

Publication	URL
ACM TechNews	technews.acm.org/
ACM Transactions on Accessible Computing	www.is.umbc.edu/taccess/index.html
ACM Transactions on Internet Technology	toit.acm.org/
Bloomberg BusinessWeek	www.businessweek.com
CNET	news.cnet.com
Communications of the ACM	cacm.acm.org/
Computer World	www.computerworld.com
Engadget	www.engadget.com
eWeek	www.eweek.com
Fast Company	www.fastcompany.com/
Fortune	money.cnn.com/magazines/fortune/
IEEE Computer	www.computer.org/portal/web/computer
IEEE Internet Computing	www.computer.org/portal/web/internet/home
InfoWorld	www.infoworld.com
Mashable	mashable.com
PCWorld	www.pcworld.com
SD Times	www.sdtimes.com
Slashdot	slashdot.org/
Smarter Technology	www.smartertechnology.com
Technology Review	technologyreview.com
Techcrunch	techcrunch.com
Wired	www.wired.com

Fig. 1.17 | Technical and business publications.

Self-Review Exercises

- 1.1** Fill in the blanks in each of the following:
- The company that popularized personal computing was _____.
 - Computers process data under the control of sets of instructions called computer _____.
 - _____ is a type of computer language that uses Englishlike abbreviations for machine-language instructions.
 - _____ languages are most convenient to the programmer for writing programs quickly and easily.
 - The only language a computer can directly understand is that computer's _____.
 - The programs that translate high-level language programs into machine language are called _____.
 - _____, or labeling content, is another key part of the collaborative theme of Web 2.0.

- 1.2** a) World Wide Web. b) Tim Berners-Lee. c) Objects. d) Android.
- 1.3** a) information hiding. b) classes. c) object-oriented analysis and design (OOAD). d) inheritance. e) attributes.
- 1.4** a) False. HTML is a markup language. b) False. By separating page styling from page content and structure, you can change the look and feel of the pages on an entire website, or a portion of a website, simply by swapping out one style sheet for another. c) False. A Domain Name System (DNS) server maintains a database of hostnames and their corresponding IP addresses, and performs the translations automatically.
- 1.5** a) jQuery. b) Hypertext Transfer Protocol Secure (HTTPS). c) URIs (Uniform Resource Identifiers). d) IP (Internet Protocol) address. e) cache. f) iOS.

Exercises

- 1.6** Fill in the blanks in each of the following statements:
- The process of instructing the computer to solve a problem is called _____.
 - What type of computer language uses Englishlike abbreviations for machine-language instructions? _____.
 - The level of computer language at which it's most convenient for you to write programs quickly and easily is _____.
 - The only language that a computer directly understands is called that computer's _____.
 - Web 2.0 embraces an _____—a design that encourages user interaction and community contributions.
 - _____ is the concept that a large, diverse group of people will create smart ideas.
- 1.7** Fill in the blanks in each of the following statements:
- _____ is now used to develop large-scale enterprise applications, to enhance the functionality of web servers, to provide applications for consumer devices and for many other purposes.
 - _____ initially became widely known as the development language of the UNIX operating system.
 - The Web 2.0 company _____ is the fastest growing company ever.
 - The _____ programming language was developed by Bjarne Stroustrup in the early 1980s at Bell Laboratories.
- 1.8** State whether each of the following is *true* or *false*. If the statement is *false*, explain why.
- Cascading Style Sheets™ 3 (CSS3) is used to specify the presentation, or styling, of elements on a web page (e.g., fonts, spacing, sizes, colors, positioning).
 - Ensuring a consistent look and feel on client-side browsers is one of the great challenges of developing web-based applications.
 - An HTTP request typically posts (or sends) data to a server.
 - Client-side scripts often can access the server's file-directory structure.
- 1.9** Fill in the blanks in each of the following statements:
- _____ is the next-generation Internet Protocol that features built-in security and a new addressing scheme, significantly expanding the number of addresses available.
 - HTML documents normally contain _____, which, when clicked, load a specified web document.
 - A _____ contains information that directs a browser to the resource that the user wishes to access; _____ make such resources available to web clients.
 - The two most common HTTP request types are _____ and _____.

- e) Web-based applications are multitier applications. The _____ (also called the data tier or the information tier) maintains the application's data and typically stores data in a relational database management system. The _____ implements business logic, controller logic and presentation logic to control interactions between the application's clients and its data. The _____, or client tier, is the application's user interface, which gathers input and displays output.
- f) _____, the fastest growing mobile and smartphone operating system, is based on the Linux kernel and Java.

1.10 What is the relationship between JavaScript and ECMAScript?

1.11 Describe the difference between *client-side programming* and *server-side programming*.

1.12 (*Internet in Industry and Research*) Figures 1.1–1.4 provide examples of how computers and the Internet are being used in industry and research. Find three additional examples and describe how each is using the Internet and the web.

1.13 (*Cloud Computing*) Describe three benefits of the cloud computing model.

1.14 (*Web Services*) In Fig. 1.11 we listed several web services that can be used to create your own web applications. Using two different web services—either from the table or that you find online—describe a type of web application that you would like to create. How does it use the content provided by each of the web services?

1.15 (*Internet Negatives*) Besides their numerous benefits, the Internet and the web have several downsides, such as privacy issues, identity theft, SPAM and malware. Research some of the negative aspects of the Internet. List five problems and describe what could possibly be done to help solve each.

1.16 (*Web 2.0*) In this chapter, we discussed a few popular Web 2.0 businesses, including Facebook, Twitter, Groupon, Foursquare, Skype and YouTube. Identify another Web 2.0 business and describe why it fits the Web 2.0 business model.

1.17 (*Watch as an Object*) You're probably wearing on your wrist one of the world's most common types of objects—a watch. Discuss how each of the following terms and concepts applies to the notion of a watch: object, attributes, behaviors, class, inheritance (consider, for example, an alarm clock), abstraction, modeling, messages, encapsulation, interface and information hiding.

1.18 (*Privacy*) Some online e-mail services save all e-mail correspondence for some period of time. Suppose a disgruntled employee were to post all of the e-mail correspondences for millions of people, including yours, on the Internet. Discuss the issues.

1.19 (*Programmer Responsibility and Liability*) As a programmer in industry, you may develop software that could affect people's health or even their lives. Suppose a software bug in one of your programs caused a cancer patient to receive an excessive dose during radiation therapy and that the person was severely injured or died. Discuss the issues.

1.20 (*2010 "Flash Crash"*) An example of the consequences of our excessive dependence on computers was the so-called "flash crash" which occurred on May 6, 2010, when the U.S. stock market fell precipitously in a matter of minutes, wiping out trillions of dollars of investments, and then recovered within minutes. Research online the causes of this crash and discuss the issues it raises.

1.21 (*Making a Difference Projects*) The following is a list of just a few worldwide organizations that are working to make a difference. Visit these sites and our Making a Difference Resource Center at www.deitel.com/makingadifference. Prepare a top 10 list of programming projects that you think could indeed "make a difference."

- www.imaginecup.com/

The *Microsoft Image Cup* is a global competition in which students use technology to try to solve some of the world's most difficult problems, such as environmental sustainability, ending hun-

ger, emergency response, literacy and combating HIV/AIDS. Visit www.imaginecup.com/about for more information about the competition and to learn about the projects developed by previous winners. You can also find several project ideas submitted by worldwide charitable organizations at www.imaginecup.com/students/imagine-cup-solve-this. For additional ideas for programming projects that can make a difference, search the web for “making a difference” and visit the following websites:

- www.un.org/millenniumgoals
The United Nations Millennium Project seeks solutions to major worldwide issues such as environmental sustainability, gender equality, child and maternal health, universal education and more.
- www.ibm.com/smarterplanet/
The IBM® Smarter Planet website discusses how IBM is using technology to solve issues related to business, cloud computing, education, sustainability and more.
- www.gatesfoundation.org/Pages/home.aspx
The Bill and Melinda Gates Foundation provides grants to organizations that work to alleviate hunger, poverty and disease in developing countries. In the United States, the foundation focusses on improving public education, particularly for people with few resources.
- www.nethope.org/
NetHope is a collaboration of humanitarian organizations worldwide working to solve technology problems such as connectivity, emergency response and more.
- www.rainforestfoundation.org/home
The Rainforest Foundation works to preserve rainforests and to protect the rights of the indigenous people who call the rainforests home. The site includes a list of things you can do to help.
- www.undp.org/
The United Nations Development Programme (UNDP) seeks solutions to global challenges such as crisis prevention and recovery, energy and the environment and democratic governance.
- www.unido.org
The United Nations Industrial Development Organization (UNIDO) seeks to reduce poverty, give developing countries the opportunity to participate in global trade, and promote energy efficiency and sustainability.
- www.usaid.gov/
USAID promotes global democracy, health, economic growth, conflict prevention, humanitarian aid and more.
- www.toyota.com/ideas-for-good/
Toyota’s Ideas for Good website describes several Toyota technologies that are making a difference—including their Advanced Parking Guidance System, Hybrid Synergy Drive®, Solar Powered Ventilation System, T.H.U.M.S. (Total Human Model for Safety) and Touch Tracer Display. You can participate in the Ideas for Good challenge by submitting a short essay or video describing how these technologies can be used for other good purposes.