

Programs and Apps

Using programs and apps, you can accomplish a variety of tasks on computers and mobile devices (Figure 4-1). Recall from Chapter 1 that a **program**, or **software**, consists of a series of related instructions, organized for a common purpose, that tells the computer what tasks to perform and how to perform them. An **application**, or **app**, sometimes called *application software*, consists of programs designed to make users more productive and/or assist them with personal tasks.

An *operating system* is a set of programs that coordinates all the activities among computer or mobile device hardware. Other programs, often called *tools* or *utilities*, enable you to perform maintenance-type tasks usually related to managing devices, media, and programs used by computers and mobile devices. The operating system and other tools are collectively known as *system software* because they consist of the programs that control or maintain the operations of the computer and its devices.

Obtaining Software

Software is available in a variety of forms: retail, custom, web app, mobile app, mobile web app, shareware, freeware, open source, and public domain.

- *Retail software* is mass-produced, copyrighted software that meets the needs of a wide variety of users, not just a single user or company. Some retail software, such as an operating system, is preinstalled on new computers and mobile devices. You also can purchase retail software from local stores and on the web. With online purchases, you may be able to download purchased programs immediately instead of waiting for the software to arrive by mail.
- *Custom software* performs functions specific to a business or industry. Sometimes a company cannot locate retail software that meets its unique requirements. In this case, the company may use software developers to create tailor-made custom software. Custom software usually costs more than retail software.
- A *web app* is an application stored on a web server that you access through a browser. Users typically interact with web apps directly by visiting a website, but some web apps also can be accessed locally offline. Many websites provide free access to their apps. Some charge a one-time fee, while others charge recurring monthly or annual subscription fees. You may be able to use part of a web app free and pay for access to a more comprehensive program or pay a fee when a certain action occurs.
- A *mobile app* is an application you download from a mobile device's app store, sometimes called a *marketplace*, or other location on the Internet to a smartphone or other mobile device. Some mobile apps are preinstalled on a new mobile computer or device. Many mobile apps are free; others have a minimal cost — often less than a few dollars.
- A *mobile web app* is a web app that is optimized for display in a browser on a mobile device, regardless of screen size or orientation. Many app developers opt for web delivery because they do not have to create a different version for each mobile device's app store. Many web apps use a responsive design, which means the app displays properly on any computer or device.
- *Shareware* is copyrighted software that is distributed at no cost for a trial period. To use a shareware program beyond that period, you send payment to the software developer or you might be billed automatically unless you cancel within a specified period of time. Some developers trust users to send payment if software use extends beyond the stated trial period. Others render the software useless if no payment is received after the trial period expires. In some cases, a scaled-down version of the software is distributed free, and payment entitles the user to the fully functional product.
- *Freeware* is copyrighted software provided at no cost by an individual or a company that retains all rights to the software. Thus, software developers typically cannot incorporate freeware in applications they intend to sell. The word, free, in freeware indicates the software has no charge.
- *Open source software* is software provided for use, modification, and redistribution. This software has no restrictions from the copyright holder regarding modification of the software's internal instructions and its redistribution. Open source software usually can be downloaded from a web server on the Internet, often at no cost. Promoters of open source software state two main advantages: users who modify the software share their improvements with others, and customers can personalize the software to meet their needs.
- *Public-domain software* has been donated for public use and has no copyright restrictions. Anyone can copy or distribute public-domain software to others at no cost.



BTW

Trial Versions

Some retail and other programs have a *trial version*, which is an application you can use at no charge for a limited time, to see if it meets your needs. Some trial versions have limited functionality.



BTW

Copyright

A copyright gives authors, artists, and other creators of original work exclusive rights to duplicate, publish, and sell their materials.

Table 4-1 Programs and Apps by Category

Category	Types of Programs and Apps	
Productivity (Business and Personal)	<ul style="list-style-type: none"> • Word Processing • Presentation • Spreadsheet • Database • Note Taking • Calendar and Contact Management • Project Management 	<ul style="list-style-type: none"> • Accounting • Personal Finance • Legal • Tax Preparation • Document Management • Support Services • Enterprise Computing
Graphics and Media	<ul style="list-style-type: none"> • Computer-Aided Design (CAD) • Desktop Publishing • Paint/Image Editing • Photo Editing and Photo Management • Clip Art/Image Gallery 	<ul style="list-style-type: none"> • Video and Audio Editing • Multimedia and Website Authoring • Media Player • Disc Burning
Personal Interest	<ul style="list-style-type: none"> • Lifestyle • Medical • Entertainment • Convenience • Education 	
Communications	<ul style="list-style-type: none"> • Blog • Browser • Chat Room • Online Discussion • Email • File Transfer 	<ul style="list-style-type: none"> • Internet Phone • Internet Messaging • Mobile Messaging • Videoconference • Web Feeds
Security	<ul style="list-style-type: none"> • Personal Firewall • Antivirus • Malware Removers • Internet Filters 	
File, Disk, and System Management	<ul style="list-style-type: none"> • File Manager • Search • Image Viewer • Uninstaller • Disk Cleanup 	<ul style="list-style-type: none"> • Disk Defragmenter • Screen Saver • File Compression • PC Maintenance • Backup and Restore



CONSIDER THIS

Productivity Applications

Productivity applications can assist you in becoming more effective and efficient while performing daily activities at work, school, and home. Productivity applications include word processing, presentation, spreadsheet, database, note taking, calendar and contact management, project management, accounting, personal finance, legal, tax preparation, document management, and enterprise computing.

A variety of manufacturers offer productivity apps in each of these areas, ranging from desktop to mobile to web apps. Many have a desktop version and a corresponding mobile version adapted for smaller screen sizes and/or touch screens.

Developing Projects

With productivity applications, users often create, edit, format, save, and distribute projects. Projects include documents, presentations, spreadsheets, notes, calendars, contact lists, budgets, and more.

During the process of developing a project, you likely will switch back and forth among the following activities.

1. When you *create* a project, you enter text or numbers, insert images, add contacts, schedule appointments, and perform other tasks using a variety of input methods, such as a keyboard, a mouse, touch, or voice.
2. To *edit* a project means to make changes to its existing content. Common editing tasks include inserting, deleting, cutting, copying, and pasting.
 - a. Inserting involves adding text, images, or other content.
 - b. Deleting involves removing text, images, or other content.
 - c. Cutting is the process of removing content and storing it in a temporary storage location, called a *clipboard*.
 - d. Copying is the process of placing content on a clipboard, with the content remaining in the project. Read Ethics & Issues 4-1 for a discussion about unethical copying.
 - e. Pasting is the process of transferring content from a clipboard to a specific location in a project.

3. When users *format* a project, they change its appearance. Formatting is important because the overall look of a project significantly can affect its capability to communicate information clearly. Examples of formatting tasks are changing the font, font size, and font style (Figure 4-4).
 - a. A *font* is a name assigned to a specific design of characters. Cambria and Calibri are examples of fonts.
 - b. *Font size* indicates the size of the characters in a particular font. Font size is gauged by a measurement system called points. A single point is about 1/72 of an inch in height.
 - c. A *font style* adds emphasis to a font. Bold, italic, underline, and color are examples of font styles.
4. During the process of creating, editing, and formatting a project, the computer or mobile device holds it in memory. To keep the project for future use requires that you save it. When you save a project, the computer transfers the project from memory to a local storage medium, such as a USB flash drive or hard drive, or cloud storage, so that you can retrieve it later.
5. You can distribute a project as a hard copy or electronically. A hard copy is information that exists on a physical medium, such as paper. To generate a hard copy, you *print* a project. Sending electronic files via email or posting them for others to view, on websites for example, saves paper and printer supplies. Many users opt for electronic distribution because it contributes to green computing.

Word Processing

Word processing software, sometimes called a word processor, is an application that allows users to create and manipulate documents containing mostly text and sometimes graphics (Figure 4-5). Millions of people use word processing software on their computers and mobile devices every day to develop documents such as letters, memos, reports, mailing labels, newsletters, and webpages.

A major advantage of using word processing software is that it enables users to change their written words easily. Word processing software also has many features to make documents look professional and visually appealing. For example, you can change the font, size, and color of characters; apply special effects, such as three-dimensional shadows; use built-in styles to format documents; and organize text in newspaper-style columns.

Most word processing software allows users to incorporate graphics, such as digital photos and clip art, in documents. In Figure 4-5, a user inserted an image of a tractor in the document. With word processing software, you easily can modify the appearance of an image after inserting it in the document.

You can use word processing software to define the size of the paper on which to print and to specify the margins. A feature, called wordwrap, allows users to type words in a paragraph continually without pressing the ENTER key at the end of each line. While you edit a paragraph or change the paragraph margins, the words in the paragraph automatically wrap, or reflow within the paragraph. As you type more lines of text than can be displayed on the screen, the top portion of the document moves upward, or scrolls, off the screen.

HEARTLAND TRACTOR

12345 Main Street, Suite 100, Anytown, USA 12345 • (555) 123-4567 • Web: www.heartlandtractor.com

April 17, 2014

Mr. Harvey Wilcox
Wilcox Tractor Restoration
1009 North 7850 East Road
Roundwood, DE 25119

Dear Mr. Wilcox:

We are delighted you are considering advertising your business, Wilcox Tractor Restoration, in the Heartland Tractor Magazine, an exciting publication for tractor enthusiasts. The advertisement rates per monthly issue:

Monthly Issue Advertising Rates			
Ad Type	Size	Color	Rate
Full Page	10 x 7	Color	\$450
Half Page	5 x 7	Color	\$225
Quarter Page	5 x 3.5	Color	\$112.50

Please note that additional fees will be assessed if the word or photo count exceeds the following discounts:

- 10 percent discount for any advertisement that runs in three issues.
- 5 percent discount for a camera-ready advertisement (prepared and with all words and photos in final layout form).
- 3 percent discount if payment in full is submitted with order.

For further details or to place your advertisement, please contact Denise Galt at (555) 123-4567. We look forward to running an advertisement for you.

Word processing software typically includes tools to assist you with the writing process. For example, a spelling checker reviews the spelling of individual words, sections of a document, or the entire document. A grammar checker detects passive voice, run-on sentences, and grammatical errors. A format checker identifies extraneous spaces, capitalization errors, and more.

Discover More: Visit this chapter's free resources to learn more about word processing software and features.

Presentation

Presentation software is an application that allows users to create visual aids for presentations to communicate ideas, messages, and other information to a group. The presentations can be viewed as slides, sometimes called a *slide show*, that are displayed on a large monitor or on a projection screen from a computer or mobile device (Figure 4-6).

Presentation software typically provides a variety of predefined presentation formats that define complementary colors for backgrounds, text, and graphical accents on the slides. This software also provides a variety of layouts for each individual slide such as a title slide, a two-column slide, and a slide with clip art, a chart, a table, or a diagram. In addition, you can enhance any text, charts, and graphics on a slide with 3-D effects, animation, and other special effects, such as shading, shadows, and textures.

When building a presentation, users can set the slide timing so that the presentation automatically displays the next slide after a preset delay. Presentation software allows you to apply special effects to the transition between slides. One slide, for example, might fade away as the next slide appears.

Presentation software typically includes a clip gallery that provides images, photos, video clips, and audio clips to enhance presentations. Some audio and video editing applications work with presentation software, providing users with an easy means to record and insert video, music, and audio commentary in a presentation.

You can view or print a finished presentation in a variety of formats, including a hard copy outline of text from each slide and handouts that show completed slides. Presentation software also incorporates features such as checking spelling, formatting, researching, and creating webpages from existing slide shows.

Discover More: Visit this chapter's free resources to learn more about presentation software and features.

Spreadsheet

Spreadsheet software is an application that allows users to organize data in columns and rows and perform calculations on the data. These columns and rows collectively are called a **worksheet**. Most spreadsheet software has basic features to help users create, edit, and format worksheets. A spreadsheet file also is known as a **workbook** because it can

contain thousands of related individual worksheets. Data is organized vertically in columns and horizontally in rows on each worksheet (Figure 4-7).

Each worksheet usually can have thousands of columns and rows. One or more letters identify each column, and a number identifies each row. Only a small fraction of these columns and rows are visible on the screen at one time. Scrolling through the worksheet displays different parts of it on the screen.

Database

A **database** is a collection of data organized in a manner that allows access, retrieval, and use of that data. In a manual database, you might record data on paper and store it in a filing cabinet. With a database stored electronically, such as the one shown in Figure 4-8, the computer stores the data on a storage medium, such as a hard drive or optical disc, or on cloud storage.

Database software is an application that allows users to create, access, and manage a database. Using database software, you can add, change, and delete data in a database; sort and retrieve data from the database; and create forms and reports using the data in the database.

With most personal computer database programs, a database consists of a collection of tables, organized in rows and columns. Each row, called a record, contains data about a given item in the database, which is often a person, product, object, or event. Each column, called a field, contains a specific category of data within a record. The Publishing database shown in Figure 4-8 consists of two tables: a Customer table and a Book Rep table. The Customer table contains 15 records (rows), each storing data about one customer. The customer data is grouped into 10 fields (columns): CU # (customer number), Customer Name, Street, City, State, Postal Code, Amount Paid, Current Due, Returns, and BR # (book rep number). The Current Due field, for instance, contains the amount of money the customer owes the publisher. The Customer and Book Rep tables relate to each other through a common field, BR # (book rep number).

Users run queries to retrieve data. A query is a request for specific data from the database. For example, a query might request a list of customers whose balance is greater than \$20,000. After obtaining the results of a query, database applications can present them on the screen, send them to a printer, or save them in a file.

Note Taking

Note taking software is an application that enables users to enter typed text, handwritten comments, drawings, sketches, photos, and links anywhere on a page and then save the page as part of a notebook (Figure 4-9). Users also can include audio recordings as part of their notes. Some enable users to sync their notes to the cloud so that they can access the notes on any computer or mobile device. Many note taking applications also include a calendar feature.

Users find note taking software convenient during meetings, class lectures and conferences, and in libraries and other settings that previously required pencil and paper for recording thoughts and discussions.

Calendar and Contact Management

Calendar and contact management software is an application that helps you organize your calendar, keep track of contacts, and share this information with other users, who can view it on their computers and mobile devices (Figure 4-10). This software provides a way for individuals and workgroups to organize, find, view, and share appointment and contact information easily. Although sometimes available separately, calendar and contact management software often exists as a unit in a single program. Many email applications include calendar and contact management features.

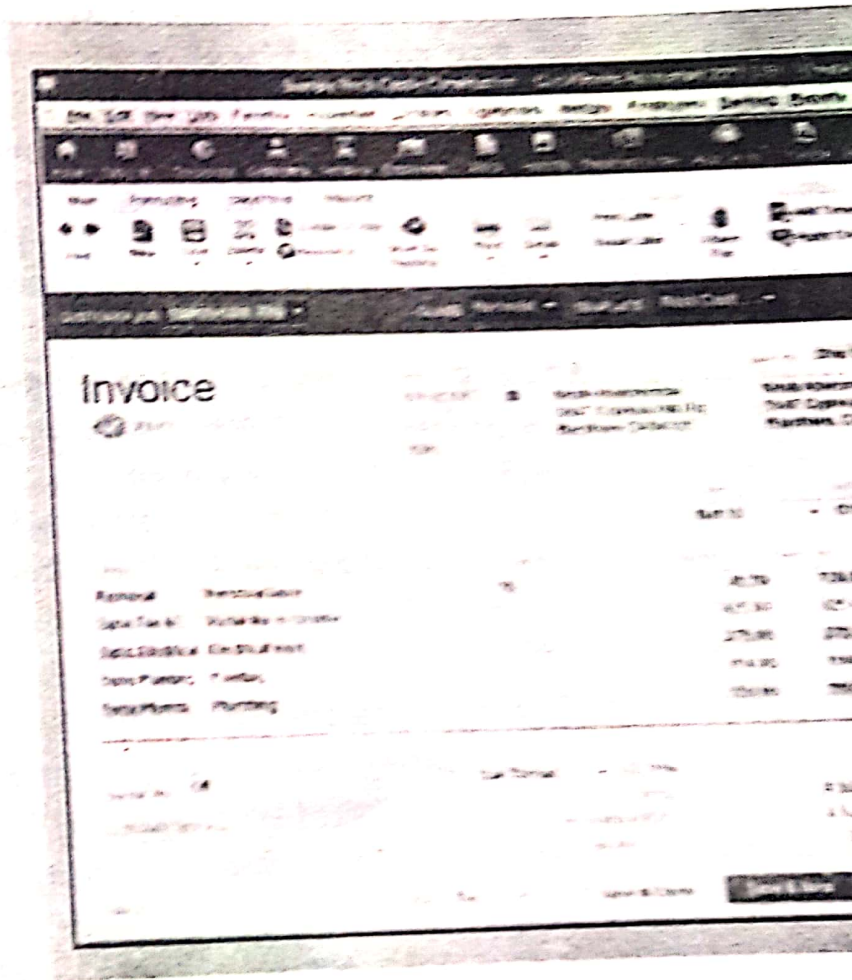
Project Management

Project management software is an application that allows a user to plan, schedule, track, and analyze the events, resources, and costs of a project. Project management software helps users manage project variables, allowing them to complete a project on time and within budget. A marketing manager, for example, might use project management software to schedule the processes required in a product launch (Figure 4-11). Read How To 4-1 to learn how you can manage a project using project management software.

Accounting

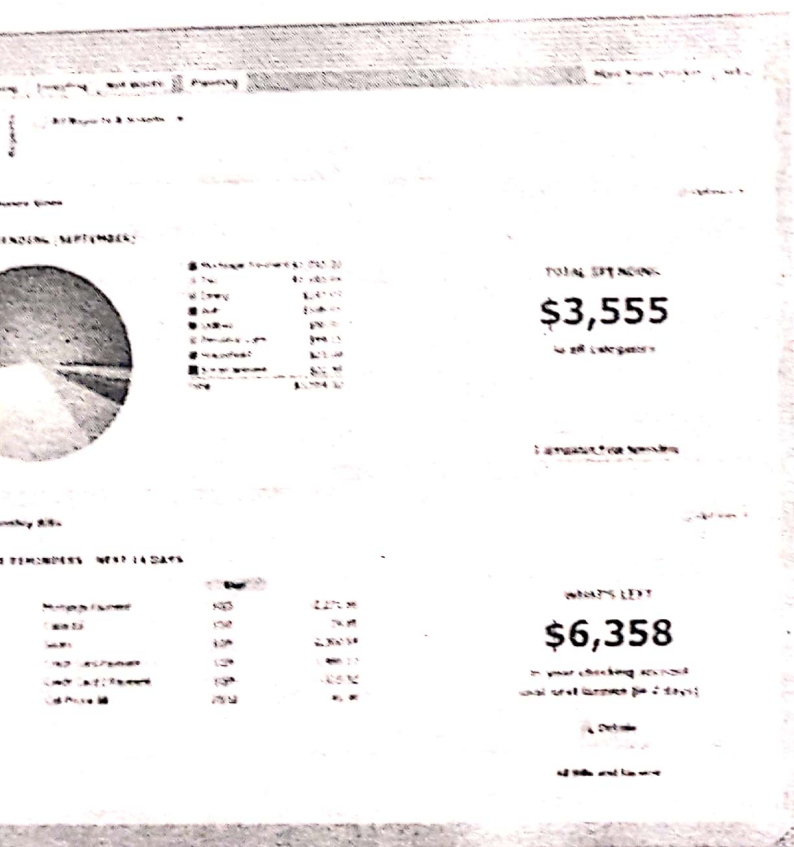
Accounting software is an application that helps businesses of all sizes record and report their financial transactions. With accounting software, business users perform accounting activities related to the general ledger, accounts receivable, accounts payable, purchasing, invoicing (Figure 4-12), and payroll functions. Accounting software also enables business users to write and print checks, track checking account activity, and update and reconcile balances on demand.

Most accounting software supports online credit checks, bill payment, direct deposit, and payroll services. Some offer more complex features, such as job costing and estimating, time tracking, multiple company reporting, foreign currency reporting, and forecasting the amount of raw materials needed for products. The cost of accounting software for small businesses ranges from less than one hundred to several thousand dollars. Accounting software for large businesses can cost several hundred thousand dollars.



Personal Finance

Personal finance software is a simplified accounting application that helps home users and small/home office users balance their checkbooks, pay bills, track personal income and expenses, verify account balances, transfer funds, track investments, and evaluate financial plans (Figure 4-13). Personal finance software helps determine where, and for what purpose, you are spending money so that you can manage your finances.



Personal finance software assists home users with tracking

Most personal finance software includes financial planning features, such as analyzing home and personal loans, preparing income taxes, and managing retirement savings. Other features include managing home inventory and setting up budgets. Most of these applications also offer a variety of online services, such as online banking and online investing. Read Secure IT 4-2 for safety tips when using personal finance apps on your smartphone or other mobile device.

Legal

Legal software is an application that assists in the preparation of legal documents and provides legal information to individuals, families, and small businesses (Figure 4-14). Legal software provides standard contracts and documents associated with buying, selling, and renting property; estate planning; marriage and divorce; and preparing a will or living trust. By answering a series of questions or completing a form, the legal software tailors the legal document to specific needs. Read Ethics & Issues 4-2 to consider whether an attorney should review documents created with legal software.

Tax Preparation

Tax preparation software is an application that can guide individuals, families, or small businesses through the process of filing federal and state taxes (Figure 4-15). These programs forecast tax liability and offer money-saving tax tips, designed to lower your tax bill. After you answer a series of ques-

After you answer a series of questions and complete basic forms, the software creates and analyzes your tax forms to search for missed potential errors and deduction opportunities.

Once the forms are complete, you can print any necessary paperwork; then, they are ready for filing. Some tax preparation programs also allow you to file your tax forms electronically, a process called *e-filing*.

Discover More: Visit this chapter's free resources to learn more about tax preparation programs.

Document Management

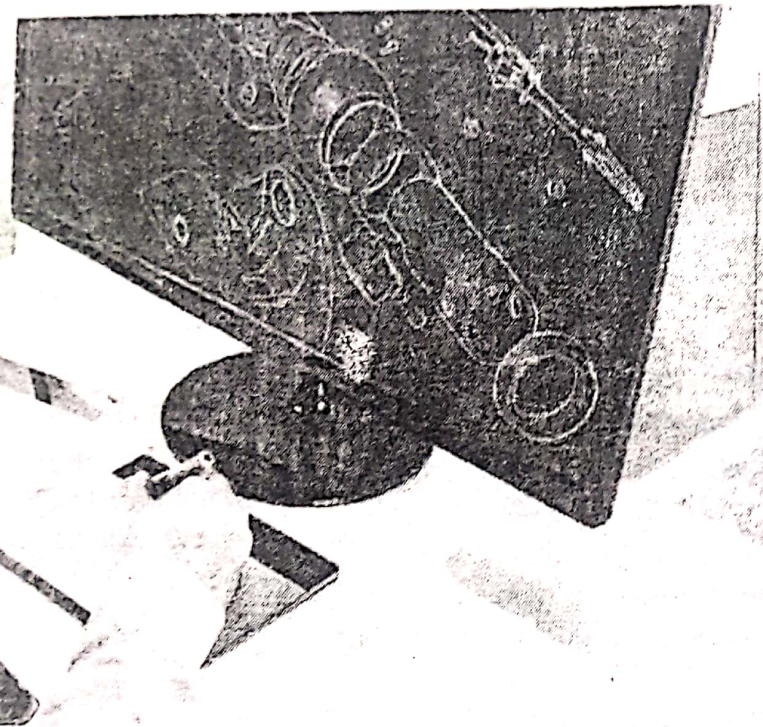
Document management software is an application that provides a means for sharing, distributing, and searching through documents by converting them into a format that can be viewed by any user. The converted document, which mirrors the original document's appearance, can be viewed and printed without the software that created the original document. Some document management software allows users to edit content and add comments to the converted document (Figure 4-16).

Many businesses use document management software to share and distribute company brochures, literature, and other documents electronically. Home users distribute flyers, announcements, and graphics electronically. A popular electronic image file format that document management software uses to save converted documents is **PDF** (Portable Document Format), developed by Adobe Systems.

Graphics and Media Applications

In addition to productivity applications, many people work with software designed specifically for their field of work. Power users, such as engineers, architects, desktop publishers, and graphic artists, often use sophisticated software that allows them to work with graphics and media. Many of these applications incorporate user-friendly interfaces or scaled-down versions, making it possible for the home and small business users also to create projects using these types of programs.

Graphics and media applications include computer-aided design, desktop publishing, paint/image editing, photo editing and photo management, video and audio editing, multimedia and website authoring, media players, and disc burning.



use CAD software to design building structures.

customize to meet their needs. For example, *home design/landscaping software* is an application that assists users with the design, remodeling, or improvement of a home, deck, or landscape.

Discover More: Visit this chapter's free resources to learn more about CAD software.

Computer-Aided Design

Computer-aided design (CAD) software is a type of application that assists professionals and designers in creating engineering, architectural, and scientific designs and models. For example, engineers create design plans for vehicles and security systems. Architects design building structures and floor plans (Figure 4-17). Scientists design drawings of molecular structures.

Three-dimensional CAD programs allow designers to rotate designs of 3-D objects to view them from any angle. Some CAD software even can generate material lists for building designs.

Home and small business users work with less sophisticated design and modeling software. These applications usually contain thousands of predrawn plans that users can

...and complete free resources to learn more about CAD software.

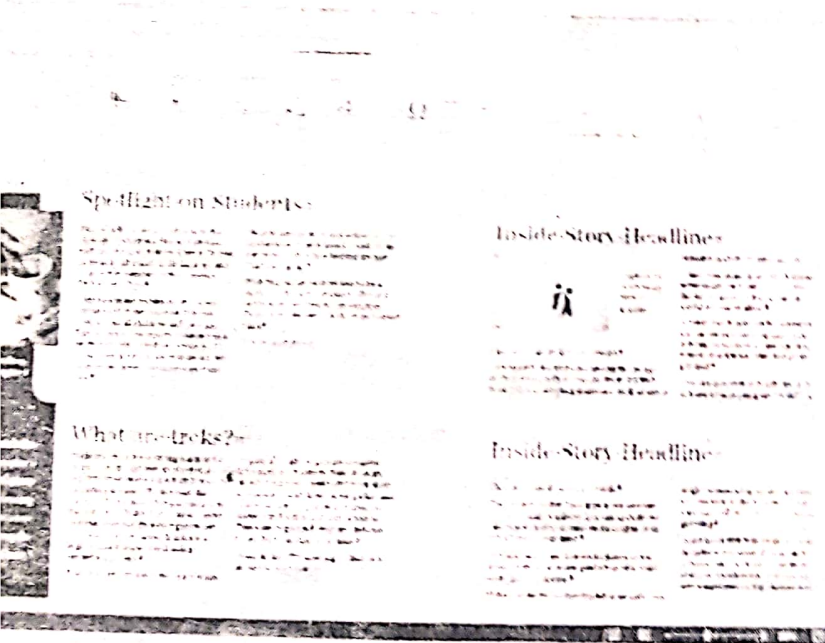
Desktop Publishing

Desktop publishing software (DTP software) is an application that enables designers to create sophisticated publications that contain text, graphics, and many colors. Professional DTP software is ideal for the production of high-quality color projects such as textbooks, corporate newsletters, marketing literature, product catalogs, and annual reports. Designers and graphic artists can print finished publications on a color printer, take them to a professional printer, or post them on the web in a format that can be viewed by those without DTP software.

Home and small business users create newsletters, brochures, flyers, advertisements, postcards, greeting cards, letterhead, business cards, banners, calendars, logos, and webpages using personal

DTP software (Figure 4-18). Although many word processing programs include DTP features, home and small business users often prefer to create DTP projects using DTP software because of its enhanced features. These programs typically guide you through the development of a project by asking a series of questions. Then, you can print a finished publication on a color printer or post it on the web.

Many personal DTP programs also include paint/image editing software and photo editing and photo management software (discussed next), enabling users to embellish their publications with images.



Multimedia and Website Authoring

Multimedia authoring software allows users to combine text, graphics, audio, video, and animation in an interactive application (Figure 4-22). With this software, users control the placement of text and images and the duration of sounds, video, and animation. Once created, multimedia presentations often take the form of interactive computer-based presentations or web-based presentations designed to facilitate learning, demonstrate product functionality, and elicit direct user participation. Training centers, educational institutions, and online magazine publishers use multimedia authoring software to develop interactive applications. These applications may be distributed on an optical disc, over a local area network, or via the Internet as web apps.

Website authoring software helps users of all skill levels create related webpages that include graphics, video, audio, animation, special effects with interactive content, and blog posts. In addition, many website authoring programs allow users to organize, manage, and maintain websites. Website authoring software often has capabilities of multimedia authoring software.

Communications Applications

Most of the communications apps in Table 4-2 are available as mobile apps, as well.

One of the main reasons people use computers is to communicate and share information with others. Earlier chapters presented a variety of communications applications, which are summarized in Table 4-2. Read Ethics & Issues 4-4 to consider whether your email provider should be allowed to read or scan your email messages.

Table 4-2 Communications Applications

Blog

- Time-stamped articles, or posts, in diary or journal format, usually listed in reverse chronological order
- Bloggers (author) use blogging software to create/maintain blog
 - Some blog services provide blogging software so users do not have to install it on their own servers

Browsing

- Allows users to access and view webpages on the Internet
- Requires browser
 - Integrated in most operating systems
 - Alternative browsers are available on the web for download, usually for free

Chat

- Real-time, online typed conversation with one or more users
- Requires chat client software
 - Integrated in some operating systems and most browsers
 - Available for download on the web, usually for free
 - Included with some paid ISPs
 - Built into some websites

Online Discussion

- Online areas where users have written discussions
- May require a reader program
- Integrated in some operating systems, email programs, and browsers

Email

- Messages and files sent via a network, such as the Internet
- Requires an email program
 - Integrated in many software suites and operating systems
 - Available free at portals on the web
 - Included with a paid ISP
 - Can be purchased separately

File Transfer

- Method of uploading files to and downloading files from servers on the Internet
- May require an FTP client program
 - Integrated in some operating systems
 - Available for download on the web; many free or open source alternatives are available
 - Many applications (such as web editing software) that require frequent transfer of files to the Internet have built-in FTP capabilities

Internet Phone

- Allows users to speak to other users via an Internet connection
- Requires a microphone, a speaker, a high-speed Internet connection, and VoIP software
 - Some subscription services also require a separate phone and VoIP router
 - With a webcam, some services also support video chat or videoconferencing

Internet Messaging

- Real-time exchange of messages, files, images, audio, and/or video with another online user
- Requires messaging software
 - Integrated in some operating systems
 - Available for download on the web, usually for free, or available as a browser plug-in
 - Included with some paid ISPs

Mobile Messaging

- Short text, picture, or video messages sent and received, mainly on mobile devices
- May require messaging plan from mobile service provider
 - Requires messaging software
 - Integrated in most mobile devices
 - Available for download on the web, usually for free

Videoconference

- Meeting between geographically separated people who use a network to transmit video/audio
- Requires videoconferencing software, a microphone, a speaker, and a webcam

Web Feeds

- Keeps track of changes made to blogs by checking feeds
- Requires a feed reader
 - Integrated in some email programs and browsers
 - Available for download on the web, usually for free