MIS Essentials

FOURTH EDITION

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ALWAYS LEARNING

PEARSON

Dear Student,

You are about to embark on the study of one of the most important subjects in your college career. In fact, Chapter 1 argues that it is the most important course you will take. Why? Because in modern business, knowledge of information systems is key to obtaining and succeeding in interesting and rewarding professional jobs.

Like all college students, you have many claims on your time: friends, family, sports, hobbies, love life, whatever, but you owe it to your future to seriously consider how you want to spend the bulk of your waking hours for the next 30 to 40 years. You want a job that you find so satisfying that you can hardly wait to get to work in the morning. Believe it or not, there are such jobs, and there is one for you. But that kind of job won't be handed to you at graduation. You have to prepare for it, find it, and obtain it in an intensely competitive job market; then you have to know enough to be able to thrive in that job.

This course is key to that endeavor because information systems are the major influence on the modern economy, and that influence has not been beneficial for everyone. Bank lobbies were once filled with bookkeepers, accountants, and accounting managers. Those jobs disappeared with computer systems. Half-asleep, mediocre business school graduates once managed rooms full of typists and clerical workers. Those jobs disappeared as attorneys, auditors, and business professionals began conducting their own correspondence using email, text, and videoconferencing.

The trick to turning information systems to your advantage is getting ahead of their effect. During your career, you will find many opportunities for the innovative application of information systems in business and government, but only if you know how to look for them. Once found, those opportunities become your opportunities when you—as a skilled, non-routine problem solver—apply emerging technology to facilitate your organization's strategy. This is true whether your job is in marketing, operations, sales, accounting, finance, entrepreneurship, or another discipline.

Congratulations on your decisions so far. Congratulations on deciding to go to college, and congratulations on deciding to study business. Now, double down on those good decisions and use this course to help you obtain and then thrive in an interesting and rewarding career. Start in Chapter 1 by learning how Jennifer lost her job and what you can do to ensure that you are never in her shoes! After that, learn more than just the MIS terminology; understand the ways information systems are transforming business and the many, many ways you can participate in that transformation.

In this endeavor, I wish you, a future business professional, the very best success!

David Kroenke

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Steve Jobs, Second Verse

In 1996, Apple bought Jobs' NeXT Computing and gained technology that became the foundation of Mac OS X, today's Macintosh operating system. The true asset it acquired, however, was Steve Jobs. Even he, however, couldn't create an overnight miracle. It is exceedingly difficult to regain lost market share and even more difficult to regain the respect of the retail channel that had come to view Apple's products with disdain. Even by 2011, Apple's PC market share was in the range of 10 to 12 percent, down from a high of 20 percent in the 1980s.

In response to these problems, Apple broke away from the PC and created new markets with its iPod, iPhone, and iPad. It also countered retailer problems by opening its own stores. In the process, it pioneered the sale of music and applications over the Internet.

iPod, iPhone, and iPad devices are a marvel of creativity and engineering. They exude not only ease of use, but also now/wow/fun coolness. By selling hot music for the iPod, Apple established a connection with a dynamic segment of the market that was willing to spend lots of money on bright, shiny objects. The ability to turn the iPhone on its side to rotate images probably sold more iPhones than anything else. With the iPad, portable devices became readable, and the market responded by awarding Apple a 44 percent (and growing) share of the mobile market.[9]

All of this success propelled Apple's stores not only beyond vanilla retailers like Best Buy, but also beyond the lofty heights of Tiffany & Co. In 2011, Apple stores were grossing more than $4,000 per square foot, compared to $3,000 for Tiffany and a mere $880 for Best Buy. As of 2012, Apple operates more than 350 such retail outlets and has welcomed more than 1 billion customer visits.[10]

Apple encourages customer visits and loyalty with its open and inviting sales floor, its Genius Bar help desk, and its incredibly well-trained and disciplined sales force. Salespeople, who are not commissioned, are taught to be consultants who help customers solve problems. Even some vocabulary is standardized. When an employee cannot solve a customer's problem, the word *unfortunately* is to be avoided; employees are taught to use the phrase *as it turns out,* instead.[11] Try that on your next exam!

By mid-2011, Apple had sold 15 billion songs through its iTunes online store, 130 million books through its iBookstore, and a mere 14 billion applications through its App Store, the latter in less than 3 years. Apple is now the number one PC software channel and the only place a customer can buy the Mac OS X Lion, which sells for $30 instead of the $130 for the earlier OS X that sold through the software channel.[12]

To encourage the development of iPhone and iPad apps, Apple shares its revenue with application developers. That would be $2.5 billion paid to developers in less than 3 years! Developers responded by creating 445,000 iOS applications, and an army of developers are at work building thousands more while you read this.

By the way, if you want to build an iOS application, what's the first thing you need to do? Buy a Macintosh. Apple closed its development to any other development method. Adobe Flash? No way. Apple claims that Flash has too many bugs, and perhaps so. Thus, Flash developers are excluded. Microsoft Silverlight? Nope. Microsoft developers are out in the cold, too. The non-Apple development community was furious, and Apple's response was, in essence, "Fine, we'll pay our $2.5 billion to someone else."

The bottom line? Until Jobs' death, every sales success fed every other sales success. Hot music fed the iPod. The iPod fed iTunes and created a growing customer base that was ripe for the iPhone. Sales of the iPhone fed the stores, the success of which fed the developer community, which fed more applications, which fed the iPhone and set the stage for the iPad, which fed the App Store, which enabled the $30 price on the OS X Lion, which led to more loyal customers, and, of course, to more developers. No wonder Steve Ballmer decided to resign as CEO over at Microsoft!

Apple without Steve Jobs

It's hard to see a happy future for Apple. It floundered when Jobs was fired in the 1990s and it most likely will flounder again. Sure, it'll be around a long time, but the days of its incredible innovative leadership are most likely, alas, over.

QUESTIONS

4-4. Discuss the reasons for the rise and fall of the brand Apple in early 1980s.

4-5. Discuss the various revival strategies adopted by Apple in 1996. Also discuss the role of Steve Jobs in changing the fortune of the brand.

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[9]Apple presentation at the Apple Worldwide Developers Conference, June 6, 2011.

[10]Carl Howe, "Apple Reboots Retail with Connected Experiences," *Yankee Group*, last modified March 23, 2011, *http://www.yankeegroup.com/ResearchDocument.do?id=56472*.

[11]Yukari Iwatani Kane and Ian Sherr, "Secrets from Apple's Genius Bar: Full Loyalty, No Negativity," *Wall Street Journal,* last modified June 15, 2011, *http://online.wsj.com/article/SB10001424052702304563104576364071955678908.html*.

[12]Apple presentation at the Apple Worldwide Developers Conference, June 6, 2011.

4-6. Steve Jobs passed away in October 2011. Until his death, he had been the heart and soul of Apple's innovation. Today, 35,000 Apple employees continue onward in his absence. A huge question for many investors is whether the company can be successful without him. What role did he play? How can Apple respond to his loss? Would you be willing to invest in Apple without his leadership? Why or why not?

4-7. Of late, there has been a phenomenal growth in sales of Android phones, and Samsung has emerged as the main competitor of Apple in mobile handsets. Both companies are providing various apps to attract customers. Visit the Samsung and Apple Web sites to analyze the kinds of apps and technical support provided by the respective companies. Give suggestions to make the Apple Web site more interactive.

4-8. Visit an Apple store in your vicinity to experience the sales in that retail outlet. Based on your sales experience, discuss how Apple is encouraging the development of apps for the iPhone and the iPad.

MyMISLab

Go to **mymislab.com** for the following Assisted-graded writing questions:

4-9. Suppose you work at AllRoad and Kelly asks you to list five criteria she should use when considering whether AllRoad should develop a thin- or thick-client application for mobile devices. Justify your criteria.

4-10. Visit *www.apple.com*, *www.microsoft.com*, and *www.ibm.com*. Summarize differences in the look and feel of each of these sites. Do you think one of these sites is superior to the others? If not, say why. If so, do you think the look and feel of the superior site should be copied by the other companies? Why or why not?

4-11. Mymislab Only – comprehensive writing assignment for this chapter.

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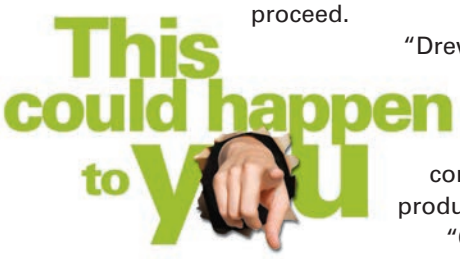
chapter 5

Database Processing

After their last meeting, Jason Green, CEO, asked Kelly Summers and her team to investigate the possibility of selling 3D-ready part plans as a product. Kelly gave Drew Mills and Addison Lee the task of identifying parts that might be good candidates for selling this way. Drew and Addison know that the data in AllRoad Parts' past orders will help them, but they're not sure how. They're meeting to discuss how to proceed.



"Drew, let's start by figuring out the criteria for a candidate part."

"That makes sense. Expensive, maybe?"

"No, I don't think so. Expensive parts are complicated and would be hard for customers to produce."

"OK," Drew agrees. "How about our most popular parts?"

"Yeah, that could be a good place to start. But how do we define 'popular': Popular because the part is ordered a lot? Or popular because we sell large quantities of it?" Addison asks.

"I think because it's ordered a lot. If customers buy a lot of a part at one time, they need a lot of it. And 3D printing will be too slow. For parts that people want all the time in small quantities, 3D printing could work."

Addison and Drew continue working in this way until they have a list of seven key criteria.

"OK, Drew, we have our criteria, but are there parts that actually meet them?" Addison asks. "And if so, how often are they ordered and by which customers?"

"Well, the answer's in our sales database," Drew replies.

"Yeah, you're right. Let's go see Lucas."

Addison and Drew walk down the hall to Lucas's office.

"Oh, oh. This looks like trouble! The two of you at once, I mean." Lucas is only partly kidding.

"Oh, come on, Lucas, you can handle us just fine," Drew responds as he sits down. "Besides, from the appearance

STUDY QUESTIONS

- **Q1** WHAT IS THE PURPOSE OF A DATABASE?
- **Q2** WHAT IS A DATABASE?
- **Q3** WHAT IS A DATABASE MANAGEMENT SYSTEM (DBMS)?
- **Q4** HOW DO DATABASE APPLICATIONS MAKE DATABASES MORE USEFUL?
- **Q5** WHAT IS A NoSQL DBMS?

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Visit **mymislab.com** for simulations, tutorials, and end-of-chapter problems.

How does the knowledge in this chapter help you?

of that Jeep top, it looks like you've already had trouble." Drew points at the Jeep top in the corner.

"Hey, on a day like this, you think I want to drive around under a hood?"

"OK, here's the deal," Addison interrupts; she doesn't have patience for this small talk. "We're trying to find candidate parts to sell as 3D-ready plans."

"For example," Drew jumps in, "we want to find parts that are frequently ordered, in small quantities, and that meet several other conditions…"

"That's seems sensible. Where do I come in?" asks Lucas.

"We need data. We don't know if there are such parts or how many of them there might be or who orders them." Addison is pleased to finally get to the point.

"Hmm," Lucas pauses. "I've got a few consulting dollars available, maybe I can find someone who could create some queries for you. It would take a couple of weeks."

"No!" Addison's strong tone surprises herself. "I mean, that's too long."

"Well, I can't do it much faster," Lucas says.

"Just give us an extract of our orders over the past three years. We'll write our own queries," Addison replies.

"But, Addison, we don't know anything about…" Drew starts to object, but Addison overrides him.

"No, Drew, *you* don't know anything about creating queries," she says. Then she turns to Lucas. "Can you put the data into Access?"

"Sure. I can do that by Monday," Lucas replies.

"All right," says Addison. "What time on Monday?"

"Noon?"

"OK," she says.

After the meeting, Addison and Drew are talking quietly on their way back to Drew's office.

"Addison, what are you doing? We don't know anything about creating queries…," Drew whispers.

"No, Drew, *you* don't know anything about creating queries. This isn't hard. If he gives us the data, I can munge around in Access to make the report. It's just for us; we're not gonna post it on the Web site."

"Seems hard to me, but I'll go along," Drew says. "I hope that's not a mistake."

"It won't be. Just watch."

Q1 WHAT IS THE PURPOSE OF A DATABASE?

The purpose of a database is to help people keep track of things. When most students learn that, they wonder why we need a special technology for such a simple task. Why not just use a list? If the list is long, put it into a spreadsheet.

In fact, many professionals do keep track of things using spreadsheets. If the structure of the list is simple enough, there is no need to use database technology. The list of student grades in Figure 5-1, for example, works perfectly well in a spreadsheet.

Suppose, however, that the professor wants to track more than just grades. Say that the professor wants to record email messages as well. Or perhaps the professor wants to record both email messages and office visits. There is no place in Figure 5-1 to record that additional data. Of course, the professor could set up a separate spreadsheet for email messages and another one for office visits, but that awkward solution would be difficult to use because it does not provide all of the data in one place.

Instead, the professor wants a form like that in Figure 5-2. With it, the professor can record student grades, emails, and office visits all in one place. A form like the one in Figure 5-2 is difficult, if not impossible, to produce from a spreadsheet. Such a form is easily produced, however, from a database.

The key distinction between Figures 5-1 and 5-2 is that the data in Figure 5-1 is about a single theme or concept. It is about student grades only. The data in Figure 5-2 has multiple themes; it shows student grades, student emails, and student office visits. We can make a general rule from these examples: Lists of data involving a single theme can be stored in a spreadsheet; lists that involve data with multiple themes require a database.

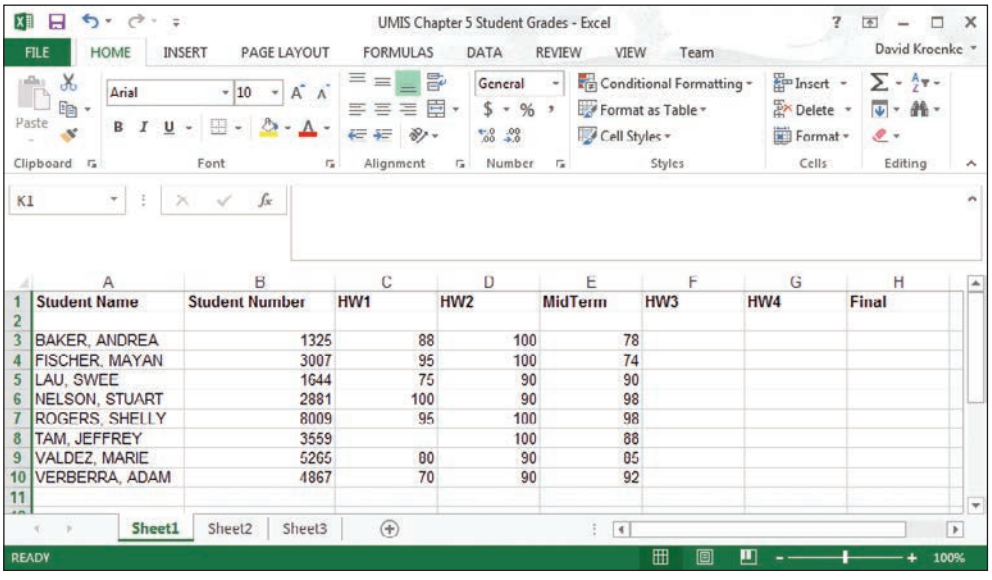

Figure 5-1
A List of Student Grades Presented in a Spreadsheet

Source: Microsoft Excel 2013