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Computers and high-speed communication networks are transforming our world. These technologies have brought us many benefits, but they have also raised many social and ethical concerns. My view is that we ought to approach every new technology in a thoughtful manner, considering not just its short-term benefits, but also how its long term use will affect our lives. A thoughtful response to information technology requires a basic understanding of its history, an awareness of current information-technology-related issues, and a familiarity with ethics. I have written *Ethics for the Information Age* with these ends in mind.

*Ethics for the Information Age* is suitable for college students at all levels. The only prerequisite is some experience using computers. The book is appropriate for a stand-alone “computers and society” or “computer ethics” course offered by a computer science, business, or philosophy department. It can also be used as a supplemental textbook in a technical course that devotes some time to social and ethical issues related to computing.

As students discuss controversial issues related to information technology, they have the opportunity to learn from each other and improve their critical thinking skills. The provocative questions raised at the end of every chapter, together with dozens of in-class exercises, provide many opportunities for students to express their viewpoints. My hope is that they will get better at evaluating complex issues and defending their conclusions with facts, sound values, and rational arguments.

**WHAT’S NEW IN THE FOURTH EDITION**

Rapid changes in the field of information technology make the study of ethics in this area exciting and challenging. Nearly every day the media report on a new invention, controversy, or court ruling. *Ethics for the Information Age* has been updated to include many important developments; among them are:

- Cyberbullying and the controversy surrounding attempts to make it a criminal offense;
- Sexting by minors and the response of a legal system that is focused on eliminating child pornography;
- The debate surrounding Google’s plan to scan millions of public domain and copyrighted books and create a searchable index of their contents;
• The decision by all major music labels to drop digital rights management from songs sold through online music stores;
• The popularity of The Pirate Bay Web site for distributing copyrighted movies, television shows, and music;
• Passage of new legislation to prevent discrimination in the areas of medical benefits and employment;
• Facebook’s ill-fated Beacon feature, which broadcast information about the online activities of Facebook users;
• The emergence of new, seemingly impossible-to-eradicate computer worms; and
• The impact of the economic recession on the demand for H-1B visas.

I have made a number of changes in response to requests from the reviewers, including 21 new illustrations and new interviews after chapters 1 and 3. Throughout the book, references to the latest news stories and analyses provide up-to-date facts and figures.

ORGANIZATION OF THE BOOK
The book is divided into nine chapters. Chapter 1 has three objectives: to get the reader thinking about the process of technological change; to present a brief history of computing, networking, and information storage and retrieval; and to provide examples of moral problems brought about by the introduction of information technology.

Chapter 2 is an introduction to ethics. It presents eight different theories of ethical decision-making, weighing the pros and cons of each one. Four of these theories—Kantianism, act utilitarianism, rule utilitarianism, and social contract theory—are deemed the most appropriate “tools” for analyzing moral problems in the remaining chapters.

Chapters 3–9 discuss a wide variety of issues related to the introduction of information technology into society. I think of these chapters as forming concentric rings around a particular computer user.

Chapter 3 is the innermost ring, dealing with what can happen when people communicate over the Internet using the Web, email, and chat rooms. Issues such as the increase in spam, easy access to pornography, cyberbullying, and Internet addiction raise important questions related to quality of life, free speech, and censorship.

The next ring, Chapter 4, deals with the creation and exchange of intellectual property. It discusses intellectual property rights, legal safeguards for intellectual property, the definition of fair use, digital rights management, abuses of peer-to-peer networks, the rise of the open-source movement, and the legitimacy of intellectual property protection for software.

Chapter 5 focuses on privacy. What is privacy exactly? Is there a natural right to privacy? How do others learn so much about us? The chapter describes the electronic trail that people leave behind when they use cell phones, make credit card purchases, open bank accounts, or apply for loans. Other topics in this chapter include the differ-
ence between public information and public records, covert governmental surveillance, the USA PATRIOT Act, data mining, identity theft, encryption, and attempts to create anonymous digital cash.

Chapter 6 focuses on the vulnerabilities of networked computers. Students will learn the difference between a virus, a worm, and a Trojan horse. The chapter chronicles the transformation of hacker culture, the emergence of phone phreaks, and the hacker crackdown of 1990. The chapter also discusses denial-of-service attacks, the reliability of proposed online voting systems, and the important role system administrators play in keeping computers and networks secure.

Computerized system failures have led to lost business, the destruction of property, human suffering, and even death. Chapter 7 describes some notable software system failures, including the story of the Therac-25 radiation therapy system. It also discusses the reliability of computer simulations, the emergence of software engineering as a distinct discipline, and the validity of software warranties.

Chapter 8 is particularly relevant for those readers who plan to take jobs in the computer industry. The chapter presents a professional code related to computing, the Software Engineering Code of Ethics and Professional Practice, followed by an analysis of the code and an introduction to virtue ethics. Several case studies illustrate how to use virtue ethics in conjunction with the Software Engineering Code of Ethics and Professional Practice to evaluate moral problems related to the use of computers. The chapter concludes with an ethical evaluation of whistle blowing, an extreme example of organizational dissent.

Chapter 9 raises a wide variety of issues related to how information technology has impacted work and wealth. Topics include workplace monitoring, telecommuting, and globalization. Does automation increase unemployment? Is there a “digital divide” separating society into “haves” and “have nots?” Is information technology widening the gap between rich and poor? These are just a few of the important questions the chapter addresses.

NOTE TO INSTRUCTORS
In December 2001 a joint task force of the IEEE Computer Society and the Association for Computing Machinery released the final draft of Computing Curricula 2001 (www.computer.org/education/cc2001/final). The report recommends that every undergraduate computer science degree program incorporate 40 hours of instruction related to social and professional issues related to computing. For those departments that choose to dedicate an entire course to these issues, the report provides a model syllabus for CS 280T, Social and Professional Issues. Ethics for the Information Age covers all of the major topics listed in the syllabus. Table 1 shows the mapping between the 10 units of CS 280T and the chapters of this book.

The organization of the book makes it easy to adapt to your particular needs. If your syllabus does not include the history of information technology, you can easily skip the middle three sections of Chapter 1 and still expose your students to examples motivating
Table 1: Mapping between the units of the Social and Professional Issues course in Computing Curricula 2001 and the chapters in this book.

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the formal study of ethics in Chapter 2. After Chapter 2, you may cover the remaining chapters in any order you choose, because Chapters 3–9 do not depend on each other.

Many departments choose to incorporate discussions of social and ethical issues throughout the undergraduate curriculum. The independence of Chapters 3–9 makes it convenient to use *Ethics for the Information Age* as a supplementary textbook. You can simply assign readings from the chapters most closely related to the course topic.

SUPPLEMENTS

The following supplements are available to qualified instructors on Pearson’s Instructor Resource Center. Please contact your local Pearson sales representative, or visit www.pearsonhighered.com/educator to access this material.

- An instructor’s manual provides tips for teaching a course in computer ethics. It also contains answers to all of the review questions.
- A test bank contains more than 300 multiple-choice, fill-in-the-blank, and essay questions that you can use for quizzes, midterms, and final examinations.
- A set of PowerPoint lecture slides outlines the material covered in every chapter.

FEEDBACK

*Ethics for the Information Age* cites hundreds of sources and includes dozens of ethical analyses. Despite the best efforts of myself and many others, the book is bound to contain errors. I appreciate getting comments (both positive and negative), corrections, and suggestions from readers. Please send them to quinnm@seattleu.edu or Michael J. Quinn, Seattle University, College of Science and Engineering, 901 12th Avenue, Seattle, WA 98122.
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Michael J. Quinn
Seattle, Washington
We never know how high we are
Till we are called to rise;
And then, if we are true to plan,
Our statures touch the skies.
The heroism we recite
Would be a daily thing,
Did not ourselves the cubits warp
For fear to be a king.

—Emily Dickinson, *Aspiration*

I dedicate this book to my children: Shauna, Brandon, and Courtney.

Know that my love goes with you, wherever your aspirations may lead you.