concise framework; a comprehensive introduction suitable for use as a textbook or a reference for researchers. Hundreds of programming languages are in use today—scripting languages for Internet commerce, user interface programming tools, spreadsheet macros, page format specification languages, and many others. Designing a programming language is a metaprogramming activity that bears certain similarities to programming in a regular language, with clarity and simplicity even more important than in ordinary programming. This comprehensive text uses a simple and concise framework to teach key ideas in programming language design and implementation. The book's unique approach is based on a family of syntactically simple pedagogical languages that allow students to explore programming language concepts systematically. It takes as premise and starting point the idea that when language behaviors become incredibly complex, the description of the behaviors must be incredibly simple. The book presents a set of tools (a mathematical metalinguage, abstract syntax, operational and denotational semantics) and uses it to explore a comprehensive set of programming language design dimensions, including dynamic semantics (naming, state, control, data), static semantics (types, type reconstruction, polymorphism, effects), and pragmatics (compilation, garbage collection). The many examples and exercises offer students opportunities to apply the foundational ideas explained in the text. Specialized topics and code that implements many of the algorithms and compilation methods in the book can be found on the book's Web site, along with such additional material as a section on concurrency and proofs of the theorems in the text. The book is suitable as a text for an introductory graduate or advanced undergraduate programming languages course; it can also serve as a reference for researchers and practitioners.

This book presents the history and development of prototype-based programming and describes a number of prototype-based programming languages and applications. Applications range from programs for portable digital appliances graphical user-interface management systems for desktop and workstations and cutting edge research on software visualisation and program restructuring.

Concepts of Programming Languages continues to be the market leader, introducing readers to the main constructs of contemporary programming languages and providing the tools necessary to critically evaluate existing and future programming languages. By presenting design issues for various language constructs, examining the design choices for these constructs in some of the most common languages, and critically comparing the design alternatives, this book gives readers a solid foundation for understanding the fundamental concepts of programming languages. Preliminaries; Evolution of the Major Programming Languages; Describing Syntax and Semantics; Lexical and Syntax Analysis; Names, Binding, Type Checking, and Scopes; Data Types; Expressions and Assignment Statements; Statement-Level Control Structure; Subprograms; Implementing Subprograms; Abstract Data Types; Support for Object-Oriented Programming; Concurrency; Exception Handling and Event Handling; Functional Programming Languages; Logic Programming Languages. For all readers interested in the main constructs of contemporary programming languages.

This book provides an introduction to the essential concepts in programming languages, using operational semantics techniques. It presents alternative programming language paradigms and gives an in-depth analysis of the most significant constructs in modern imperative, functional and logic programming languages. The book is designed to accompany lectures on programming language design for undergraduate students. Each chapter includes exercises which provide the opportunity to apply the concepts and techniques presented.

Concepts in Programming Languages

The Rust Programming Language (Covers Rust 2018)

Design Concepts in Programming Languages

Programming Language Design Concepts

Practical Foundations for Programming Languages

This excellent addition to the UTICS series of undergraduate textbooks provides a detailed and up to date description of the main principles behind the design and implementation of modern programming languages. Rather than focusing on a specific language, the book identifies the most important principles shared by large classes of languages. To complete this general approach, detailed descriptions of the main programming paradigms, namely imperative, object-oriented, functional and logic are given, analysed in depth and compared. This provides the basis for a critical understanding of most of the programming languages. An historical viewpoint is also included, discussing the evolution of programming languages, and to provide a context for most of the constructs in use today. The book concludes with two chapters which introduce basic notions of syntax, semantics and computability, to provide a completely rounded picture of what constitutes a programming language. /div

You're about to lay your hands on my most proudly computer programming fundamental course. This is where to begin if you've never written a line of code in your life or even if you have, and want to review the basics. No matter what programming language you're most interested in, even if you're not completely sure about that, this course will make learning that language easier. We'll do this by starting with the most fundamental critical questions: How do you actually write a computer program and get the computer to understand it? We'll jump into the syntax, the rules of programming languages and see many different examples to get the big picture of how we need to think about data and control the way our programs flow. We cover covering important topics like recursion and data types. We will finish by exploring things that make real world programming easier, from libraries and frameworks to SDKs and APIs. But you won't find a lot of bullet points in this book. This is a highly visual course, and by the end of it, you'll understand much more about the process of programming and how to move forward with writing any kind of application. But unlike most oriented learning materials, you won't like most oriented learning materials. The content is not just a list of things to memorize, nothing to install, so just give your attention as you go through the course. Finally, you will know how to choose the right programming language for YOU. There are so many Programming languages out there these days but in this book I show you how to choose the language that meets your specific needs, so that you can save time and energy. With my honest advice, you can not make a wrong choice.

This clearly written textbook introduces the reader to the three styles of programming, examining object-oriented/imperative, functional, and logic programming. The focus of the text moves from highly prescriptive languages to very descriptive languages, demonstrating the many and varied ways in which we can think about programming. Designed for interactive learning both inside and outside of the classroom, each programming paradigm is highlighted through the implementation of a non-trivial programming language, demonstrating when each language may be appropriate for a given problem. Features: includes review questions and solved practice exercises, with supplementary code and support files available from an associated website; provides the foundations for understanding how the syntax of a language is formally defined by a grammar; examines assembly language programming using CoCo; introduces C++, Standard ML, and Prolog; describes the development of a type inference system for the language Small.

For undergraduate students in Computer Programming courses. How in its Tenth Edition, Concepts of Programming Languages introduces students to the main constructs of contemporary programming languages and provides the tools needed to critically evaluate existing and future programming languages. Readers gain a solid foundation for understanding the fundamental concepts of programming languages through the author's presentation of design issues for various language constructs, the examination of the design choices for these constructs in some of the most common languages, and critical comparison of the design alternatives. In addition, Sebesta strives to prepare the reader for the study of compiler design by providing an in-depth discussion of programming language structures, presenting a formal method of describing syntax, and introducing approaches to lexical and syntactic analysis.

An Experiential Introduction to Principles of Programming Languages

Concepts of Programming Languages -- Print Offer

Concepts of Object-Oriented Programming

Object-Oriented Programming Languages: Interpretation

Concepts and Constructs

Programming Language Explorations is a tour of several modern programming languages in use today. The book teaches fundamental language concepts using a language-by-language approach. As each language is presented, the authors introduce new concepts as they appear, and revisit familiar ones, comparing their implementation with those from languages seen in prior chapters. The goal is to present and explain common theoretical concepts of language design and usage, illustrated in the context of practical language overviews. Twelve languages have been carefully chosen to illustrate a wide range of programming styles and paradigms. The book introduces each language with a common trio of example programs, and continues with a brief tour of its basic elements, type system, functional forms, scoping rules, concurrency patterns, and sometimes, metaprogramming facilities. Each language chapter ends with a summary, pointers to open source projects, references to materials for further study, and a collection of exercises, designed as further explorations. Following the twelve featured language chapters, the authors provide a brief tour of over two dozen additional languages, and a summary chapter bringing together many of the questions explored throughout the text. Targeted to both professionals and advanced college undergraduates looking to expand the range of languages and programming patterns they can apply in their work and studies, the book pays attention to modern programming practice, covers cutting-edge languages and patterns, and provides many runnable examples, all of which can be found in an online GitHub repository. The exploration style places this book between a tutorial and a reference, with a focus on the concepts and practices underlying programming language design and usage.

Instructors looking for material to supplement a programming languages or software engineering course may find the approach unconventional, but hopefully, a lot more fun.

This book uses a functional programming language (F#) as a metalinguage to present all concepts and examples, and thus has an operational flavour, enabling practical experiments and exercises. It includes basic concepts such as abstract syntax, interpretation, stack machines, compilation, type checking, garbage collection, and real machine code. Also included are more advanced topics on polymorphic types, type inference using unification, co- and contravariant types, continuations, and backwards code generation with on-the-fly peephole optimization. This second edition includes two new chapters. One describes compilation and type checking of a full functional language, tying together the previous chapters. The other describes how to compile a C subset to real (x86) hardware, as a smooth extension of the previously presented compilers. The examples present several interpreters and compilers for toy languages, including compilers for a small but usable subset of C, abstract machines, a garbage collector, and ML-style polymorphic type inference. Each chapter has exercises. Programming Language Concepts covers practical construction of parsers and compilers, but not regular expressions, automata and grammars, which are well covered already. It discusses the design and technology of Java and C# to strengthen students' understanding of these widely used languages.

This comprehensive textbook explains key features of the languages in use today. Class-based, prototype and Actor languages are all examined and compared in terms of their semantic concepts. This book provides a unique overview of the main approaches to object-oriented languages. Exercises of varying length, some of which can be extended into mini-projects are included at the end of each chapter. This book can be used as part of courses on Comparative Programming Languages or Programming Language Semantics at Second or Third Year Undergraduate Level. Some understanding of programming language concepts is required.

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

Essentials of Programming Languages, third edition

Concepts of Programming Languages

Concise Overview

History of Programming Languages

Prototype-based Programming

History of Programming Languages presents information pertinent to the technical aspects of the language design and creation. This book provides an understanding of the processes of language design as related to the environment in which languages are developed and the knowledge base available to the originators. Organized into 14 sections encompassing 77 chapters, this book begins with an overview of the programming techniques to use to help the system produce efficient programs. This text then discusses how to use parentheses to help the system identify identical subexpressions within an expression and thereby eliminate their duplicate calculation. Other chapters consider FORTRAN programming techniques needed to produce optimum object programs. This book discusses as well the developments leading to ALGOL 60. The final chapter presents the biography of Adin D. Falkoff. This book is a valuable resource for graduate students, practitioners, historians, statisticians, mathematicians, programmers, as well as computer scientists and specialists. We've known about algorithms for millennia, but we've only been writing computer programs for a few decades. A big difference between the Euclidean or Eratosthenes age and ours is that since the middle of the twentieth century, we express the algorithms we conceive using formal languages: programming languages. Computer scientists are not the only ones who use formal languages... tometrists, for example, prescribe eyeglasses using very technical expressions, ?? such as "OD: -1.25 (-0.50) 180 OS: -1.00 (-0.25) 180 ", in which the parent- ses are essential. Many such formal languages have been created throughout history: musical notation, algebraic notation, etc. In particular, such languages have long been used to control machines, such as looms and cathedral chimes. However, until the appearance of programming languages, those languages were only of limited importance: they were restricted to specialised fields with only a few specialists and written texts of those languages remained relatively scarce. This situation has changed with the appearance of programming languages, which have a wider range of applications than the prescription of eyeglasses or the control of a loom or cathedral chime. The creation of programs of many hundreds of thousands of lines.

A new edition of a textbook that provides students with a deep, working understanding of the essential concepts of programming languages, completely revised, with significant new material. This book provides students with a deep, working understanding of the essential concepts of programming languages. Most of these essentials relate to the semantics, or meaning, of program elements, and the text uses interpreters (short programs that directly analyze an abstract representation of the program text) to express the semantics of many essential language elements in a way that is both clear and executable. The approach is both analytical and hands-on. The book provides views of programming languages using widely varying levels of abstraction, maintaining a clear connection between the high-level and low-level views. Exercises are a vital part of the text and are scattered throughout; the text explains the key concepts, and the exercises explore alternative designs and other issues. The complete Scheme code for all the interpreters and analyzers in the book can be found online through The MIT Press web site. For this new edition, each chapter has been revised and many new exercises have been added. Significant additions have been made to the text, including completely new chapters on modules and continuation-passing style. Essentials of Programming Languages can be used for both graduate and undergraduate courses, and for continuing education courses for programmers.

Essential concepts of programming language design and implementation are explained and illustrated in the context of the object-oriented programming language (OOP/L) paradigm. Written with the upper-level undergraduate student in mind, the text begins with an introductory chapter that summarizes the essential features of an OOP/L, then widens the discussion to categorize the other major paradigms, introduce the important issues, and define the essential terms. After a brief second chapter on event-driven programming (EDP), subsequent chapters are built around case studies in each of the languages Smalltalk, C++, Java, C#, and Python. Included in each case study is a discussion of the accompanying libraries, including the essential container classes. For each language, one important event-driven library is singled out and studied. Sufficient information is given so that students can complete an event-driven project in any of the given languages. After completing the course the student should have a solid set of skills in each language the instructor chooses to cover, a comprehensive overview of how these languages relate to each other, and an appreciation of the major issues in OOP/L design. Key Features: • Provides essential coverage of Smalltalk origins, syntax, and semantics, a valuable asset for students wanting to understand the hybrid Objective C language • Provides detailed case studies of Smalltalk, Java, C++, C#, and Python and features a side-by-side development of the Java and C++ languages—highlighting their similarities and differences • Sets the discussion in a historical framework, tracing the roots of the OOP/Ls back to Simula 67. • Provides broad-based coverage of all languages, imparting essential skills as well as an appreciation for each language's design philosophy • Includes chapter summary, review questions, chapter exercises, an appendix with event-driven projects, and instructor resources

Modular and Object-oriented Constructs with OCaml, Python, C++, Ada and Java

Concepts and Semantics of Programming Languages 1

Introduction to Programming Languages

Programming Language Concepts and Paradigms

Programming Languages and Operational Semantics

A comprehensive undergraduate textbook covering both theory and practical design issues, with an emphasis on object-oriented languages.

Software -- Programming Techniques

In-depth case studies of representative languages from five generations of programming language design (Fortran, Algol-60, Pascal, Ada, LISP, Smalltalk, and Prolog) are used to illustrate larger themes "--BOOK JACKET.

Covers the nature of language, syntax, modeling objects, names, expressions, functions, control structures, global control, logic programming, representation and semantics of types, modules, generics, and domains

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Concepts and Practice

Concepts, Languages, and Applications

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This text develops a comprehensive theory of programming languages based on type systems and structural operational semantics. Language concepts are precisely defined by their static and dynamic semantics, presenting the essential tools both intuitively and rigorously while relying on only elementary mathematics. These tools are used to analyze and prove properties of languages and provide the framework for combining and comparing language features. The broad range of concepts includes fundamental data types such as sums and products, polymorphic and abstract types, dynamic typing, dynamic dispatch, subtyping and refinement

Types, symbols and dynamic classification, parallelism and cost semantics, and concurrency and distribution. The methods are directly applicable to language implementation, to the development of logics for reasoning about programs, and to the formal verification language properties such as type safety. This thoroughly revised second edition includes exercises at the end of nearly every chapter and a new chapter on type refinement.

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Programming Languages for MIS: Concepts and Practice supplies a synopsis of the major computer programming languages, including C++, HTML, JavaScript, CSS, VB.NET, C#.NET, ASP.NET, PHP (with MySQL), XML (with XSLT, DTD, and XML Schema), and SQL. Ideal for undergraduate students in IS and IT programs, this textbook and its previous versions have been used in the authors' classes for the past 15 years. Focused on web application development, the book considers client-side computing, server-side computing, and database applications. It emphasizes programming techniques, including structured programming, object-oriented programming, client-side programming, server-side programming, and graphical user interface. Introduces PHP, a popular open source programming language, and explains the use of the MySQL database in PHP. Discusses XML and its companion languages, including XSLT, DTD, and XML Schema.

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