Solutions for Business Driven Technology 9th Edition by Baltzan

ninth edition

Business Driven Technology

Mc Graw Hill

Paige Baltzan

Solutions

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Business Driven

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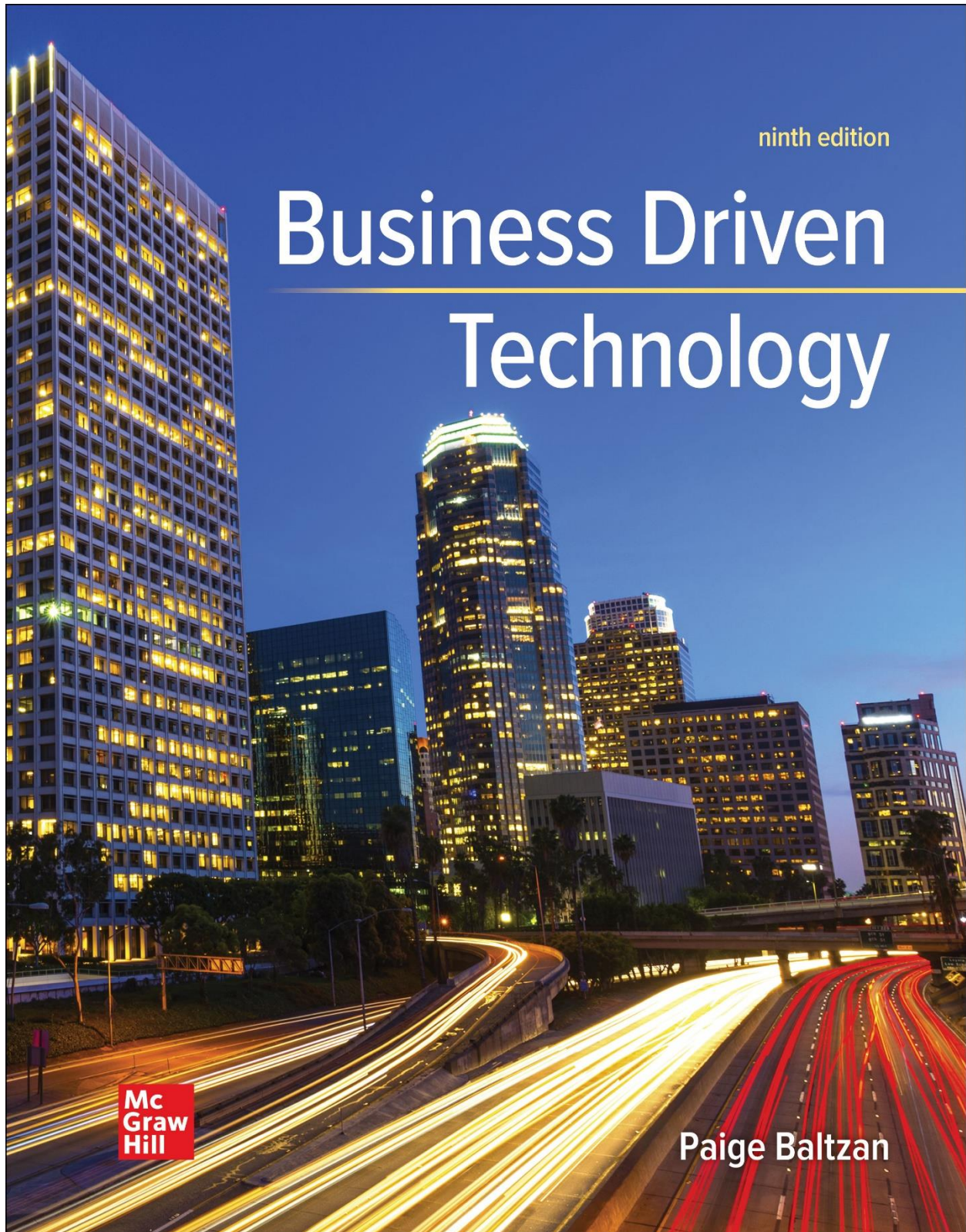
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BUSINESS DRIVEN TECHNOLOGY 9E
INSTRUCTOR'S MANUAL

This guide provides a number of classroom activities, videos, and debates to accompany Business Driven Technology. A few course suggestions:

- Create one or two test questions based on the classroom activity to help reward students who attend lectures.
- Many professors have found that assigning an activity and then lecturing on the material helps students gain a deeper understanding of the core MIS concepts as they have already struggled with applying the material to a real-world situation.
- Asking a small group of students to explain their answer to the activity to the entire class after completion ensures students come to class prepared. I select a different group each activity to explain their answer and they do not want to look unprepared in front of their fellow classmates. It is a powerful motivator to get my students reading prior to class. After the activity and student's presentations then I lecture – keeps my students engaged and helps to achieve a higher level of learning outcomes as they are constantly tasked with applying the concepts during class.
- Create an Ask the Professor Discussion board that runs the entire course where students can ask course and content related questions. I typically promise to respond within 24 hours and I always encourage my students to check the discussion board before sending an email. Many times if one student has a question so do other students.
- **Three Before Me Rule! This is something I have found that saves a great deal of time answering email. I state the Three Before Me rule in my syllabus. Before a student comes to me with a question, they must provide three sources they used to answer the question themselves. This significantly cuts down on emails as many times students can find the answer to their questions, but it seems easier just to email the professor. Sources can include the syllabus, the Ask The Professor Q&A Discussion Board, classmates, the textbook, etc. If I ask the student for the three sources and they do not have them I dock participation points. Works great on significantly cutting down my emails and helps to prepare my students for the real world!
- The core chapter material is covered in detail in the PowerPoint slides. Each slide contains detailed teaching notes including exercises, class activities, questions, and examples. Please review the PowerPoint slides for detailed notes on how to teach and enhance the core chapter material.

Enjoy your course and best of luck!
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BUSINESS DRIVEN TECHNOLOGY 9E
INSTRUCTOR'S MANUAL
UNIT ONE OVERVIEW

Information is everywhere. Information is a strategic asset. Without information, an organization simply could not operate. This Unit introduces students to several core business strategies that focus on using information to gain a competitive advantage, including:

- Competitive advantages
- Porter's Five Forces Model
- Porter's three generic strategies
- Value chain
- Supply chain management
- Customer relationship management
- Business process reengineering
- Enterprise resource planning
- IT efficiency metrics
- IT effectiveness metrics
- Organizational structures
- Ethics
- Security

Many of these concepts and strategies will be new to your students. Be sure to explain to your students that this Unit offers an introduction to these concepts and they will gain a solid understanding of the details of these concepts as they continue reading the text. For example, customer relationship management is introduced in Unit One and discussed in detail in several additional chapters and in the business plug-ins. The chapters in Unit One include:

- **Chapter One** – Business Driven Technology
- **Chapter Two** – Identifying Competitive Advantages
- **Chapter Three** – Strategic Initiatives for Implementing Competitive Advantages
- **Chapter Four** – Measuring the Success of Strategic Initiatives
- **Chapter Five** – Organizational Structures That Support Strategic Initiatives

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> **BUSINESS DRIVEN TECHNOLOGY 9E**
> **INSTRUCTOR'S MANUAL**
> **CHAPTER 1**

This chapter introduces students to several core business strategies that focus on using information to gain a competitive advantage, including:

- Core Drivers of the Information Age
- Data, Information, Business Intelligence, Knowledge
- Big Data
- Systems Thinking
- Competitive Advantages
- Porter's Five Forces model
- Porter's Three Generic Strategies
- Value Chain Analysis

Many of these concepts and strategies will be new to your students. Be sure to explain to your students that this chapter offers an introduction to these concepts and they will gain a solid understanding of the details of these concepts as they continue reading the text.

LEARNING OUTCOMES

1.1: Describe the information age and the differences between data, information, business intelligence, and knowledge.
We live in the information age, when infinite quantities of facts are widely available to anyone who can use a computer. The core drivers of the information age include data, information, business intelligence, and knowledge. Data are raw facts that describe the characteristics of an event or object. Information is data converted into a meaningful and useful context. Business intelligence (BI) is information collected from multiple sources such as suppliers, customers, competitors, partners, and industries that analyzes patterns, trends, and relationships for strategic decision making. Knowledge includes the skills, experience, and expertise, coupled with information and intelligence that creates a person's intellectual resources. As you move from data to knowledge you include more and more variables for analysis resulting in better, more precise support for decision making and problem solving.

1.2: Explain systems thinking and how management information systems enable business communications.
A system is a collection of parts that link to achieve a common purpose. Systems thinking is a way of monitoring the entire system by viewing multiple inputs being processed or transformed to produce outputs while continuously gathering feedback on each part. Feedback is information that returns to its original transmitter (input, transform, or output) and modifies

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the transmitter's actions. Feedback helps the system maintain stability. Management information systems (MIS) is a business function, like accounting and human resources, which moves information about people, products, and processes across the company to facilitate decision making and problem solving.

MIS incorporates systems thinking to help companies operate cross-functionally. For example, to fulfill product orders, an MIS for sales moves a single customer order across all functional areas including sales, order fulfillment, shipping, billing, and finally customer service. Although different functional areas handle different parts of the sale, thanks to MIS, to the customer the sale is one continuous process.

CORE MATERIAL

The core chapter material is covered in detail in the PowerPoint slides. Each slide contains detailed teaching notes including exercises, class activities, questions, and examples. Please review the PowerPoint slides for detailed notes on how to teach and enhance the core chapter material. You will find numerous classroom ideas to keep your course exciting and challenge your students to apply the material.

OPENING CASE STUDY QUESTIONS

1. **You have landed your dream job working for Steve Evert. Unfortunately, Steve does not understand the difference between data, information, business intelligence, and knowledge. Choose a product or service and provide examples of data, information, business intelligence, and knowledge to help Steve understand these important concepts.** Student data will include gender, weight, height, major, age. Turning that data into information can provide insights into the entire group of students. Such things as top majors, average GPA, graduation rates, grades across class, grades by different teachers, male to female ratio. Business intelligence would include outside information such as internship types, average starting salary, and graduate school choices, course grades across different schools, economy and enrollment. Knowledge would include knowing that a professor is new and expecting course evaluations to be lower than average or that seniors wait until their last quarter to take the course because it is difficult or that 8 am classes typically receive higher grades than 4 pm classes.

2. **Steve does not understand why different departments across the company need to share data. Explain to Steve why it is important to share data across the accounting, marketing, sales, and operations management departments.** Businesses operate cross-functionally. Accounting must have data from every department to function and marketing needs to know what operations is doing to create great marketing campaigns. For example, if operations create a new generic product such as milk then marketing will want to advertise the benefits of purchasing the product direct from the store to increase sales. If one store is selling more of a particular item, they would want to understand the different market segments for each store to ensure they have the right

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marketing campaigns for each area. A store would not want to sell ice cream in Alaska and hot chocolate in Hawaii.

3. **Steve does not understand systems thinking or how the MIS department enables business success. Explain systems thinking and how MIS solves the issue with information silos.**
Systems thinking is a way of monitoring the entire system by viewing multiple inputs being processed or transformed to produce outputs while continuously gathering feedback on each part. Feedback is information that returns to its original transmitter (input, transform, or output) and modifies the transmitter's actions. Feedback helps the system maintain stability. For example, a store continuously monitors the expiration dates on its frozen and fresh foods and a warning light will go on if all of the milk is about to expire notifying marketing to create a campaign to help reduce the price of milk to ensure it all sells before it expires. Systems thinking provides an end-to-end view of how operations work together to create a product or service. Business students who understand systems thinking are valuable resources because they can implement solutions that consider the entire process, not just a single component.

CHAPTER ONE CASE

1. **Why do you believe data can be inaccurate?**
There are numerous reasons why data is inaccurate. In fact, it is estimated that over 80 percent of spreadsheets have errors. Error upon entering data is a key issue and here are a few problems:
   - **Errors in Inputting Data:** Amongst the most typical data entry problems is inputting the incorrect data. An unintentional mistype can lead to short or even long-term troubles. It may also result in incorrect records, wrong information, and disorganization. It is specifically prevalent in cases of human data entry processes. Sadly, even the top-notch data entry specialists tend to make mistakes that can cost heavily to a business. Addition or subtraction of a number or putting in the decimal point at a wrong place is a small error that may cost your company a great deal of money.
   - **Incorrect Data Formatting:** Even the most-advanced data entry software applications can create issues for a business. Inaccurate formatting is a typical concern, which can lead to correct data getting inputted in the wrong columns. Just imagine the date 2/5/2025. Depending on the country you are in that could be February 2 or January 5.
   - **Human Errors:** Like data inputting concerns that are elaborated above, there exist a lot of issues that revolved around basic human errors. Issues concerning your employees like tiredness, the pace at which data is entered, emotional aspects, time management, and diversions can adversely impact the way in which the data is being entered. Likewise, people can misjudge data as they may preview one aspect of information in the wrong way as their brain interprets it.

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- **Misspelling of names or other important information "**Cheryl Steffan" instead of "Cheryl Steffen"
- **Wrong date format while entering data in Excel**
- **Data misinterpretation:** Replacing the letter "O" with the number zero
- **Missing values**
- **Entering data in the wrong field**

2. **What can a business do to ensure data is correct?** What can be done to reduce these errors?
   - **Stringent quality checks** – Double-checking the data entered helps in reducing errors and eliminates the need for re-entering the data. Regular checks will also help identify areas of improvement.
   - **Train employees** – Make sure to train them on the importance of the data they are handling and let them know the consequences of compromising any data. Ask them to focus more on accuracy than on speed.
   - **Provide enough time and allow breaks** – Even if your operators have good data entry skills and expertise, there are always chances of mistakes when they are loaded with a bunch of tasks. Provide a comfortable working environment and offer them regular breaks to refresh and reset before they return to work.
   - **Update automated systems** – If your firm relies on automated tools such as Intelligent Character Recognition (ICR) and Optical Character Recognition (OCR) technology for data collection or analysis, make sure to update those systems regularly. Also, protect automated systems against viruses and malware or it may result in errors.
   - **Find the source of data inaccuracy –** Check the data entry errors that occurred, statistics, and patterns to determine the primary internal and external sources of data inaccuracy. This helps to make necessary changes to both the processes as well as management techniques.
   - **Consider outsourcing** – Outsourcing data entry and management tasks to an experienced data entry company will help businesses get the accurate data they are looking for, along with reduced operational costs, effective data management and secured processing.

3. **Explain how bad data will impact information, business intelligence, and knowledge.**
   If you are making decisions on bad data changes are good that you will make a bad decision. Garbage In is Garbage Out is a classic statement in the MIS field. If the data being entered is incorrect then it will be incorrect as it is turned into information, business intelligence, and knowledge. Managers are only as good as the data they must make decisions. Wrong data, wrong decision.

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4. **Have you ever made a decision on bad data? If so, be sure to share it with your peers and explain how you could have verified the data quality.**
    This is a great group activity as many students have personal examples. These examples will help students immediately see the value in this course as they learn how to navigate the data minefields laid all over organizations today.

5. **Argue for or against the following statement: "It is better to make a business decision with bad data than with no data"**
    This question works perfect for an online discussion board debate. Student answers to this question will vary. Bad data can be much worse than no data at all. While the lack of data on a given subject can be troubling, it doesn't carry with it the potential pitfalls that can accompany the accumulation of bad data.
    - Bad Data Means Bad Decisions
    - Bad Data Means Ruined Reputations
    - Bad Data Wastes Money

REVIEW QUESTIONS

1. **What is data and why is it important to a business?**
    Data are raw facts that describe the characteristics of an event or object. Before the information age, managers manually collected and analyzed data, a time-consuming and complicated task without which they would have little insight into how to run their business.

2. **How can a manager turn data into information?**
    Information is data converted into a meaningful and useful context. Having the right information at the right moment in time can be worth a fortune. Having the wrong information at the right moment; or the right information at the wrong moment can be disastrous.

3. **What is the relationship between data, information, business intelligence, and knowledge?**
    Data is converted into information, business intelligence, and knowledge. Using data, information, business intelligence, and knowledge to make decisions and solve problems is the key to finding success in business. These core drivers of the information age are the building blocks of business systems.

4. **Why is it important for a company to operate cross-functionally?**
    Each department performs its own activities. Although each department has its own focus and data, none can work independently if the company is to operate as a whole. It is easy to see how a business decision made by one department can affect other departments. Marketing needs to analyze production and sales data to come up with product promotions and advertising strategies. Production needs to understand sales

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forecasts to determine the company's manufacturing needs. Sales needs to rely on information from operations to understand inventory, place orders, and forecast consumer demand. All departments need to understand the accounting and finance departments' information for budgeting. For the firm to be successful, all departments must work together as a single unit sharing common information and not operate independently or in a silo.

5. **What is MIS and what role does it play in an organization?**
   Management information systems (MIS) is a business function, like accounting and human resources, which moves information about people, products, and processes across the company to facilitate decision making and problem solving. MIS incorporates systems thinking to help companies operate cross-functionally. For example, to fulfill product orders, an MIS for sales moves a single customer order across all functional areas including sales, order fulfillment, shipping, billing, and finally customer service.

   Although different functional areas handle different parts of the sale, thanks to MIS, to the customer the sale is one continuous process. If one part of the company is experiencing problems, however, then, like the car without a steering wheel, the entire system fails. If order fulfillment packages the wrong product, it will not matter that shipping, billing, and customer service did their jobs right, since the customer will not be satisfied when he or she opens the package.

6. **Do you agree that MIS is essential for businesses operating in the information age?**
   MIS can be an important enabler of business success and innovation. This is not to say that MIS equals business success and innovation, or that MIS represents business success and innovation. MIS is a tool that is most valuable when it leverages the talents of people who know how to use and manage it effectively. To perform the MIS function effectively, almost all companies, particularly large and medium-sized ones, have an internal MIS department, often called information technology (IT), information systems (IS), or management information systems (MIS). For the purpose of this text, we will refer to it as MIS.

7. **What type of career are you planning to pursue? How will your specific career use data, information, business intelligence, and knowledge?**
   MIS systems drive organizations and all business students will be using MIS systems to perform their jobs. Without adequate knowledge of MIS business students will be unprepared to compete in the information age. Answers to this question will vary depending on the career path the student has chosen.

8. **How does systems thinking support business operations?**
   Systems thinking is a way of monitoring the entire system by viewing multiple inputs being processed or transformed to produce outputs while continuously gathering feedback on each part. Feedback is information that returns to its original transmitter (input, transform, or output) and modifies the transmitter's actions. Feedback helps the

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system maintain stability. For example, a car's system continuously monitors the fuel level and turns on a warning light if the gas level is too low. Systems thinking provides an end-to-end view of how operations work together to create a product or service. Business students who understand systems thinking are valuable resources because they can implement solutions that consider the entire process, not just a single component.

9. **What are the three types of analytics?**
The three types of analytics include descriptive analytics, predictive analytics, and prescriptive analytics. Descriptive analytics are techniques that describe past performance and history. Predictive analytics are techniques that extract information from data and uses it to predict future trends and identify behavioral patterns. Prescriptive analytics are techniques that create models indicating the best decision to make or course of action to take.

10. **What is the difference between a knowledge facilitator and knowledge asset?**
Knowledge assets, also called intellectual capital, are the human, structural, and recorded resources available to the organization. Knowledge assets reside within the minds of members, customers, and colleagues, and include physical structures and recorded media. Knowledge facilitators help harness the wealth of knowledge in the organization. Knowledge facilitators help acquire and catalog the knowledge assets in an organization.

MAKING BUSINESS DECISIONS

1. **VIEW FROM A FLAT WORLD**
This is a great discussion question for students to begin understanding the value of MIS in a Flat World. Is success defined by where you are born, how much money you have, or what type of education you received? With MOOCS, online learning, online education, and access to information around the globe why would a child in Nepal have a disadvantage over a child in Chicago? Makes for a great debate to get the course started.

2. **IS TECHNOLOGY MAKING US DUMBER OR SMARTER?**
Another great discussion to get your course started. If you can just Google any information you need – then why learn the material? How has the Internet made us less dependent on learning? What happens when the information on the Internet is inaccurate or incorrect and we depend on that information as our only source of knowledge? Get your students debating these issues and they will soon see the value of this course.

3. **THE INTERNET OF EVERYTHING IS EVERYWHERE**
IoT technologies pose potential dangers to your internet safety. News reports have ranged from an IoT botnet taking down portions of the Internet to hackers exploiting baby monitors. That's why it's a good idea to protect your digital life by securing your IoT-

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connected devices. Here are ten ways to do that. According to Norton there are 9 security measures you can take to help secure your devices

- Install reputable internet security software on your computers, tablets, and smartphones. For instance, Norton Security Deluxe can provide real-time protection against existing and emerging malware, including ransomware and viruses.
- Use strong and unique passwords for device accounts, Wi-Fi networks, and connected devices. Don't use common words or passwords that are easy to guess, such as "password" or "123456."
- Be aware when it comes to apps. Always make sure you read the privacy policy of the apps you use to see how they plan on using your information and more.
- Do your research before you buy. Devices become smart because they collect a lot of personal data. While collecting data isn't necessarily a bad thing, you should know about what types of data these devices collect, how it's stored and protected, if it is shared with third parties, and the policies or protections regarding data breaches.
- Know what data the device or app wants to access on your phone. If it seems unnecessary for the app's functionality or too risky, deny permission.
- Use a VPN, like Norton Secure VPN, which helps to secure the data transmitted on your home or public Wi-Fi.
- Check the device manufacturer's website regularly for firmware updates.
- Use caution when using social sharing features with these apps. Social sharing features can expose information like your location and let people know when you're not at home. Cybercriminals can use this to track your movements. That could lead to a potential cyberstalking issue or other real-world dangers.
- Never leave your smartphone unattended if you're using it in a public space. In crowded spaces, you should also consider turning off Wi-Fi or Bluetooth access if you don't need them. Some smartphone brands allow automatic sharing with other users in proximity.

4. **WORKING FOR THE BEST**
    The goal of higher education is to arm our students with the types of skills required to start an amazing fulfilling career. Looking at current top companies can help students understand early the skills they require to be competitive. What skill will they receive from this course that they can put on their resume or LinkedIn account? This activity is a great eye-opener for students skeptical of taking this course.

5. **GARBAGE IN IS GARBAGE OUT**
    Students will have different views on which errors are easy to find and which are more difficult based on their experiences with data. The important part of this question is to get them thinking about data. As long as they support their order with the details of their experience and why they believe their answer is correct then they are on the right path.

    Always double checking the results and testing the model with numbers they know are easy to track will help to ensure the model is correct. You can always build a small model with numbers like 100

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and 50 to ensure the answers are correct. Then once the model is solid, they can insert the real data.

6. **CATEGORIZING ANALYTICS**
   This is a great exercise to get your students thinking about the three primary types of analytics.
   - Which candidate will win the election? **Predictive Analytics**
   - What price for a product will maximize profit? **Prescriptive Analytics**
   - How much money do I need to save each year to have enough money for retirement? **Predictive Analytics**
   - How many products were sold last year? **Descriptive Analytics**
   - What is the best route for the delivery person to drop off packages to minimize the time needed to deliver all the packages? **Prescriptive Analytics**
   - How many Valentine's Day cards should Hallmark print to maximize expected profit? **Prescriptive Analytics**
   - How will marketing affect the daily sales of a product? **Predictive Analytics**
   - How can a company minimize the cost of shipping products from plants to customers? **Prescriptive Analytics**
   - What team will win the Superbowl? **Predictive Analytics**
   - How can I schedule my workforce to minimize operating costs? **Predictive Analytics**
   - What was the average purchase price for new customers last year? **Descriptive Analytics**
   - How will the placement of a product in a store determine product sales? **Prescriptive Analytics**
   - How many customers do we have, and where are they located? **Descriptive Analytics**

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TECHNOLOGY PLUG-IN T1 **PERSONAL PRODUCTIVITY USING IT**

LEARNING OUTCOMES

1. **Describe the four steps you can use to create a strong password.**
   - **Create strong passwords that you can remember**. A strong password is one that is at least eight characters, includes a combination of letters, numbers, and symbols and is easy for you to remember, but difficult for others to guess. The easiest way to create a strong password that you will not have to write down is to come up with a *passphrase*.
   - **Keep your passwords a secret**.
   - **Manage your passwords.** A strong password is one you change every few months.
   - **Monitor your accounts**.

2. **Identify three tips you can use to manage your files.**
   - Use My Documents
   - Limit file name lengths
   - Archive completed work
   - Use shortcuts instead of multiple copies
   - Use abbreviations
   - Use thumbnails
   - Do not save unnecessary work.

3. **Explain why you would use Microsoft's backup and recovery utility.**
   The Backup Utility in Windows helps protect data if a hard disk fails or files are accidentally erased due to hardware or storage media failure. The Recovery Console is used to perform many tasks without starting Windows, including starting and stopping services, reading and writing information on a local disk drive, and formatting drives.

4. **Describe the six common e-mail mistakes.**
   - Failing to follow e-mail etiquette
   - Attempting anonymity
   - Sending e-mail to the wrong person
   - Using one e-mail address for everything
   - Clicking send to fast
   - Forgetting the attachment

5. **Explain spam and phishing and identify three ways that you can prevent each.**
   Spam is received junk e-mail. Tips to stop spam include:
   - Delete junk e-mail messages without opening them.
   - Do not reply to spam.

- Think twice before opening attachments.
- Do not buy anything through spam.
- Do not forward chain e-mail messages.

Phishing is a type of deception designed to steal your identity. In phishing scams, scam artists try to get you to disclose valuable personal data, such as credit card numbers, passwords, account data, or other information, by convincing you to provide it under false pretenses. Tips to stop phishing include:

- Report suspicious e-mail.
- Be wary of clicking on links in e-mail.
- Type addresses directly into your browser or use personal bookmarks.
- Check the security certificate when you are entering personal or financial information into a Web site.
- Do not enter personal or financial information into pop-up windows.

6. **Explain the primary uses of spyware and adware.**
   Spyware is a general term used for software that performs certain behaviors such as advertising, collecting personal information, or changing the configuration of your computer, generally without appropriately obtaining your consent. Spyware is often associated with software that displays advertisements (called **adware**) or software that tracks personal or sensitive information.

7. **Identify three things you can do to maintain your computer and keep it running smoothly.**
   - Free disk space.
   - Speed up access to data.
   - Detect and repair disk errors.

8. **Explain why you would install anti-virus protection software.**
   Anti-virus (AV) is a term applied to either a single program or a collection of programs that protect a computer system from viruses. Anti-virus software is designed to keep your PC free of computer viruses and worms. It does so by scanning your PC's file system looking for known viruses; if a virus is found, the software will inform you and then take steps to remove the virus threat.

9. **Describe the need for a personal firewall.**
   A **firewall** is simply a program or hardware device that filters the information coming through the Internet connection into a computer. If an incoming packet of information is flagged by the filters, it is not allowed through.

CLASSROOM EXERCISE

Cell Phones, Spam, Phishing, and Viruses
As next-generation cell phones grow in popularity and function more like PCs, digital intruders are targeting them with viruses, spam and phishing schemes. There are several mobile phone viruses at the moment.

When you contemplate the possibilities, it gets pretty scary. The number of computer users who are already targets of virus infections pales in comparison to the number of mobile phone users out there.

Ask students…
1. How many use Bluetooth?
2. How many check for cell phone security updates?
3. How many install some type of security software on their phone?

EXTENDING THE CORE MATERIAL

Google puts up 'Beware of malware' signs
Google warns people when search results could potentially lead them to malicious code. People who attempt to go to a Web site that has been identified as risky by the coalition are taken to a warning page.

> "Warning--the site you are about to visit may harm your computer!" the page states in bold type, then suggesting users can "learn more about malware and how to protect yourself at StopBadware.org."

The interrupt page suggests that users can try returning to the search page and choosing a different result, trying another search or they can continue to the potentially malicious site.