Application Development Packages

After completing this chapter, you will be able to:

- Define the categories of application development packages and recognize the names of the major packages in each category
- Know when to use a presentation package, a hypermedia program, an animation package, or a full-fledged authoring tool
- Experience what the different packages are like by downloading product demonstrations and running them
- Define the term Instructional Management System (IMS) and know how to locate and compare the commercially available IMS products

There are six kinds of development software for creating multimedia applications: presentation packages, hypermedia programs, animators, authoring systems, Web page creation tools, and Instructional Management Systems. This chapter defines each kind, identifies the leading products, and provides links to demonstrations at the *Multilit* Web site.

> As with most categorizations, there is an overlap among the classifications defined here. For example, some presentation packages provide a limited hypermedia capability; you can use hypermedia programs to create presentations; and full-fledged authoring systems can do just about anything. However, just as you would not normally use a sledgehammer to pound a finishing nail, so also do multimedia tools have their appropriate uses, according to which you will find them classified in this chapter.

Presentation Packages

The goal of **presentation packages** is to make it easy for you to produce convincing multimedia shows consisting of slides, audio clips, animations, and full-motion sequences. Industry leader PowerPoint is so-named because of how the package is intended to influence an audience.

Several graphics packages also have presentation capabilities. One of PowerPoint's competitors, for example, is Harvard Graphics, which is a high-powered graphics package with presentation capabilities.

PowerPoint

Microsoft PowerPoint is the leading presentation package with tens of millions of users worldwide. PowerPoint addresses the needs of business professionals and educators to create compelling graphics and present them effectively. Based on the slide-show metaphor shown in Figure 9-1, PowerPoint has a Slide Sorter that lets you drag slides and position them in the order you want to present them. You can drag and drop slides from one presentation to another and import charts and spreadsheet data from Microsoft Excel. An AutoContent Wizard helps you figure out what to say, and an Outliner helps organize and reorder thoughts by letting you selectively collapse and expand outline headings.



Figure 9-1 The Slide Sorter in PowerPoint shows you all your slides and lets you set up special presentation effects.

PowerPoint has an online clip library containing thousands of images, sounds, and animations to enhance your message. Styles and themes help you keep a consistent design throughout a presentation. Hyperlinking lets you interconnect words and images on your slides or link them to Web sites. PowerPoint also has a graphing feature that enables you to create your own charts, and an equation editor to create and display scientific and mathematical equations. A rehearsal feature helps you practice and learn how long a presentation will take, showing how much time you spent on each slide. You can print speaker's notes, audience handouts, and outline pages. More importantly, you can use PowerPoint to publish applications to the Web, giving your presentations a worldwide audience.

The tutorial part of this book in Chapters 18 to 42 is a step-by-step tutorial in how to design, create, and publish multimedia applications with PowerPoint.



Figure 9-2 Easy Presentations is a streamlined version of Harvard Graphics intended for use by small businesses. Copyright © 2000 Software Publishing Corporation. All rights reserved. Harvard Graphics Easy Presentations and the Software Publishing Corporation logo are registered trademarks of Vizacom, Inc.

Harvard Graphics

Published by Software Publishing Corporation (SPC), Harvard Graphics competes with PowerPoint for market share. To lower the price so more people can afford it, SPC has created a streamlined version called Harvard Graphics Easy Presentations, pictured in Figure 9-2. Features include the Advisor, which gives you step-by-step guidance on design and content; Quick Tips, to save you time by suggesting handy shortcuts; Design Tips, to keep you on track as you create a presentation; Design Checker, to diagnose and repair stylistic or design problems; and Quick Looks, to take the guesswork out of choosing a layout. For more information, follow the *Multilit* Web site link to Harvard Graphics.

Hypermedia Programs

Hypermedia programs go beyond the linear slide-show metaphor used in presentation packages to provide an infinite capability to link objects and enable users to navigate among them. The most well-known hypermedia programs are HyperCard and HyperStudio.

HyperCard

HyperCard uses the metaphor of a stack of cards. Each screen is regarded as a card you can place anywhere in a stack and link to any other card. You can make simple stacks without learning any programming. You need to learn HyperTalk (HyperCard's programming language) to create more complex applications.

Thousands of HyperCard stacks are available, many of which are either free or available for a small shareware fee. For more information about HyperCard, follow the *Multilit* Web site link to HyperCard Heaven, which is the Web site for people who love HyperCard.

HyperStudio

Originally developed for the Mac, HyperStudio now runs on both Windows and Macintosh computers. It is one of the easiest and most powerful programs for use in schools. Teachers have had a lot of success with students using HyperStudio to create multimedia projects. HyperStudio makes it easy for students to snap pictures, edit QuickTime movies, and create projects combining text, sound, graphics, and video. To download a demo and get a free evaluation CD, follow the *Multilit* Web site link to HyperStudio.

Animation and Multimedia Sequencing

Animation is the use of a computer to create movement of objects on the screen. There are different levels of animation complexity. The simplest form of animation is called frame animation, in which the computer displays a stack of predrawn graphics that create a movie when shown in rapid succession. You can create frame animations by dropping predrawn images into the QuickTime Pro movie editor, which you will learn how to use in Chapter 35.

More sophisticated are applications that let you define graphic objects and make them move by manipulating real-time parameters that control the object. Morphing, which you studied in Chapter 5, is one such technique. The ultimate in animation is the kind of computer modeling and object rendering used to create the animated characters in the movie *Toy Story* and its sequel, *Toy Story 2*.

Multimedia sequencers are programs that let you show a series of audiovisual events, either one after the other or in synchronization with each other. These events often include animations. Discussed here are three programs that enable you to create animations and present them as part of a multimedia sequence, namely, Adobe Premiere, Autodesk 3D Studio, and Macromedia Director.



Figure 9-3 Adobe Premiere lets you create movies up to three hours long for broadcast, CD, or the Web.

Premiere

Adobe's Premiere is a video-editing tool with interactive motion path creation. Premiere has full-featured video capture and editing of 99 video and audio tracks with virtual clips to extend mixing capabilities. You can cut, copy, and paste with as many as 35 clips open simultaneously in the source monitor window. There are 75 transitions and 58 filters, plus tools for creating custom transitions and filters. Premiere displays clips "filmstrip style" and lets you zoom in for single-frame editing. Figure 9-3 shows how you can drag to see different areas of the movie's timeline. Motion control allows any still or moving image to fly along a path with twisting, zooming, rotation, and distortion effects. Premiere comes on a CD-ROM with clip media and video tutorials. To download a trial version, follow the Multilit Web site link to Adobe Premiere.



Figure 9-4 The Skating Baby created with with 3D Studio MAX and Character Studio by Kinetix.

3D Studio

Animation industry leader Autodesk has an animation division called Kinetix, which has the mission to bring professional animation software to your desktop. Imagine being able to create the animated skating baby shown in Figure 9-4. You can do this and more with 3D Studio VIZ from Kinetix. 3D Studio VIZ is a suite of products that is interoperable with the new generation of Autodesk design tools. A hybrid 3D character animation system called Biped combines with an interactive skinning system called Physique to provide a high-quality and cost-effective way to populate your 3D Studio worlds with characters that move with incredible realism. For full-motion demos of dancing babies and other animated characters, follow the *Multilit* Web site links to Autodesk and Kinetix. If you are a student or an educator, be sure to check out the educational discounts for Kinetix products.

Director

Macromedia's Director is the industry leader in multimedia sequencing. Witness groundbreaking applications like Brøderbund's *Living Books* and the Sting CD *All This Time*, which were created with Director. Figure 9-5 shows how Director is based on a movie production metaphor, complete with a cast (1), stage (2), and score (3). You import media into the cast window, then drag and drop cast members onto the stage. The Score controls the sequencing and can have up to 1,000 media channels.

Following the theatrical metaphor, actors can be cast and scripted to take on a life of their own as objects in an application. The Lingo object-oriented scripting language enables developers to create custom in-house code that plugs in to extend Director's built-in capabilities. Director files can play over the Internet using Shockwave, which comes as part of Macromedia's Director Shockwave Internet Studio. Director is the tool



Figure 9-5 Director is based on a movie production metaphor, complete with a cast (1), stage (2), and score (3).

used to create Shockwave content, which appears on thousands of Web sites and has become one of the Internet standards for multimedia. You can also use Director to create enhanced CDs, which are audio CDs plus multimedia content that appears if you insert the CD into a computer. For the latest information on Director and Shockwave, follow the *Multilit* Web site link to Macromedia, where you can take the Internet Studio Tour and download a free trial version.

Authoring Systems

Full-fledged application development tools that let you present material, ask questions about it, evaluate user input, and branch accordingly are called **authoring systems**. In the past, before graphical user interfaces became popular, authoring was a tedious and time-consuming process, often requiring hundreds of hours of work to create one hour of completed material. Windowed environments led to the creation of graphically based authoring systems that have reduced considerably the time needed to create a sophisticated application. Two of the leaders are discussed here, namely, Authorware and ToolBook.

Authorware

Macromedia's Authorware is the leading multimedia authoring tool for interactive learning. Authorware is rooted in some pretty powerful technology. Its sophisticated judging, sequencing, and instructional management facility builds upon two decades of work by Authorware founder Mike Allen on a computer-assisted instruction (CAI) system called PLATO.

When Authorware merged with Macromind to create Macromedia in 1992, Macromind's Director (discussed earlier) became Authorware's multimedia engine, creating a blockbuster authoring system. Macromedia won publishing contracts with Paramount Publishing, Jostens Learning, HyperMedia Communications, and McGraw-Hill, and they formed strategic alliances with Apple Computer, 3DO, Bell Labs, Bell Atlantic, Brøderbund, Kaleida, and others.



Figure 9-6 The flowline metaphor in Macromedia's Authorware.

Figure 9-6 shows how Authorware Professional uses a flowline metaphor to create logic structures from 13 design icons. The developer creates an application by selecting icons and dragging them onto the flowline. Double-clicking an icon opens it, allowing the developer to add content. As icons accumulate on the screen, the developer can click the Map icon to group related icons together. Thus, the developer can view the application from a top-down approach, maintaining perspective on how the various program modules interrelate.

Applications created with Authorware can be played over the Web via the Authorware Web Player, as illustrated in Figure 9-7. The application shown below was created by TraCorp, Inc., a multimedia training company in Phoenix, Arizona. To see examples of Authorware in action, and to download a free trial version, follow the *Multilit* Web site links to Macromedia Authorware.

Toolbook

ToolBook is published by click2learn. True to its name, ToolBook is based on a book metaphor. You develop applications by creating books full of pages, which can contain text, graphics, and buttons that enable user

interaction. Toolbook has a scripting language called OpenScript in which you program interactive and navigational commands that define what the buttons do. You can also attach scripts to hot words in text fields. Particularly useful is a script recorder that will automatically create a script for actions you perform on the screen, such as navigating to a page in a book or creating an animation by moving an object around the screen. ToolBook comes with hundreds of prescripted multimedia objects that you can copy and paste into your application.



Figure 9-7 The Authorware Web Player delivers computer-based training over the Web with the Airborn Radar Management developed by TraCorp, Inc.

The ToolBook II Assistant makes it possible to deliver interactive learning programs over the Web. The ToolBook II Assistant uses a drag-and-drop interface to create course content consisting of text, graphics, audio, and video; then you publish the lesson using a wizard. ToolBook II Assistant applications use Dynamic HTML to synchronize the appearance of text and graphics over the Web.

To sample the kind of application you can create with ToolBook, follow the *Multilit* Web site link to click2learn, where you can survey the online learning showcase and request a trial version of ToolBook on CD. While there, check out click2learn.publisher, which lets you create and publish courses that click2learn sells, paying you 30% of the income in royalties.

Web Page Creation Tools

The Web is fast becoming the preferred medium for publishing multimedia applications. The leading packages for creating Web pages are Netscape Composer and Microsoft FrontPage.

Netscape Composer

Netscape Composer is the name of the WYSIWYG Web page editor that comes as part of the suite of tools in Netscape Communicator. When you create a Web page with Netscape Composer, you work on a screen that makes what you create appear just as it will when viewed in the Netscape Web browser. Hence the term *What-You-See-Is-What-You-Get (WYSIWYG)*. You can download Netscape Communicator free of charge by following the *Multilit* Web site link to Netscape. The textbook *Internet Literacy* contains a detailed tutorial on creating Web pages with Netscape Composer. Follow the *Multilit* Web site link to *Internet Literacy* for a detailed look at the contents of this Web page creation tutorial.

Microsoft FrontPage and FrontPage Express

Microsoft FrontPage is a fully featured Web site creation and management tool that is part of Microsoft Office, and Microsoft FrontPage Express is a scaled-down yet still highly useful version that comes for free with Microsoft Internet Explorer. You can download the latest version of Microsoft Internet Explorer for free by following the *Multilit* Web site link. One of the nice features you get in the Microsoft Office version of FrontPage is an HTML editor that lets you tweak the HTML codes by hand, just in case you want to use a feature that is not yet handled by the WYSIWYG tool. To learn more, follow the *Multilit* Web site link to Microsoft FrontPage. The textbook *Internet Literacy* contains a detailed tutorial on creating Web pages with Microsoft FrontPage Express. Follow the *Multilit* Web site link to *Internet Literacy* for a detailed look at the contents of this Web page creation tutorial.

Microsoft Word

Microsoft Word, which is the word-processing component of Microsoft Office, has a powerful Web page creation feature built in. To create a Web page version of a term paper, for example, you just open the term paper, then pull down the File menu and choose the option to Save as Web Page. If your term paper uses heading styles, the Web page maker creates a frame containing an outline of topics that the user can click to go to different places in your paper. You get all this capability without needing to know any HTML. For more information, follow the *Multilit* Web site link to Microsoft Word.

Microsoft PowerPoint

As you learned previously in this chapter, Microsoft's presentation software is called PowerPoint. PowerPoint has a powerful Web page creation feature built in. In Chapter 40, you will complete a step-by-step tutorial that will teach you how to create Web pages with PowerPoint. As in Web pages created with Microsoft Word, you get a frame containing an outline of your presentation on which the user can click a topic to bring up the corresponding slide.

Bringing Web Pages to Life

In today's media-centric world, you may not be content with a static Web page. Discussed here are four ways to bring Web pages to life: Animated GIFs, JavaScript, ActiveX, and Dynamic HTML.

ANIMATED GIFS

The simplest way to put motion on a Web page is to create an animated GIF, which is a special kind of GIF file containing multiple images that are shown in a sequence at specific times and locations on the screen. A looping option causes the Web browser to keep showing the frames continually, so the user sees an animation.

A shareware application that you can use to create animated GIFs is called the GIF Construction Set. To download it, click the GIF Construction Set icon at the *Multilit* Web site. For a tutorial on creating animated GIFs, follow the *Multilit* Web site links to the GIF Construction Set. You can also create animated GIFs with Microsoft GIF Animator, which you can download for free by following the links at the *Multilit* Web site.

JAVASCRIPT

True to its name, JavaScript is a scripting language that lets little programs called scripts be included on a Web page. Both Netscape and Microsoft support JavaScript. There are variations in how JavaScript runs on different platforms, however, so you need to test any scripts you create with any browsers that will be used to execute them. For more information about the origins and applications of JavaScript, follow the *Multilit* Web site to JavaScript Developer Central. There you will find sample code for creating rollovers, graphs, menus, dialog boxes, calendar popups, and layering effects. Figure 9-8 shows one of the rollover effects you can create with JavaScript. For even more JavaScript resources, go to www.cnet.com and search for JavaScript.



Figure 9-8 A rollover effect created with JavaScript at the AOL@School Web site. Notice how the photo changes as the user mouses over the menu choices.

Copyright © 2000 America Online, Inc. Used with permission.

ACTIVEX

ActiveX was begun by Microsoft as a way to create and distribute information over the Internet using existing software applications and data. ActiveX involves three concepts: controls, scripts, and documents. ActiveX controls enable a wide variety of applications and content to be embedded in HTML documents. Utilizing Microsoft's object linking and embedding technology, ActiveX controls enable you to incorporate any supported data type directly into the window of an ActiveX enabled Web browser such as the Microsoft Internet Explorer. More than a thousand ActiveX controls are available, from multimedia sound and video players to spreadsheets, charts, graphs, calculators, and paint programs. The Microsoft Internet Explorer itself is an ActiveX control that can be embedded inside other applications. For more information, follow the *Multilit* Web site link to ActiveX. To see dozens of controls that you can download and use, follow the link to the CNET ActiveX Control Library.

DYNAMIC HTML

Dynamic HTML makes Web pages dynamic by exposing all page elements as objects. These objects can be manipulated by changing their attributes or applying methods to them at any time. These manipulations can also be triggered by keyboard and mouse events on all page elements. The definition of the objects and how they can be manipulated is called the Document Object Model (DOM). The DOM defines, for example, how text or graphics can be added, deleted, or modified on the fly. Text can change color or size when a user mouses over it. Positioning coordinates can be updated at any time to create animated effects, without reloading the page. To learn more about Dynamic HTML, follow the *Multilit* Web site links to Dynamic HTML Central and the Dynamic HTML Web Workshop.

Instructional Management Systems

One of the hottest new kinds of Web-based software is the Instructional Management System (IMS). An IMS is an educational environment that can present instructional content, make assignments to students, administer tests, help instructors grade assignments, record student progress, provide feedback to students, and export grades and other kinds of records. In short, an IMS provides the educational infrastructure for organizing and delivering applications created by the other kinds of multimedia software discussed in this chapter.

There are two repositories of information about Instructional Management Systems. At Vanderbilt University, the Web of Asynchronous Learning Networks (ALN) has a product catalog in which all IMS vendors have been invited to list their products. To see this catalog, follow the *Multilit* Web site link to ALN, then choose Product Catalog—Product Listings. In Ontario, Canada, a consortium of universities has created a Web site called the NODE, which has a database called technologies for learning (tfl). To search this database, follow the *Multilit* Web site is Landonline, a Web site designed to help educators evaluate and select online delivery software. At Landonline, you can make side-by-side comparisons of IMS systems based on an analysis conducted by Professor Bruce Landon, Professor of Psychology at Douglas College.



One of the IMSs you will find talked about in these catalogs is Serf[®], which was developed by the author of this book. As you might expect, there is a Serf-based multimedia literacy course that uses this book as the textbook, and there is also a Serf-based Internet literacy course that uses the author's *Internet Literacy* textbook. For more information about taking and developing courses with Serf, follow the *Multilit* Web site link to Serf.

<u>exercises</u>

- 1. What presentation packages does your school or business own? What were the primary reasons for selecting them over competing brands? Do you think this was a good decision? Why or why not?
- 2. Does your school or business own an authoring system? If so, which one? Why was it selected? Do you think this was a good decision? Why or why not?
- **3.** What software would you personally use to create a presentation? Why do you prefer it over other brands? What improvements would you like to see the vendor make?
- **4.** Given the features of the presentation packages, hypermedia programs, animators, and authoring systems presented in this chapter, what is your overall impression of the state of the art of multimedia application development? What additional capabilities would you like these tools to have?
- 5. What are the implications of the World Wide Web for multimedia publishing? How will active products like JavaScript, ActiveX, and Dynamic HTML influence the creation and distribution of multimedia titles? Will the online distribution of multimedia content over the Web diminish the popularity of CD and DVD as the preferred publishing medium? What are the potential drawbacks and pitfalls of Web-based multimedia publishing?
- 6. Follow the *Multilit* Web site link to Landonline. Fill out the form to compare two of the leading IMS packages you find listed there. What two packages did you choose, and how do they compare? Do you agree with the comparison? Based on this analysis, which one would you recommend, and why?