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An introduction to ASP.NET programming

This chapter introduces you to the basic concepts of web programming and ASP.NET. Here, you'll learn how web applications work and what software you need for developing ASP.NET web applications. You'll also see how the HTML code for a web form is coordinated with the C# code that makes the web form work the way you want it to. When you finish this chapter, you'll have the background that you need for learning how to develop ASP.NET web applications with Visual Studio 2015.

An introduction to web applications

A *web application* consists of a set of *web pages* that are generated in response to user requests. The Internet has many different types of web applications, such as search engines, online stores, auctions, news sites, social sites, and games.

Two pages of a Shopping Cart application

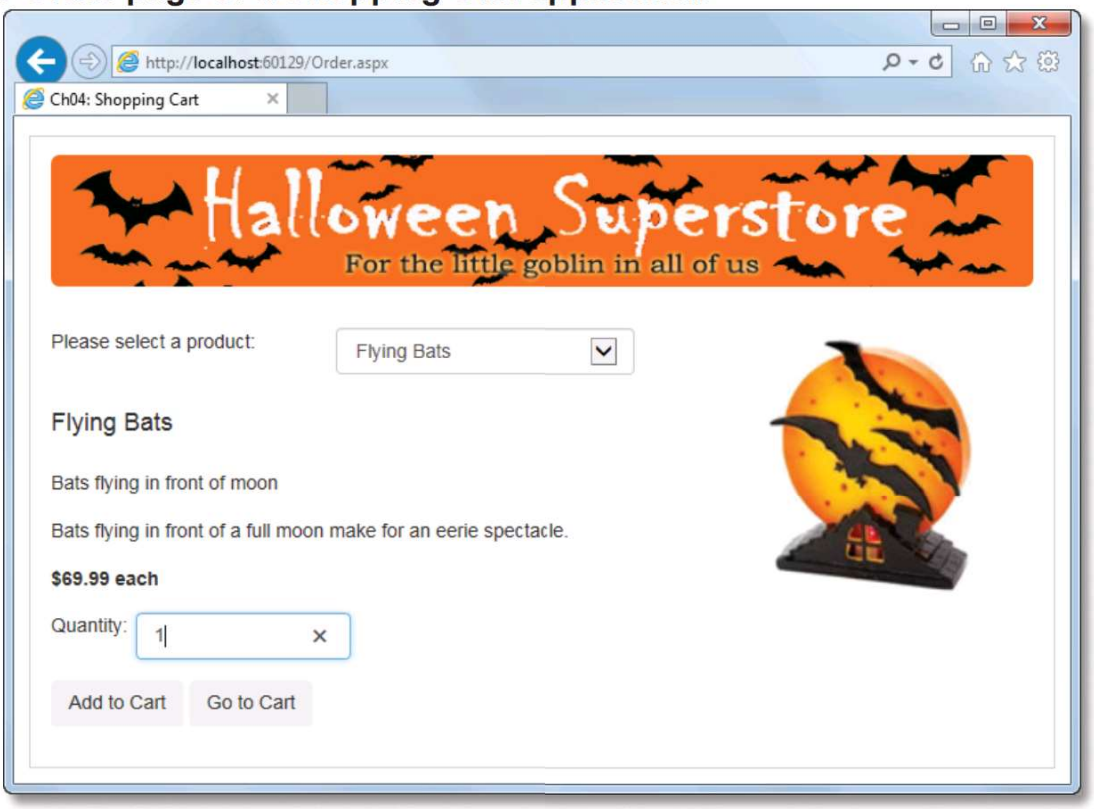
Figure 1-1 shows two pages of an ASP.NET web application. In this case, the application is for an online store that lets users purchase Halloween products, including costumes, masks, and decorations. In chapter 4, you'll learn how to build this application.

The first web page in this figure is used to display information about the products that are available from the Halloween store. To select a product, you use the drop-down list that's below the banner at the top of the page. Then, the page displays information about the product including a photo, short and long descriptions, and the product's price. The application gets the data for these pages from a database.

If you enter a quantity in the text box near the bottom of the page and click the Add to Cart button, the second page in this figure is displayed. This page lists the contents of your shopping cart and provides several buttons that let you remove items from the cart, clear the cart, return to the previous page to continue shopping, or proceed to a checkout page.

Of course, the complete Halloween Superstore application also contains other pages. For example, if you click the Check Out button in the second page, you're taken to a page that lets you enter the information for completing the order. As you go through this book, you'll learn how to add other pages to this application.

The Order page of a Shopping Cart application



The Cart page of a Shopping Cart application

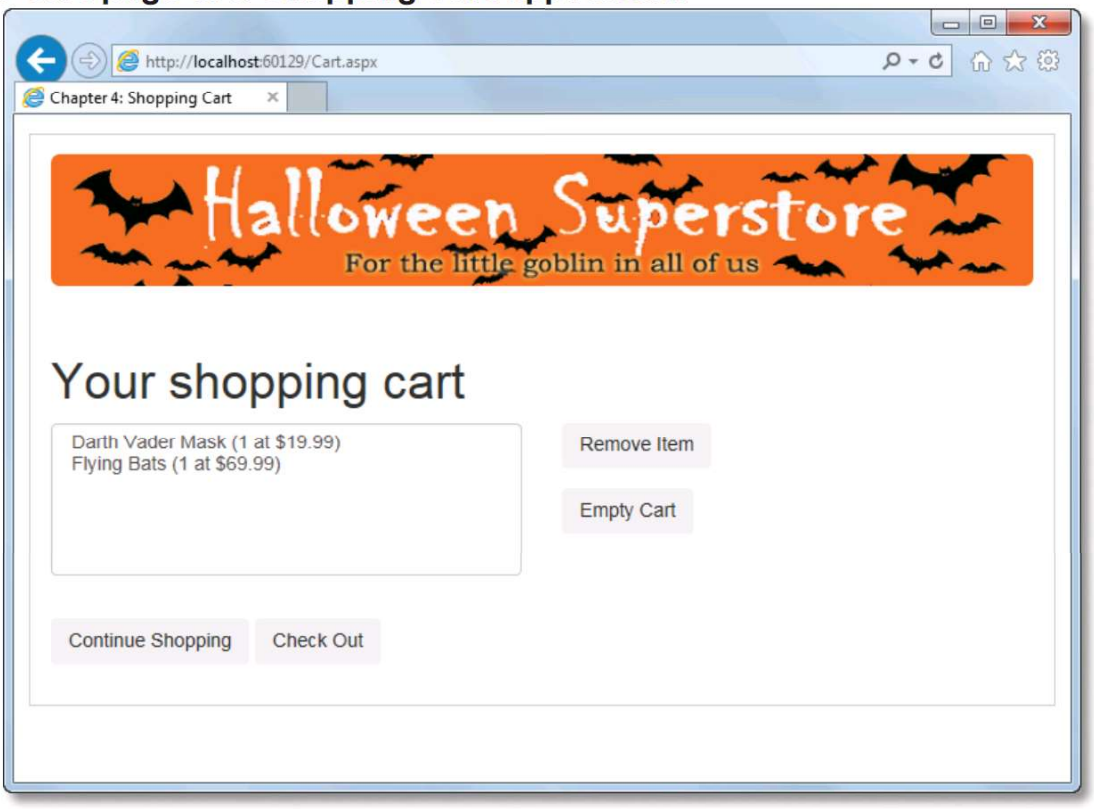


Figure 1-1 Two pages of a Shopping Cart application

The components of a web application

The diagram in figure 1-2 shows that web applications consist of *clients* and a *web server*. The clients are the computers, tablets, and mobile devices that use the web applications. They access the web pages through programs known as *web browsers*. The web server holds the files that make up the pages of a web application.

A *network* is a system that allows clients and servers to communicate. The *Internet* is a large network that consists of many smaller networks. In a diagram like the one in this figure, the "cloud" represents the network or Internet that connects the clients and servers.

Networks can be categorized by size. A *local area network* (*LAN*) is a small network of computers that are near each other and can communicate with each other over short distances. Computers in a LAN are typically in the same building or adjacent buildings. This type of network is often called an *intranet*, and it can run web applications that are used throughout a company.

In contrast, a *wide area network* (*WAN*) consists of multiple LANs that have been connected. To pass information from one client to another, a router determines which network is closest to the destination and sends the information over that network. A WAN can be owned privately by one company or it can be shared by multiple companies.

An *Internet service provider* (*ISP*) is a company that owns a WAN that is connected to the Internet. An ISP leases access to its network to companies that need to be connected to the Internet. When you develop production web applications, you will often implement them through an ISP.

To access a web page from a browser, you can type a *URL* (*Uniform Resource Locator*) into the browser's address area and press Enter. The URL starts with the *protocol*, which is usually HTTP. It is followed by the *domain name* and the folder or directory *path* to the file that is requested. If the file name is omitted in the URL, the web server looks for a default file in the specified directory. The default files usually include index.html, index.htm, default.html, and default.htm.