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System Software

Chapter 4

Computing Essentials 2023
O'Leary

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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.

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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 (i.e. operating systems, utility programs, and device drivers) are the system software you learn about here.

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System Software Basics

Works with end users application software, and computer hardware

- Handles the technical details
- Includes
  - Operating systems
  - Utilities
  - Device drivers
  - Language translators

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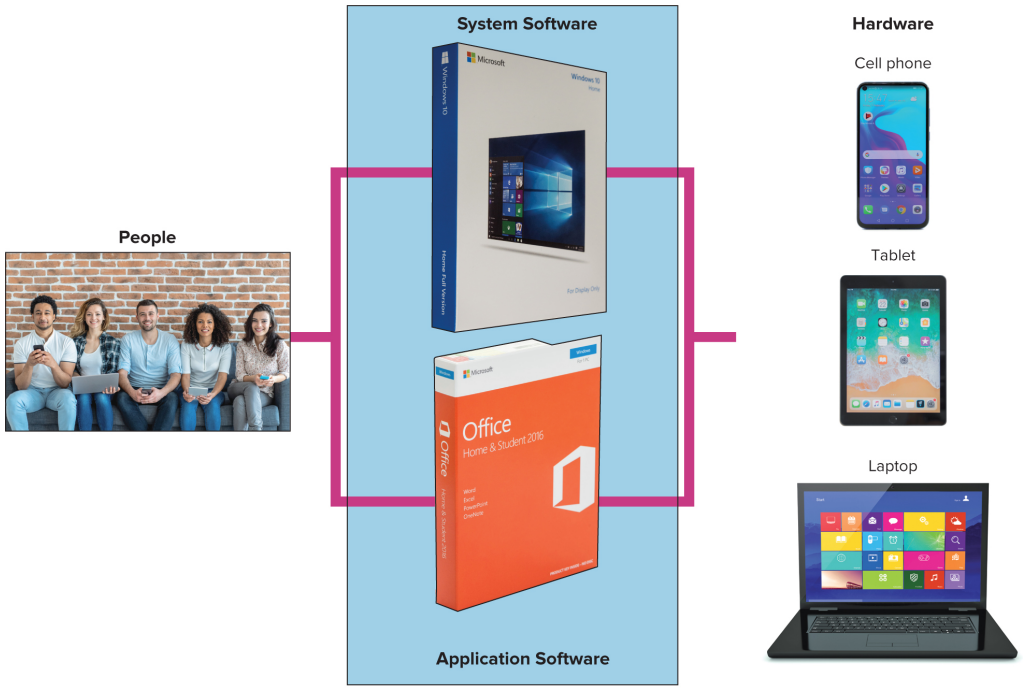

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Operating Systems

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

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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

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Categories of Operating Systems

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Mobile Operating Systems

Embedded operating system

- Less complicated and more specialized for wireless

Popular

- Android
- iOS

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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

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Windows - mac

Windows 11

- Simplified interface and improved support for mobile devices
- Allows Android apps on Windows device

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macOS

- Runs only on Apple computers
- Most innovative operating system

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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

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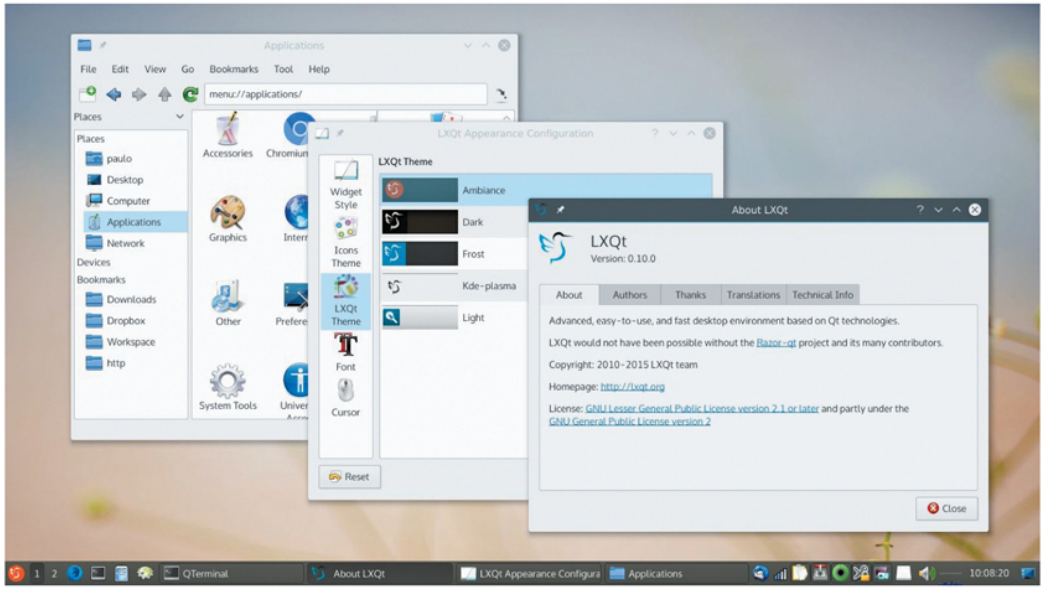

Linux

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

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Most Essential Utilities

- Search Programs
- Storage Management Programs
- Backup Programs
- Antivirus Programs
- Troubleshooting Programs
- Virtual Assistants

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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.

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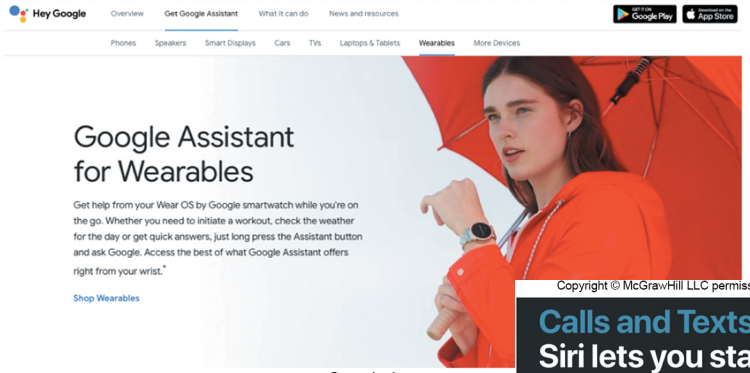

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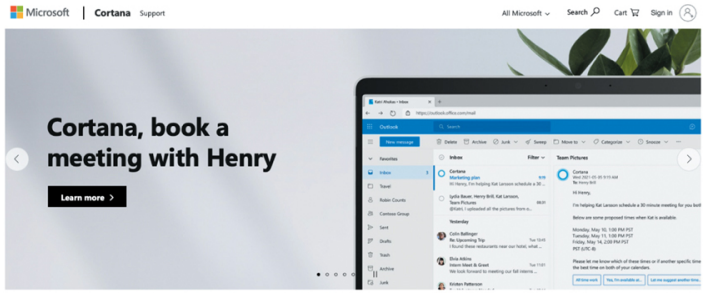

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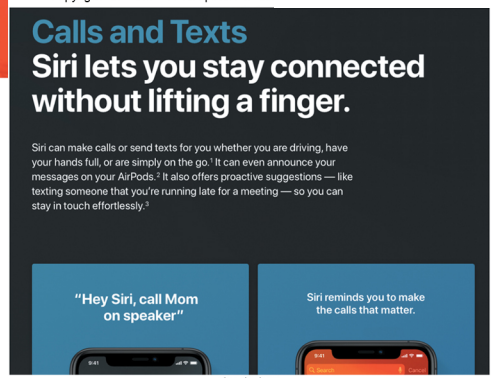

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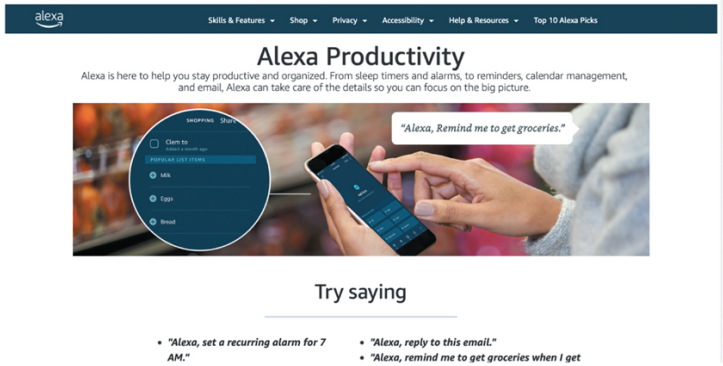

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Utility Suites

Combine several programs into one package

Less expensive

Popular suites

- Bitdefender
- Norton Utilities

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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

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A Look to the Future

Making Better Computers by Making Them More Human

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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?

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