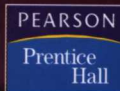
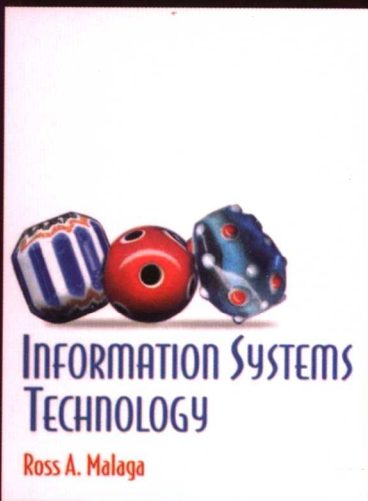


国外计算机科学教材系列




信息技术基础

Information Systems Technology



英文版

[美] Ross A. Malaga 著

 电子工业出版社
PUBLISHING HOUSE OF ELECTRONICS INDUSTRY

<http://www.phei.com.cn>

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内 容 简 介

本书介绍信息技术及其内在技术,主要为没有或很少正规地接触过信息系统或IT领域的学生编写。全书分为三部分共12章,内容涉及计算机硬件、软件、数据库、网络、Internet与WWW、电子商务、决策制定、商务集成、信息系统的开发与采购以及安全与管理等。本书的目的是拓展学生对技术的个人了解和使用,从而使他们更好地了解企业如何使用IT技术和信息系统。

本书可作为高校低年级非计算机专业学生计算机文化、计算机基础以及专业英语课程的教材,也可作为广大学生及各界人士的计算机英语读物。

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出版说明

21世纪初的5至10年是我国国民经济和社会发展的关键时期,也是信息产业快速发展的关键时期。在我国加入WTO后的今天,培养一支适应国际化竞争的一流IT人才队伍是我国高等教育的重要任务之一。信息科学和技术方面人才的优劣与多寡,是我国面对国际竞争时成败的关键因素。

当前,正值我国高等教育特别是信息科学领域的教育调整、变革的重大时期,为使我国教育体制与国际化接轨,有条件的高等院校正在为某些信息学科和技术课程使用国外优秀教材和优秀原版教材,以使我国在计算机教学上尽快赶上国际先进水平。

电子工业出版社秉承多年来引进国外优秀图书的经验,翻译出版了“国外计算机科学教材系列”丛书,这套教材覆盖学科范围广、领域宽、层次多,既有本科专业课程教材,也有研究生课程教材,以适应不同院系、不同专业、不同层次的师生对教材的需求,广大师生可自由选择 and 自由组合使用。这些教材涉及的学科方向包括网络与通信、操作系统、计算机组织与结构、算法与数据结构、数据库与信息处理、编程语言、图形图像与多媒体、软件工程等。同时,我们也适当引进了一些优秀英文原版教材,本着翻译版本和英文原版并重的原则,对重点图书既提供英文原版又提供相应的翻译版本。

在图书选题上,我们大都选择国外著名出版公司出版的高校教材,如Pearson Education培生教育出版集团、麦格劳-希尔教育出版集团、麻省理工学院出版社、剑桥大学出版社等。撰写教材的许多作者都是蜚声世界的教授、学者,如道格拉斯·科默(Douglas E. Comer)、威廉·斯托林斯(William Stallings)、哈维·戴特尔(Harvey M. Deitel)、尤利斯·布莱克(Uyless Black)等。

为确保教材的选题质量和翻译质量,我们约请了清华大学、北京大学、北京航空航天大学、复旦大学、上海交通大学、南京大学、浙江大学、哈尔滨工业大学、华中科技大学、西安交通大学、国防科学技术大学、解放军理工大学等著名高校的教授和骨干教师参与了本系列教材的选题、翻译和审校工作。他们中既有讲授同类教材的骨干教师、博士,也有积累了几十年教学经验的老教授和博士生导师。

在该系列教材的选题、翻译和编辑加工过程中,为提高教材质量,我们做了大量细致的工作,包括对所选教材进行全面论证;选择编辑时力求达到专业对口;对排版、印制质量进行严格把关。对于英文教材中出现的错误,我们通过与作者联络和网上下载勘误表等方式,逐一进行了修订。

此外,我们还将与国外著名出版公司合作,提供一些教材的教学支持资料,希望能为授课老师提供帮助。今后,我们将继续加强与各高校教师的密切联系,为广大师生引进更多的国外优秀教材和参考书,为我国计算机科学教学体系与国际教学体系的接轨做出努力。

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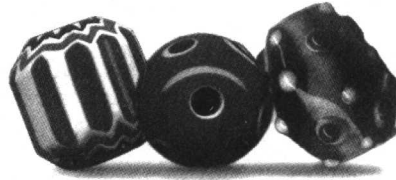
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For my wife, Julie, and our children, Rachel and Benjamin

INFORMATION SYSTEMS TECHNOLOGY

Ross A. Malaga



Understand, Use, and Build Information Systems

Ross Malaga organizes his book in three clear parts that highlight the intuitive progression to learning information systems technologies:

Part I: Understanding Information Systems Technology

Part II: Using Information Systems

Part III: Building and Managing Information Systems

THE BEAD BAR RUNNING CASE BEAD BAR CONSULTANT

Every chapter starts with a vignette that details the IT needs of a small (fictional) company called The Bead Bar. Throughout each chapter, students, acting as junior consultants, discover innovative ways to build The Bead Bar's IT system. By the end of the text, students will have created an entire information system for this small company!

FOCUS ON BOXES

FOCUS ON **INNOVATIONS**

FOCUS ON **CAREERS**

FOCUS ON **ETHICS AND LEGAL ISSUES**

These boxes pepper the entire text. Because these topics relate to many areas of information systems technology, Ross Malaga draws attention to technical innovations, ethical issues, and careers across chapters, highlighting each topic's importance to the field of IT and to students' lives.

CHECKLISTS

CHECKLIST

Students often wonder, "Why is this topic important to me?" Checklists appear throughout the text to answer that very question. They cover topics such as how to set secure passwords and how to avoid repetitive stress injuries.





PREFACE

Today we live in a digital world that relies on information technology for even the simplest tasks. Making a phone call, starting your car, and buying food all require the use of information technology.

What's more, the digital world is constantly evolving and changing in complexity. Consider that in just the past year the processing speed of the average desktop computer almost doubled and thousands of new software products have come on the market. In addition, new technologies, such as wireless networks, have gained widespread acceptance. By the time you read this book, processing speeds will have doubled again, new software applications will become available, and new technologies will be invented.

Although the digital world is complex and ever-changing, we can understand it. Understanding comes from learning about the basic information technologies (IT) that make up more complex information systems (IS). We can then learn how information systems are used, built, and managed. These three learning objectives—(1) understanding, (2) using, (3) building and managing—form the organization of this book's Parts:

- Part I, Understanding Information Systems Technology
- Part II, Using Information Systems
- Part III, Building and Managing Information Systems

UNDERSTANDING THIS BOOK'S APPROACH AND ORGANIZATION

Information Systems Technology provides an introduction to information systems and their underlying technologies. It is written primarily for business students who have had little or no formal introduction to information systems or the field of IT. All students today have had exposure to computers, and therefore information technologies and systems. However, in the classroom, there will inevitably be differing levels of exposure and expertise among the students. Most will have been only users of IT, without really knowing the building blocks of the technology that allows them to make calls on cell phones, use a PDA, and access the Internet.

The book aims to build on students' personal knowledge and use of technologies to give them a better understanding of how businesses use IT and IS. The book does this in two ways: through the organization of the text and through the business context that supports the facts in each chapter.

Organization of the Book

The book is organized to teach the underlying technologies first, providing a solid foundation of knowledge about information systems before discussing their use and management.

Part I, Understanding Information Systems Technology, provides an understanding of the main information technologies. This section includes Chapters 1 through 6, covering computer hardware, software, database management systems, networks, and the Internet.

Part II, Using Information Systems, shows how the individual technologies discussed in Part I come together to form information systems that businesses use. Specific systems examined include electronic business (Chapter 7), decision support systems (Chapter 8), and enterprise systems (Chapter 9).

Part III, Building and Managing Information Systems, concentrates on how businesses can manage the development and use of information systems to gain a competitive advantage and ensure the systems are secure. The chapters in this section are Managing Information Systems for Strategic Advantage (Chapter 10), Managing the Development and Purchase of Information Systems (Chapter 11), and Managing Security, Disaster Recovery, and Data Retention (Chapter 12).

The Table of Contents on page ix further identifies the learning objectives of each Part's chapters; each learning objective is a main chapter heading.

Business Context

The book is intended to stretch students' knowledge of their own personal uses of technology into an understanding of the business uses of technology and systems, providing relevance for the IT and non-IT major alike. It does this in two main ways: (1) its running case study, The Bead Bar, which reveals the cross functionality of information technologies, and (2) Focus on ... boxes, which highlight IT and IS issues in the business world.

Consulting for the Bead Bar—A Running Case Study

A running case study appears in each chapter of the book, in the chapter opener, the text itself, and in the chapter-ending materials. It places the student in the role of a junior information systems consultant to a fictional company known as The Bead Bar. (The Bead Bar is based on a real paint-your-own pottery and beading studio in New Canaan, Connecticut, called Art & Soul (<http://www.artzencrafts.com>), but Art & Soul is not tied to the book in any way or in any support material.) The Bead Bar sells bead jewelry to end consumers. It also has a franchise division and a division that sells bead shops and supplies to the cruise ship industry.

BEAD BAR CONSULTANT



Bead Bar vignettes start each chapter by detailing each Bead Bar manager's IT needs, showing the cross functionality of IT. Managers come from such departments as marketing, sales, finance, operations, and human resources.

MGT Meredith (President and Owner)

Managers and their corresponding departments are identified by icons throughout the Bead Bar vignettes.

BEAD BAR CONSULTANT Task 1.A



The vignette also contains a number of consultant tasks—problems students must try to solve for the Bead Bar after reading the chapter. The case is revisited in the chapter materials by support tasks, which help students answer the broader consultant tasks at the end of each chapter. Each subsequent chapter opener begins with assumed answers to the previous chapter because most of the tasks do not require a single “right answer.” By the end of the course, students will have built (on paper) a basic information system for a small company.

Professors can choose to assign this case as homework or as an end-of-term project. Alternatively, professors can choose not to assign the case at all; it does not intrude into the text's main content in any way.

Focus on Boxes

There are three kinds of Focus on ... boxes that help add business context to the chapter's main content.

FOCUS ON ETHICAL AND LEGAL ISSUES

Chapter 1 introduces the concept of ethics and discusses ethical issues specific to IT. Because legal and ethical issues pervade many aspects of IT and IS, Focus on Legal and Ethical Issues boxes appear throughout the book. Many legal and ethical issues, such as privacy and copyright protection, have implications for diverse areas of information systems. For example, the concept of copyright violations is important when discussing software piracy and peer-to-peer networking. So, these boxes appear where appropriate, rather than being squirreled away into one chapter.

FOCUS ON CAREERS

Most of the students who read this book are just beginning their study of business and information systems. They are still choosing their academic major and potential career. Each chapter contains at least one Focus on Careers box. Each box details an information systems career and discusses the education and experience required. The boxes also provide a salary range and a discussion of the roles and responsibilities of each career profiled. Chapter 1's Focus on Careers box profiles the IS industry as a whole and provides a table of all the careers profiled in the book, including their descriptions and salary ranges. Students might be interested to read about the positions of database designer (Chapter 4), Webmaster (Chapter 6), and chief information officer (Chapter 10), for example.

FOCUS ON INNOVATIONS

The information systems field changes rapidly. To give the reader an idea of current and future technologies, Focus on Innovations boxes appear throughout the book. These boxes detail an emerging information technology or new concept that may prove important in the next few years, such as Bluetooth, biometrics, and recommender systems.

USING THIS BOOK

In addition to the key features above, the following pedagogy appears in each chapter:

Chapter Features

- Concise learning goals, numbered to match the chapter's main headings and summary points, provide structure and direction for the student.
- Two quotes relevant to the chapter's topic pique students' interest.
- Checklists boxes help students apply the material directly to their lives and everyday computing practices. They cover such topics as how to sit properly at a computer so as to avoid repetitive stress injuries and how to set secure passwords.
- Key terms highlighted in bold throughout the chapter and defined in the text help students easily locate and understand the concepts.
- Many figures and tables visually demonstrate and summarize IT concepts.
- Screen captures show students IT at work in the real world.
- An abundance of examples, some culled from the author's consulting experience, show IT at work in companies and organizations big and small.

End-of-Chapter Features

After a wrap-up of the *Bead Bar* case, the following material appears at the end of each chapter:

- A chapter summary keyed to learning goals and the chapter's main headings provides a roadmap to reviewing the chapter.
- A list of key terms with page number references reminds students of important terms and concepts.
- Multiple choice questions test whether students have read and understood the main concepts in the chapter.
- Discussion questions test whether students understand the major IT issues in the chapter.
- Internet exercises allow students to apply their new IT knowledge in the real world.
- Group projects foster teamwork—a skill often needed in the field of IT.
- A case study and case study questions provide an in-depth look at a real company's IT problems and solutions.

BUILDING AND MANAGING YOUR COURSE

An array of support material is available with this book to help both students and professors build and manage the course.

Supplementary Materials

Instructor's Resource CD-ROM

This convenient Instructor's CD-ROM includes all of the instructor supplements for this text: Instructor's Manual, Test Item File, TestGen (computerized test management system), PowerPoint Lecture Notes, and Image Library (text art).

The Instructor's Manual, includes answers to all end-of-chapter material: Multiple Choice Questions, Discussion Questions, Internet Exercises, Group Projects, and Case Study Questions. The Instructor's Manual also features a complete guide to using the *Bead Bar Consultant Case*.

The Test Item File, written by Margaret Trenholm-Edmunds of Mount Allison University, Sackville, New Brunswick, Canada, includes multiple choice, true/false, and essay questions for each chapter. The Test Item File is provided in Microsoft Word, as well as in the form of TestGen on the IR CD-ROM.

The PowerPoint Lecture Notes are oriented toward text learning goals and include key figures and tables from the text. The complete set of figures and tables from the text is provided in the Image Library and can be used to customize the PowerPoint slides.

MyCompanion Web Site www.prenhall.com/malaga

This text is supported by a MyCompanion Web site that includes the following Instructor and Student Resources.

For the Instructor:

- A password-protected faculty area. Here instructors can download the Instructor's Manual, Test Item File, and Image Library (text art).

For the Student:

- PowerPoint Slides
- Interactive Study Guide by Margaret Trenholm-Edmunds of Mount Allison University, Sackville, New Brunswick, Canada. The guide includes multiple choice, true/false, and essay questions for each chapter. Each question includes a hint and coaching tip for students' reference. Students receive automatic feedback after submitting each quiz.

- All of the Internet Exercises from the end of each chapter in the text. These are provided on the Web site for convenient student use.
- Bead Bar Consultant Tasks from the text. Students can complete their task results and e-mail them directly to their professors.
- Updated text URLs.
- Glossary

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