Chapter 4

System Software

Computing Essentials 2023
O'Leary

Learning Objectives

1. Describe the differences between system software and application software.

2. Identify the four types of system software programs.

3. Explain the basic functions, features, and categories of operating systems.

4. Compare mobile operating systems iOS, Android, and Windows 10 Mobile.

5. Compare desktop operating systems, including Windows, MacOS, UNIX, Linux, and virtualization.

6. Explain the purpose of utilities and utility suites.

7. Identify the six most essential utilities.

Introduction

Computers and computer applications have become a part of the fabric of everyday life

- They are great as long as they are working.

We give little thought to the processes and programs running behind the scenes to keep them functioning effectively.

Such programs (that is, operating systems, utility programs, and device drivers) are the system software you learn about here.
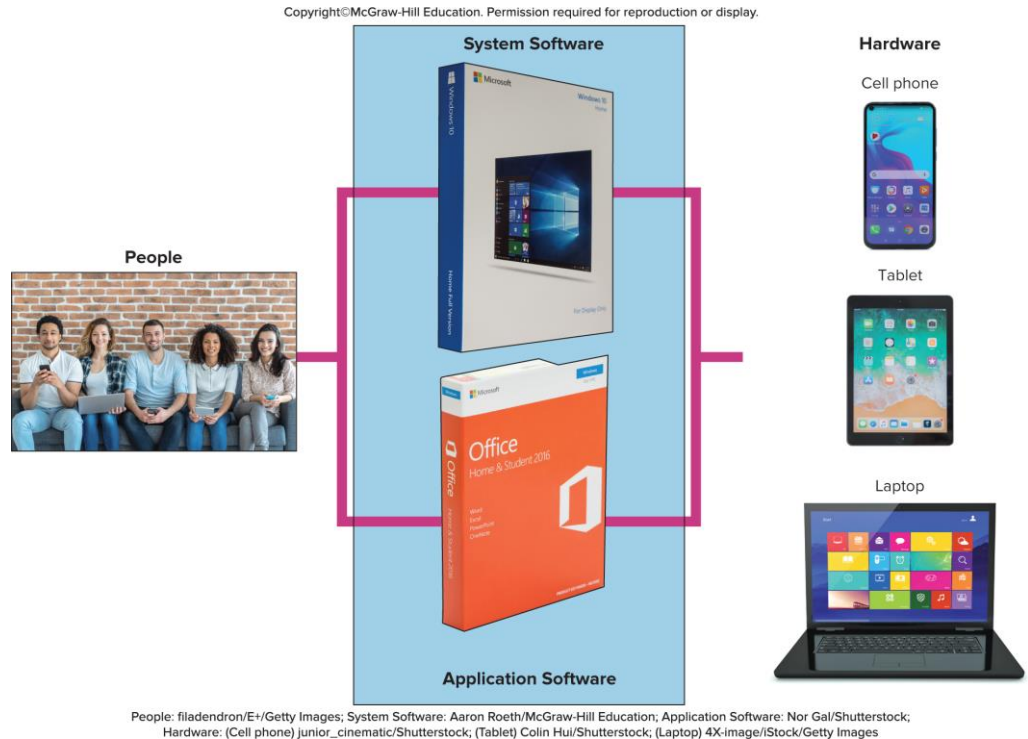
Vadym Pastukh/Shutterstock

System Software Basics

Works with end users application software, and computer hardware

Handles the technical details.

Includes.

- Operating systems.

- Utilities.

- Device drivers.

- Language translators.

Copyright©McGraw-Hill Education. Permission required for reproduction or display.

People: filadendron/E+/Getty Images; System Software: Aaron Roeth/McGraw-Hill Education; Application Software: Nor Gal/Shutterstock; Hardware: (Cell phone) junior_cinematic/Shutterstock; (Tablet) Colin Hui/Shutterstock; (Laptop) 4X-image/iStock/Getty Images

Access the text alternative for slide images.

Operating Systems

A collection of programs that handle technical tasks

Functions:

- Manages resources.

- Providing user interface.

  - User interface.

  - Graphical user interface (GUI).

- Runs applications.

  - Multitasking.

  - Foreground and background applications.

Features of an Operating System

Features in common

with application software

- Icons.

- Pointer.

- Windows.

- Menus.

- Tabs.

- Dialog boxes.

- Help.

- Gesture Control.

Features

- Booting – starting or restarting the computer.

Files and Folders

- Files share data and programs.

- Folders store related files.

Categories of Operating Systems

Embedded Operating Systems – RTOS

Stand-alone Operating Systems

Network Operating Systems

Mobile Operating Systems

Embedded operating system

- Less complicated and more specialized for wireless.

Popular

- Android.
- iOS.

Copyright © McGrawHill LLC permission required for reproduction or display

manaemedia/Shutterstock; Cincila/Shutterstock

Copyright © McGrawHill LLC permission required for reproduction or display

manaemedia/Shutterstock; Cincila/Shutterstock

Beer5020/Shutterstock; Alexey Boldin/Shutterstock

Desktop Operating Systems

Operating systems commonly used by individuals

- Windows – most widely used.

- Mac OS – powerful and easy to use, runs only on Apple computers.

- UNIX – network; originally designed for Web.

- LINUX – non proprietary; open source program, free to distribute and modify.

Windows - mac

Windows 11

- Simplified interface and improved support for mobile devices.

- Allows Android apps on Windows device.

Copyright © McGrawHill LLC permission required for reproduction or display
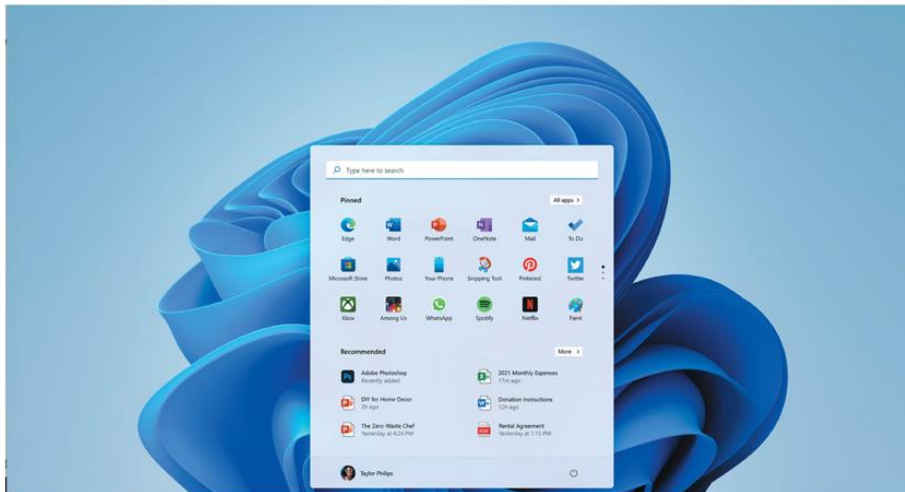
Microsoft Corporation

macOS

- Runs only on Apple computers.

- Most innovative operating system.

Copyright © McGrawHill LLC permission required for reproduction or display

Apple, Inc.

UNIX and LINUX

UNIX operating system

Servers on the Web.

Mainframe computers.

Personal Computers.

LINUX - version of UNIX.

Alternative to windows.

Open source – free.

Google Chrome OS and Android are based on Linux.

- Focuses on Internet connectivity and cloud computing.

- Speed is determined by the speed of the Internet.
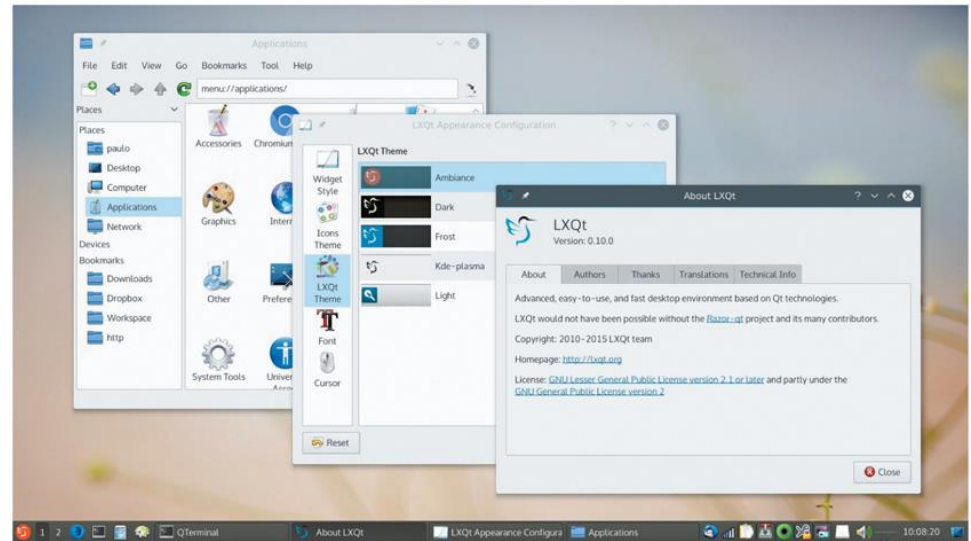
Linux

Virtualization

Ability to support multiple operating systems on a single physical machine

Virtualization software

Each virtual machine appears as a separate independent computer.

- Host operating system.

- Guest operating system.

Parallels and VMware

- Programs that allow Mac to run Windows programs in macOS.

Copyright©McGraw-Hill Education. Permission required for reproduction or display.
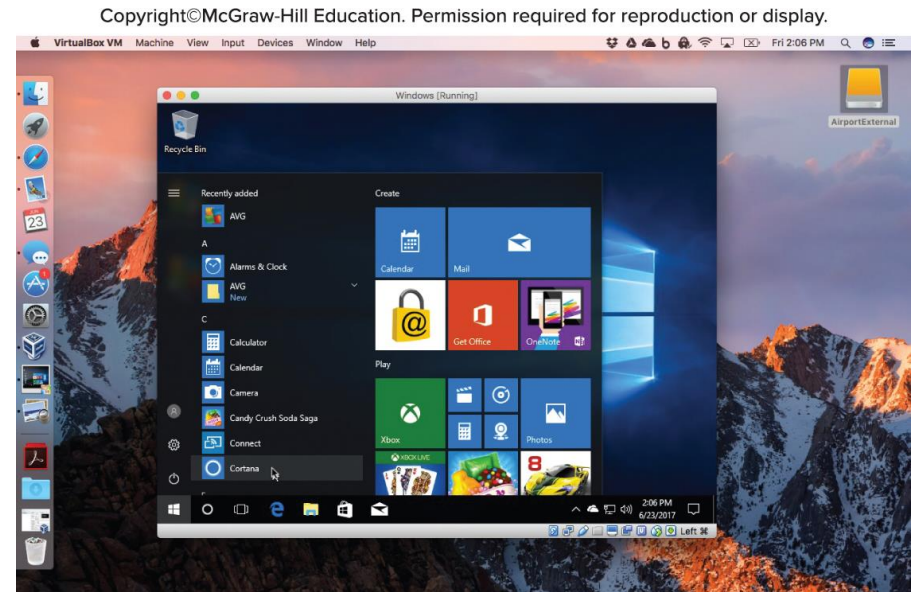
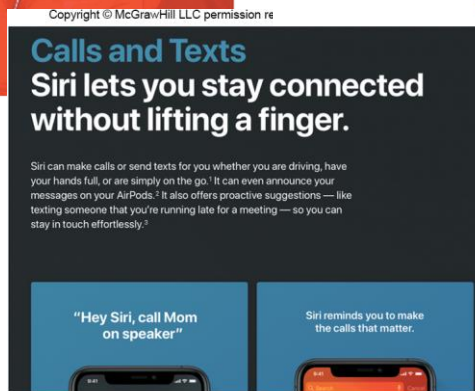Microsoft Corporation

Most Essential Utilities

- Search Programs.

- Storage Management Programs.

- Backup Programs.

- Antivirus Programs.

- Troubleshooting Programs.

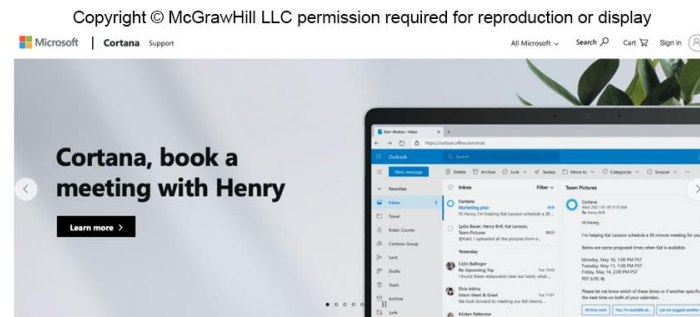- Virtual Assistants.

Making IT Work for you – Virtual Assistant

A utility that coordinates personal data across several applications, and provides a more intuitive way to interact with devices.
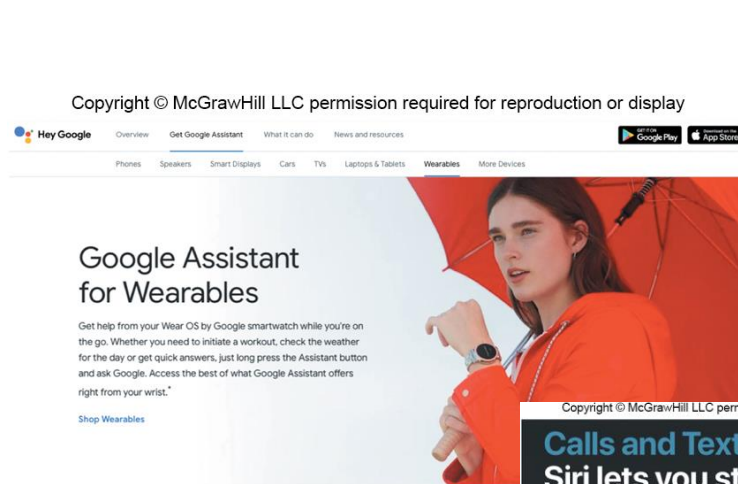
Google Inc.

Microsoft Corporation

Apple Inc.

Google, INC.

Google Inc; Apple; Microsoft Corporation; travelbetter.co.uk/Alamy Stock Photo
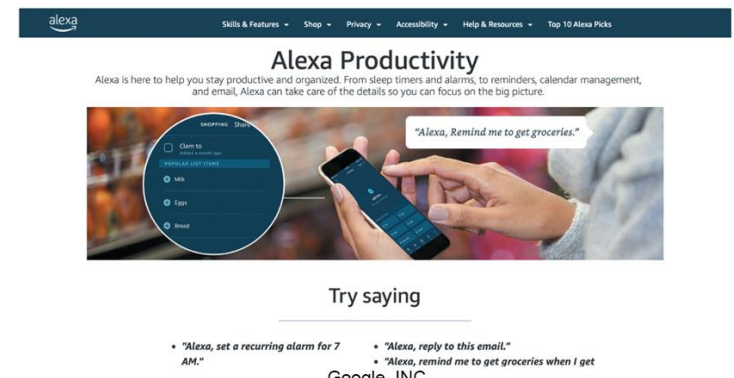
Utility Suites

Combine several programs into one package

Less expensive

Popular suites

- Bitdefender.

- Norton Utilities.

Careers in IT

Computer Support Specialist or Technical Support Specialist or Help-Desk Technicians

- Provide technical support to customers and other users.

- Resolve common networking problems and use troubleshooting programs to diagnose problems.

- Employers look for an advanced associate's degree or bachelor's degree.

- Computer support specialist can expect to earn $43,000 − $68,000 annually.

A Look to the Future

Making Better Computers by Making Them More Human

Copyright©McGraw-Hill Education. Permission required for reproduction or display.

grinvalds/Getty Images

Open Ended Questions

1. Describe system software. Discuss each of the four types of system programs.

2. Define operating systems. Describe the basic features and the three categories of operating systems.

3. What are mobile operating systems? Describe leading mobile operating systems.

4. What are desktop operating systems? Compare Windows, mac OS, Linux and Chrome OS. Discuss virtualization.

5. Discuss utilities. What are the most essential utilities? What is a utility suite?

Because learning changes everything.®

www.mheducation.com