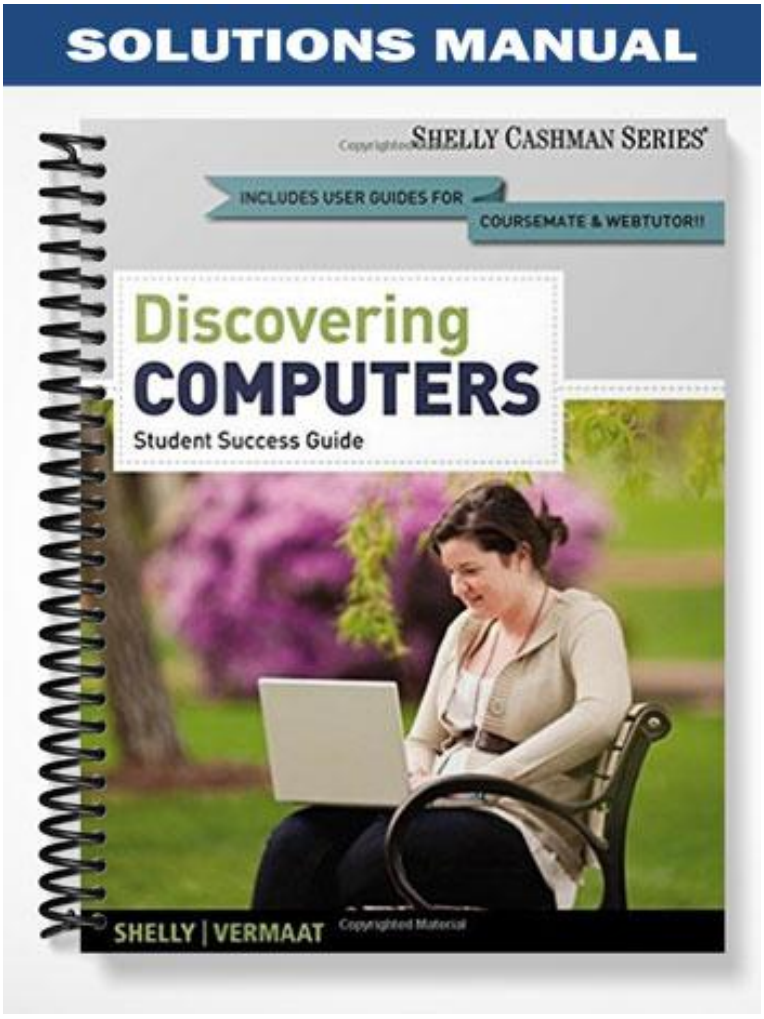
SOLUTIONS MANUAL



Chapter 2 Study Guide

This study guide identifies material you should know for the Chapter 2 exam. You may want to write the answers in a notebook, enter them on your digital device, record them into a phone, or highlight them in your book. Choose whichever method helps you remember the best.

1. List the two goals of ARPANET. Name the year it became functional.

   The goals of ARPANET were to build a network that (1) allowed scientists at different physical locations to share information and work together on military and scientific projects and (2) could function even if part of the network were disabled or destroyed by a disaster such as a nuclear attack. That network, called ARPANET, became functional in September 1969.

2. Describe the role of a host on a network.

   A host, more commonly known today as a server, is any computer that provides services and connections to other computers on a network. Hosts often use high-speed communications to transfer data and messages over a network.

3. Explain how ARPANET, hosts, and NSFnet contributed to the evolution of the Internet.

   The original ARPANET consisted of four main computers, one each located at the University of California at Los Angeles, the University of California at Santa Barbara, the Stanford Research Institute, and the University of Utah. Each of these computers served as a host on the network. As researchers and others realized the great benefit of using ARPANET to share data and information, ARPANET underwent phenomenal growth. Some organizations connected entire networks to ARPANET to take advantage of its high-speed communications. In 1986, the National Science Foundation (NSF)

connected its huge network of five super computer centers, called NSFnet, to ARPANET. This configuration of complex networks and hosts became known as the Internet.

4. Communications activity on a network is called _____.

   Communications activity on a network is called traffic.

5. Identify the role of the W3C.

   The World Wide Web Consortium (W3C) oversees research and sets standards and guidelines for many areas of the Internet. The mission of the W3C is to contribute to the growth of the Web.

6. Describe the goal of Internet2. Give some examples of its projects.

   The goal of Internet2 is to develop and test advanced network technologies that will benefit Internet users in the short-term future. Examples of previous Internet2 projects that are now mainstream include telemedicine, digital libraries, and faster Internet services. Current Internet2 projects include interactive high-definition video and enhanced detection and resolution of network problems.

7. Briefly describe seven types of broadband Internet service.

   Cable Internet service provides high-speed Internet access through the cable television network via a cable modem.

   DSL (digital subscriber line) provides high-speed Internet connections using regular copper telephone lines.

   Fiber to the Premises (FTTP) uses fiber-optic cable to provide high-speed Internet access to home and business users.

   Fixed wireless provides high-speed Internet connections using a dish-shaped antenna on your house or business to communicate with a tower location via radio signals.

A cellular radio network offers high-speed Internet connections to devices with built-in compatible technology or computers with wireless modems.

A Wi-Fi (wireless fidelity) network uses radio signals to provide high-speed Internet connections to compatible or properly equipped wireless computers and devices.

Satellite Internet service provides high-speed Internet connections via satellite to a satellite dish that communicates with a satellite modem.

8. State the purpose of a hot spot. Name locations you might find one.

   Many public locations are hot spots that provide Wi-Fi Internet connections to users with mobile computers or devices. You often find hot spots in airports, hotels, schools, shopping malls, and coffee shops.

9. Define the term, access provider.

   An access provider is a business that provides individuals and organizations access to the Internet free or for a fee.

10. Differentiate among a regional ISP, a national ISP, an online service provider, and a wireless Internet service provider.

    A regional ISP usually provides Internet access to a specific geographic area.

    A national ISP is a business that provides Internet access in cities and towns nationwide.

    An online service provider (OSP) has many members-only features such as instant messaging or their own customized version of a Web browser.

    A wireless Internet service provider, sometimes called a wireless data provider, is a company that provides wireless Internet access to desktop and notebook computers and mobile devices, such as smart phones and portable media players, with built-in wireless

capability (such as Wi-Fi) or to computers using wireless modems or wireless access devices.

11. Major carriers of Internet traffic are known collectively as the Internet _____.

    Major carriers of Internet traffic are known collectively as the Internet backbone.

12. Describe the purpose and composition of an IP address.

    An IP address, short for Internet Protocol address, is a number that uniquely identifies each computer or device connected to the Internet.

13. Define the term, domain name. Cite an example of one.

    A domain name is the text version of an IP address. An example is www.google.com.

14. Know the purpose of several generic TLDs. Identify ICANN's role with TLDs.

    Every domain name contains a top-level domain (TLD), which is the last section of the domain name. A generic TLD (gTLD), such as com, identifies the type of organization associated with the domain. Examples:

    aero - aviation community members

    biz - businesses of all sizes

    cat - Catalan cultural community

    com - commercial organizations, businesses, and companies

    coop - business cooperatives such as

    credit - unions and rural electric co-ops

    edu - educational institutions

    gov - government agencies

    info - business organizations or individuals providing general information

    jobs - employment or human resource businesses

mil - military organizations

mobi - delivery and management of mobile Internet services

museum - accredited museums

name - individuals or families

net - network providers or commercial companies

org - nonprofit organizations

pro - certified professionals such as doctors, lawyers, and accountants

tel - Internet communications

travel - travel industry

The organization that assigns and controls top-level domains is the Internet Corporation for Assigned Names and Numbers (ICANN).

15. State the purpose of a DNS server.

    A DNS server translates the domain name to its associated IP address so that data and information can be routed to the correct computer.

16. Differentiate between an iPv4 and iPv6 address. Discuss why iPv6 eventually will replace iPv4.

    An IPv4 address has two parts that identify a specific computer: one part to identify the network where that computer resides and a second part to pinpoint the specific computer or host within that network. An IPv6 address has three parts: a global prefix to identify the network, a subnet to identify the location within the network, and the interface ID to identify the specific computer or host. The newer IP addressing scheme is IPv6, also called IPng (IP Next Generation), which will lengthen IP addresses from 32 bits to 128

bits and increase the number of available IP addresses to a whopping 3.4 x 10^{38}, or 340,000,000,000,000,000,000,000,000,000,000,000,000,000.

17. Distinguish among the Web, a Web page, a Web site, and a Web server. Describe the role of each when a browser displays a home page.

    The World Wide Web (WWW), or Web, consists of a worldwide collection of electronic documents. Each electronic document on the Web is called a Web page, which can contain text, graphics, animation, audio, and video. A Web site is a collection of related Web pages and associated items, such as documents and pictures, stored on a Web server. A Web server is a computer that delivers requested Web pages to your computer. The same Web server can store multiple Web sites.

    A Web browser retrieves a home page, which is a Web page on a Web site that is stored on a Web server on the Web.

18. Explain the purpose of a Web browser. Name five popular browsers for personal computers.

    A Web browser, or browser, is application software that allows users to access and view Web pages or access Web 2.0 programs. The more widely used Web browsers for personal computers are Internet Explorer, Firefox, Opera, Safari, and Google Chrome.

19. A _____ is a built-in connection to another related Web page or part of a Web page.

    A link, short for hyperlink, is a built-in connection to another related Web page or part of a Web page.

20. Define the terms, downloading and uploading.

    Downloading is the process of a computer or device receiving information, such as a Web page, from a server on the Internet. Uploading is the process of transferring

documents, graphics, and other objects from your computer to a server on the Internet.

21. Define the term, Web address. Name a synonym.

    A Web address is a unique address for a Web page. URL (Uniform Resource Locator) is a synonym for Web address.

22. Name and give examples of the four components of a Web address. Identify the two components that may be optional.

    A Web address consists of a protocol, domain name, sometimes the path to a specific Web page or location on a Web page, and the Web page name. An example Web address is http://www.nps.gov/planyourvisit/wildlifeviewing.htm. In this example, the protocol is http://, the domain name is www.nps.gov, the path is grsm/planyourvisit, and the Web page name is wildlifeviewing.htm. Some Web sites do not require the http:// and the www portions of the Web address.

23. State the purpose of a bookmark.

    A bookmark, or favorite, is a saved Web address that you access by clicking its name in a list.

24. Describe what happens when you click a link.

    Clicking a link causes the Web page or document associated with the link to be displayed on the screen.

25. Describe the function and purpose of tabbed browsing.

    Most current Web browsers support tabbed browsing, where the top of the browser displays a tab (similar to a file folder tab) for each Web page you open. Tabbed browsing allows users to have multiple home pages that automatically open when the browser starts.

26. Differentiate between a search engine and a subject directory.

    A search engine is a program that finds Web sites, Web pages, images, videos, news, maps, and other information related to a specific topic. A subject directory classifies Web pages in an organized set of categories, such as sports or shopping, and related subcategories.

27. Besides Web pages, identify other types of items a search engine can find.

    A search engine can find images, videos, news, maps, and other information related to a specific topic.

28. Describe how to use a search engine to search for information. Give an example of search text.

    Search engines require that you enter a word or phrase, called search text or search query, that describes the item you want to find. Each word in the search text is known as a keyword. Your search text can be broad, such as spring break destinations, or more specific, such as Walt Disney World.

29. Relevancy and _____ are two criteria search engines use to determine the priority of search results. Describe ways to improve search results.

    Relevancy and popularity are two criteria search engines use to determine the priority of search results. You can use search engine operators to help refine searches. You also can use specific nouns, put important terms first in the search text, and list all possible spellings.

30. Know how and when to use these search engine operators: +, OR, ( ), -, " ", and *.

    Use + for the engine to display hits that include specific words. Use OR for the search engine to display one word or the other in the results. Use ( ) to combine hits that include

*specific words with those that include only one word from a list. Use - to exclude a word from the search results. Use " " to search for an exact phrase in a certain order. Use * to substitute characters.*

31. Describe the purpose of these types of Web sites: portal, news, informational, business/marketing, blog, wiki, online social network, educational, entertainment, advocacy, Web app, content aggregator, and personal.

    A portal is a Web site that offers a variety of Internet services from a single, convenient location.

    A news Web site contains newsworthy material including stories and articles relating to current events, life, money, sports, and the weather.

    An informational Web site contains factual information.

    A business/marketing Web site contains content that promotes or sells products or services.

    A blog, short for Weblog, is an informal Web site consisting of time-stamped articles, or posts, in a diary or journal format, usually listed in reverse chronological order.

    A wiki is a collaborative Web site that allows users to create, add to, modify, or delete the Web site content via their Web browser.

    An online social network, also called a social networking Web site, is a Web site that encourages members in its online community to share their interests, ideas, stories, photos, music, and videos with other registered users.

    An educational Web site offers exciting, challenging avenues for formal and informal teaching and learning.

    An entertainment Web site offers an interactive and engaging environment.

An advocacy Web site contains content that describes a cause, opinion, or idea.

A Web application, or Web app, is a Web site that allows users to access and interact with software through a Web browser on any computer or device that is connected to the Internet.

A content aggregator is a business that gathers and organizes Web content and then distributes, or feeds, the content to subscribers for free or a fee.

A private individual or family not usually associated with any organization may maintain a personal Web site or just a single Web page.

32. Explain the controversy surrounding using a wiki as a valid source of research. Name a widely used wiki.

    While many wikis are tightly controlled with a limited number of contributors and expert editors, these usually focus on narrowly-defined, specialized topics. Most large online wikis, such as Wikipedia, often involve thousands of editors, many of whom remain anonymous. Because of this, people argue they are not credible sources. Wikipedia is a widely used wiki.

33. Describe seven criteria for evaluating a Web site's content.

    Affiliation - A reputable institution should support the Web site without bias in the information.

    Audience - The Web site should be written at an appropriate level.

    Authority - The Web site should list the author and the appropriate credentials.

    Content - The Web site should be well organized and the links should work.

    Currency - The information on the Web page should be current.

Design - The pages at the Web site should download quickly, be visually pleasing, and easy to navigate.

Objectivity - The Web site should contain little advertising and be free of preconceptions.

34. Define the term, multimedia.

    Multimedia refers to any application that combines text with graphics, animation, audio, video, and/or virtual reality.

35. Explain how Web pages use graphics, animation, audio, video, virtual reality, and plug-ins.

    Many Web pages use colorful graphical designs and images to convey messages.

    Web pages often use animation, which is the appearance of motion created by displaying a series of still images in sequence.

    Some Web pages contain individual audio files available for download to a computer or device. Others stream the audio, which transfers the data in a continuous and even flow.

    Many Web pages contain video, which usually has accompanying audio. You can use the Internet to watch live and/or pre recorded coverage of television programs. You also can upload, share, or view video clips at a video sharing Web site such as YouTube.

    Using special VR software, a Web developer creates an entire 3-D environment that contains infinite space and depth, called a VR world. A VR world, for example, might show a house for sale.

    A plug-in, or add-on, is a program that extends the capability of a browser.

36. Name the types of graphics formats used on the Web.

    BMP, GIF, JPEG, PNG, and TIFF are types of graphic formats used on the Web.

37. Define the term, thumbnail.

A thumbnail is a small version of a larger graphic.

38. Name some popular audio file players.

    Popular audio file players include Windows Media Player, iTunes, and RealPlayer.

39. Define the term, streaming. Identify uses of streaming audio.

    Streaming audio enables you to listen to music as it downloads to your computer. Many radio and television stations use streaming audio to broadcast music, interviews, talk shows, sporting events, music videos, news, live concerts, and other segments.

40. Identify the purpose of popular plug-ins.

    Acrobat Reader – view, navigate, and print PDF files

    Flash Player – view graphics and animation, hear sound and music

    Java – run programs written in Java

    QuickTime – view animation, music, audio, video, and VR directly on a Web page

    RealPlayer – Listen to live and on-demand high-quality audio and video

    Shockwave Player – Experience dynamic interactive multimedia and 3-D graphics

    Silverlight – Experience high-definition video and high-resolution multimedia

    Windows Media Player – Listen to live and on-demand audio, burn CDs, and watch DVD movies

41. Identify and briefly describe the steps in Web publishing.

    First, plan a Web site. Think about issues that could affect the design of the Web site.

    Second, analyze and design a Web site. Design the layout of elements of the Web site such as links, text, graphics, animation, audio, video, and virtual reality.

Third, create a Web site. Use a word processing program to create basic Web pages that contain text and graphics. Use Web page authoring software to create more sophisticated Web sites.

Fourth, deploy a Web site. Transfer the Web pages from your computer to a Web server. Lastly, maintain a Web site. Visit the Web site regularly to ensure the Web site contents are current and all links work properly.

42. Define the term, e-commerce. Describe and give examples of the types of e-commerce: B2C, C2C, and B2B.

    E-commerce, short for electronic commerce, is a business transaction that occurs over an electronic network such as the Internet.

    Business-to-consumer (B2C) e-commerce consists of the sale of goods and services to the general public. For example, Apple has a B2C Web site.

    Consumer-to-consumer (C2C) e-commerce occurs when one consumer sells directly to another, such as in an online auction. eBay is one of the more popular online auction Web sites.

    Most e-commerce, though, actually takes place between businesses, which is called business-to-business (B2B) e-commerce. Businesses often provide goods and services to other businesses, such as online advertising, recruiting, credit, sales, market research, technical support, and training.

43. Describe the purpose of these Internet services and explain how each works: e-mail, mailing lists, instant messaging, chat rooms, VoIP, and FTP.

E-mail (short for electronic mail) is the transmission of messages and files via a computer network. You use an e-mail program to create, send, receive, forward, store, print, and delete e-mail messages.

A mailing list, also called an e-mail list or distribution list, is a group of e-mail names and addresses given a single name. When a message is sent to a mailing list, every person on the list receives a copy of the message in his or her mailbox.

Instant messaging (IM) is a real-time Internet communications service that notifies you when one or more people are online and then allows you to exchange messages or files or join a private chat room with them.

A chat is a real-time typed conversation that takes place on a computer. A chat room is a location on an Internet server that permits users to chat with each other.

VoIP, (Voice over IP, or Internet Protocol) also called Internet telephony, enables users to speak to other users over the Internet. VoIP uses the Internet (instead of the public switched telephone network) to connect a calling party to one or more local or long distance called parties.

FTP (File Transfer Protocol) is an Internet standard that permits file uploading and downloading with other computers on the Internet.

44. _____ and _____ are two popular free e-mail Web apps.

    Gmail and Windows Live Hotmail are two popular free e-mail Web apps.

45. Describe the components of an e-mail address.

    An e-mail address is a combination of a user name and a domain name that identifies a user so that he or she can receive Internet e-mail.

46. Define the term, real time.

Real time means that you and the people with whom you are conversing are online at the same time.

47. Define the term, netiquette. Identify the rules of netiquette.

    Netiquette, which is short for Internet etiquette, is the code of acceptable behaviors users should follow while on the Internet.

    In e-mail, chat rooms, and newsgroups: keep messages brief; use proper grammar, spelling, and punctuation; be careful when using sarcasm and humor; be polite; read the message before you send it; use meaningful subject lines; avoid sending or posting flames; do not participate in flame wars; avoid sending spam; do not use all capital letters; use emoticons to express emotion; use abbreviations and acronyms for phrases; and clearly identify a spoiler.

    Read the FAQ, if one exists. Many newsgroups and Web pages have an FAQ.

    Do not assume material is accurate or up-to-date. Be forgiving of other's mistakes.

    Never read someone's private e-mail.

48. Describe cyberbullying, how it occurs, and why it is difficult to catch the perpetrators.

    Cyberbullying is the harassment of computer users, often teens and preteens, through various forms of Internet communications. Usually, the perpetrators of cyberbullying remain anonymous. Many people believe that the anonymous nature of the Internet directly leads to this unscrupulous behavior.

49. Describe the purpose of these Web sites: Google, Webopedia, Blogger, Bloglines, Twitter, Facebook, Linkedln, flickr, Shutterfly, YouTube, Expedia, Maps.com, E*TRADE, THOMAS, craigslist, eBay, Amazon, The Weather Channel, Yahoo! Sports, MSNBC, HowStuffWorks, NASA, WebMD, Monster, and Project Gutenberg.

Google - to find information/research

Webopedia – to find technology definitions

Blogger, Bloglines, and Twitter - a way for individuals to publish their views and thoughts

Facebook and Linkedln - online social networks

flickr, Shutterfly, and YouTube - online media sharing

Expedia - assist users with their travel needs

Maps.com - online cartography (maps and directions)

*E*TRADE - online investing*

THOMAS - government Web site for the Library of Congress

Craigslist and eBay - online auctions

Amazon - online shopping

The Weather Channel - online weather reports

Yahoo! Sports - online sports coverage

MSNBC - online news coverage

HowStuffWorks - online learning how to's

NASA - online coverage on NASA happenings and space exploration

WebMD - online medical history

Monster - job searches online

Project Gutenberg - literature made available online