

CHAPTER *10*

Programs and Languages

In this chapter you will learn about:

- © The programs used by designers for graphic design, blogging, databasing, and site creation
- © Some of the popular languages Web developers use to make their sites come to life

This chapter finally takes you out of the world of marketing and back into the more familiar, more logical world of Web-related programs and languages. This is the magic that works behind the marketing—the stuff that pulls it all together. As the Web evolves and matures into a richer, more robust arena, the programs and languages that are used to develop sites and applications rise and fall in popularity. These tools are constantly changing to meet the needs of the market and expanding to give programmers greater capabilities to develop effective, dynamic sites.

The number of programs and languages that are used in site development is extensive—far more than we could hope to cover in a book on Web marketing. This chapter will discuss the programs and languages that developers most commonly use in creating sites. We will talk about the situations in which they would most likely be used and the benefits developers get from each one.

One fact that most programmers come to understand early in their careers is that the developer/marketer relationship is seldom a two-way street. Programmers are typically expected to understand Web sites from a marketing standpoint—why the sites are being developed, the intended audience, ways to drive traffic to a site and keep it there. On the other hand, the eyes of most marketers will often glaze over at the first hint of a programming conversation. They may understand what certain programs and languages can do, but most will not have the patience or training to understand Web programming to the depth that a programmer does. This chapter is not meant to be a discussion on how to program a site. Rather, it presents an overview of programs and languages that will be relevant to marketers.

Relevant Programs and Applications

Off-the-shelf programs and Web-based applications are used by professionals for different aspects of site creation, including everything from graphic design to site construction. In the following sections, we will discuss some programs and applications that help developers construct Web sites, create Web graphics, set up blogs, and utilize databases.

Graphic Design

Design programs allow graphic designers to create, edit, and save graphics that provide the visual features on Web sites. Although some designers may choose to use less well-known programs for creating their graphics, Web design is really dominated by two key programs.

Photoshop

Developed by Adobe Systems, Photoshop is the predominant computer-based design program, largely viewed as the Microsoft Word for the design world. Practically any image today in print or on the Web has passed through Photoshop at some point prior to publication. It is unlikely that a professional graphic designer could reach a significant level of success without having at least a partial understanding of this tool. Figure 10-1 shows the Photoshop interface.

339

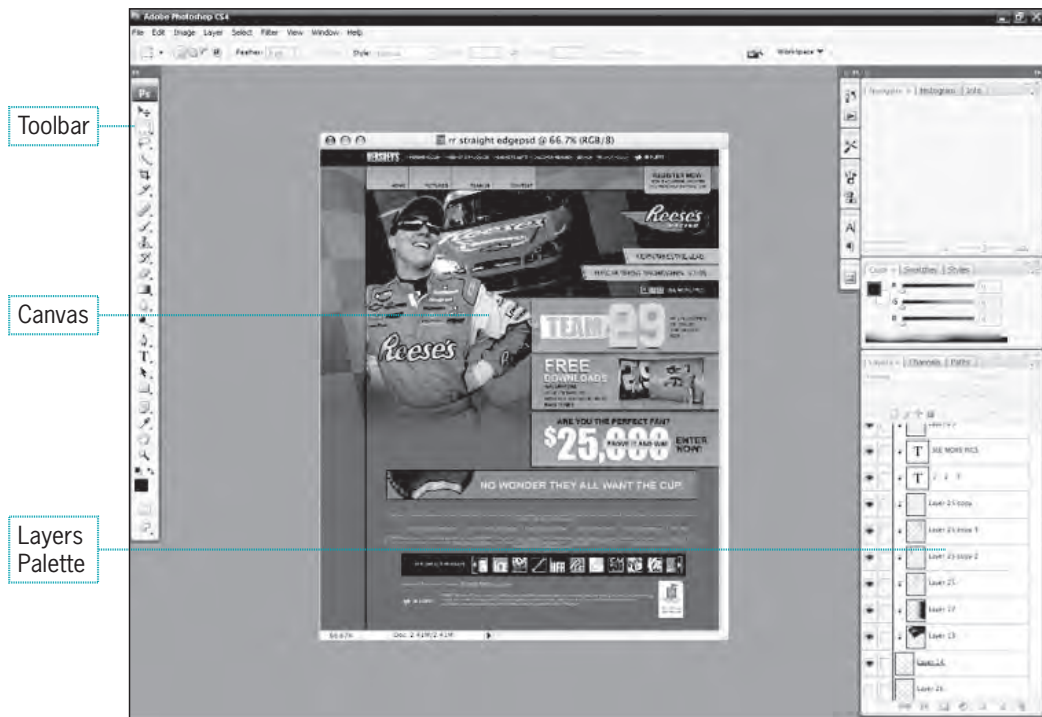


Figure 10-1 The Photoshop interface. On the canvas is a Web site being designed in Photoshop. Once final, each graphic element will be extracted and saved separately, and the site will be reassembled using coding.

Photoshop can be difficult to master, but it is exceptionally powerful in creating graphics, manipulating or editing photography, and developing special effects for graphics (such as drop shadows, bevels, and embosses). It gives designers complete control over image sizes, file format, resolution, colors, and even background transparency. Web designers use Photoshop for everything from preparing standard graphics and images for publication to creating customized buttons for their sites to laying out an entire site. Designers often design all

elements of a site in Photoshop first, using the program's layers feature to house individual graphics, and then pull each element out individually to build the site once approval has been granted for the overall design. Photoshop also offers powerful tools for compressing images and creating **animated GIFs** (an animation made up of a series of individual graphics, which plays like a flip-book).

Flash

Also produced by Adobe Systems (after their 2005 acquisition of Macromedia, the company that originally developed Flash), Flash has had a resounding impact on the Web's growth. Earlier in this book, we studied how the Flash player has revolutionized Web-based video; it is the driving force behind YouTube and other video-sharing sites. As a graphics application, Flash helps designers create illustration-style animation and interactivity, giving sites more activity and motion. Flash helps designers draw users' attention to key areas. We will discuss Flash again when we look at Action Scripting, a programming language commonly used when entire sites are created in Flash.

Unlike Photoshop, which works primarily with **bitmap** images (images made up of pixels), Flash is a vector-based program. **Vector graphics** are created from lines and shapes, which are generated by mathematical formulas. With vector graphics, designers can create animations that are very smooth and have a very low file size. Animated GIFs are often choppy and usually have a larger file size, since all of the individual graphics in an animation contribute to the total file size.

Flash works with a timeline-based interface. Using this interface, designers can include individual graphic elements, images, and music at various points across the timeline (the Flash interface is shown in Figure 10-2). In addition, Flash can be used to make highly interactive Web graphics. Designers utilizing Flash can create animations and pop-ups that are immediately triggered when users roll-over or click certain areas. Because of its ease of interactivity and the relatively small file size (allowing each Flash file to load and play with extreme speed), many developers of Web-based games use Flash as their program of choice.

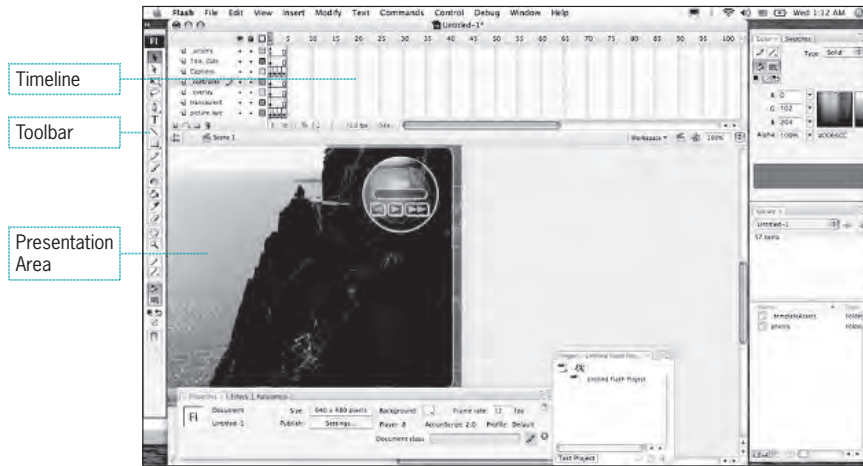


Figure 10-2 The Flash interface. Notice the timeline at the top, which allows designers to create different actions to take place at specific times.

Site Construction

Later in this chapter, we will learn about languages that are used to build larger sites. However, smaller sites with more basic features can be created by someone who does not know any programming at all. The predominant tool for this type of Web site development is a program called Dreamweaver. We will discuss Dreamweaver and other site editors in the sections below.

Dreamweaver and Other WYSIWYG Editors

Anyone want to take a wild guess as to which company makes and markets Dreamweaver? Once again, the company behind one of the most dominant programs within the Web universe is Adobe. Dreamweaver software makes the programming of Web sites simple and straightforward. Dreamweaver is widely considered to be one of the most powerful **WYSIWYG** editors available (WYSIWYG stands for What You See Is What You Get). A WYSIWYG editor is a software application or online editor that allows a designer to see what the final Web page will look like as he or she is creating it.

Dreamweaver allows developers to compile and create Web pages without knowing any programming (although having a basic understanding of HTML certainly helps). Using graphic elements (such as those that can be created in Photoshop or Flash), Dreamweaver users can piece together the pages of their sites, while the program writes the necessary code. Dreamweaver also allows users to create multiple pages and establish the necessary links from one page to another. Users can create an entire multi-page site quickly and easily.

More advanced developers can use Dreamweaver for more complicated sites; although its most popular use is for simple sites developed by non-programmers. Figure 10-3 shows a site being built in Dreamweaver, and Figure 10-4 shows how that same site looks when published on the Web.

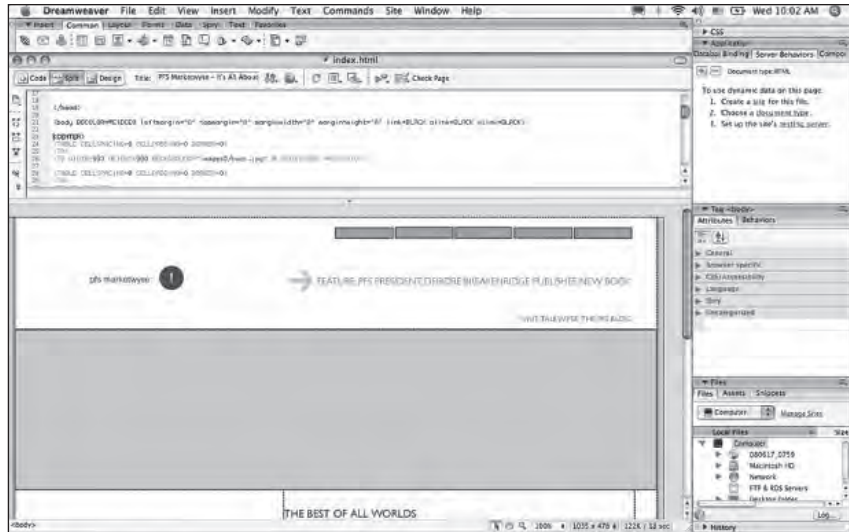


Figure 10-3 The Dreamweaver interface. In this view, the main screen is split, showing the code for the page on top, and a preview of how the page will look on the bottom.

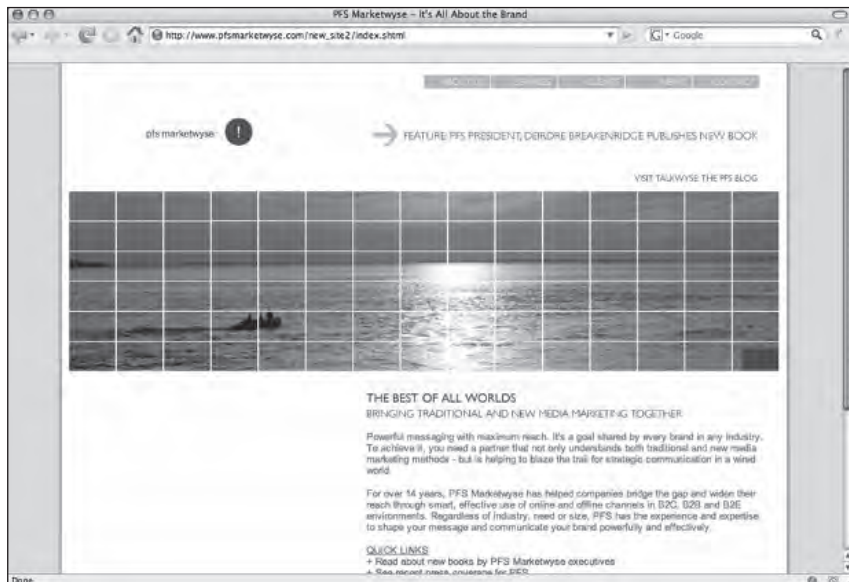


Figure 10-4 The resulting page in a browser after being assembled in Dreamweaver.

Over the years, a number of other WYSIWYG editors have fallen to Dreamweaver's dominance. These include Microsoft's FrontPage, which remained on the market for nearly a decade even though user criticism of the program was strong from its earliest release. FrontPage has since been replaced by two newer products called SharePoint and Expression Web.

Sharepoint has seen increased popularity, particularly among enterprise corporations with a large and diffuse workforce. SharePoint (shown in Figure 10-5) allows users to create Web sites as well as browser-based collaboration workspaces. These collaborative tools include wikis, blogs, and other social media features.

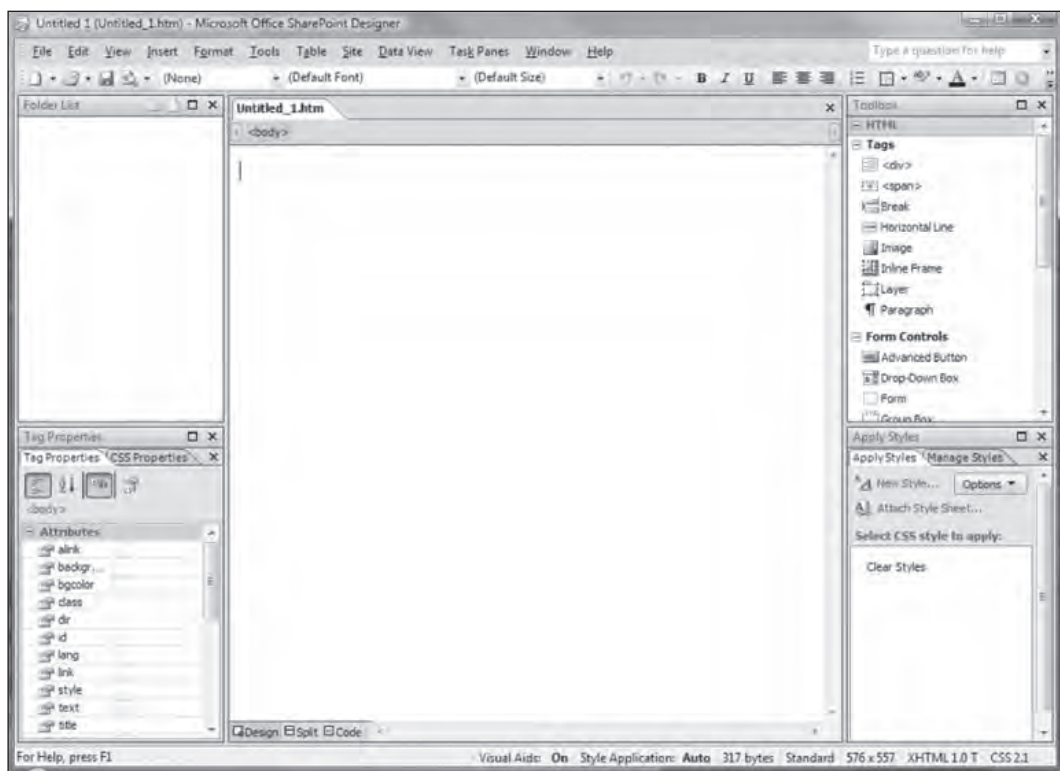


Figure 10-5 The interface for Microsoft SharePoint Designer, used to create SharePoint sites.

Adobe's GoLive is another WYSIWYG editor that has fallen. Adobe halted production of GoLive and recommends that users transition to Dreamweaver. However, there are a number of other WYSIWYG off-the-shelf programs and Web-based applications still available for developers to use. Each comes with its own price and features, and developers need to determine for themselves which one is right for them.

Blogs

Setting up a blog is very simple and typically takes no more than a few minutes. Even better, establishing a blog site is free, and can be done without setting up an external host.

Many different programs can be used to set up a blog. Most of the programs are fairly similar in terms of what users can do with them and how the programs are structured. Because of this similarity, we will review just two of the more popular ones here.

Blogger and WordPress

Blogger, which is owned and operated by Google, and WordPress are each easy to set up and use. Blogger and WordPress provide bloggers with simple interfaces for creating and publishing blogs. While the blog services are free, these sites do reserve the right to place advertising on users' blogs. Users can pay for site upgrades, such as having a more personalized URL, the ability to radically adjust layouts and site designs, more space for image uploads, etc. Once an account has been established with service (the user will need to select a URL, such as `miletsky.wordpress.com`), a simple management tool, or dashboard, will allow the user to:

- Select the desired blog template (design) from a library of pre-created designs (experienced programmers can manipulate these or create their own)
- Set up their blogroll (links to other blogs)
- Set up their blog categories
- Select **widgets** to include on the blog (widgets are small bits of code that can be inserted into a blog to add specific functionality, such as a calendar or mapping device)
- Upload written content
- Load pictures, videos, or music files
- Create external links

As reader comments are left on each blog entry, blog editors can return to the dashboard to review the comment before approving it and allowing it to be publicly posted. This ensures that very offensive remarks or comments that are spam are not posted to the blog. Figure 10-6 shows a screen shot of the Blogger interface, while Figures 10-7 and 10-8 show screen shots from the WordPress dashboard. Figure 10-9 shows the resulting blog site.

People that want to start new blog sites decide which service to use based on a number of variables, most notably which dashboard they feel most comfortable using. Blog creators can also consider which service provides the most useful site templates and which offers the most cost-effective upgrades.

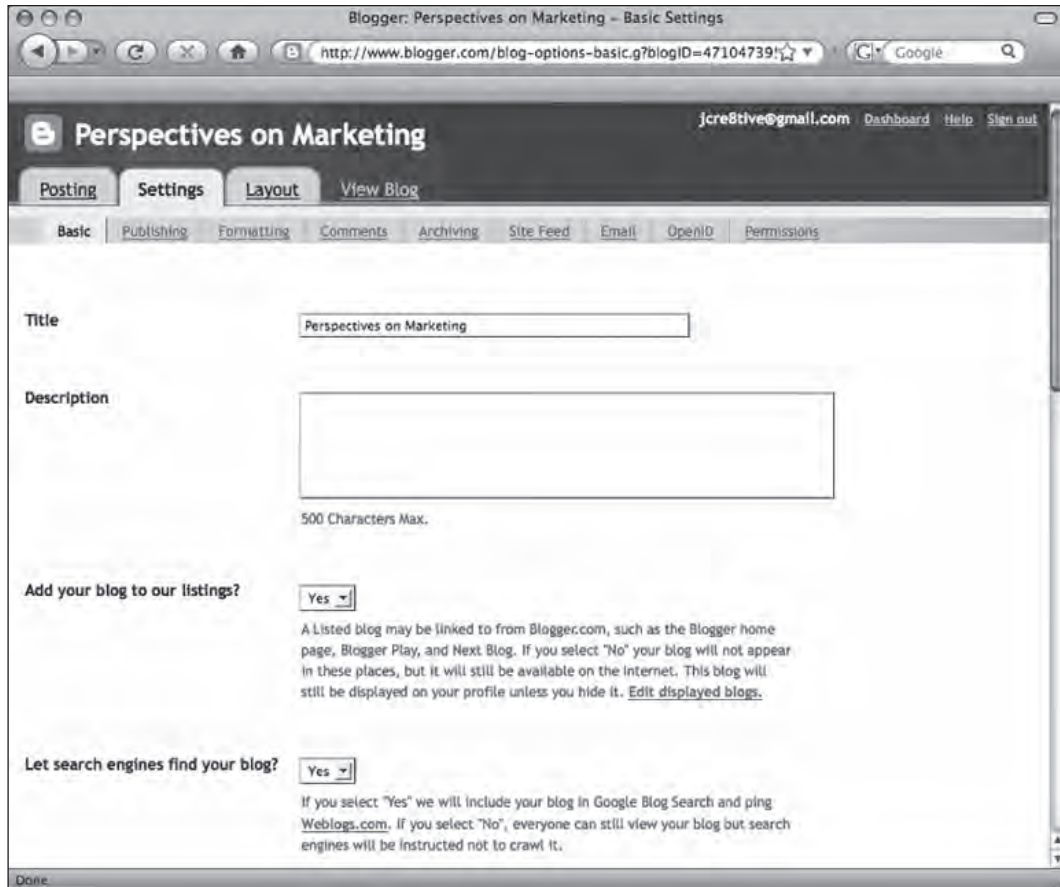


Figure 10-6 The Blogger dashboard.



Figure 10-7 The main dashboard of a blog on WordPress shows the blogger the most recent reader comments, top posts, vital statistics (such as how many visitors have visited the blog and the popularity of each blog post), and what other topics have been posted by other WordPress users.

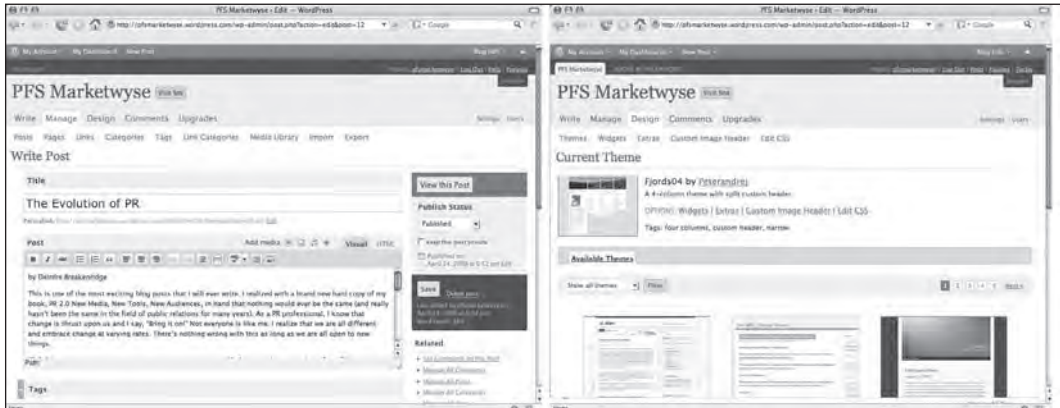


Figure 10-8 On the left, WordPress allows the blogger to create a new post, which can be immediately published or saved. The blogger can add tags to the post and decide whether or not to allow readers to post comments in reply. On the right, users can choose their design, add widgets such as calendars to show when new posts have been uploaded, RSS feeds to show headlines from other blogs and, for those willing to pay a fee, make changes to the layout and look and feel.



Figure 10-9 The resulting blog, after all the setup tasks have been completed in WordPress.

Databases

Like a filing cabinet, databases are used to store data in an organized fashion. Web designers who want to store, save, and organize digital information need to utilize a database. Information that can be stored in a database includes user information, such as name, address, and phone number. Designers also use databases to store site data, such as information on the products in an online store including their descriptions and prices.

Databases are software applications, which each offer different benefits.

MySQL

MySQL was developed by the Swedish company MySQL AB, which is now a subsidiary of Sun Microsystems. MySQL is a popular database choice among Web developers. Although it is more limited in functionality than databases developed by larger competitors such as Oracle, MySQL has gained traction because it is inexpensive, easy to use, and built for speed. MySQL is easy to customize; it allows developers to alter the software to fit their needs. It can also support large databases, is secure, and can run on practically any operating system.

Developers can download MySQL for free if the database will be used for general public use on a Web site—even if the purpose of that site is to generate revenue. Richer versions of the software that include enhanced features, better pre-release testing and optimization, and various levels of technical support are available for a monthly subscription fee.

SQL Server

Developed by Microsoft, SQL Server is one of the leading choices of developers for database software. While SQL Server shares many of the features of MySQL, some fundamental differences are enough to give developers something to think about when deciding between them. There are a number of important differences between them. MySQL is open source, while SQL Server is closed and proprietary. MySQL is cheaper as long as the developer keeps his or her project open source. SQL Server offers more features, but partly because it needs to support so many additional features, SQL Server often does not perform as well as MySQL. Developers decide which option is best for them based on the above factors and their needs for their project.

Microsoft Access

According to Microsoft, Access is the most popular database in the world—and it may very well be. Simple to use and relatively inexpensive, Access maintains the look and feel of most Microsoft software products. Because of this, most developers feel immediately comfortable with the Access database. Access is not really scalable; therefore it is most often used by smaller businesses or Web sites that require limited information in a database.

Access is often compared to Microsoft Excel, the spreadsheet program that is part of Microsoft Office. Each can store information and manage data, but while Excel stores information in worksheets that can be used to create lists (such as a directory of names, telephone numbers, and addresses), Access stores them in tables that look like spreadsheets but can query relational information from other tables in other locations. For example, a simple register of customers would keep first names, last names, and contact information in the same list. For this limited purpose, either Excel or Access can do the job. However, information about what each person has purchased would be kept in a separate table—likely for each individual order. Because it may be important for all of this data to be easily accessible from a single query, Access is the better choice. Different segments of information are kept in distinct tables, but the tables can share information back and forth.

Oracle

The Oracle database is a larger, more robust, and complex database. Companies typically need seasoned developers to properly tackle this software. Because of its security and its ability to handle very large databases, Oracle is typically the choice for larger companies and companies that have a vast amount of information to include in their database.

Relevant Programming Languages

As with programs, different programming languages are designed to perform different functions. Very often, however, the choice of which language to use is based on the preference of a developer, many of whom can be as fanatically dedicated to their favorite language as brand loyalists who prefer Pepsi over Coke or Apple over PCs.

In the following sections, we will discuss some of the most popular languages, what they do, and why developers would choose to work with them. We will begin, however, with an entry that every developer needs to know and nearly every site uses, but which is often not even ranked among the top languages.

HTML

In a 2006 poll, About.com posed the question, “Do you consider HTML a programming language?” Over 50% of all respondents said “No.” An online review of more serious programming blogs and articles shows that most programmers agree. However, the depth of the debate proves one thing: there really is no factual answer. To understand some of the issues in this argument, consider the following two comments to the About.com poll question:

HTML is a programming language. How can you say that it is not? Sure, you can't make exquisite things with HTML alone, but it still is a language. Maybe people don't consider it one because they use a program to help them generate the code, but I'm old school and love my notepad! Granted, I do use PHP and CSS with my HTML, because it takes it a step (well, several) farther, but don't deny HTML its right to be called a programming language. We would all be sad if people didn't use HTML, and all we got was text over the Internet.

—Robert M.

HTML is not a programming language, it's a MARKUP language. There's no logic in HTML, it's all about presentation (or semantics), no action at all. Thus, it can never be considered programming.

—Jari V.

It is likely that this debate will rage on as long as the Web exists. In not listing HTML in its top 20 ranking, Tiobe.com has cast its vote that HTML should not be considered a programming language. Whichever argument a developer sides with, one thing is certain: HTML is a vital and life-giving component of the Web as we know it.

HTML stands for HyperText Markup Language. With it, Web developers can tell browsers how to present information to those viewing a Web page. HTML contains codes that allow a designer to determine where an image appears, how large or small the copy will be, which words will be bold or italicized, which colors will be in the background, how the page will lay out, where the links will be placed, and to which pages they will link. Figure 10-10 shows an HTML coded page.

HTML is extremely easy to learn relative to most other languages. Each command is made up of bracketed code that the browser reads and translates. The command ``, for example, tells the browser to show any copy afterward in boldface, until a second command `` tells the browser to stop and resume presenting copy in standard non-boldface.

```

news.shtml
<!DOCTYPE html>
<html width=993 height=856 background="images5/back.jpg" align=center valign=top>
<table border=0>
<tr>
<td align=top>
<table border=0>
<tr>
<td width=971 height=170 bgcolor=white>
<table border=0>
<tr>
<td width=415 height=170 bgcolor=white rowspan=4>
<a href="index.shtml"></a>
</td>
<td width=556 height=36>
<!--#include file="mainnav.html" -->
</td>
</tr>
</tr>
<tr>
<td width=556 height=45>
</td>
</tr>
</tr>
<tr>
<td width=556 height=32>
<a href="features.html"></a>
</td>
</tr>
</tr>
<tr>
<td width=556 height=57>
<a href="http://pfsmarketwyso.wordpress.com"></a>
</td>
</tr>
</tr>
</table>
</tr>
</tr>
<tr>
<td width=971 bgcolor=white>
<table border=0>
<tr>
<td width=18></td>
<td width=371 bgcolor=white>
<iframe src="news_movie.html" width="371" height="242" align="center" valign="bottom" scrolling=no
frameborder=0></iframe>
</td>
<td width=571 bgcolor=white>
<iframe src="news_flash.html" width="571" height="242" align="center" valign="top" scrolling=no
frameborder=0></iframe>
</td>
</tr>
</table>
</tr>

```

Figure 10-10 HTML code like this is used to tell browsers how to assemble and present information.

CSS

Cascading Style Sheets (CSS) help make changing elements of Web sites faster and easier. Suppose the developer of a 50-page Web site built entirely in HTML has made the headline font color red, and then, after the site is launched, decides that blue would be better. The developer would then need to open all 50 pages of the site and change the code to tell the browser to change the color from red to blue. That can be tedious and time consuming, and leaves the door open for more error. However, with CSS, the developer would have stored all information such as headline color, font styles, background colors, and any other style decision in a separate document that ends in the .css extension. Each of the 50 HTML documents would then look to

the CSS file for information, so when the developer wants to change the headline color from red to blue, one simple change to the CSS document is all it takes for the entire site to be changed.

Java

Developed by Sun Microsystems in the mid-1990s, **Java** is a programming language that allows programmers to develop complex stand-alone interactive applications (such as games or cross-computer file sharing) for cross-platform usage. This means that PCs, MACs, and UNIX machines can all read the same code with little difference in functionality.

To view a program built in Java, Web users need to have an appropriate plug-in. Most computers and browsers have the plug-in pre-installed; however it can also be downloaded from the Sun Microsystems Web site, if necessary. In addition, developers need a Java runtime environment (which can also be downloaded at Sun's Web site), in order to program in Java.

At one time, Java's popularity on the Web was based on the development of **applets**—small programs, such as stock tickers or interactive weather maps, which can be included in Web sites. More recently, however, Java applets have lost developer support as more have turned to Flash as an easier, lighter, and more effective tool.

JavaScript

Although they share similar names, JavaScript and Java are completely different languages. JavaScript is used as part of **DHTML** (Dynamic HTML—a combination of HTML and other technologies and languages), which creates more dynamic, animated, and interactive Web sites. Designers can use JavaScript to create interactive forms (which help users to correctly fill in each field), enhanced rollovers, image slideshows, animations, and calculation applications (such as mortgage and interest calculators).

Many JavaScripts exist online, and developers can often find code that other developers have written and simply add them to their own Web pages. Along with this accessibility, JavaScript is popular because it is a relatively easy language that produces effective results.

PHP

PHP originally stood for *Personal Home Page tools*, but has come to stand for *PHP: HyperText Preprocessor* as it has grown in functionality. A scripting language specifically created for Web use, PHP allows

static Web sites (such as those created with standard HTML) to function more dynamically (interacting with the user rather than simply presenting information to them).

Much of PHP's popularity comes from its ability to interact and communicate with practically any database on the market. PHP is embedded in an HTML page and processed by PHP software that is installed on the host server. The server processes the HTML commands and ignores the PHP language, instead passing those commands on to the PHP software for processing. Because PHP is embedded in HTML, it is read and executed quickly. This is one of the primary reasons why PHP has grown in popularity, along with the fact that it is free. Other reasons include its relative ease of use, security (Web users do not see the PHP code), and the fact that it can run on practically any operating system. In addition, help is easily available through a number of public Web-based user-groups.

Ajax

Surging in popularity, Ajax takes the “clicking” out of the equation. Ajax allows users to pull information from a server without having to click multiple buttons to navigate from one page to another with the reload flicker in between each click.

A developer could make use of Ajax to design a shopping cart that allows users to drag and drop items directly into their shopping cart without having to click the “Add to Cart” button. Shoppers could go through the check-out process without needing to reload each page of the process.

ActionScript

Earlier in this chapter we discussed Flash as a program for creating illustrations and animations for Web sites. While Flash can increase a site's “cool” factor, it is still fairly limited in terms of interactivity. Enter ActionScript, which in June of 2008 appeared on the Tiobe.com top 20 list for the first time. ActionScript is used specifically to increase the functionality of Flash applications.

The code itself is similar to JavaScript, and while it can be a challenge to master, it is not as daunting as many other programming languages. With ActionScript, developers can create multiplayer games, create intuitive navigation and search features, integrate Flash with JavaScript components, and perhaps most importantly, communicate with a database through PHP or another programming language. This means that developers can update and expand upon Flash navigation elements by editing a database or create interactive quizzes and store the results in a database.

INTERVIEW WITH...**MARK SKROBOLA**

Mark Skrobola is an entrepreneur with over 20 years of business and programming experience. In 1994, Mark started Pure Performance, a computer consulting firm specializing in Web development and Enterprise Resource Planning (ERP) systems. Pure Performance's clients have included J. Crew, Lucent Technologies, Ernst & Young, LLC, and ADP. Mark's area of expertise is in assisting large corporations with transforming their regional systems into global operations.

JASON: What do you consider to be the most important and effective Web programming languages for today's designers?

MARK: For designers it is important to understand HTML (Hyper-Text Markup Language) and CSS (Cascading Style Sheets) and how these languages are used to build Web site layouts and designs.

HTML is the building block of a Web site. Whether you're building a single page Web site or a highly interactive site, HTML is required to define the content.

CSS is used to separate the style of the site from the content. It defines the style of the HTML elements on your Web site. Simple changes to the CSS will change the look and feel of your site.

JASON: As a programmer, how do you choose which language to use for any given site?

MARK: Most programmers work to become experts in a specific set of Web technologies, so they focus on building sites that fit their competencies. Larger Web site development companies look to have groups of developers for each type of technology required. This gives them the ability to handle nearly all clients' needs.

A common tool set that programmers work in is LAMP (Linux, Apache, MySQL, and PHP). The LAMP solution is free and open source, which keeps cost to the client low. Open source refers to programs whose source code is made available for use or modification; no licensing restrictions exist to limit use. This configuration runs the majority of interactive Web sites in the world today.

There is also a large following for the Microsoft solution (IIS, ASP, .NET). Most sites that run Microsoft's solution are for companies that have a large investment in Microsoft products and have the resources to support these technologies.

Then there is Flash and all the other Adobe solutions that are used to create highly interactive Web sites. If you want a site with animation, video, or high user interaction, Adobe has the solution.

Depending upon the client's needs, a programmer will determine the language to use. When you meet with the client, you should ask a few simple questions. Their answers will help you to determine which technology is best for you to use to provide them with the site that suits their business objectives.

Sample questions include:

- Who will be using this site?
- What type of Internet connection will your users have?
- What is more important response time or style?
- What Web infrastructure do you currently have in place?
- Will the site be highly interactive?

JASON: What are some of the specific challenges you have faced as a programmer, and how have you overcome them?

MARK: Most clients don't understand what is involved in creating a Web site. They want flashy Web sites with animation, video, and large graphics, not knowing the impact on site performance. Some believe a site should cost \$100 because they have seen templates for that price on the Web.

Educating the client is the biggest challenge we face. So we need to understand their business. Once we know their business and customer base, we can advise them on what type of site would best meet their needs.

Another challenge is to make sure we advise the client on what they need, not what we think is cool. Developers as well as designers have a knack for adding bells and whistles because they like them, even though they don't provide any value added to the client. So, only give the client what he needs.

JASON: How important do you think it is for programmers to understand Web marketing?

MARK: Creating a Web site that makes a client happy is awesome, but that's only half the battle. Keeping customers is what keeps your business growing. The only way to retain customers is to provide ROI. By knowing Web marketing you are providing your client with a valuable service. Without it, they have a site that no one can find. However, with effective Web marketing, through search engines including Google and Yahoo!, the world will know about your site.

JASON: How has a programmer's job changed with the rise of social media?

MARK: Like everything else in today's Internet world, things are changing rapidly, and you need to stay abreast of these changes. It's important

to know about new technologies and solutions before they become mainstream—not after the fact. You should read trade magazines and e-zines daily. There is no sitting back and living on the technology of yesterday. Rather, you should engage and be part of the growth.

JASON: What is the most important thing a programming student should know as he embarks on a Web programming career?

MARK: I believe, in any career, not just Web programming, you need to enjoy what you do. When starting in Web development you should experiment, expand your knowledge, absorb and learn from your peers. I follow many experts and forums on the Web to keep up-to-date and learn new things. Once you have a good base, find a niche, a specialty, and become the expert.

Chapter Summary

- Web development is not all about coding. Depending on the type of site that is being built, designers will make use of a variety of software programs to accomplish certain tasks. Graphic design programs such as Photoshop and Flash help developers create the images that Web site designers use to display products and aesthetically appeal to the audience. Blogging programs give bloggers the ability to easily post their thoughts online. Databases organize files and collect or deliver information. Non-programmers can make use of some software programs to easily create and assemble sites without needing to know any coding.
- Thousands of different programming languages give developers options and opportunities to make their Web pages look and perform the way that the developer, and the client, require. As users' and developers' needs have evolved, certain programs have risen and fallen in popularity. Our review covered just a few of the languages that let programmers create fun online applications, tell the browser how to present a Web page, pull information from a database, or even create a site that doesn't need to refresh between clicks.

Key Terms

animated GIF—An animation made up of a series of individual graphics, which plays like a flip-book.

applets—Small programs written in Java, such as stock tickers or interactive weather maps, which can be included in Web sites.

bitmap—An image made up of pixels.

DHTML—Dynamic HTML. A combination of HTML and other technologies and languages used to create more dynamic and interactive Web sites.

HTML—HTML stands for HyperText Markup Language. HTML is the simple coding that can tell browsers how to present information to those viewing a Web page

Java—A language that allows programmers to develop complex stand-alone interactive applications.

vector graphic—An image created from lines and shapes, which are generated by mathematical formulas.

widgets—Small bits of code that can be added to Web pages to add specific functionality—such as a calendar or mapping device.

WYSIWYG—What You See Is What You Get. A software application or online editor that allows a designer to see what the final Web page will look like as he or she is creating it.

Review Questions

1. Is HTML a programming language?
 - a. Yes
 - b. No
 - c. There is no definitive answer
2. The leading graphic design program is:
 - a. SharePoint
 - b. Photoshop
 - c. Expression Web
 - d. Dreamweaver
3. Photoshop is primarily a(n):
 - a. Bitmap program
 - b. Vector base program
 - c. Hybrid between bitmap and vector program
 - d. Animation program

4. Which of the following includes a specific programming language to make it come to life?
 - a. Photoshop
 - b. Flash
 - c. Dreamweaver
 - d. Blogger

5. Which of the following programs works on a timeline?
 - a. Photoshop
 - b. Flash
 - c. Dreamweaver
 - d. Blogger

6. A software application that produces a final output very close to what is developed during editing is called a:
 - a. WYSAWYG editor
 - b. YSAWAGY editor
 - c. YGWISYW editor
 - d. WYSIWYG editor

7. Developers using Dreamweaver absolutely must understand basic HTML to get a site built. True or False?

8. Which of the following could be considered a widget on a blog?
 - a. A calorie counter
 - b. A game of tic-tac-toe
 - c. A calendar
 - d. All of the above
 - e. None of the above

9. The management tool for most blog programs allows users to:
 - a. Reformat images
 - b. Create animations with vectors
 - c. Upload written content
 - d. Draw information from a database

10. With ActionScript, developers can draw information directly from a database.
 - a. True
 - b. False
 - c. It depends on the database being used

11. Which database can developers use at no cost?
 - a. MySQL
 - b. SQL Server
 - c. Oracle
 - d. Access

12. Which database application is used more often for larger, more complex databases?
 - a. MySQL
 - b. SQL Server
 - c. Oracle
 - d. Access

13. LAMP stands for:
 - a. Linux, Apache, MySQL, PHP
 - b. Linux, Access, MySQL, PHP
 - c. Linux, Ajax, MySQL, PHP
 - d. Linux, Apple, MySQL, PHP

14. Which of the following is most closely connected to JavaScript?
 - a. Java
 - b. ActionScript
 - c. DHTML
 - d. Ajax

15. HTML can tell a browser:
 - a. How to present information
 - b. How to act in certain situations

- c. What information to pull from a database
 - d. Whether a user has visited any given site before
16. Java was developed by:
- a. Oracle
 - b. MySQL AB
 - c. Sun Microsystems
 - d. Microsoft
17. In recent years, Java applets have lost favor to:
- a. DHTML
 - b. PHP
 - c. Flash
 - d. Animated GIFs
18. PHP is mostly used for:
- a. Creating animations
 - b. Telling the browser how to present information
 - c. Creating online forms
 - d. Communicating with a database
19. Which of the following programs would most likely be used for eliminating the number of page jumps on a Web site?
- a. HTML
 - b. PHP
 - c. Ajax
 - d. ActionScript
20. Which of the following is not a characteristic of PHP?
- a. It is able to interact and communicate with most databases.
 - b. It is embedded in an HTML page.
 - c. It is processed by PHP software that is installed on the host server.
 - d. It is read and executed slowly.

Projects

1. Is HTML a programming language? In a paper no longer than two pages, give your thoughts on this debate. Make sure you support your opinion with programming-based facts.
2. Suppose you are the developer of a Web site focused on providing news and information and selling products to busy executives. Using one of the many free widget creation sites on the Web, create a widget that the traffic on your site would find useful.
3. In his interview, Mark Skrobola mentions that many programmers work in LAMP—Linux, Apache, MySQL, and PHP. We discussed MySQL and PHP briefly in this chapter. Research and write a page on Linux and a page on Apache. Make sure you include reasons why developers would need to know these.
4. Create a five-page Web site (content does not matter). Use CSS to set the background colors, headline font sizes, and table borders.
5. In a two-page paper, discuss three different database options available to developers and when each should be used.