12

E-Commerce Overview

Chapter Objectives

In this chapter, you will learn how to . . .

- Define e-commerce
- Identify the benefits and risks of e-commerce
- Describe e-commerce business models
- Describe e-commerce security and encryption
- Define Electronic Data Interchange (EDI)
- Identify trends and projections for e-commerce
- Describe issues related to e-commerce
- Describe options for order and payment processing

E-commerce is the buying and selling of goods and services on the Internet. Whether business-to-business, business-to-consumer, or consumer-to-consumer, websites that support e-commerce are everywhere. This chapter provides an overview of this topic.

12.1 What Is E-Commerce?

VideoNote
E-Commerce Benefits and Risks

A formal definition of **e-commerce** is the integration of communications, data management, and security technologies, which allows individuals and organizations to exchange information related to the sale of goods and services. The major functions of e-commerce include the buying of goods, the selling of goods, and the performance of financial transactions on the Internet.

Advantages of E-Commerce

There are a number of advantages for both businesses and consumers when engaging in e-commerce. For businesses, the many advantages include the following:

- **Reduced Costs.** Online businesses can stay open 24 hours a day without the overhead of a brick-and-mortar facility. Many businesses establish a website before attempting e-commerce. When they add e-commerce functions to their website, the site becomes a source of revenue and, in many cases, pays for itself in short order.
- **Increased Customer Satisfaction.** Businesses can use their websites to improve communication with customers and increase customer satisfaction. E-commerce sites often contain a page for frequently asked questions (FAQs). The availability of customer service representatives by e-mail, discussion forums, or even online chats (see LivePerson at http://www.liveperson.com) can improve customer relations.
- **More Effective Data Management.** Depending on the level of automation, e-commerce sites can perform credit card verification and authorization, update inventory levels, and interface with order fulfillment systems, thereby managing the organization's data more efficiently.
- **Potentially Higher Sales.** An e-commerce store that is open 24 hours a day, 7 days a week and is available to everyone on the planet has the potential for higher sales than a traditional brick-and-mortar storefront.

Businesses aren't the only beneficiaries of e-commerce; consumers see some advantages as well, including the following:

- **Convenience.** Consumers can shop at any time of the day. There is no travel time to get to the store. Some consumers prefer website shopping over traditional catalog shopping because they can view additional images and join discussion forums about the products.
- **Easier Comparison Shopping.** There is no driving from store to store to check the price of an item. Customers can easily surf the Web to compare prices and value.
- **Wider Selection of Goods.** Because it is convenient to shop and compare, consumers have a wider selection of goods available for purchase.

As you can see, e-commerce provides a number of advantages for both businesses and consumers.

Risks of E-Commerce

There are risks involved in any business transaction and e-commerce is no exception. The possible risks for businesses include the following:

- **Loss of Sales if Technology Fails.** If your website isn't available or your e-commerce form processing doesn't work, customers may not return to your site. It is always important to have a user-friendly, reliable website, but when you engage in e-commerce, reliability and ease of use are critical factors in the success of your business.
- **Fraudulent Transactions.** Fraudulent credit card purchases or crank orders placed by vandals (or 13-year-olds with time on their hands) are risks that businesses need to deal with.
- **Customer Reluctance.** Although more and more consumers are willing to purchase on the Web, the target market of your business may not be. However, by offering incentives such as free shipping or a "no questions asked" returns policy, your business may be able to attract these consumers.
- **Increased Competition.** Because the overhead for an e-commerce site can be much lower than that of a traditional brick-and-mortar store, a company operating out of a basement can be just as impressive as a long-standing business if its website looks professional. Because it is much easier to enter the marketplace with an e-commerce store, your business will have increased competition.

Businesses are not alone in needing to deal with the risks associated with e-commerce. Consumers may perceive the following risks:

- **Security Issues.** Later in this chapter, you will learn how to determine whether a website uses a Secure Sockets Layer (SSL) protocol for the encryption and security of information. The general public may not know how to determine whether a website is using this encryption method and be wary of placing a credit card order. Another, possibly more important, issue is what the site does with information after it is transmitted over the Internet. Is the database secure? Are the database backups secure? These questions are difficult to answer. It's a good idea to purchase only from sites that you consider to be reputable.
- **Privacy Issues.** Many sites post privacy policy statements. These describe what the site will do (or will not do) with the information they receive. Some sites use the data for internal marketing purposes only. Other sites sell the data to outside companies. Websites can and do change their privacy policies over time. Consumers may be leery of purchasing online because of the potential lack of privacy.
- **Purchasing Based on Photos and Descriptions.** There is nothing like holding and touching an item before you purchase it. Consumers run the risk of purchasing a product that they will not be happy with because they are making purchasing decisions based on photographs and written descriptions. If an e-commerce site has a generous returns policy, consumers will feel more confident about making a purchase.
- **Returns.** It is often more difficult to return an item to an e-commerce store than to a brick-and-mortar store. Consumers may not want to risk this inconvenience.

12.2 E-Commerce Business Models

Both businesses and consumers are riding the e-commerce wave. There are four common e-commerce business models: business-to-consumer, business-to-business, consumer-to-consumer, and business-to-government.

- **Business-to-Consumer (B2C).** Most of the business-to-consumer selling takes place at online stores. Some, like Amazon.com (http://www.amazon.com), are online only. Others are click-and-mortar—electronic storefronts for well-known brick-and-mortar stores such as Sears (http://www.sears.com).
- **Business-to-Business (B2B).** E-commerce between two businesses often takes the form of exchanging business supply chain information among vendors, partners, and business customers. Electronic Data Interchange (EDI) is also included in this category.
- **Consumer-to-Consumer (C2C).** Individuals are selling to each other on the Internet. The most common format is that of the auction. The most well-known auction site is eBay (http://www.ebay.com), which was founded in 1995.
- **Business-to-Government (B2G).** Businesses are selling to the government on the Internet. There are very strict usability standards for businesses that target governmental agencies. Section 508 of the Rehabilitation Act requires that electronic and information technology (including web pages) used by federal agencies is accessible to people with disabilities. See http://www.section508.gov for more information.

Businesses began exchanging information electronically using EDI many years before the Web came into existence.

12.3 Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI) is the transfer of structured data between companies over a network. This facilitates the exchange of standard business documents, including purchase orders and invoices. EDI is not new; it has been in existence since the 1960s. Organizations that exchange EDI transmissions are called trading partners.

The Accredited Standards Committee X12 (ASC X12) is chartered by the American National Standards Institute (ANSI) to develop and maintain EDI standards. These standards include transaction sets for common business forms, such as requisitions and invoices. This allows businesses to reduce paperwork and communicate electronically.

EDI messages are placed in transaction sets, which consist of a header; one or more data segments, which are strings of data elements separated by delimiters; and a trailer. Newer technologies such as XML and web services are allowing trading partners virtually unlimited opportunities to customize their information exchange over the Internet.

Now that you are aware of the possibilities of e-commerce and the types of business models, you may be wondering where the most money is being made. The next section discusses some statistics related to e-commerce.

12.4 E-Commerce Statistics

Although e-commerce growth stalled during the recent economic downturn, it is again demonstrating growth. eMarketer (http://www.emarketer.com/Article/Worldwide-Ecommerce-Sales-Increase-Nearly-20-2014/1011039) predicts that retail e-commerce sales worldwide will total $2.356 trillion by 2018.

You may be wondering what people are buying online. A report compiled by the U.S. Census Bureau (http://www2.census.gov/retail/releases/current/arts/ecommerce4541.xls) indicated that the top 10 categories for online retail sales in 2013 (the most recent year reported) were the following:

1. Clothing, accessories, and footwear ($40 billion)
2. Electronics and appliances ($22.75 billion)
3. Furniture and home furnishings ($20 billion)
4. Drugs, health aids, and beauty aids ($17 billion)
5. Computer hardware ($14.7 billion)
6. Music and videos ($10.25 billion)
7. Books and magazines ($10.2 billion)
8. Sporting goods ($7.8 billion)
9. Computer software ($5.41 billion)
10. Food, beer, and wine ($5.15 billion)

Now that you know what is selling the best online, who are your potential online consumers? A survey by the PEW Internet and American Life Project (http://www.pewinternet.org/data-trend/internet-use/latest-stats/) indicated that while about the same percentage of men and women are online, Internet usage varies by age, income, and education. Table 12.1 shows an excerpt from this research.

Table 12.1 Online population. Data from Pew Research Center Internet Project Survey.

Category	Percentage Who Use the Internet
Men	87%
Women	86%
Age: 18–29	97%
Age: 30–49	93%
Age: 50–64	88%
Age: 65 and older	57%
Household Income: Less than $30,000	77%
Household Income: $30,000 to $49,999	85%
Household Income: $50,000 to $74,999	93%
Household Income: $75,000 or higher	99%
Education: High school graduate or less	77%
Education: Some college	91%
Education: College graduate	97%

12.5 E-Commerce Issues

Doing business on the Internet is not without its problems. The following are some common issues:

- **Intellectual Property.** There has been some recent controversy regarding intellectual property rights and domain names. **Cybersquatting** is the practice of registering a

domain name that is a trademark of another entity in the hopes of profiting by selling the domain name to the entity. The Internet Corporation for Assigned Names and Numbers (ICANN) sponsors the Uniform Domain Name Dispute Policy at http://www.icann.org/udrp/udrp.htm, which can be used to combat cybersquatters.

- **Security.** Security is a constant issue on the Internet. Distributed denial of service (DDoS) attacks, which are malicious attempts to make a website unavailable by flooding it with requests from multiple computers, have shut down popular e-commerce sites.
- **Fraud.** Fraudulent websites that ask for credit card numbers without any intent of delivering products or with fraudulent intent are an understandable source of concern for consumers.
- **Taxation.** State governments and local municipalities need sales tax to fund education, public safety, health, and many other essential services. When an item is purchased at a retail store, the sales tax is collected from the purchaser by the seller at the time of the sale and periodically remitted by the seller to the state in which the sale occurred.

  When an item is purchased on the Internet, the seller often does not collect and remit the sales tax. In this situation, many states require that consumers file a use tax and pay the amount that would have been collected. In reality, few consumers do this and few states attempt to enforce it. Our local governments are losing revenue for funding worthwhile programs.

  The Marketplace Fairness Act (MFA) has been proposed and was under discussion in the U.S. Congress at the time this was written. If approved, the MFA will require online and catalog retailers to collect sales tax for states that have simplified sales tax laws (see http://www.marketplacefairness.org for more information).
- **International Commerce.** Websites that target a global audience have additional concerns. If a site will be offered in multiple languages, there are options of automatic translation programs such as SYSTRANLinks (http://www.systranlinks.com) and companies that provide customized website translation services such as WorldLingo (http://www.worldlingo.com). Be aware that the graphical user interface (GUI) that works with English may not work with other languages. For example, comparable words and phrases often take quite a few more letters in German than in English. If your GUI has minimal white space in the English version of the site, how will it look in the German version?

  How will your international customers pay you? If you accept credit cards, the credit card company will perform the currency conversion. What about the culture of your target international audience? Have you studied the target countries and made certain that your site is appealing and not offensive? Another issue related to international commerce is the cost of shipping and the availability of delivery to remote destinations.

Now that you are familiar with the concept of e-commerce, let's take a closer look at encryption methods and security. The next section introduces encryption methods, SSL, and digital certificates.

12.6 E-Commerce Security

Encryption

Encryption is used to ensure privacy within an organization and on the Internet. **Encryption** is the conversion of data into an unreadable form, called a **ciphertext**. Ciphertext cannot be easily understood by unauthorized individuals. **Decryption** is the process of converting the ciphertext into its original form, called plain text or **clear text**, so that it can be understood. The process of encryption and decryption requires an algorithm and a key. An **algorithm** involves a mathematical calculation. A **key** is a numeric code that should be long enough so that its value cannot easily be guessed.

Encryption is important on the Internet because information in a packet can be intercepted as it travels the communications media. If a hacker or business competitor intercepts an encrypted packet, he or she will not be able to use the information (such as a credit card number or business strategy) because it cannot be read.

A number of types of encryption are commonly used on the Internet, including symmetric-key encryption and asymmetric-key encryption.

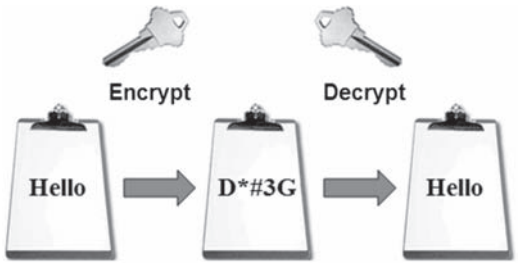

Figure 12.1 Symmetric-key encryption uses a single key

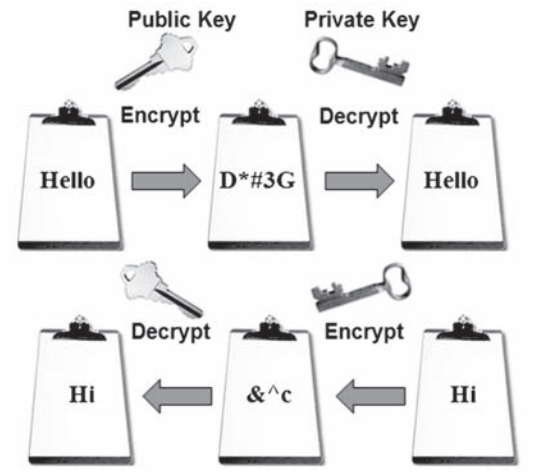

Figure 12.2 Asymmetric-key encryption uses a key pair

Symmetric-Key Encryption

Symmetric-key encryption, shown in Figure 12.1, is also called single-key encryption because both the encryption and decryption use the same key. Because the key must be kept secret from others, both the sender and the receiver must know the key before communicating using encryption. An advantage of symmetric-key encryption is speed.

Asymmetric-Key Encryption

Asymmetric-key encryption is also called public-key encryption because there is no shared secret. Instead, two keys are created at the same time. This key pair contains a public key and a private key. The public key and the private key are mathematically

related in such a way that it is unlikely that anyone would guess one of the pair even with knowledge of the other. Only the public key can decrypt a message encrypted with the private key and only the private key can decrypt a message encrypted with the public key (see Figure 12.2). The public key is available via a digital certificate (more on that later). The private key should be kept secure and secret. It is stored on the web server (or other computer) of the key owner. Asymmetric-key encryption is much slower than symmetric-key encryption.

Integrity

The encryption methods described above help to keep the contents of a message secret. However, e-commerce security is also concerned with making sure that messages have not been altered or damaged during transmission. A message is said to have **integrity** if it can be proven that is has not been altered. **Hash functions** provide a way to ensure the integrity of messages. A hash function, or hash algorithm, transforms a string of characters into a usually shorter, fixed-length value or key, called a **digest**, which represents the original string.

These security methods—especially the techniques of symmetric-key and asymmetric-key encryption—are used as part of SSL, the technology that helps to make commerce on the Internet secure. The next section introduces this technology.

Secure Sockets Layer (SSL)

Secure Sockets Layer (SSL) is a protocol that allows data to be privately exchanged over public networks. It was developed by Netscape and is used to encrypt data sent between a client (usually a web browser) and a web server. SSL utilizes both symmetric and asymmetric keys.

SSL provides secure communication between a client and a server by using the following:

- Server and (optionally) client digital certificates for authentication
- Symmetric-key cryptography with a "session key" for bulk encryption
- Public-key cryptography for transfer of the session key
- Message digests (hash functions) to verify the integrity of the transmission

You can tell that a website is using SSL by the protocol in the web browser address text box—it shows https instead of http. Also, browsers typically display a lock icon or other indicator of SSL, as shown in Figure 12.3.

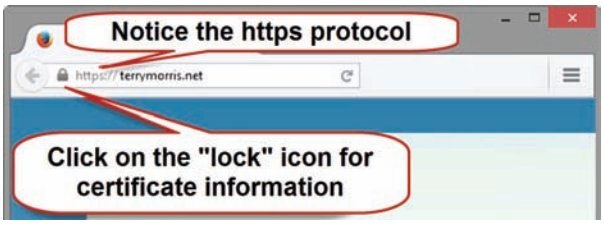

Figure 12.3 The browser indicates that SSL is being used. Screenshots of Mozilla Firefox. Courtesy of Mozilla Foundation

FAQ When some websites are displayed in a browser, there is a color bar in the address area. What's up?

If a website displays a color bar in the address area of the browser in addition to the lock icon in the status bar, you know that it is using **Extended Validation SSL (EV SSL).** EV SSL signifies that the business has undergone more rigorous background checks to obtain its digital certificate, including verification of the following:

- The applicant owns the domain.
- The applicant works for the organization.
- The applicant has the authority to update the website.
- The organization is a valid, recognized place of business.

Digital Certificate

SSL enables two computers to communicate securely by posting a digital certificate for authentication. A **digital certificate** is a form of an asymmetric key that also contains information about the certificate, the holder of the certificate, and the issuer of the certificate. The contents of a digital certificate include the following:

- The public key
- The effective date of the certificate
- The expiration date of the certificate
- Details about the certificate authority (the issuer of the certificate)
- Details about the certificate holder
- A digest of the certificate content

VeriSign (http://www.verisign.com) and Entrust (http://www.entrust.net) are well-known certificate authorities.

To obtain a certificate, you will need to generate a certificate signing request (CSR) and a private/public key pair (see https://www.digitalocean.com/community/tutorials/how-to-install-an-ssl-certificate-from-a-commercial-certificate-authority) for an overview of this process. Next, you request a certificate from a certificate authority, pay the application fee, and provide your CSR and public key. The certificate authority verifies your identity. After verification, the certificate authority signs and issues your certificate. You store the certificate in your software, such as a web server, web browser, or e-mail application.

FAQ Do I have to apply for a certificate?

If you are accepting any personal information on your website such as credit card numbers, you should be using SSL. One option is to contact a certificate authority (such as VeriSign or Thawte at http://www.thawte.com) and apply for your own certificate. There may be a waiting period and you will need to pay an annual fee.

As an alternative, your web host provider may let you piggyback on its certificate. Normally, there is a setup and/or monthly fee for this service. Usually, the web host assigns you a folder on its secure server. You place the web pages (and associated files such as images) that need to be securely processed in the folder. When linking to the web pages, you use "https" instead of "http" on your absolute links. Contact your web host provider for details.

SSL and Digital Certificates

A number of steps are involved in the SSL authentication process. The web browser and web server go through initial handshaking steps, exchanging information about the server certificate and keys. Once trust is established, the web browser generates and encrypts the session key (symmetric key) that will be used for the rest of the communication. From this point on, all data is encrypted through the session key. Table 12.2 shows this process.

Table 12.2 SSL encryption process overview

Browser	→	"hello"	→	Server
Browser	←	"hello" + server certificate (with public key)	←	Server
The browser now verifies the identity of the web server. It obtains the certificate of certificate authority (CA) that signed the server's certificate. Then the browser decrypts the certificate digest using the CA's public key (held in a root CA certificate). Next, the browser authenticates the server's certificate and checks the expiration date of the certificate. If all is valid, the next step occurs.				
Browser	→	The browser randomly generates a session key encrypted with server's public key.	→	Server
Server decrypts the session key with private key.				
Browser	←	The server sends a message that is encrypted with the session key.	←	Server
All future transmissions between the browser and the server are encrypted with the session key.				

At this point, you have a general idea of how SSL works to protect the integrity of information on the Internet, including the information exchanged in e-commerce transactions. The next section takes a closer look at order and payment processing in e-commerce.

Checkpoint 12.1

1. What are three advantages of e-commerce for an entrepreneur who is just starting a business?
2. What are three risks that businesses face when engaging in e-commerce?
3. Define SSL. How can an online shopper tell that an e-commerce site is using SSL.

12.7 Order and Payment Processing

In B2C e-commerce, the products for sale are displayed in an online catalog. On large sites, these catalog pages are dynamically created using server-side scripts to access databases. Each item usually has a button or image that invites visitors to "Buy Me" or "Add to Cart". Items selected are placed in a virtual shopping cart. When visitors are finished shopping, they click a button or image link which indicates that they want to "Check Out" or "Place Order". At this point, the items in their shopping cart are usually displayed on a web page with an order form.

Secure ordering is facilitated through the use of SSL. Once an order is placed, there are a number of commonly used payment methods by which to pay for the merchandise or service, including credit card, stored-value card, digital wallet, and digital cash.

Credit Card

Credit card payment processing is a very important component of an e-commerce website. Funds from the customer need to be transferred to the merchant's bank. In order to accept credit cards, the site owner must apply for a merchant account and be approved. A **merchant account** is a type of business bank account that allows a business to accept credit card payments. You may also need real-time credit card verification using a payment gateway or third party such as Authorize.Net (http://www.authorizenet.com). While merchant accounts can be expensive, PayPal (http://www.paypal.com) offers a low-cost solution. Originally intended for consumer-to-consumer credit card sales, PayPal now offers credit card and shopping cart services for business website owners. You can add an online shopping experience to your website in a day with a PayPal shopping cart (https://www.paypal.com/us/webapps/mpp/shopping-cart).

Stored-value Card

A **stored-value card**, such as a gift card for a major department store, holds information, including cash. Magnetic stripe stored-value cards can hold a limited amount of information. A stored-value **smart card** has an integrated circuit embedded within and offers more capacity to store information. Smart cards are widely used in Europe, Australia, and Japan. Visit Smart Cart Alliance (http://www.smartcardbasics.com/smart-card-overview.html) for more information about smart cards.

Digital Wallet

A **digital wallet** is a virtual wallet that can be used for mobile or online payments. A digital wallet may store information about one or more credit cards along with personal identification and contact information. A software-based digital wallet stores the information on either a remote server or the purchaser's computer. Yahoo! Wallet (https://info.yahoo.com/privacy/uk/yahoo/wallet) is a software-based digital wallet. A hardware-based digital wallet is a physical device that stores the information, such as a smartphone, and may be accessed through an installed app. Examples of this emerging technology include Visa Checkout (https://www.v.me/), Google Wallet (http://www.google.com/wallet), Apple Pay (https://www.apple.com/apple-pay), and Android Pay (https://www.android.com/intl/en_us/pay). **Near field communication (NFC)** is described by Techspot (http://www.techspot.com/guides/385-everything-about-nfc/) as a short-range wireless communication that uses a radio frequency to share information between NFC devices in close proximity, such as an NFC-equipped smartphone and an NFC-ready credit card readers or NFC-ready ticket gate. Purchasers using the Apple Pay and Android Pay digital wallets only have to tap their phone on a compatible NFC device to share information and complete a purchase.

Digital Cash

Digital cash serves as a substitute for government-issued currency. A currently popular digital cash provider is **Bitcoin** (http://bitcoin.org), which is not a company, but can be described as a peer-to-peer payment network for digital money with no central authority. No single

person owns or controls Bitcoin. Government-issued currency is not deposited or exchanged. Instead, the currency is bitcoins. Bitcoin is easy to use – a Bitcoin user can send or receive bitcoins using a mobile app or digital wallet. A public ledger, called the blockchain, is kept of all Bitcoin transactions. Bitcoins are accepted at a growing number of businesses, including Overstock.com and Dell. Visit https://bitcoin.org/en/faq for more information about Bitcoin.

12.8 E-Commerce Storefront Solutions

You have probably shopped at online stores and found some easy to work with and others difficult. A large problem for e-commerce sites is abandoned shopping carts—visitors who begin to shop but never place an order. This section explores types of storefront solutions and shopping carts. A number of different e-commerce storefront options are available to business owners and web developers. They range from a simple, instant online storefront supplied by another website to building your own shopping cart system. This section examines some of the options.

Instant Online Storefront

You supply the products, the **instant online storefront** does the rest. There is no need to install software. All you do is use your web browser to point and click your way to a virtual store. You use a template provided by the online storefront and choose features, configure settings, and add your products, uploading images, descriptions, prices, and captions.

There are some disadvantages to this approach. You are limited to the templates offered by the online storefront provider. The number of products that you can sell may also be limited. Your store may have a look and feel that is similar to the other instant stores hosted by the provider. However, this method provides a low-overhead, low-risk approach for a small business owner who has limited technical expertise. The storefront provider will often offer merchant accounts and payment automation.

Some instant storefront solutions are free, with limited service or a limited number of products. Others are fee-based and may charge hosting fees, processing fees, and monthly fees. Two popular instant storefront solutions are Shopify (http://www.shopify.com) and BigCommerce (http://www.bigcommerce.com). Artists and crafters have found a home on Etsy (http://www.etsy.com) to create instant e-storefronts to display and sell their wares.

Off-the-Shelf Shopping Cart Software

With this approach, software that provides a standardized set of e-commerce features is purchased, installed on your web server, and customized. Many web host providers offer this storefront software, which usually includes a shopping cart, order processing, and optional credit card payment processing. **Shopping cart software** provides an online catalog where your visitors can browse, add items to their virtual shopping cart, and check out through an order form when they are ready to make a purchase. Popular shopping carts offered by web host providers are AgoraCart (http://agoracart.com), osCommerce (http://oscommerce.com), and ZenCart (http://www.zen-cart.com).

Custom-Built Solutions

Custom building a large-scale e-commerce website entirely from scratch usually requires expertise, time, and a sizable budget! The advantage is that you get exactly what you need. Software development tools for a custom-built site include Adobe Dreamweaver, Microsoft

Visual Studio, IBM's WebSphere Commerce, a database management system (DBMS), and server-side scripting. Custom-built solutions may also require a **commerce server**, which is a web server that is enhanced with support for certain commerce activities. IBM's WebSphere Commerce Suite and Microsoft's Commerce Server are two choices.

Semi-Custom-Built Solutions on a Budget

If the scope of your e-commerce endeavor is small and you want to avoid the cookie-cutter look of an instant storefront, some other options may be worth considering. These include getting pre-written shopping cart and order processing scripts, hiring a company such as PayPal, and buying e-commerce add-ons to popular web-authoring tools.

There are a number of free shopping cart scripts available on the Web. Check out JustAddCommerce (http://www.richmediatech.com), HotScripts (http://www.hotscripts.com), or Mal's e-commerce (http://www.mals-e.com) for some alternate solutions. The level of difficulty and the exact processing of these solutions vary. Each website has instructions and documentation for its product. Some may require you to register before they provide you with specific HTML. Others may require you to download and install the scripts on your own web server.

PayPal (http://www.paypal.com) offers a shopping cart and payment verification for businesses at a very low cost. PayPal writes the code that you need to place on your web pages in order to interface with them. You only need to copy and paste it in.

Budget-wise solutions such as PayPal, Mal's e-commerce, or JustAddCommerce work best for businesses that fit the standard business model and do not require special processing needs.

Checkpoint 12.2

1. Name three payment methods that are commonly used on the Web.
2. Have you made purchases online? If so, think about the last item that you purchased. Why did you purchase it online instead of at a store? Did you check to see if the transaction was secure? Why or why not? How will your shopping habits be different in the future?
3. Describe three types of available e-commerce solutions. Which one provides the easiest entry to e-commerce? Why?

Chapter Summary

This chapter introduced basic e-commerce concepts and implementation. Consider taking an e-commerce course to continue your study of this dynamic and growing area of web development. Visit the textbook website at http://www.webdevfoundations.net for examples, the links listed in this chapter, and updated information.

Key Terms

algorithm
asymmetric-key encryption
Bitcoin
Business-to-Business (B2B)
Business-to-Consumer (B2C)
Business-to-Government (B2G)
ciphertext
clear text
commerce server
Consumer-to-Consumer (C2C)
cybersquatting
decryption
digest
digital cash
digital certificate
digital wallet
e-commerce
Electronic Data Interchange (EDI)
encryption
Extended Validation SSL (EV SSL)
fraud
hash functions
instant online storefront
integrity
intellectual property
international commerce
key
merchant account
near field communication (NFC)
Secure Sockets Layer (SSL)
security
shopping cart software
smart card
stored-value card
symmetric-key encryption
taxation

Review Questions

Multiple Choice

1. Which of the following acronyms refer to the business-to-consumer e-commerce business model?
   a. B2B
   b. BTC
   c. B2C
   d. C2B
2. What is a short-range wireless communication that uses a radio frequency to share information between electronic devices?
   a. NFC
   b. SSL
   c. EDI
   d. FTP
3. For businesses, which is a potential risk of using e-commerce?
   a. increased customer satisfaction
   b. the possibility of fraudulent transactions
   c. lower overhead costs
   d. none of the above
4. For businesses, which is an advantage of using e-commerce?
   a. the potential for fraudulent transactions
   b. reduced costs
   c. using shopping carts
   d. increased costs
5. Which of the following options best describes how a website owner can obtain a digital certificate?
   a. Digital certificates are automatically created when you register for a domain name.
   b. Contact a certificate authority and apply for a digital certificate.
   c. Digital certificates are automatically created when you are listed in a search engine.
   d. none of the above
6. Which of the following issues are uniquely related to international e-commerce?
   a. language and currency conversion
   b. browser version and screen resolution

c. bandwidth and Internet service provider
d. none of the above

7. Which of the following is a major function of e-commerce?
   a. using SSL to encrypt orders
   b. adding items to a shopping cart
   c. buying and selling goods
   d. none of the above
8. Which of the following is a disadvantage of an instant online storefront?
   a. The store is based on a template and may look very similar to other online stores.
   b. The store can be ready in minutes.
   c. The store cannot accept credit cards.
   d. none of the above
9. Which of the following include(s) an online catalog, a shopping cart, and a secure order form?
   a. web host providers
   b. shopping cart software
   c. web server software
   d. e-commerce hosting packages
10. Which of the following is true?
   a. A merchant account allows you to use SSL on your website.
   b. A digital wallet is a virtual wallet that can be used for mobile or online payments.
   c. Instant storefronts are what most large-scale e-commerce sites use.
   d. none of the above

Fill in the Blank

11. _____ is a protocol that allows data to be privately exchanged over public networks.
12. _____ can be described as the transfer of structured data between different companies using networks.
13. A digital certificate is a form of a(n) _____ that also contains additional information about the entity holding the certificate.
14. An encryption method that uses a single, shared private key is _____.

Short Answer

15. List one option for a website that needs to reach audiences that speak different languages.

Hands-On Exercises

1. In this Hands-On Exercise, you will create an instant storefront. Choose one of the following websites that offer free trial online stores: InstanteStore (http://www.instantestore.com), Shopify (http://www.shopify.com), and BigCommerce (http://www.bigcommerce.com). Websites are constantly changing their policies, so these sites may no longer offer free trials when you do this assignment. If this is the case, check the textbook's website for updated information, ask your instructor for assistance, or search the Web for free online storefronts or trial stores. If you are certain that you have found a website that offers a free trial store, continue with this exercise and create a store that meets the following criteria:

   - Name: Door County Images
   - Purpose: To sell fine quality prints of Door County scenery
   - Target Audience: Adults age 40+ who have visited Door County; are middle to upper class; and who enjoy nature, boating, hiking, cycling, and fishing
   - Item 1: Print of Ellison Bay at Sunset, Size: 11 inches by 14 inches, Price: $19.95
   - Item 2: Print of Ellison Bay in Summer, Size: 11 inches by 14 inches, Price: $19.95

   Create a folder called doorcounty. Copy the following images from the chapter 12 folder in the student files to your doorcounty folder: summer.jpg, summer_small.jpg,

sunset.jpg, and sunset_small.jpg. Once you are organized, visit the website you have chosen to host your free store. You will have to log in, choose options, and upload your images. Follow the instructions provided. Most free online store sites have an FAQ section or technical support to help you. Figure 12.4 shows a page from an instant storefront. After you have completed your store, print out the browser view of the home page and catalog page.

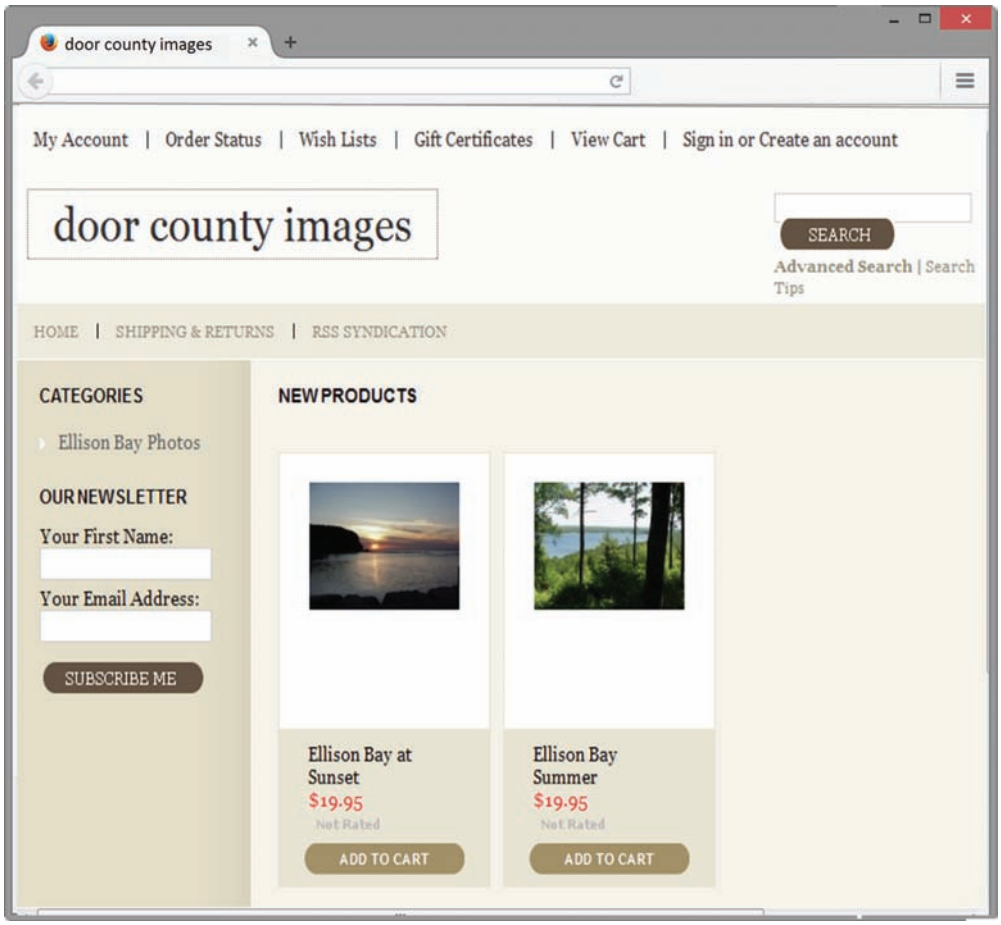

Figure 12.4 An instant store. Screenshots of Mozilla Firefox. Courtesy of Mozilla Foundation

Web Research

1. Just how popular is e-commerce? How many of your friends, family members, coworkers, and classmates purchase on the Web? Survey at least 20 people. Determine the following:
   a. How many have purchased an item online?
   b. How many have shopped but not purchased online?
   c. How many purchase online once a year? Once a month? Once a week?
   d. What is their age range (18–25, 26–39, 40–50, or over 50)?
   e. What is their gender?

f. What is their level of education (high school, some college, college graduate, or graduate school)?

g. What is their favorite online shopping site?

Create a web page that illustrates your findings. Also comment on the results and draw some conclusions. Search the Web for statistics that support your conclusions. Use the Pew Internet and American Life Project (http://pewinternet.org), eMarketer (http://www.emarketer.com/Articles), ClickZ (http://www.clickz.com), and E-Commerce Times (http://www.ecommercetimes.com) as starting points for your research. Place your name in an e-mail link on the web page.

2. This chapter provided a number of resources for e-commerce shopping cart and ordering systems. Use them as a starting point. Search the Web for additional resources. Find at least three shopping cart systems that you feel would be easy to use. Create a web page that reports your findings. Organize your page and list the information along with the URLs of the websites you used as resources. Include information such as the product name, a brief description, the cost, and the web server requirements (if any). Place your name in an e-mail link on the web page.

Focus on Web Design

Visit the following sites as a starting point as you explore the web design topic of shopping cart usability:

- E-commerce Shopping Cart Usability Research Findings: http://www.uxteam.com/blog/e-commerce-shopping-cart-usability-research-findings/
- 10 Tips to Design Usable Shopping Carts: http://www.webdesignerdepot.com/2009/04/10-tips-to-design-usable-shopping-carts
- Fundamental Guidelines of E-Commerce Checkout Design: http://uxdesign.smashingmagazine.com/2011/04/06/fundamental-guidelines-of-e-commerce-checkout-design
- Shopping Cart Usability: http://uxmag.com/articles/shopping-cart-usability
- 107 Add to Cart Buttons of the Top Online Retailers: http://www.getelastic.com/add-to-cart-buttons

Write a one-page report that describes shopping cart usability issues that web designers should be aware of. Cite the URLs of the resources you used.

WEBSITE CASE STUDY

Adding a Catalog Page for an Online Store

Each of the following case studies has continued throughout most of the text. This chapter adds a catalog page for an online store to the websites. This catalog page will connect to sample shopping cart and order pages on the textbook website at http://www.webdevfoundations.net.

JavaJam Coffee House

See Chapter 2 for an introduction to the JavaJam Coffee House case study. Use the Chapter 9 JavaJam website as a starting point for this case study. As frequently happens with websites, the client, Julio Perez, is pleased with the response to the site and has an idea about a new use for it—selling JavaJam gear, such as T-shirts and coffee mugs. This new page, gear.html, will be part of the main navigation of the site. All pages should link to it. A revised site map is shown in Figure 12.5.

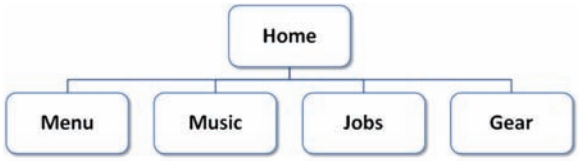

Figure 12.5 Revised JavaJam site map

The Gear page should contain a description, image, and price for each product. It should link to a shopping cart system when the visitor wants to purchase an item. You may access a demonstration shopping cart/ordering system provided by the textbook's website. If you have access to a different shopping cart system, check with your instructor and ask if you can use it instead.

You have four tasks in this case study:

1. Create a new folder for this JavaJam case study.
2. Modify the main navigation on each page to include a link to the new Gear page.
3. Modify the javajam.css external CSS file.
4. Create the new Gear page (gear.html) shown in Figure 12.6.

Hands-On Practice Case Study

Task 1: Create a Folder. Create a folder called javajam12. Copy all of the files from your Chapter 9 javajam9 folder into the javajam12 folder. Copy the javamug.jpg, javashirt.jpg, and herocouch.jpg images from the chapter 12 folder in the student files and save them to your javajam12 folder.

Task 2: Update the Navigation on Each Page. Launch a text editor and open the home page (index.html). Add a new list item and hyperlink in the main navigation area that displays the text "Gear" and links to the file gear.html. See Figure 12.6 for an example of the navigation area. Save the file. Edit the Menu (menu.html), Music (music.html), and Jobs (jobs.html) pages in a similar manner and save each file.

Task 3: Configure the CSS. Launch a text editor and open javajam.css.

a. Add a new style rule to configure a class named `clearleft` that has a 1em margin and will clear a left float.

a. Configure a new id named `#herocouch` with 250px height that displays the herocouch.jpg image in 100% of the background. Use the `#heroguitar` id as a guide as you code the styles.

Task 4: Create the New Gear Page. One way to be productive is to create pages based on your earlier work. Launch a text editor and open the Music page (music.html). Save the file

Figure 12.6 New JavaJam Gear page

as gear.html. This will give you a head start and ensure that the pages on the website are similar. Perform the following modifications:

a. Change the page title to an appropriate phrase.
b. Assign the div to an id named `herocouch`.
c. Change the text within the h2 element to "JavaJam Gear".
d. Delete the contents and HTML elements within the main element that are below the h2 element.
e. Place each sentence below in a separate paragraph:

   JavaJam gear not only looks good, it's good to your wallet, too.

   Get a 10% discount when you wear a JavaJam shirt or bring in your JavaJam mug!
f. Configure an image element to display the javashirt.jpg graphic. Assign the image to the `floatleft` class.
g. Configure the following text in a paragraph: "JavaJam shirts are comfortable to wear to school and around town. 100% cotton. XL only. $14.95"
h. Code a line break tag below the paragraph. Assign the line break tag to the `clearleft` class.
i. Configure an image element to display the javamug.jpg graphic. Assign the image to the `floatleft` class.
j. Configure the following text in a paragraph: "JavaJam mugs carry a full load of caffeine (12 oz.) to jump-start your morning. $9.95".

k. Code a line break tag below the paragraph. Assign the line break tag to the `clearleft` class.

l. Each item for sale has an "Add to Cart" button, which is contained within a form with an action attribute set to the http://www.webdevfoundations.net/scripts/cart.asp server-side script. Remember that whenever you use server-side scripts, there will be some documentation or specifications for you to follow. This script processes a limited shopping cart that works with two items only. The gear.html web page will pass information to the script by using hidden fields in the form that contains the button to invoke the script. Please pay careful attention to detail when working on this.

   To place the shopping cart button for the T-shirt, add the following code below the paragraph that describes the T-shirt and above the line break tag.

```
<form method="post"
    action="http://www.webdevfoundations.net/scripts/cart.asp">
    <input type="hidden" name="desc1" id="desc1" value="JavaJam Shirt">
    <input type="hidden" name="cost1" id="cost1" value="14.95">
    <input type="submit" value="Add to Cart">
</form>
```

   This HTML invokes a server-side script that processes a demonstration shopping cart. The hidden fields named `desc1` and `cost1` are sent to the script when the Submit button is clicked. These indicate the name and cost of the item.

   The process for adding the shopping cart button for the mug is similar, using hidden form fields named `desc2` and `cost2`. Add the following code below the paragraph that contains the description of the mug.

```
<form method="post"
    action="http://www.webdevfoundations.net/scripts/cart.asp">
    <input type="hidden" name="desc2" id="desc2" value="JavaJam Mug">
    <input type="hidden" name="cost2" id="cost2" value="9.95">
    <input type="submit" value="Add to Cart">
</form>
```

Save your page and test it in a browser. It should look similar to the one shown in Figure 12.6. Click the Add to Cart buttons for the JavaJam shirt and mug. The demonstration shopping cart will display and your screen should look similar to the one shown in Figure 12.7.

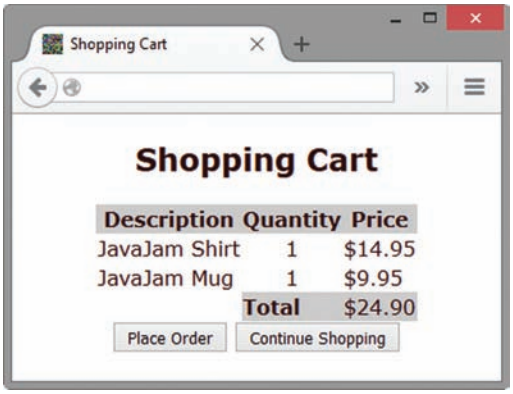

Figure 12.7 A Shopping Cart page created by the server-side script that processes the shopping cart and order

Experiment with the cart and try to purchase both items. Simulate placing an order, as shown in Figure 12.8. The shopping cart and order pages are for demonstration purposes only.

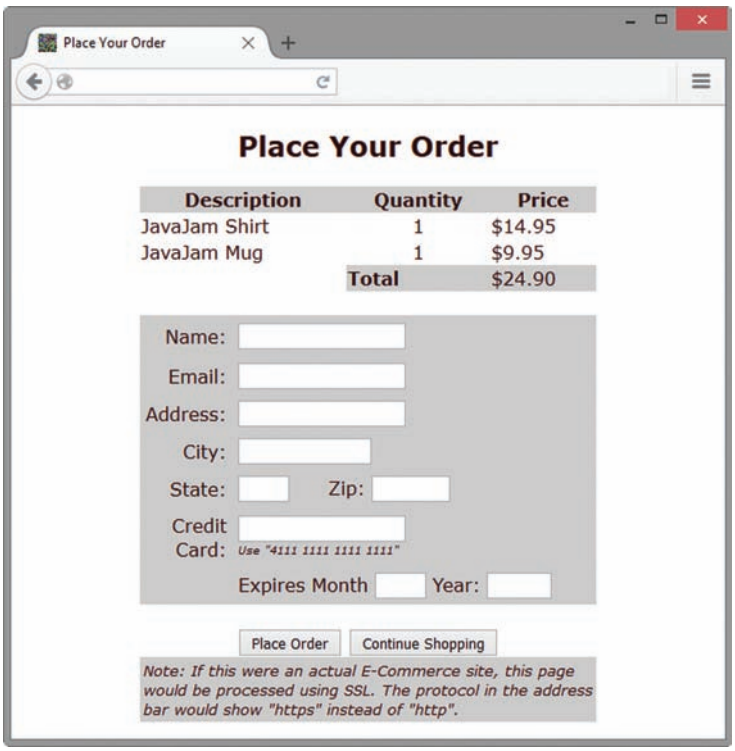

Figure 12.8 An Order page created by the server-side script that processes the shopping cart order

FAQ How does the cart.asp server-side script work?

The cart.asp file is an ASP script. It is coded to accept a number of form fields and to process them. It creates a web page based on the values and fields that were passed to it. Table 12.3 shows the form fields and values used by the cart.asp file.

Table 12.3 Specifications for cart.asp

Script URL	http://www.webdevfoundations.net/scripts/cart.asp	
Processing	This script accepts product and price information, displays a shopping cart, and finally displays an order page.	
Limitation	This script can only handle two products.	
Input Elements	desc1	Contains the description of the first product. It is displayed on the Shopping Cart page.
	cost1	Contains the per item cost of the first product. It is displayed on the Shopping Cart page.
	desc2	Contains the description of the second product. It is displayed on the Shopping Cart page.
	cost2	Contains the per item cost of the second product. It is displayed on the Shopping Cart page.
	view	If the value is "yes", the shopping cart is displayed.
Output	Shopping Cart web page	Displays the shopping cart. The web page visitor is given the option to continue shopping or to display the Order page to place an order.
	Order web page	Displays an order form. The web page visitor is given the option to place the order or to continue shopping.
	Order Confirmation page	Displays a message to confirm that an order was placed. If this were an actual website, the order would also be saved in a server-side file or database.

Fish Creek Animal Hospital

See Chapter 2 for an introduction to the Fish Creek Animal Hospital case study. You will use the Chapter 9 fishcreek9 folder as the starting point for this case study.

After a site is initially created, it's typical for a client to think of new ideas for the website. The owner of Fish Creek, Magda Patel, is pleased with the response to the site and has a new use for it—selling sweatshirts and tote bags with the Fish Creek logo. She already has these materials for sale at her front desk in the animal hospital and her customers seem to like them. This new Shop page (shop.html) will be part of the main navigation of the site. All pages should link to it. A revised site map is shown in Figure 12.9.

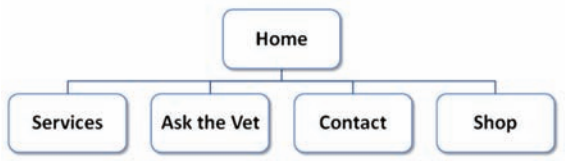

Figure 12.9 Revised Fish Creek site map

The Shop page should contain the description, image, and price of each product. It should link to a shopping cart system when the visitor wants to purchase an item. You may access a demonstration shopping cart/ordering system provided by the textbook's website. If you have access to a different shopping cart system, check with your instructor and ask if you can use it instead.

You have four tasks in this case study:

1. Create a new folder for this Fish Creek case study.
2. Modify the main navigation on each page to include a link to the new Shop page.
3. Modify the fishcreek.css external CSS file.
4. Create the new Shop page (shop.html) shown in Figure 12.10.

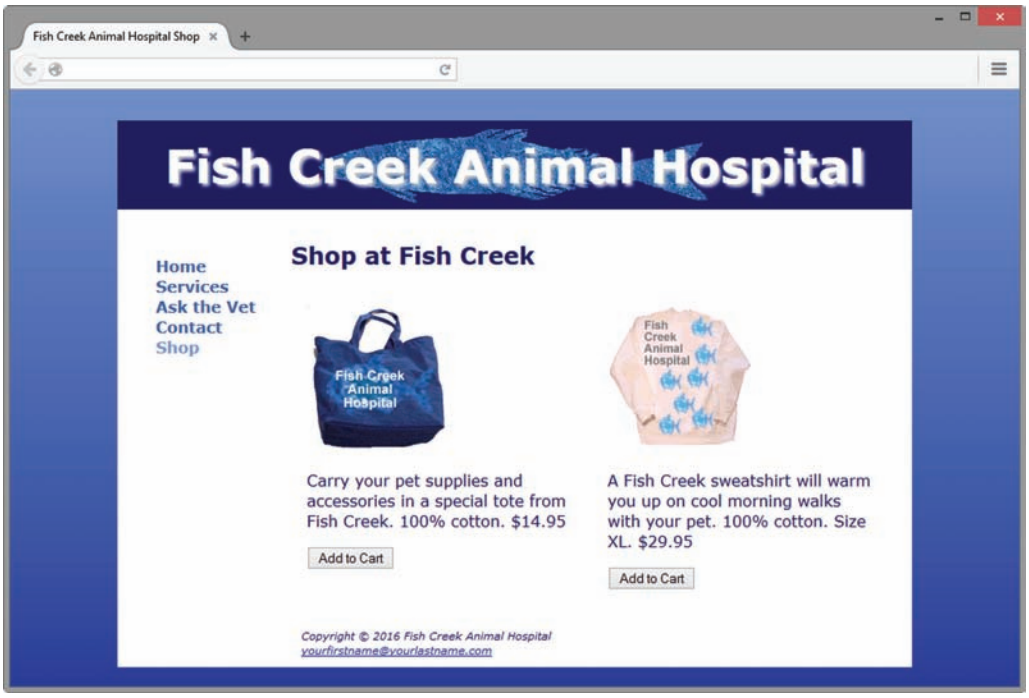

Figure 12.10 New Fish Creek Shop page

Hands-On Practice Case

Task 1: Create a Folder. Create a folder called fishcreek12. Copy all of the files from your Chapter 9 fishcreek9 folder into the fishcreek12 folder. Copy the fishtote.gif and fishsweat.gif images from the chapter12 folder in the student files and save them to your fishcreek12 folder.

Task 2: Update the Navigation on Each Page. Launch a text editor and open the home page (index.html). Add a new list item and hyperlink in the main navigation area that displays the text "Shop" and links to the file shop.html. See Figure 12.10 for an example of the navigation area. Save the file. Edit the Services (services.html), Ask the Vet (askvet.html), and Contact (contact.html) pages in a similar manner. Save each file.

Task 3: Configure the CSS. Launch a text editor and open the fishcreek.css file.

a. Configure a class named `shop` which will contain each item for sale on the Shop page. Configure the `shop` class with 50% width, left float, and 1em of padding.

b. Add a style declaration to footer element selector that clears all floats.

Task 4: Create the New Shop Page. One way to be productive is to create pages based on your earlier work. Launch a text editor and open the home page (index.html). Save the file as shop.html. This will give you a head start and ensure that the pages on the website are similar. Perform the following modifications:

a. Change the page title to an appropriate phrase.

b. Delete the content and HTML elements within the main element.

c. Configure the following text in an h2 element: "Shop at Fish Creek".

d. Create a div that is assigned to the `shop` class. The div will contain an image, a description and a form that will process the Add to Cart button. Configure the fishtote.gif image below the opening div tag. You will configure the description below the image. Type the following descriptive text in a paragraph: "Carry your pet supplies and accessories in a special tote from Fish Creek. 100% cotton. $14.95".

e. Create another div that is assigned to the `shop` class. The div will contain an image, a description and a form that will process the Add to Cart button. Configure the fishsweat.gif image below the opening div tag. You will configure the description below the image. Type the following descriptive text in a paragraph: "A Fish Creek sweatshirt will warm you up on cool morning walks with your pet. 100% cotton. Size XL. $29.95".

f. Next, we will add a shopping cart button to each item for sale. This shopping cart button is placed in a form after the paragraph in each `shop` div. The action for the form is http://www.webdevfoundations.net/scripts/cart.asp. Remember that whenever you use server-side scripts, there will be some documentation or specifications for you to follow. This script processes a limited shopping cart that works with two items only. The shop.html web page will pass information to the script by using hidden fields in the form that contains the button to invoke the script. Please pay careful attention to detail when working on this.

To place the shopping cart button for the tote, add the following code below the paragraph with the tote's description and within the `shop` div:

```
<form method="post"
action="http://www.webdevfoundations.net/scripts/cart.asp">
  <input type="hidden" name="desc1" id="desc1" value="Fish
  Creek Tote">
  <input type="hidden" name="cost1" id="cost1" value="14.95">
  <input type="submit" value="Add to Cart">
</form>
```

This HTML invokes a server-side script that processes a demonstration shopping cart. The hidden fields named `desc1` and `cost1` are sent to the script when the Submit button is clicked. These indicate the name and cost of the item.

The process for adding the shopping cart button for the sweatshirt is similar, using hidden form fields named `desc2` and `cost2`. The HTML is

```
<form method="post"
action="http://www.webdevfoundations.net/scripts/cart.asp">
   <input type="hidden" name="desc2" id="desc2" value="Fish
   Creek Shirt">
   <input type="hidden" name="cost2" id="cost2" value="29.95">
   <input type="submit" value="Add to Cart">
</form>
```

Save your page and test it in a browser. It should look similar to the one shown in Figure 12.10. Click the Add to Cart button for the tote. The demonstration shopping cart will display and your screen should look similar to the one shown in Figure 12.7. Experiment with the cart and try to purchase both items. You can simulate placing an order, as shown in Figure 12.8. The shopping cart and order pages are for demonstration purposes only.

Pacific Trails Resort

See Chapter 2 for an introduction to the Pacific Trails case study. You will use the Chapter 9 pacific9 folder as the starting point for this case study.

As often happens with websites, the client, Melanie Bowie, is pleased with the response to the site and has an idea about a new use for it—selling books that she's written about yoga and hiking at Pacific Trails Resort. She already has these for sale at the resort front desk and her customers seem to like them. This new Shop page (shop.html) will be part of the main navigation of the site. All pages should link to it. A revised site map is shown in Figure 12.11.

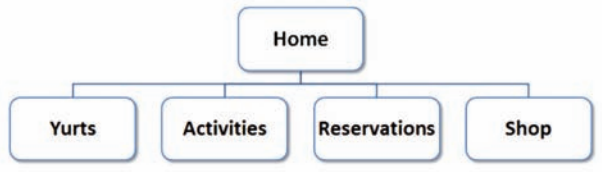

Figure 12.11 Revised Pacific Trails site map

The Shop page should contain the description, image, and price of each book. It should link to a shopping cart system when the visitor wants to purchase an item. You may access a demonstration shopping cart/ordering system available on the textbook's

website. If you have access to a different shopping cart system, check with your instructor and ask if you can use it instead.

You have four tasks in this case study:

1. Create a new folder for this Pacific Trails case study.
2. Modify the main navigation on each page to include a link to the new Shop page.
3. Modify the pacific.css external CSS file.
4. Create the new Shop page (shop.html) shown in Figure 12.12.

Figure 12.12 New Pacific Trails Resort Shop page

Hands-On Practice Case Study

Task 1: Create a Folder. Create a folder called pacific12. Copy all of the files from your Chapter 9 pacific9 folder into the pacific12 folder. Copy the trailguide.jpg and yurtyoga.jpg images from the Chapter12 folder in the student files and save them to your pacific12 folder.

Task 2: Update the Navigation on Each Page. Launch a text editor and open the home page (index.html). Add a new list item and hyperlink in the main navigation area that displays the text "Shop" and links to the file shop.html. See Figure 12.12 for an example of the navigation area. Save the file. Edit the Yurts (yurts.html), Activities (activities.html), and Reservations (reservations.html) pages in a similar manner. Save each file.

Task 3: Configure the CSS. Launch a text editor and open the pacific.css file. Configure a class named `leftfloat` that floats to the left with margin set to 1em. Configure a class named `clear` that clears all floats.

Task 4: Create the new Shop page. One way to be productive is to create pages based on your earlier work. Launch a text editor and open the Reservations page (reservations.html). Save the file as shop.html. This will give you a head start and ensure that the pages on the website are similar. Perform the following modifications:

a. Change the page title to an appropriate phrase.

b. Change the text within the h2 element to "Shop at Pacific Trails".

c. Delete the other content and HTML elements within the main element.

d. Write the HTML to display the trailguide.jpg image. Assign the image to the `leftfloat` class.

e. Configure an h3 element to display "Pacific Trails Hiking Guide".

f. Code a paragraph that will display the text description: "Guided hikes to the best trails around Pacific Trails Resort. Each hike includes a detailed route, distance, elevation change, and estimated time. 187 pages. Softcover. $19.95"

g. Each item for sale has an "Add to Cart" button, which is contained within a form with an action attribute set to the http://www.webdevfoundations.net/scripts/cart.asp server-side script. Remember that whenever you use server-side scripts, there will be some documentation or specifications for you to follow. This script processes a limited shopping cart that only works with two items. The shop.html web page will pass information to the script by using hidden fields in the form that contains the button to invoke the script. Please pay careful attention to detail when working on this. To add the shopping cart button for the Hiking Guide book below the description paragraph, write the following code:

```
<form method="post"
  action="http://www.webdevfoundations.net/scripts/cart.asp">
  <input type="hidden" name="desc1" id="desc1" value="Hiking
Guide">
  <input type="hidden" name="cost1" id="cost1" value="19.95">
  <input type="submit" value="Add to Cart">
</form>
```

This HTML invokes a server-side script that processes a demonstration shopping cart. The hidden fields named `desc1` and `cost1` are sent to the script when the Submit button is clicked. These indicate the name and cost of the item.

h. Code a line break element assigned to the `clear` class.

i. Write the HTML to display the yurtyoga.jpg image. Assign the image to the `leftfloat` class.

j. Configure an h3 element to display "Yurt Yoga".

k. Code a paragraph that will display the text description: "Enjoy the restorative poses of yurt yoga in the comfort of your own home. Each pose is illustrated with several photographs, an explanation, and a description of the restorative benefits. 206 pages. Softcover. $24.95"

l. Configure the Add to Cart button by writing the following HTML for the form with the shopping cart button:

```
<form method="post"
  action="http://www.webdevfoundations.net/scripts/cart.asp">
  <input type="hidden" name="desc2" id="desc2" value="Yurt Yoga">
  <input type="hidden" name="cost2" id="cost2" value="24.95">
  <input type="submit" value="Add to Cart">
</form>
```

This HTML invokes a server-side script that processes a demonstration shopping cart. The hidden fields named `desc2` and `cost2` are sent to the script when the Submit button is clicked. These indicate the name and cost of the item.

m. Code a line break element assigned to the `clear` class.

Save your page and test it in a browser. It should look similar to the one shown in Figure 12.12. Click the Add to Cart button for one of the books. The demonstration shopping cart will display and your screen should look similar to the one shown in Figure 12.7. Experiment with the cart and try to purchase both items. You can simulate placing an order, as shown in Figure 12.8. The shopping cart and order pages are for demonstration purposes only.

Path of Light Yoga Studio

See Chapter 2 for an introduction to the Path of Light Yoga Studio case study. You will use the Chapter 9 yoga9 folder as the starting point for this case study.

The owner, Ariana Starrweaver is thrilled with the new website and would like to add an online store to sell her preferred yoga mats, blankets, and blocks. The new Store page (store.html) will be part of the main navigation of the site. All pages should link to it. A revised site map is shown in Figure 12.13.

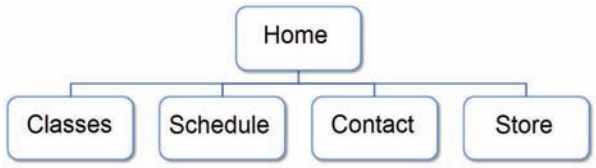

Figure 12.13 Revised Path of Light Yoga Studio site map

The Store page, shown in Figure 12.14, should display a photo and provide information about the two yoga sets available for purchase (with the description and price of each set). You may access a demonstration shopping cart/ordering system provided by the textbook's website. If you have access to a different shopping cart system, check with your instructor and ask if you can use it instead.

You have four tasks in this case study:

1. Create a new folder for this Path of Light Yoga Studio case study.
2. Modify the main navigation on each page to include a link to the new Store page.
3. Modify the yoga.css external CSS file.
4. Create the new Store page (store.html) shown in Figure 12.14.

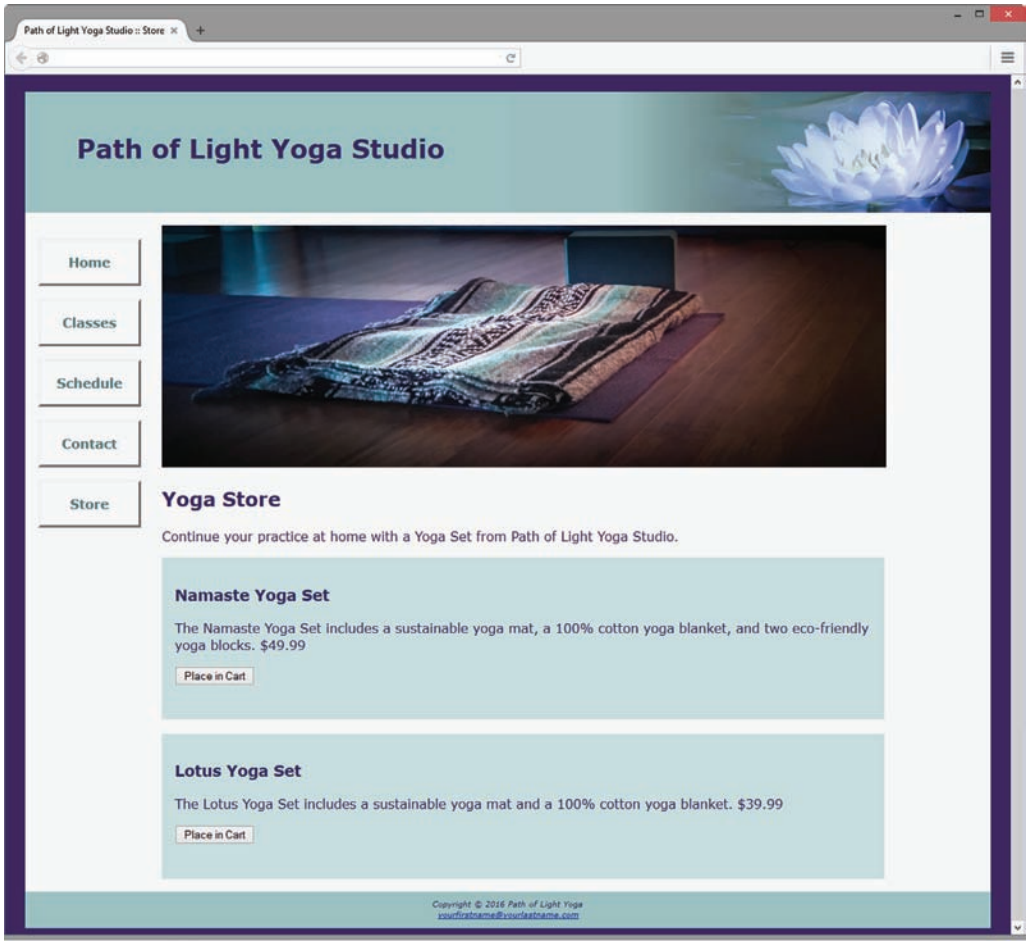

Figure 12.14 New Path of Light Yoga Studio Store page

Hands-On Practice Case Study

Task 1: Create a Folder. Create a folder called yoga12. Copy all of the files from your Chapter 9 yoga9 folder into the yoga12 folder. Copy the store.jpg image from the Chapter12 folder in the student files and save it to your yoga12 folder.

Task 2: Update the Navigation on Each Page. Launch a text editor and open the home page (index.html). Add a new list item and hyperlink in the main navigation area that displays the text "Store" and links to the file store.html. See Figure 12.14 for an example of the navigation area. Save the file. Edit the Classes (classes.html), Schedule (schedule.html), and Contact (contact.html) pages in a similar manner. Save each file.

Task 3: Configure the CSS. Launch a text editor and open the yoga.css file. Configure a section element selector with 90% width, 1em padding, 0 left margin, 0 right margin, 1em top margin, 1em bottom margin, and #C8DDDE background color. Configure a descendant selector to set 0 padding for forms within the section element. Hint: `section form`.

Task 4: Create the New Store Page. One way to be productive is to create pages based on your earlier work. Launch a text editor and open the Schedule page (schedule.html). Save the file as store.html. This will give you a head start and ensure that the pages on the website are similar. Perform the following modifications:

a. Change the page title to an appropriate phrase.

b. Display the store.jpg image in the div assigned to the `hero` id. Configure appropriate alt text.

c. Change the Yoga Schedule heading to Yoga Store.

d. Delete the other text and HTML within the main element related to the schedule content.

e. Place your cursor on the line after the Store heading. Create a paragraph with the following text:

   "Continue your practice at home with a Yoga Set from Path of Light Yoga Studio."

f. Information about each item will be contained within a section element. Code an opening section tag. Configure an h3 element to display the text "Namaste Yoga Set".

g. Configure a paragraph with the following text: "The Namaste Yoga Set includes a sustainable yoga mat, a 100% cotton yoga blanket, and two eco-friendly yoga blocks. $49.99"

h. Next, we will add a shopping cart button. The action on the form is the script called http://webdevfoundations.net/scripts/cart.asp. Remember that whenever you use server-side scripts, there will be some documentation or specifications for you to follow. This script processes a limited shopping cart that only works with two items. The store.html web page will pass information to the script by using hidden fields in the form that contains the button to invoke the script. Please pay careful attention to detail when working on this.

   To place the shopping cart button for the Namaste Yoga Set, add the following code below the paragraph:

```
<form method="post"
action="http://www.webdevfoundations.net/scripts/cart.asp">
    <input type="hidden" name="desc1" id="desc1"
    value="Namaste Yoga Set">
    <input type="hidden" name="cost1" id="cost1" value="49.99">
    <input type="submit" value="Place in Cart">
</form>
```

   This HTML invokes a server-side script that processes a demonstration shopping cart. The hidden fields named `desc1` and `cost1` are sent to the script when the Submit button is clicked. These indicate the name and cost of the item.

i. Code a closing section tag.

j. Code an opening section tag and configure an h3 element to display the text "Lotus Yoga Set".

k. Configure a paragraph with the following text: "The Lotus Yoga Set includes a sustainable yoga mat and a 100% cotton yoga blanket. $39.99"

l. Configure the shopping cart button for the Lotus Yoga Set is similar, using the hidden form fields `desc2` and `cost2`. The HTML is

```
<form method="post"
action="http://www.webdevfoundations.net/scripts/cart.asp">
   <input type="hidden" name="desc2" id="desc2"
   value="Lotus Yoga Set">
   <input type="hidden" name="cost2" id="cost2" value="39.99">
   <input type="submit" value="Place in Cart">
</form>
```

m. Code a closing section tag. Save your page and test it in a browser. It should look similar to the one shown in Figure 12.14. Click the Place in Cart button for the Lotus Yoga Set. The demonstration shopping cart will display and your screen should be similar to the one pictured in Figure 12.7. Experiment with the cart and try to purchase both items. You can simulate placing an order, as shown in Figure 12.8. The shopping cart and order pages are for demonstration purposes only.

Web Project

See Chapter 5 for an introduction to the Web Project. Review the goals of your website and determine whether they include an e-commerce component. If so, you will add this component to your web project.

Hands-On Practice Case Study

Revise the site map as needed to include the e-commerce component. Perhaps you will add a Products page to your website. Perhaps the Products page already exists and you are just adding functionality to the page. In either case, make sure that the site map and content sheets reflect the new processing.

There are a number of free or low-cost shopping cart providers on the Web. Some are provided in the following list. Your instructor may have additional resources or suggestions. Choose one of the providers from the list in order to add a shopping cart to your website. When you subscribe or sign up for these services, be sure to note any potential costs.

- Mal's e-commerce (free and low-cost service): http://www.mals-e.com
- PayPal (there is a cost per transaction for this service): http://www.paypal.com
- JustAddCommerce (free trial): http://www.richmediatech.com

Save and test your page. Experiment with the shopping cart. Welcome to the world of e-commerce!