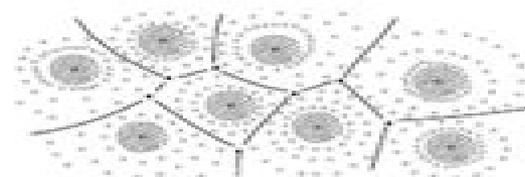


# Chapter

# 2

# Object-Oriented Programming



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# Data Structures Algorithms And Object Oriented Programming

**John Beidler**



## **Data Structures Algorithms And Object Oriented Programming:**

**Data Structures, Algorithms, and Object-oriented Programming** Gregory L. Heileman,1996 *Data Structures and Algorithms with Object-Oriented Design Patterns in C++* Bruno R. Preiss,1999 An object oriented learning framework for creating good software design Bruno Preiss presents readers with a modern object oriented perspective for looking at data structures and algorithms clearly showing how to use polymorphism and inheritance and including fragments from working and tested programs *"Data Structures, Algorithms and Applications in Java" and "Introduction to Object-Oriented Programming"* Wu Sahni,2002-08 *Object-Oriented Data Structures Using Java* Dale,Daniel T. Joyce,Chip Weems,2016-09 Object Oriented Data Structures Using Java Fourth Edition presents traditional data structures and object oriented topics with an emphasis on problem solving theory and software engineering principles *Data Structures and Algorithms* Bruno R. Preiss,2000 *Data Structures, Algorithms & Object Oriented Programming* Heileman, *An Object-oriented Introduction to Data Structures Using Eiffel* Richard S. Wiener,1997 Guide to the object oriented programming language Data Structures and Algorithms John Beidler,2012-12-06 This textbook provides an in depth course on data structures in the context of object oriented development Its main themes are abstraction implementation encapsulation and measurement that is that the software process begins with abstraction of data types which then lead to alternate representations and encapsulation and finally to resource measurement A clear object oriented approach making use of Booch components will provide readers with a useful library of data structure components and experience in software reuse Students using this book are expected to have a reasonable understanding of the basic logical structures such as stacks and queues Throughout Ada 95 is used and the author takes full advantage of Ada s encapsulation features and the ability to present specifications without implementational details Ada code is supported by two suites available over the World Wide Web *Data Structures and Algorithms in Python* Michael T. Goodrich,Roberto Tamassia,Michael H. Goldwasser,2013-06-17 Based on the authors market leading data structures books in Java and C this book offers a comprehensive definitive introduction to data structures in Python by authoritative authors Data Structures and Algorithms in Python is the first authoritative object oriented book available for Python data structures Designed to provide a comprehensive introduction to data structures and algorithms including their design analysis and implementation the text will maintain the same general structure as Data Structures and Algorithms in Java and Data Structures and Algorithms in C Begins by discussing Python s conceptually simple syntax which allows for a greater focus on concepts Employs a consistent object oriented viewpoint throughout the text Presents each data structure using ADTs and their respective implementations and introduces important design patterns as a means to organize those implementations into classes methods and objects Provides a thorough discussion on the analysis and design of fundamental data structures Includes many helpful Python code examples with source code provided on the website Uses illustrations to present data structures and algorithms as well as

their analysis in a clear visual manner Provides hundreds of exercises that promote creativity help readers learn how to think like programmers and reinforce important concepts Contains many Python code and pseudo code fragments and hundreds of exercises which are divided into roughly 40% reinforcement exercises 40% creativity exercises and 20% programming projects

*Data Structures and Algorithms with Object-oriented Design Patterns in C#* Bruno R. Preiss,2001 C++  
Saumyendra Sengupta,Carl P. Korobkin,1994-03-11 This book presents a broad coverage of fundamental and advanced concepts of data structure and algorithms It provides readers with a modern synthesis of concepts with examples of practical applications C is used throughout to illustrate the construction and use of abstract data types and to demonstrate object oriented implementations Disk contains all the C codes from the book 165 illus

Objects, Abstraction, Data Structures and Design Elliot B. Koffman,Paul A. T. Wolfgang,2005-10-20 Koffman and Wolfgang introduce data structures in the context of C programming They embed the design and implementation of data structures into the practice of sound software design principles that are introduced early and reinforced by 20 case studies Data structures are introduced in the C STL format whenever possible Each new data structure is introduced by describing its interface in the STL Next one or two simpler applications are discussed then the data structure is implemented following the interface previously introduced Finally additional advanced applications are covered in the case studies and the cases use the STL In the implementation of each data structure the authors encourage students to perform a thorough analysis of the design approach and expected performance before actually undertaking detailed design and implementation Students gain an understanding of why different data structures are needed the applications they are suited for and the advantages and disadvantages of their possible implementations Case studies follow a five step process problem specification analysis design implementation and testing that has been adapted to object oriented programming Students are encouraged to think critically about the five step process and use it in their problem solutions Several problems have extensive discussions of testing and include methods that automate the testing process Some cases are revisited in later chapters and new solutions are provided that use different data structures The text assumes a first course in programming and is designed for Data Structures or the second course in programming especially those courses that include coverage of OO design and algorithms A C primer is provided for students who have taken a course in another programming language or for those who need a review in C Finally more advanced coverage of C is found in an appendix

Course Hierarchy Course is the second course in the CS curriculum Required of CS majors Course names include Data Structures and Data Structures Algorithms

Introduction to Data Structures and Algorithms with C++ Glenn W. Rowe,1997 A complete introduction to the topic of data structures and algorithms approached from an object oriented perspective using C All data structures are described including stacks queues sets linked lists trees and graphs Searching and sorting algo

*Data Structures, Algorithms, and Software Principles* Thomas A. Standish,1994 Based on the idea of experience before essence this book develops the concepts and theory of data structures

and algorithm analysis step by step in a gradual fashion proceeding from concrete examples to abstract principles Recurring themes such as recursion levels of abstraction representation efficiency and trade offs unify the material completely

**Data Structures & Algorithms in Java** Mitchell Waite,Robert Lafore,1998-01-01 Bestselling author Robert Lafore has perfectly timed this book to ride the wave of universities who are switching to Java for introductory programming courses in which data structures and algorithms are key topic areas The CD ROM contains workshop applets Java demo programs that run on a Web browser

*Data Structures* William Joseph Collins,1992 This is the first text designed for an elementary data structures course to incorporate the important concepts of object oriented programming Specifically the text uses objects in the definition design and implementation of abstract data types

*Data Structures and Algorithms in C++* Michael T. Goodrich,Roberto Tamassia,David M. Mount,2011-02-22 This second edition of Data Structures and Algorithms in C is designed to provide an introduction to data structures and algorithms including their design analysis and implementation The authors offer an introduction to object oriented design with C and design patterns including the use of class inheritance and generic programming through class and function templates and retain a consistent object oriented viewpoint throughout the book This is a sister book to Goodrich Tamassia s Data Structures and Algorithms in Java but uses C as the basis language instead of Java This C version retains the same pedagogical approach and general structure as the Java version so schools that teach data structures in both C and Java can share the same core syllabus In terms of curricula based on the IEEE ACM 2001 Computing Curriculum this book is appropriate for use in the courses CS102 I O B versions CS103 I O B versions CS111 A version and CS112 A I O F H versions

**Data Structures & Other Objects Using Java** Michael Main,2003 This book takes a gentle approach to the data structures course in Java It offers an early self contained review of object oriented programming and Java to give students a firm grasp of key concepts and allows those experienced in other languages to adjust easily The book also offers a flexibility which allows professors such options as emphasizing object oriented programming covering recursion and sorting early or accelerating the pace of the course This title meets the needs of professors searching for a book to balance the introduction of object oriented programming and data structures with Java The new edition has been updated to cover Java 1.3 and includes new appendices with more reference material on such topics as Java collections It also features increased coverage of object oriented programming and inheritance New exercises on radix sort and shell sort have also been added

*Java* Liwu Li,1998-09-10 This introduction to the Java language integrates a discussion on object oriented programming with the design and implementation of data structures It covers the most important topics including Java language features algorithm analysis time and space complexities and their relationship to Java programming Java built in data structure classes input and output data and access streams and the persistency of data

**Fundamentals of OOP and Data Structures in Java** Richard Wiener,Lewis J. Pinson,2000-06-05 Fundamentals of OOP and Data Structures in Java is a text for an introductory course on classical data structures Part One of the book

presents the basic principles of Object Oriented Programming OOP and Graphical User Interface GUI programming with Java as the example language Part Two introduces each of the major data structures with supporting GUI based laboratory programs designed to reinforce the basic concepts and principles of the text These laboratories allow the reader to explore and experiment with the properties of each data structure All source code for the laboratories is available on the web By integrating the principles of OOP and GUI programming this book takes the unique path of presenting the fundamental issues of data structures within the context of paradigms that are essential to today s professional software developer The authors assume the reader has only an elementary understanding of Java and no experience with OOP

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