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Chapter 1

Information Technology, the Internet, and You

Computing Essentials 2023
O'Leary

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Learning Objectives

1. Explain the parts of an information system: people, procedures, software, hardware, data, and the Internet.
2. Distinguish between system software and application software.
3. Differentiate between the three kinds of system software programs.
4. Define and compare general-purpose, specialized, and mobile applications.
5. Identify the four types of computers and the five types of personal computers.
6. Describe the different types of computer hardware, including the system unit, input, output, storage, and communication devices.
7. Define data and describe document, worksheet, database, and presentation files.
8. Explain computer connectivity, the wireless revolution, the Internet, cloud computing, and IoT.

Introduction

Purpose of this book.

Help users become highly efficient and effective computer users.

Teach how to use:

1. Apps and application software.
2. Computer hardware.
    - Mobile devices.
    - Smartphones.
    - Tablets.
    - Laptops.
3. The Internet.

Illustrate the impact of technology on privacy and the environment and the role of personal and organizational ethics.

Parts of an Information System

- People.
- Procedures.
- Software.
- Hardware.
- Data.
- Internet.

People

Most important part of any system.

Ways this text helps you become a more efficient and effective computer users.

- Making IT Work for You.
- Tips.
- Privacy.
- Community.
- Ethics.
- Careers in IT.

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Software

Software/Programs.

- Tell the computer how to process data into the form you want.

Two major kinds of software:

- System Software: Software used by computers.
- Application Software: Software you use.

System Software

Software that enables application software to interact with the computer hardware.

Background software helps manage resources.

Collection of system programs including:

- Operating Systems.
- Utilities.

Operating System

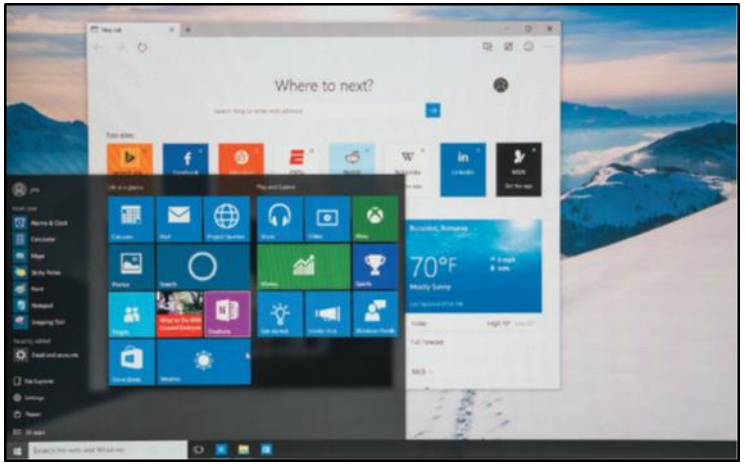
Coordinates computer resources.

Provides the user interface.

Runs applications.

Types of Operating Systems:

- Embedded operating system.
  - Used by Smartphones, tablets, and other mobile devices.
  - Also known as real-time operating systems (RTOS).
- Standalone operating system.
  - Used by desktops.
- Networking operating systems.
  - Used to run networks.



Microsoft Corportation; Applie, Inc.

Utilities

Perform specific tasks related to managing computer resources.

Example: Antivirus Program.

- Protects from viruses.
  - Can damage your software or hardware.
  - Comprise the security and privacy of personal data.

Application Software

End-user software.

Types of application software include:

1. General-Purpose applications.
    - Word Processor.
    - Spreadsheets.
    - Database Management Systems.
    - Presentation software.
2. Specialized applications
    - Web Authoring.
3. Apps.
    - Social media apps.

Hardware – Types of Computers

Supercomputers.

- Most powerful computers.

Mainframe computers.

- Process large amounts of data.

Midrange computers.

- Servers.

Personal computers.

- PCs.
- Five types of PCs.

Personal Computer Types

Access the text alternative for slide images.

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Personal Computer Hardware

Four basic categories of equipment.

- System Unit.
- Input/Output.
- Secondary Storage.
- Communication.

System Unit

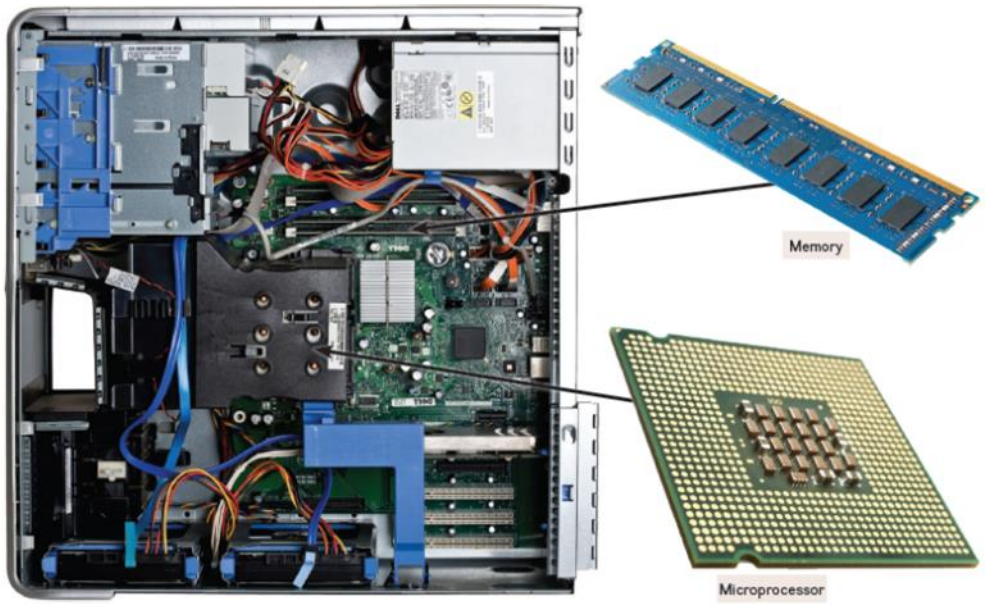
Houses most of the electronic components.

Contains two important components.

Microprocessor.

Memory.

- Holds data currently being processed.
- Holds the processed information before it is output.
- Temporary storage, contents are lost when power is off.



EML/Shutterstock; (RAM): Simon Belcher/Alamy Stock Photo (Microprocessor); leungchopan/Stock/Getty Images

Input/Output Devices

Input.

- Translate data into computer language.
- Keyboard and Mouse.

Output.

- Translate computer data into usable information.
- Display, also known as the monitor.

Secondary Storage

Holds data and programs even if power is off.

Hard disk.

Solid-state storage.

- No moving parts.
- More reliable.
- Requires less power.

Optical disc.

- Laser technology.
- CDs, DVDs, Blu-ray.

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Communication

Communication devices.

- Provide the ability for personal computers to communicate.

Modems.

- Modify audio, video and other types of data for Internet usage.

Data

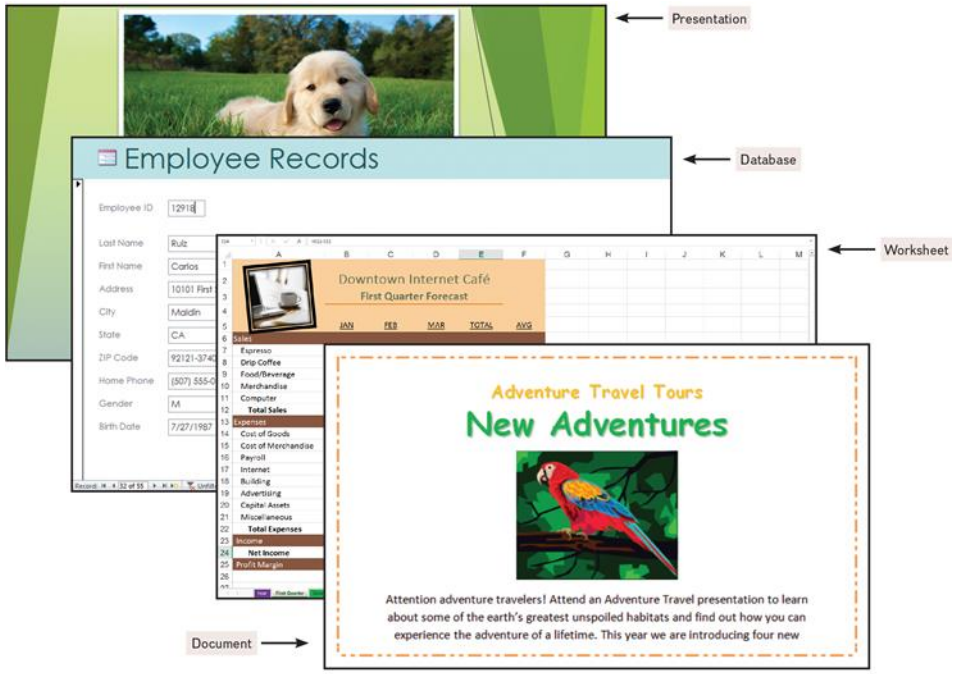
Raw, unprocessed facts.

Processed data becomes information.

Digital data is stored electronically in files.

Common Types of Files

- Document.
- Database.
- Worksheet.
- Presentation.



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Connectivity and the Mobile Internet

Connectivity.

- Sharing of information.

Network.

- Communications system connecting two or more devices.
- Central to the concept of connectivity.
- Largest network is the Internet.
- Web provides a multimedia interface for Internet resources.

Forces of Technology

1. Cloud computing.
   - Computers on the Internet.
   - Access to more resources.
2. Wireless technology.
   - Changing the way we communicate.
   - Tablets, smartphones, wearable devices.
3. Internet of Things (IoT).
   - Continuing development of the Internet.
   - Allowing all types of devices to communicate.

Careers in IT

Web Developer.

- Develops and maintains websites and web resources.

Software Engineer.

- Analyzes users' needs and creates application software.

Computer Support Specialist.

- Provides technical support to customers and other users.

Computer Technician.

- Repairs and installs computer components and systems.

Technical Writer.

- Prepares instruction manuals, technical reports, and other scientific or technical documents.

Network Administrator.

- Creates and maintains computer networks.

A Look to the Future

Using and Understanding Information Technology.

- The Internet and the Web.
- Powerful Software.
- Powerful Hardware.
- Privacy, Security, and Ethics.
- Organizations.
- Changing Times.

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Open Ended Questions

1. Explain the parts of an information system. What part do people play in this system?
2. What is system software? What kinds of programs are included in system software?
3. Define and compare general-purpose applications, specialized applications, and apps. Describe some different types of general-purpose applications. Describe some types of specialized applications.
4. Describe the different types of computers. What is the most common type? What are the types of personal computers?
5. What is connectivity? What is a computer network? What are the Internet and the Web? What are cloud computing, the wireless revolution, and IoT?

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