Technology Now

Chapter 2: Introduction to Software and Apps

Chapter Review

WHAT IS SOFTWARE?

1. What are the two main types of software?
The two types of software are system software and application software, or apps.

2. What do you call apps that you can use without installing them?
Computers come with preinstalled software, software that is already on the machine.

3. Patches and service packs are two ways you can update your software. What is the main difference between patches and service packs?
Software updates come in the form of patches (smaller fixes) and service packs (larger fixes), which replace small sections of existing code with the new, improved code.

SOFTWARE DEVELOPMENT

4. Describe an advantage of high-level programming languages, and give two examples.
High-level languages create source code using words and structures similar to spoken language. High-level languages make programming easier; however, they must be translated from source code into machine code before a computer can read them. Most business and scientific applications are written in high-level languages such as C#, Visual Basic, PHP, and Java. Java is a popular high-level language for Web-based programming. For mobile apps, developers might use Objective-C, JavaScript, or HTML5.

5. What are the two important types of software development methodologies? Briefly describe each one.
Two important methodologies are predictive and agile; each methodology has a number of different models. The predictive methodology focuses on planning and preparation to minimize changes later in the development process. The agile, or adaptive, programming methodology focuses on flexibility; program designs and specifications change and evolve as a project moves forward.

6. Name three common tools that programmers use and briefly describe each one.
Text editors and program editors let programmers write code using a word processing-like interface that often includes features such as AutoCorrect and AutoComplete.
Compilers and interpreters translate source code from high-level languages into machine code so it can be understood by the processor.
Assemblers translate assembly language into machine code.

Debuggers examine software code line by line to identify errors or "bugs," such as incorrect formulas or logic errors.

TYPES OF SOFTWARE

7. Briefly describe the function of operating system software, and name two common operating systems.

Operating system software, also called OS software or a platform, manages computer hardware and software. For example, it allocates memory, launches applications, configures hardware devices, and establishes your Internet connection. The most common operating systems today are Microsoft Windows, Apple Mac OS X, and Linux.

8. What is the purpose of utility software? Name two common types of utility programs.

Utility software is system software that performs maintenance-related tasks on computers, such as locating files, cleaning up or defragmenting (consolidating data on) disks, and compressing files.

9. Name and briefly describe three types of productivity software.

Productivity software is application software that makes people more productive by automating common or repetitive tasks. Programs sold in productivity suites include word processing, spreadsheet, database, presentation, and graphics programs.

PURCHASING SOFTWARE

10. Name two popular online stores you might use to purchase software.

Popular online stores include Windows Store, Apple App Store, and Google Play.

11. What is custom software? Name an advantage and a disadvantage of custom software.

Unlike packaged software, which is designed to meet the needs of many, custom software is designed to meet the unique needs of an organization or business. Companies either hire outside programmers to write custom software or use their own internal developers. Acquiring custom software is more time consuming and expensive than purchasing packaged software, because developers must go through the entire development process. On the other hand, custom software matches the users' needs exactly and can be modified if those needs change.

12. Describe the purpose of open source software and give two examples.

Open source software is copyrighted software whose source code is "open" or available to the public. Users can copy, modify, and customize the software with certain restrictions. The concept of open source software was introduced in 1991 by Linus Torvalds, who created and then shared the Linux operating system with the world. Besides Linux, popular open source programs include Firefox, Audacity, and the OpenOffice productivity suite.

LICENSING SOFTWARE

13. What is a copyright, and who owns the copyright to a product?

A copyright is the legal right to copy, distribute, modify, and sell an original work, including computer software. The copyright belongs exclusively to the creator of the work, such as the software developer or publisher.

14. What are two types of software licenses? Briefly describe each one.

A single-user license, also called an end-user license agreement (EULA), grants one user the right to use the software. Many students and home users buy single-user licenses. A multiple-user license lets many users use the software; the number of users and the price vary by license. A site license allows an organization to install software on all computers at a site, either locally or through a network. Site licenses are generally priced at a flat rate per site. A concurrent-use license allows a specified number of copies of the software to be used at any given time within an organization. The license is typically priced per copy. Finally, time-limited licenses grant usage rights for a fixed period of time.

15. Name three types of authentication technologies that help protect against piracy, and briefly describe each one.

Authentication technologies require users to log in with a valid user ID and password to access Web-based content such as software programs or e-books. Packaged software programs often include Certificates of Authenticity with validation codes that users must input during the installation process. Encryption makes digital content unreadable unless viewed with a valid encryption key or authorized hardware device. A digital watermark is a hidden pattern or signal inserted into digital content to identify the copyright holder.

SOFTWARE PROBLEMS

16. If you have a software problem, what are three kinds of application help that are available to you?

A user manual gives instructions on using the program's features and troubleshooting common problems. Onscreen Help is an electronic user manual with additional benefits, such as being able to search for specific topics or click links to online resources. Web-based Help can be found on a software publisher's Web site, blog, or another software-related site.

17. Name and briefly describe three types of security software.

Antivirus software finds and removes viruses, Trojan horses, worms, and bots from your computer and scans incoming and outgoing email messages to identify threats. Antispyware prevents spyware from installing itself on your computer and removes any existing spyware. Antispam software blocks spam, or electronic junk mail, from your email inbox. Firewall software creates a personal security zone around your computer by monitoring all incoming and outgoing traffic and blocking any suspicious activity.

18. Briefly describe the main steps you should perform to troubleshoot a software problem.

1) Stop and think: Remain calm and consider the situation. Randomly pressing keys or clicking could make matters worse. Taking a thoughtful, organized approach can help solve the problem.
2) Save and back up: Save any open documents if possible, and verify that your work is backed up (copied) to an external drive or online location.
3) Gather information: Write down the problem, including the exact text and numbers of any error messages. What were you doing when it occurred? Can you replicate (reproduce) it? What steps did you take to replicate it? Note the time and date, and any other programs that were running. Write down your computer model, operating system version, and application program versions.
4) Research possible solutions: Have you recently installed any software or hardware? Is your antivirus software up to date? Have you recently downloaded anything from the Internet that may have introduced a virus? Does a virus scan reveal any problems? Search the Internet using a short problem description. Check the software manufacturer's technical support Web site, as well as forums and newsgroups. Other people may have had the same problem. If you test possible solutions, try only one solution at a time, and write down what happens.
5) Call for help: If necessary, contact the manufacturer's Technical Support department, with your notes in front of you, so you can answer any questions they might ask.

Test Your Knowledge Now

1. Software that lets users interact with the computer by tapping, clicking, or pressing buttons, menus, icons, and links has:

   a. Preinstalled software.

   b. A compiler.

   c. A graphical user interface.

   d. A code library.

2. Software that you can pay for with a monthly subscription fee is called:

   a. A Web app.

   b. Software as a Service (SaaS).

   c. Portable app.

   d. Productivity software.

3. The preinstalled software that runs your computer is called:

   a. An app.

   b. Productivity software.

   c. A programming language.

   d. An operating system.

4. Which of the following translate source code from high-level languages into machine code?

   a. Assemblers

   b. Debuggers

   c. Program editors

   d. Compilers

5. Machine and assembly programming languages are examples of:

   a. High-level languages.

   b. Low-level languages.

   c. Debuggers.

   d. Program editors.

6. The software development methodology that focuses on planning and preparation to minimize changes later on is called:

     a. Extreme programming model.

     b. Predictive methodology.

     c. Adaptive methodology.

     d. Agile methodology.

7. Which of the following allocates computer memory, launches application programs, and configures hardware devices?

     a. Platform

     b. Graphical user interface

     c. Command-line interface

     d. Application program

8. A widget is:

     a. A utility program that controls peripheral devices.

     b. A mobile application.

     c. An application that lets you create large collections of data.

     d. A utility program on the desktop that displays small pieces of information.

9. Which of the following is a form of malware that often uses keyloggers to steal passwords?

     a. A virus.

     b. A worm.

     c. A Trojan horse.

     d. A mobile app.

10. Mass-produced software that appeals to a wide range of users is called:

     a. Custom software.

     b. Web apps.

     c. Open source software.

     d. Packaged software.

11. Web apps are:

     a. Programs you access over the Internet with a computer or mobile device.

     b. Designed to meet the unique needs of an organization or business.

   c.   A form of packaged software.

   d.   Public domain software

12. The Linux operating system is an example of:

   a.   Open source software.

   b.   Shareware.

   c.   A Web app.

   d.   Custom software.

13. Copyright is intended to protect:

   a.   Encryption.

   b.   End-user licenses.

   c.   Intellectual property.

   d.   Digital Rights Management.

14. The legal right to copy, distribute, modify, and sell an original work is called a:

   a.   Copyright.

   b.   License.

   c.   Digital Rights Management.

   d.   Certificate of Authenticity.

15. Which of the following DRM technologies makes digital content unreadable unless viewed with a valid key?

   a.   Digital watermark.

   b.   Certificate of Authenticity.

   c.   Copy protection.

   d.   Encryption.

16. Which of the following is *not* a type of application help?

   a.   A software publisher's Web site

   b.   Onscreen link

   c.   User manual

   d.   Service pack

17. If a software company wants to issue a collection of software fixes, which of the following would they release?

   a.   An update

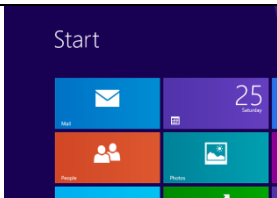   b.   Malware

    c.   Security software

    d.   A patch

18. If you encounter a software problem, you should determine if you can _____ it.

    a.   crash
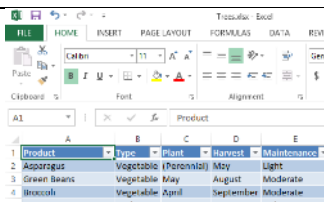
    b.   replicate

    c.   patch

    d.   reboot

19. In the space next to each image below, write the letter of the phrase that describes it:

    a. Command line interface
    b. Graphical user interface
    c. Microsoft Excel application software
    d. Authentication
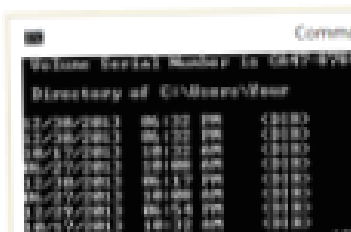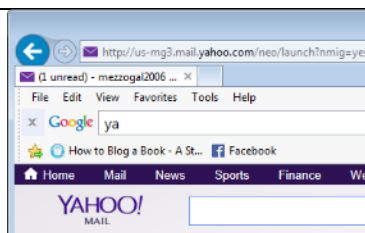   e. Web app

___b___	
___c___	
___a___	
___e___	

Email   YourName@outlook.com   ✕

Password   ••••••••

☑ Remember me

_____d____

Try This Now

1: Microsoft Office Web Apps

Microsoft Office Web apps provide a free way to create, edit, and share Word, Excel, PowerPoint, and OneNote files from any browser. If necessary, create a free Microsoft account at outlook.com. Select the OneDrive option, and then select the Create button to use the PowerPoint presentation Web app.
a. Create a five-slide presentation explaining the features of the Microsoft Office Web apps.
Solutions will vary, but should be a PowerPoint presentation file containing five slides, each explaining a feature of the Microsoft Office Web apps. Sample features include the ability to create files from anywhere using a Web browser, the ability to download files to edit in the full Office programs, the ability to share files with others online and to collaborate on file creation online, the ability to store files online using the free OneDrive cloud storage service, and the ability to create files online using the Web versions of Word, Excel, PowerPoint, and OneNote.

b. Add appropriate images to each slide in the presentation.
Solutions will vary, but each of the five slides should contain an image related to the slide content.

c. Save and share the presentation with your instructor using the Share feature.
PowerPoint file should be shared with instructor using the Share feature of the PowerPoint Web app.

2: Google Drive Web Apps

Google Drive is the home of Google Docs, a free office suite of productivity applications that offer collaborative editing on documents, spreadsheets, and presentations. If necessary, open a browser and create a Google free account at google.com. Sign in to your account, and then go to drive.google.com.

a. Select the Create button and then select Document. Using the Google Docs word processor and the Google Drive Help feature, research using Google Drive for online storage, and then write at least 100 words describing this feature.
Solutions will vary, but key features of Google Drive include: 15GB of free cloud storage space for files of all types, and integrated access to other Google online apps such as Gmail and Google Docs, which allows the creation of documents, spreadsheets, forms, presentations, and Drawings. Google Drive also includes customizable features for sharing files with groups of people or the public with a spectrum of accessibility and security settings.

b. Select File and then select Share. Invite your instructor to share this document by entering his or her email address.

Solutions will vary, but the document created should be shared with the instructor using the built-in features of Google Drive.

3: Software Recommendations

Before you purchase software, you should read unbiased reviews, compare prices, and understand specifications to improve your purchasing experience. One of the most popular sites for software and hardware reviews is cnet.com.

a. Open the site cnet.com. Select Reviews on the navigation bar, select Software, and then select the iOS platform. Sort the listing of reviews by most popular. What are the 10 most popular iOS software packages? List the price for each one.

Solutions will vary based on the day the assignment is completed. However, each solution should contain a list of ten iOS apps and their prices.

b. Select one of the 10 iOS software packages. Cnet includes comments labeled "The good," "The bad," and "The bottom line." Copy this information about your selected software and paste it into a word processing document.

Solutions will vary based on the app selected. Here is one sample from the day this document was created:

Fantastical 2 for iPad review:

Price: $9.99

Review Date: Apr. 22, 2014 Updated on: Apr. 25, 2014

The Good Fantastical 2 for iPad helps you create events or reminders with just a few words, instead of countless taps. It combines your iOS Calendar and Reminders into one app.

The Bad Compared to many calendar apps, Fantastical 2 is pretty expensive. The amount of information displayed can be overwhelming.

The Bottom Line With the ability to use natural language to make appointments and reminders, and a (mostly) intuitive interface, Fantastical 2 for iPad is the best way to manage your schedule.

URL: http://www.cnet.com/products/fantastical-2-for-ipad-ios/

c. For the iOS software you selected, summarize in one paragraph what the reviews stated.

Solutions will vary, but should contain one paragraph summarizing the pasted review of the selected iOS app.

Critical Thinking Now

1: Office 365 Subscription-Based Software

You are employed part time by a restaurant chain. Your duties include assisting with the bulk food orders and delivery for each restaurant location in your city. The chain uses Microsoft Office in their restaurants and business offices. Your boss requested that you research Office 365 subscriptions at office365.com.

a. Which programs are available in the Office 365 subscription?

Solutions may vary depending on time and specific plan selected, but sample answers are provided based on the Office 365 Small Business Premium plan features and pricing at the time this document was created.

The plan includes Word, Excel, PowerPoint, Outlook, OneNote, Publisher, Access, and Lync.

b. How much would your business pay for each employee per month to use Office 365 installed on five of their home computers?
The Office 365 Small Business Premium plan costs $12.50 per user per month if paid annually, and $15.00 per user per month if paid monthly.

c. What are the advantages of subscription-based software compared to traditional perpetual software? Name at least three advantages.
Answers will vary, but possible advantages include automatic access to the latest product updates, ongoing product support, and lower up-front cost.

d. What are the disadvantages of subscription based software in comparison to traditional perpetual software? Name at least three disadvantages.
Answers will vary, but possible disadvantages include ongoing product cost, inability to own a physical copy of the software, and inability to stick with a favorite version of a program as updates are created.and Google Drive. Reasons for choosing one over another may include cost difference, storage capacity provided, limitations on file size or file type, and security or privacy concerns.

2: Spyware Virus Protection

You recently purchased a Windows tablet, which comes equipped with free antivirus software called Windows Defender.
Research and determine if this antivirus software provides enough coverage for personal usage. Write at least 150 words explaining your conclusions.
Solutions will vary, but key features of Windows Defender that may be mentioned to explain the conclusion include: live automatic protection from viruses and malware from email and downloads and Internet connections, and regular and automatic updating of virus and malware definitions from Microsoft. Students may consider this adequate coverage for personal use, while others may prefer another product or manufacturer.

3: Android Tablet Apps

Your school has received a grant that provides all students with an Android tablet. In addition to your academic apps, you would like to see what popular apps are available. Open the page https://play.google.com. Find this week's Play Picks and read about the top five apps. Write a paragraph on the purpose and cost of each one, for a total of five paragraphs.
Solutions will vary over time, but should include five paragraphs, each listing the name, cost, and description or purpose of each app.

Ethical Issues Now

Subscription-based software such as Office 365 Home Premium or Student Advantage lets you install five personal copies of Office on your computers.

a. Research the Office 365 Home Premium plan. Investigate OneDrive for storage and cloud-based access to all your email, calendars, and documents. What are the guidelines for sharing the five copies of Office and OneDrive storage?
Answers may vary over time, but the following was taken from the Microsoft Office 365 Web page at the time this document was created.
Office on more devices: Install Office applications on up to 5 PCs or Macs, and 5 Windows tablets or iPads. Also enjoy easy access to documents with Office Mobile apps for iPhones®, Android phones, and Windows phones.
Office for the whole family: Share your subscription benefits, such as easy installation on your family devices and extra online storage, with up to 4 members of your household.
20 GB extra online storage with OneDrive: Get 20 GB of extra online storage per user, for up to 5 users. Use your additional 20 GB online storage for documents, photos, and videos, so you can edit and share them from anywhere.

b. Write a paragraph on the guidelines for sharing your Office 365 Student Advantage subscription with two of your roommates. (All three of you live in the same apartment.)
Solutions will vary, but at the time this document was created, Office 365 Student Advantage offered free access to Office 365 to students of schools that had paid subscriptions for faculty. According to the Microsoft Web site, "Each subscription license allows you to run Office on up to five machines being Mac or PC. You can also run Office Mobile for Android or Office Mobile for iPhone on up to 5 mobile devices."
(URL: http://blogs.technet.com/b/microsoft_in_education/archive/2013/10/15/student-advantage-and-office-365-proplus-faq.aspx)

c. Would you prefer buying software outright or paying for a subscription plan? Write at least 150 words on the pros and cons of purchasing software or paying for a subscription.
Answers will vary. Arguments in favor of buying software outright include making a one-time payment, and owning a physical copy of software that will never expire. Arguments in favor of a subscription plan might include automatic feature updates, increased integration among online apps and cloud storage, and access to more programs than might be included in the one-time purchase.

Team Up Now – Google Drive VideoNotes Web App

Google Drive includes a Web app named VideoNotes, which is a tool for taking notes while watching videos. VideoNotes allows you to play any YouTube video on the left side of your screen as you make notes on a notepad on the right side of the screen.
VideoNotes integrates with your Google Drive account. All the notes you type are synchronized with the video. Later, if you select a line in your notes, the video begins to play from the corresponding location. You'll use VideoNotes to interact with your team in this exercise.

a. Research and identify three YouTube videos that describe different Web apps.
Answers will vary, but should include a title and URL for three YouTube videos that describe a Web app.
An example would be:
Scribblar review: https://www.youtube.com/watch?v=6yMXEYuvA7Q

Scribblar is a free online collaboration app.

b. Share the links of the three YouTube videos with each member of your team.
Each team member should share their three YouTube video links with the other team members.

c. Sign in to google.com, and then open the drive.google.com page. Select the Create button and then select VideoNotes. Each team member should open the three YouTube videos and take detailed notes as the video plays.
Note that at the time this document was created, "VideoNotes" was not a default option on the Google Drive Create menu. However, it could be added to the list using the "Connect more apps" command on the Create menu.

d. Share your VideoNotes with each team member and your instructor using Google Drive.
Solutions will vary, but each team member should share their VideoNotes from each video with the other team members, and with the instructor.