

## <<面向对象系统分析与设计>>

### 图书基本信息

书名：<<面向对象系统分析与设计>>

13位ISBN编号：9787302197997

10位ISBN编号：7302197997

出版时间：2009-5

出版时间：清华大学

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页数：458

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## &lt;&lt;面向对象系统分析与设计&gt;&gt;

## 前言

Today's business environment is dynamic, turbulent, and global. Information systems have moved from back-office technologies understood by only a few to pervasive, essential support technologies that touch all aspects of business and all players in the game. As the role of information technology in business has changed, so have the underlying technologies and the manner in which systems are developed. Long predicted to be the next big thing, object orientation has finally arrived. The adoption of object orientation has not resulted in the dramatic paradigm shift that also was predicted for so long. Instead, we are witnessing the emergence of a hybrid approach to systems and their development--an approach that encompasses some aspects of traditional systems development and some aspects of object orientation. Although this book focuses on object-oriented systems analysis and design and it adheres to UML standards, it contains elements from other approaches, such as elements of relational database system design, that remain a part of systems development in business organizations today. Among the four of us, we have more than 80 years of combined teaching experience in systems analysis and design, including teaching database management and object-oriented approaches. We have used that experience to create *Object-Oriented Systems Analysis and Design, Second Edition*. As was true in the first edition, we provide a clear presentation of the concepts, skills, and techniques students need to become effective systems analysts who work with others to create information systems for businesses. We continue to use a systems development cycle model as an organizing tool throughout the book to provide students with a strong conceptual and systematic framework. Internet coverage is provided in each chapter via an integrated, extended illustrative case (Pine Valley WebStore) and an end-of-chapter case (Broadway Entertainment Company, Inc.). Many systems analysis and design courses involve lab work and outside reading. This means that lecture time can be limited. Based on market research and our own teaching experience, we understand the importance of using a book that combines depth of coverage with brevity. We have created a 14-chapter book that covers key object-oriented systems analysis and design (OOSAD) content without overwhelming students with unnecessary detail. The book is a compromise between briefer approaches to OOSAD and larger, more comprehensive volumes. *Object-Oriented Systems Analysis and Design, Second Edition* is characterized by the following themes:

- 1' Systems development is firmly rooted in an organizational context. The successful systems analyst needs a broad understanding of organizations, organizational culture, and operation.
- 2' Systems development is a practical field. Coverage of current practices as well as accepted concepts and principles is essential in a textbook.
- 3' Systems development is a profession. Standards of practice, a sense of continuing personal development, ethics, and a respect for and collaboration with the work of others are general themes in the textbook. These principles are constant, regardless of the technical approach to development.
- 4' Systems development has changed significantly with the explosive growth in the adoption of object-oriented approaches to systems development. In many organizations, traditional tools that support systems development, such as dataflow diagrams, have been replaced with object-oriented tools such as use-case diagrams, sequence diagrams, and analysis class diagrams. Pure relational database management approaches have been replaced with object-relational approaches. Our approach in this book focuses exclusively on diagrams and techniques associated with OOSAD.

Success in systems analysis and design requires not only skills in methodology but also in the management of time, resources, and risks. Thus, learning systems analysis and design requires a thorough understanding of the process as well as the techniques and deliverables of the profession. Our approach to process emphasizes a systems development cycle as an organizing principle and the focus on development iterations prevalent in object-oriented systems analysis and design. Given these themes, this textbook emphasizes the following:

- A business



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throughout the text were developed using the Rational Rose CASE tool, Microsoft's Visio, and Microsoft's Project. illustrative Fictional Cases Pine Valley Furniture (PVF) This case is introduced in Chapter 4 and revisited throughout the book. As key systems development cycle and object-oriented concepts are presented, they are applied and illustrated with this case. A margin icon identifies the location of the case. PVF is a furniture company, founded in 1980, and management has decided to explore electronic commerce as an avenue to increase its market share. A case problem related to PVF is included in the end-of-chapter material for many of the chapters. Broadway Entertainment Company, Inc. (BEC) This fictional video rental and music company is used as an extended case at the end of each chapter, beginning with Chapter 2. Designed to bring the chapter concepts to life, this case illustrates how a company initiates, plans, models, designs, and implements a Web-based customer relationship management system using an object-oriented systems development approach. Discussion questions are included to promote critical thinking and class participation. Suggested solutions to the discussion questions are provided in the instructor's Resource Manual located in the Faculty area of the Website: <http://www.prenhall.com/george>. End-of-Chapter Material We have developed an extensive selection of end-of-chapter material designed to accommodate various learning and teaching styles. Key Points Review This repeats the learning objectives that appear at the opening of the chapter and summarizes the key points related to the objectives. Key Terms Checkpoint This is designed as a self-test feature. Students match each key term in the chapter with its definition. Review Questions These questions test students' understanding of key concepts. Problems and Exercises These problems and exercises test students' analytical skills and require them to apply key concepts. Discussion Questions These questions promote class participation and discussion. Case Problems These problems require students to apply the concepts of the chapter to three fictional cases from various industries. The illustrative case from the book - Pine Valley Furniture is revisited. Other cases are from various fields such as medicine, agriculture, and technology. Solutions are provided in the instructor's Manual located in the Faculty area of the Website: <http://www.prenhall.com/george>. Margin Term Definitions Each of the key terms and their definitions appear in the margins. A glossary of terms appears at the back of the book. References Located at the end of the text, references organized by chapter list more than 100 books and journals that can provide students and faculty with additional coverage of the text. PACKAGING OPTIONS SOFTWARE PACKAGING OPTIONS y. ., ., . Visible Analystyst. Microsoft Visio. Microsoft Protect). Oracle 10g To enhance the hands-on learning process Prentice Hall offers the option to package this text with a choice of Visible Analyst, Microsoft Visio, Microsoft Project, or Oracle 10g software. Your Prentice Hall sales representative can provide additional information on pricing and ordering. INSTRUCTOR'S RESOURCE CENTER The instructor's Resource Center found on the catalog page is a password-protected Faculty site that contains instructor supplements for download. 1' Powerpoint presentation slides feature lecture notes that highlight key text terms and concepts. pts., m' x'2' The instructor's Resource Manual is secured in the password-protected Faculty area. It contains teaching suggestions and answers to all text review questions, problems, suggestions and answers to all text review questions, problems, ' 1' exercises, and case problems. problems. ~ al m' T.' Z T Ip Test It6m File also is secured in the Faculty area. It is available in Microsoft Word, HTML area. It is available in Microsoft Word, converted WebCT, and BlackBoard files. J4' An Image Library is provided in the Faculty area. This is a collection of figures and tables from the text to enhance class lectures and Powerpoint slides. j rom the text to enhance class lectures and Powerpoint slides. ACKNOWLEDGMENTS The authors have been blessed by considerable assistance from many people on all aspects of preparation of this text and its supplements. We are, of course, responsible for what eventually appears between the covers, but the insights, corrections, contributions, and

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proddings of others have greatly improved our manuscript. The people... 11 1we recognize here all have a strong commitment to stridents to the iS field and toanlze here all have a strong commitment to stridents, to the iS field, and to, 1 al.excellence. Their contributions have stimulated us and frequently rejuvenated us i rejuvenated us during Periods of waning enerZv for this protect.g periods of waning energy for this project. We would like to recognize the efforts of the many facultV and practicing svsgnlze the efforts of the many faculty and practicing systems analysts who served as reviewers for this book. We have tried to deal with eachj his who served as reviewers for this book. We have tried to deal with each.reviewer comment, and although we did not always agree with specific points(within the approach we wanted to take with this book), all reviewers made us stop,' 1., r, 1,and think carefully about what and how we were writing The reviewers were:j a. The reviewers were:orchard Alien, mchland Community Collegey 5Alien Corbett, University of South Carolina-ColumbiaJTerry Fox, Baylor UniversitVj box, Baylor UniversityMarilvn Griffin, Virginia Polytechnic instittiteyn Griffin, Virginia Polytechnic instittiteRuss Hanna, Johnson County Community Collegey y CollegeDavid James Howe, Augusta Technical CollegePreface xvRobert Josefek, University of Southern California, Marshall School ofj, idarshall School ofBusinessLeonardo Legorreta, California State University-Sacramentogorreta, California State University-SacramentoMary Beth Zak Lohse, Ohio State Umversityy Beth Zak Lohse, Ohio State UniversityTrevor Moores, University of Nevada, Las VegasJ, Las VegasAlan Graham Peace, West Virgima State UniversityVladimir V. mabov, ivier CollegeTorn Sakaguchi Northern Kentucky UniversitV8, 1 j yCarl Scott, University of Houstony of HoustonEileen Sellers, MaryVille UniversityJ yDeborah Smith, University of Nevada-Las VegasJ basRon Sones, James Madison UniversityjTei Wei Wang FIU-UniversitV Part CamDusg, FIU-University Part CampusHeinz Weistroffer, VirgAna Commonwealth UniversityConnie Wells, Roosevelt UniversityyElaine Weltz, Seattle Pacific UniversityyRobert Wrembel, Poznan University of Technologyy of TechnologyH. R. Weistroffef, Virginia Commonwealth UniversityWe have been formulate to work with a large number of creative and insightful5 .fitful,people at Prentice Hall, who have added much to the development, format, and production of this text. We have been thoroughly imDressed with their commitment to.ifully impressed with their commitment to.this text and to the iS education market. These people include Robert Horan,Executive Editor; Debbie Clare, Marketing Manager; Ana Jankowski, Assistant editor; Denise Culhane, Production editor; [designer]; and Laura Cirigliano, MarketingAssistant. We also want to thank Ann Imhof and the folks at CarlisleCommunications, Ltd., for their hard work in getting this book ready for production.Thanks also go to our faculty colleagues Fred McFadden (University of Colorados i gUes Fred McFadden (University of ColoradoColorado Springs), Mary Prescott (University of Tampa), and Dean Joyce Elam.(Florida international University).We extend a special note of thanks to Jeremy Alexander of Web-X.com. Jeremy..'was instrumental in conceptualizing and writing the Pine Valley WebStore featureptUalizing and writing the Pine Valley WebStore featurethat appears throughout the book. Jeremy also built the installation procedures on'.the Website for Oracle, and Saonee Sarker of Washington State University developed.the Oracle editorial modules.The writing of this text has involved thousands of hours of time from the authors51 r 11 r.~ac 1 f-ac 11' acand from all of the aforementioned people. Although our names will be visibly asso..... 1 claid with this book, we know that much of the credit goes to the individuals and.....', 1 fororganizations listed here for any success this book might achieve. It is imDortant fororganiztions listed here for any success this book might achieve. It is important for.the reader to recognize all the individuals and organizations that have been commitsnlze all the individuals and organizations that have been commitltd to the preparation and production of this book.'ABOUT THE AUTHORSJoey E George is professor and Thomas L. Williams JL Eminent Scholar in formationSxrst6ms in the College of Business at Florida State Universitir aam George earned hisayst6ms in the CoheRe of Business at Florida State Univerising Da GeorZe earned insyst6ms in the College of Business at Florida State University. Da George earned hisbachelor's degree at Stanford Univerising in 1979 and his Ph.D. in manaZement at thefree at Stanford University in 1979 and his Ph.D. in management at theUniverising of Califonda at twine in 1986. He was Dpreviouslv the Edward G. Schliederj previously the Edward G. SchliederChair of information Svst6ms in the E. I. Ourso College of Business A~stration atj items in the E. J. Ourso College of Business A~stration atLouisiana State Univerising He also served at Florida State University as chair of they. He also



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served at Florida State University as chair of the Department of Information and Management Sciences from 1995 to 1998. He has published many articles in such journals as Information Systems Research, Communications of the ACM, MIS Quarterly, Journal of MIS, and Communication Research. His research interests focus on the use of information systems in the workplace, including computer-based monitoring, computer-mediated deceptive communication, and group support systems. Da George, along with Joseph Valacich and Jeffrey Hoffer is coauthor of the texts, along with Joseph Valacich and Jeffrey Hoffer, is coauthor of the textbooks Modern Systems Analysis and Design, fifth edition, published in 2007 by Prentice-Hall, and Essentials of Systems Analysis and Design, fifth edition, published in 2007 by Prentice-Hall, and Essentials of Systems Analysis and Design, third edition, copyright 2006 by Prentice Hall. He is also the editor of Computers and Society: Privacy, Ethics, and the Internet, copyright 2004 by Prentice Hall. Da George is currently the Editor-in-Chief for the journal Communications of the AIS. In the past, he has served as a senior editor of the journal Communications of the AIS. In the past, he has served as a senior editor, and an associate editor for the journal MIS Quarterly and an associate editor for the journal MIS Quarterly and an associate editor for the journal Information Systems Research. He has also served on various other journal editorial boards. Da George was the conference co-chair for the 2001 ICIS, held in New Orleans, Louisiana, and he was the co-chair of the doctoral consortium for the 2003 ICIS, held in Seattle, Washington. Dinesh Batra is professor at the Department of Decision Sciences and Information Systems in the College of Business Administration at the Florida International University. He earned his B.Tech. from the Indian Institute of Technology at Delhi in 1979, M.B.A. from Southern Illinois University at Carbondale in 1979, M.B.A. from Southern Illinois University at Carbondale in 1985, and Ph.D. from Indiana University at Bloomington in 1989. After his bachelor's degree and during the period 1979--1983, he worked for four years in a consulting firm conducting process and design of large engineering projects. Da Batra has published over 25 articles in such journals as Management Science, Communication of the ACM, Journal of MIS, International Journal of Human-Computer Studies, Data Base, European Journal of Information Systems, Journal of Database Management, Communications of the AIS, Decision Support Systems, Computers and Operations Research, MIS Quarterly, and Information & Management. His research interests focus on usability issues in systems and database analysis and design. He has served as an associate editor in the journal Data Base, and is on the editorial board of the Journal of Database Management. He has also served as the director of the MS in Information Systems Management. He has also served as the director of the MS in MIS program at the Florida International University. He is currently the president of the AIS Special Interest Group on Systems Analysis & Design (SIGSAND). Joseph S. Valacich, The George and Carolyn Hubman Distinguished Professor, joined the faculty at Washington State University in 1996. He was previously an associate professor with tenure (early) at Indiana University, Bloomington, and was named the Canine Subedar Faculty Fellow. He has had visiting faculty appointments at the Canine Subedar Faculty Fellow. He has had visiting faculty appointments at the University of Arizona, City University of Hong Kong, Buskerud College (Norway), City University of Hong Kong, Buskerud College (Norway), Riga Technical University (Latvia), and the Helsinki School of Economics and the Helsinki School of Economics.

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and Business. He received the Ph.D. degree from the University of Arizona (MIS), and the M.B.A. and B.S. (computer science) degrees from the University of Montana. His teaching interests include systems analysis and design, collaborative computing, project management, and management of information systems. Professor Valacich served on the national task forces to design the Model Curriculum and Guidelines for Undergraduate Degree Programs in information Systems, as well as MSIS for Undergraduate Degree Programs in information Systems, as well as MSIS, 2000 and 2006: The Master of Science in information Systems Model Curriculum. He also served on the Executive Committee funded by the National Science Foundation to define the IS Program Accreditation Standards and on the Board of Directors for CSAB Accreditation Standards and on the Board of Directors for CSAB (formally, the Computing Sciences Accreditation Board), representing the Association for information Systems (AIS). He was the general conference co-chair, items (AIS). He was the general conference co-chair for the 2003 International Conference on information Systems (ICIS) in Seattle and was the vice-chair of ICIS 1999 in Charlotte, NC. Jeffrey A. Hcffer is the Sherman-Standard Register Professor of Data Management in the Department of MIS, Operations Management, and Decision Sciences in the School of Business Administration at the University of Dayton. He also taught at Indiana University and Case Western Reserve University. Dr. Hcffer earned his A.B. from Miami University in 1969 and his Ph.D. from Cornell University in 1969 and his Ph.D. from Cornell University in 1975. Dr. Hcffer has published four other college textbooks: Modern Systems Analysis and Design, fifth edition, with Joey George and Joseph Valacich; Essentials of Systems Design, fifth edition, with Joey George and Joseph Valacich; Essentials of Systems Analysis and Design, third edition, with Joseph Valacich and Joey George; Modern Systems Analysis and Design, third edition, with Joseph Valacich and Joey George; Modern Database Design, eighth edition, with Mary Prescott and Fred McFadden; and Information Technology for managers: What managers Need to Know, fourth edition, with Carol Brown, Daniel DeHayes, E. Wainright Martin, and William Perkins, all published by Prentice Hall. His research articles have appeared in numerous journals, including MIS Quarterly Executive, Journal of Database Management, Small Group MIS Quarterly Executive, Journal of Database Management, Small Group Research, Communications of the ACM, and Sloan management Review. He has received research and equipment grants from IBM Corporation, U.S. Department of the Navy, NCR Teradata division, and Sloan management Review. He has received research and equipment grants from IBM Corporation, U.S. Department of the Navy, NCR Teradata division, and Sloan management Review. Dr. Hcffer is cofounder of the international Conference on information Systems and the Association for information Systems. He has served as a guest lecturer at Catholic University of Chile Santiago, and the Helsinki School of Economics and Business in Helsinki, Finland. Dr. Hcffer is currently an associate director of the Teradata University Network. Dr. Hcffer is currently an associate director of the Teradata University Network. Jeffrey A. Hcffer, University of Dayton, 2006. "An Empirical Study of Processes, Methods, and Techniques for Web/Hypermedia Design. Information Systems management. xviii Preface





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### 内容概要

本书是本科和研究生“系统分析与设计”课程的教材。

本书为读者展示了系统分析师所需掌握的概念、技能和技术等知识。

本书的焦点是面向对象的系统分析与设计，并且遵循UML 2标准，但也包含了来自其他方法的元素，比如关系数据库系统设计的元素，它们如今仍然是企业组织中系统开发的一部分。

作者用一个系统开发周期模型作为贯穿本书的组织工具，为学生提供一个强有力的概念上的、系统化的框架。

通过一个集成的、扩充的说明性案例（松谷家具WebStore）和一个章末案例（百老汇娱乐公司）介绍了基于因特网的系统设计与开发的有关知识。

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### 作者简介

作者：(美国) 乔治 (George) Joey F. George，佛罗里达州立大学商业学院信息系统的教授和Thomas L. Williams Jr.杰出学者。

George博士1979年在斯坦福大学获得学士学位，1986年在加利福尼亚大学欧文分校获得管理博士学位。

他曾是路易斯安那州立大学E. J. Ourso工商管理学院信息系统的Edward G. Schlieder教授。

1995年到1998年，他还任职为佛罗里达州立大学信息与管理科学系的教授。

Dinesh Batra，佛罗里达国际大学教授，他的研究方向主要是系统和数据库分析与设计中的可用性问

题。

他是佛罗里达国际大学MIS计划MS的负责人。

目前，他是系统分析与设计AIS特别兴趣组 (SIGSAND) 的主席，Joseph S. Valacich，George and Carolyn Hubman 杰出MIS教授，Marian E. Smith Presidential Endowed首任主席。

他具有亚利桑那大学、香港城市大学、Buskerud学院 (挪威)、Riga工学大学 (拉脱维亚) 和赫尔辛基经济与商业学校的客座教授职位。

Jeffrey A. Hoffer 是代顿大学工商管理学院MIS、经营管理与决策科学系的数据管理Sherman标准的注册教授。

他还在印第安纳大学和Case Western Reserve大学执教。

Hoffer博士1969年在迈阿密大学获得了学士学位，1975年在康奈尔大学获得了博士学位。

Hoffer博士是“信息系统国际会议”和“信息系统协会 (AIS)”的共同创办人。

他担任智利圣地亚哥天主教大学和芬兰Mikkeli的赫尔辛基经济与商业学院的客座讲师。

Hoffer博士目前是Teradata University Network的副董事。

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### 编辑推荐

1. 《面向对象系统分析与设计》符合UML 2标准：本教材现在从头到尾都符合UML 2标准，改进了各个UML图的讨论。
2. 敏捷方法：第1版包括对极限编程的有限讨论，而本书则包含了对敏捷方法更广泛的论述。
3. 用例：第6章对用例和书写用例的不同观点层次更广泛的论述。
4. OCL：在第9章引入了对象约束语言（OCL）来表达业务规则。
5. 模式：在第12章，使用模式将顺序图从分析阶段转到设计阶段。
6. BEC案例：百老汇娱乐公司（Broadway Entertainment Company, BEC）案例已经被更新和改进，不仅在业务方面更通行，而且在案例中刻画了更多的面向对象系统分析与设计。

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