Illustrated Microsoft Office 2016 Fundamentals

Understanding Essential Computer Concepts

Module Objectives (1 of 2)

- Recognize you live and work in the digital world
- Distinguish types of computers
- Identify computer system components
- Compare types of memory
- Differentiate between input devices
- Explain output devices

Module Objectives (2 of 2)

- Describe data communications
- Define types of networks
- Access security threats
- Understand system software
- Describe types of application software

Recognize You Live and Work in the Digital World (1 of 4)

- The internet, computers, and mobile devices such as smartphones and tablets provide us with a world of information, literally at our fingerprints
- Over the last 25 years, we can use the Internet to:
  - Instantly communicate with friends and coworkers
  - Store music and movies and access them anywhere
  - Search and apply for jobs without leaving home
  - Quickly access information
  - Shop for anything from clothing to food to cars
  - Manage finances, deposit checks, and pay at the cash register using a mobile device
  - Get directions, view maps, and find nearby restaurants

Recognize You Live and Work in the Digital World (2 of 4)

- We can use the Web to get work done by:
  - Searching for information
  - Communicating with others through email or videoconferencing
  - Telecommuting
  - Cloud computing

Recognize You Live and Work in the Digital World (3 of 4)

- How to be a good online citizen
  - Your internet activities can have lasting repercussions on your work and life
  - For example, employers are known to keep an eye on social media accounts of current or prospective employees
  - Be aware of copyright laws when using an item on-line for reports or presentations

Recognize You Live and Work in the Digital World (4 of 4)

1. Couple using videoconferencing to communicate
2. Employee telecommuting from home

Distinguish Types of Computers (1 of 3)

- Types of **personal computers:**
  - **Desktop computers**
  - **Laptop computers**
  - **Tablets**
  - **Smartphones**
- **Mainframe computers** and **supercomputers**

Distinguish Types of Computers (2 of 3)

- Touchscreens
  - Microsoft Windows 10 was also developed to work with touchscreen monitors, tablets, and smartphones
  - Many tasks are, in fact, easier to accomplish with a touchscreen device because they are designed for use with gestures instead of a mouse

Distinguish Types of Computers (3 of 3)

1. Desktop
2. Laptop, smartphone, and tablet
3. Supercomputer

Identify Computer System Components (1 of 3)

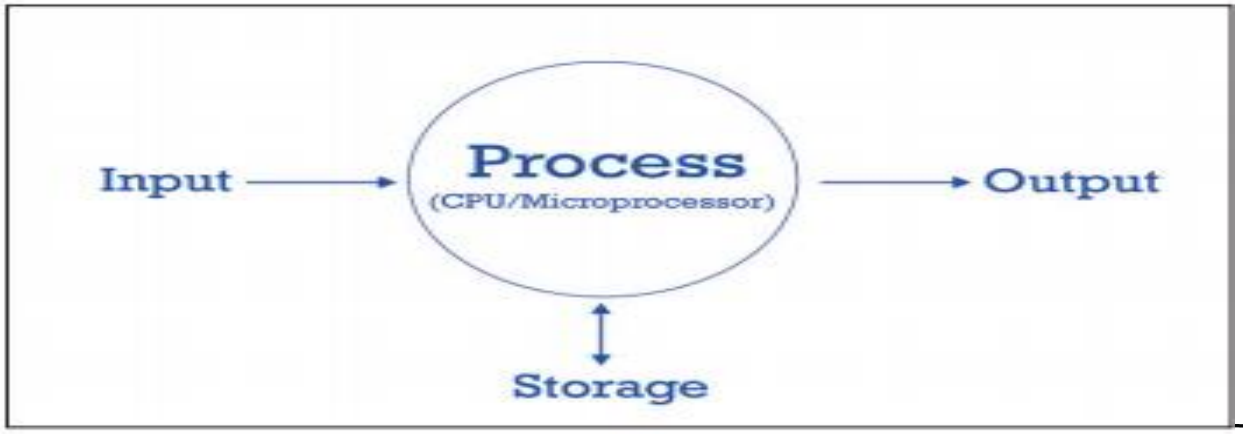
- A **computer system** includes computer hardware and software
  - **Hardware** refers to the physical computers
  - **Software** refers to the intangible components of a computer system, particularly the programs, or data routines, that the computer uses to perform a specific task

Identify Computer System Components (2 of 3)

- An Overview of computer system components
  - **Architecture**
  - **Data**
  - **Processing**
  - **Motherboard** or **CPU**
  - **Cards** or **removable circuit boards**
  - **Input** and **input devices**
  - **Output** and **output devices**
  - **Peripheral devices**

Identify Computer System Components (3 of 3)

- Motherboard
- Flow of information through a computer system



Compare Types of Memory (1 of 3)

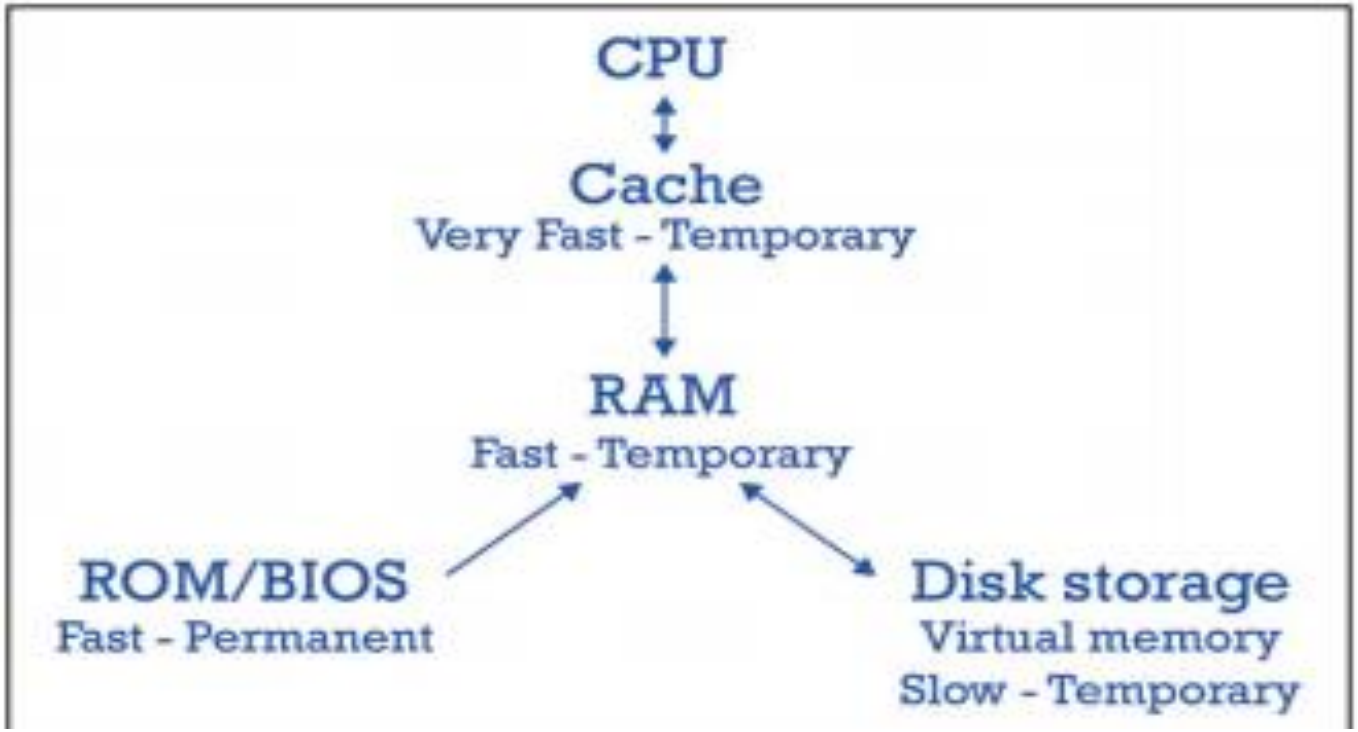
- **Memory** is one of the most important components of personal computer hardware as it stores instructions and data
- Types of memory include:
  - **Random access memory** (RAM) which holds info while the computer is on
  - **Cache memory** is high-speed memory
  - **Virtual memory**
  - **Read-only memory** is a chip that stores the BIOS (Basic Input-Output System)
  - **CMOS memory** is a chip that stores the date, time and system parameters

Compare Types of Memory (2 of 3)

- Upgrading Ram is one of the easiest ways to make your computer run faster
- The more RAM a computer has, the more instructions and data can be stored there
- You can often add more RAM by installing additional memory cards on the motherboard

Compare Types of Memory (3 of 3)

- Relationships between types of computer memory

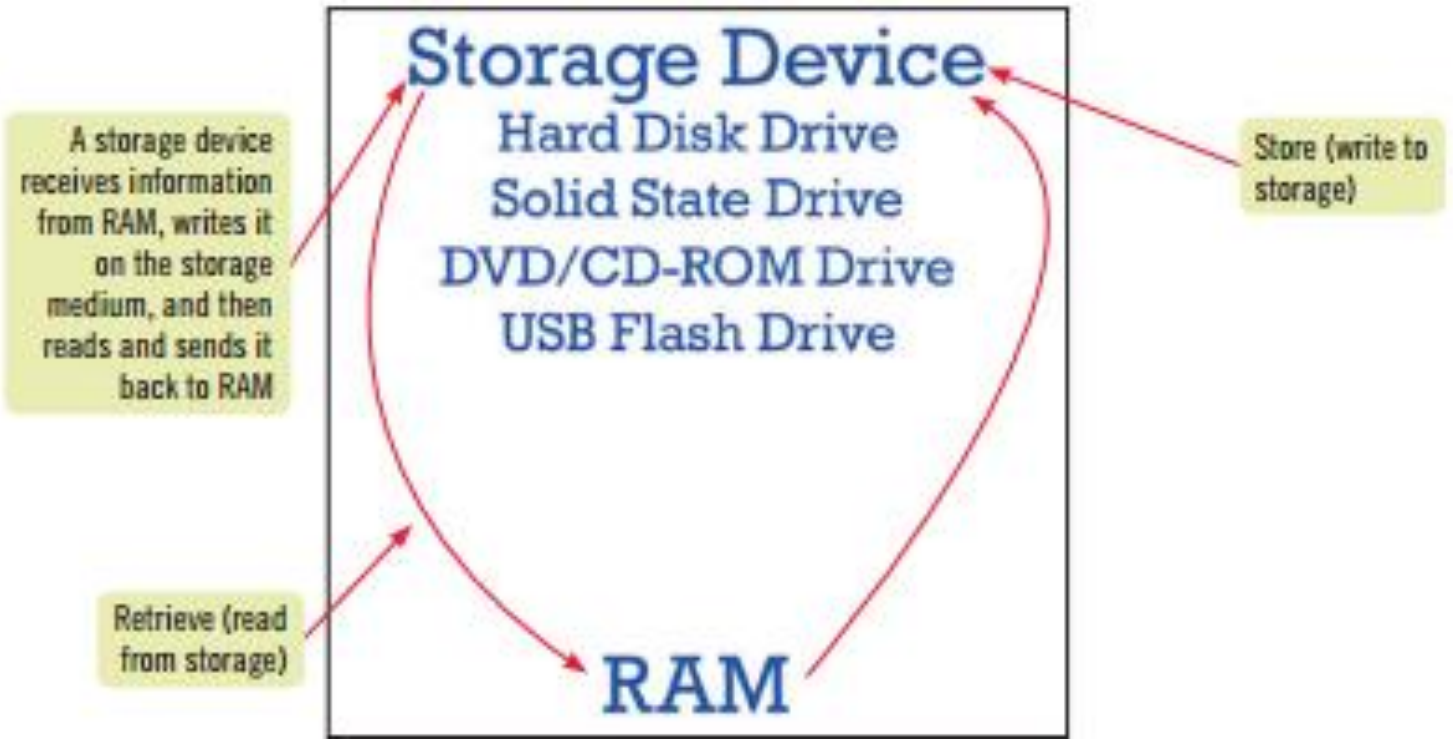


Summarize Types of Media (1 of 2)

- Since RAM retains data only while the power is on, your computer must have a more permanent storage option
- Types of storage media include
  - **Magnetic storage** devices such as a hard drive
  - **Optical storage devices** use laser technology to store data and include a CD, CD-ROM and DVD
  - **Flash Memory**
  - **Solid-state drive** (SSD) is intended as a replacement for a traditional hard disk drive
  - **Solid-state hybrid drive** (SSHD) combines the speed of an SSD with benefits of a traditional hard disk drive

Summarize Types of Media (2 of 2)

- Storage devices and RAM



Differentiate Between Input Devices (1 of 2)

- To accomplish a task, a computer first needs to receive the data and commands you input
- In a typical system, you provide this information using an **input device** such as a keyboard or a mouse but wireless devices can also perform this function
- There are many types of input devices
  - **Keyboard**
  - **Pointing device,** such a **mouse, scroll wheel** or **trackball**
  - **Touchscreen,** which accepts commands from fingers
  - **Microphone**
  - **Scanner**

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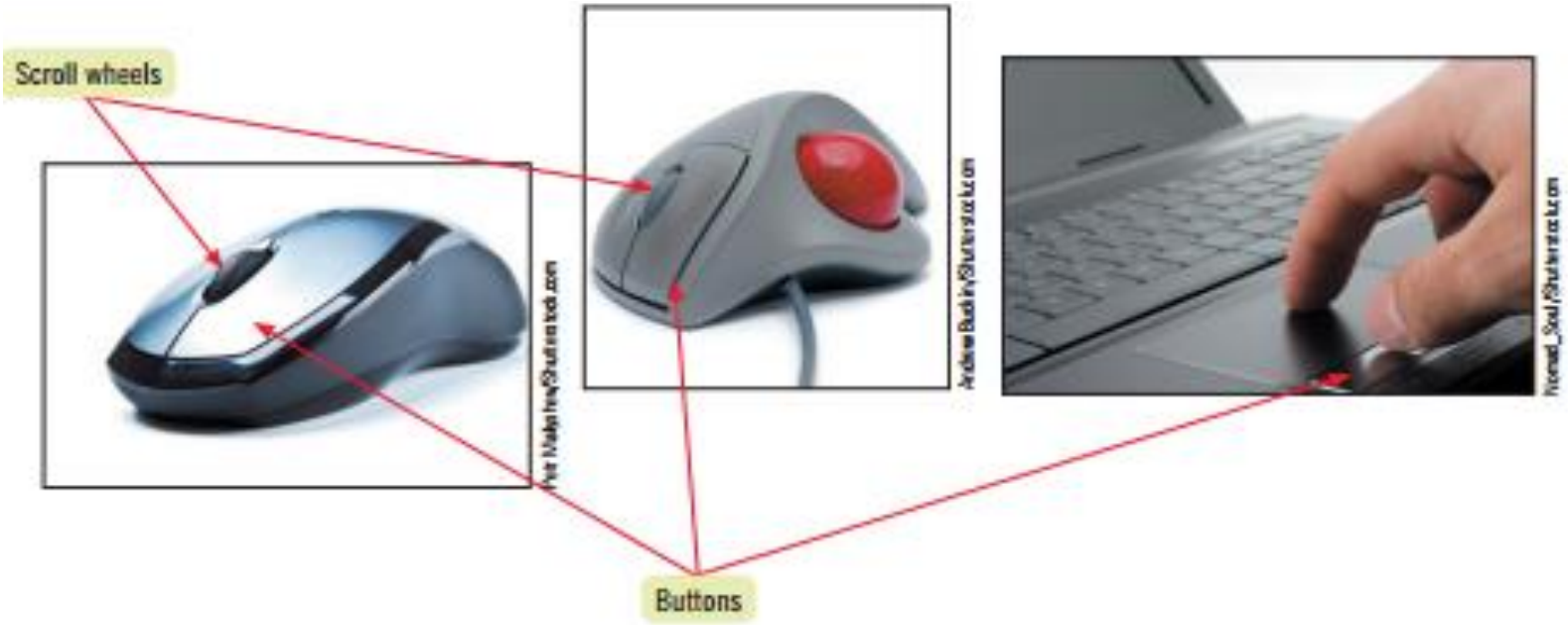
Differentiate Between Input Devices (2 of 2)

- Personal computer pointing devices: mouse, trackball, and touchpad



Explain Output Devices

- An **output device** is any hardware peripheral that communicates the results of data processing
- Output devices may connect to computers with cables or wirelessly
- Output devices include:
  - Monitor
  - Printer
  - Speakers

Describe Data Communications (1 of 3)

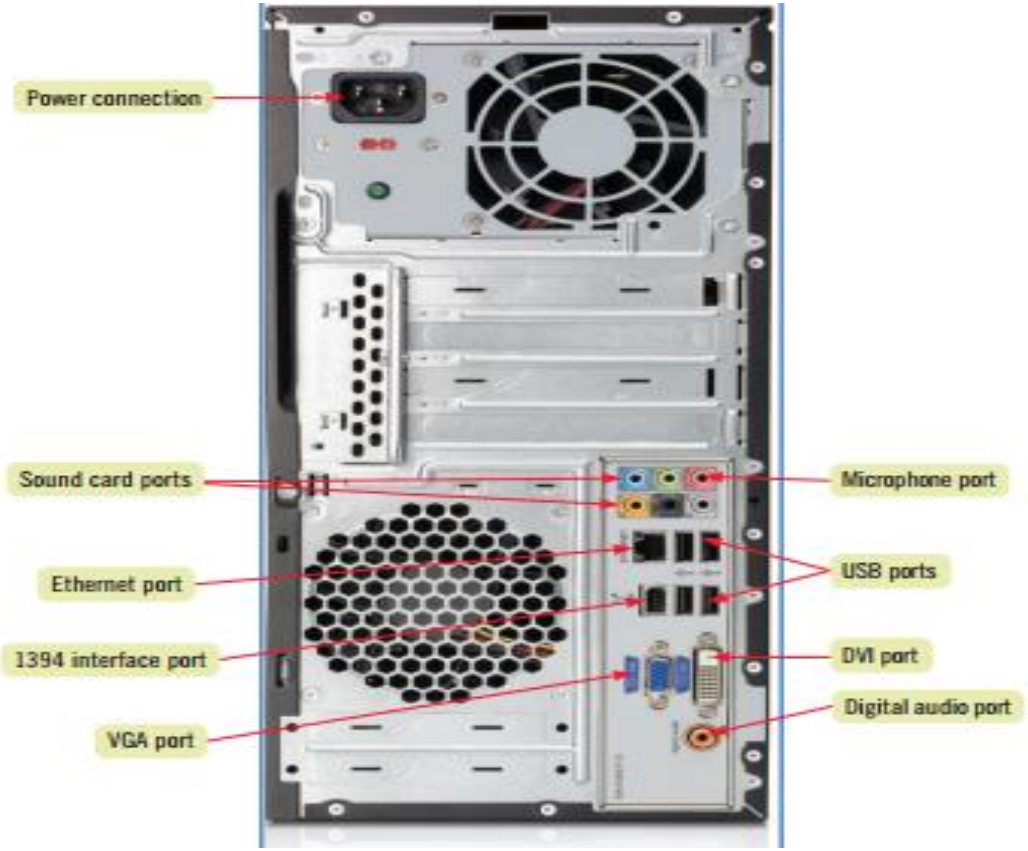
- **Data communications** is the transmission of data from one computer to another or to a peripheral device
- One computer sends the data over some type of **channel** such as telephone, coaxial cable or wirelessly
- A **device driver** or **driver** handles the transmission **protocols,** which establishes the rules for data transfer
- A driver is a computer program that can establish communication because it understands the characteristics of your computer and of the device

Describe Data Communications (2 of 3)

- Computers communicate in multiple ways such as through a:
  - **USB (Universal Serial Bus)**
  - **Ethernet port**
  - **Modem**

Describe Data Communications (3 of 3)

- Computer Expansion Ports



Define Types of Networks (1 of 3)

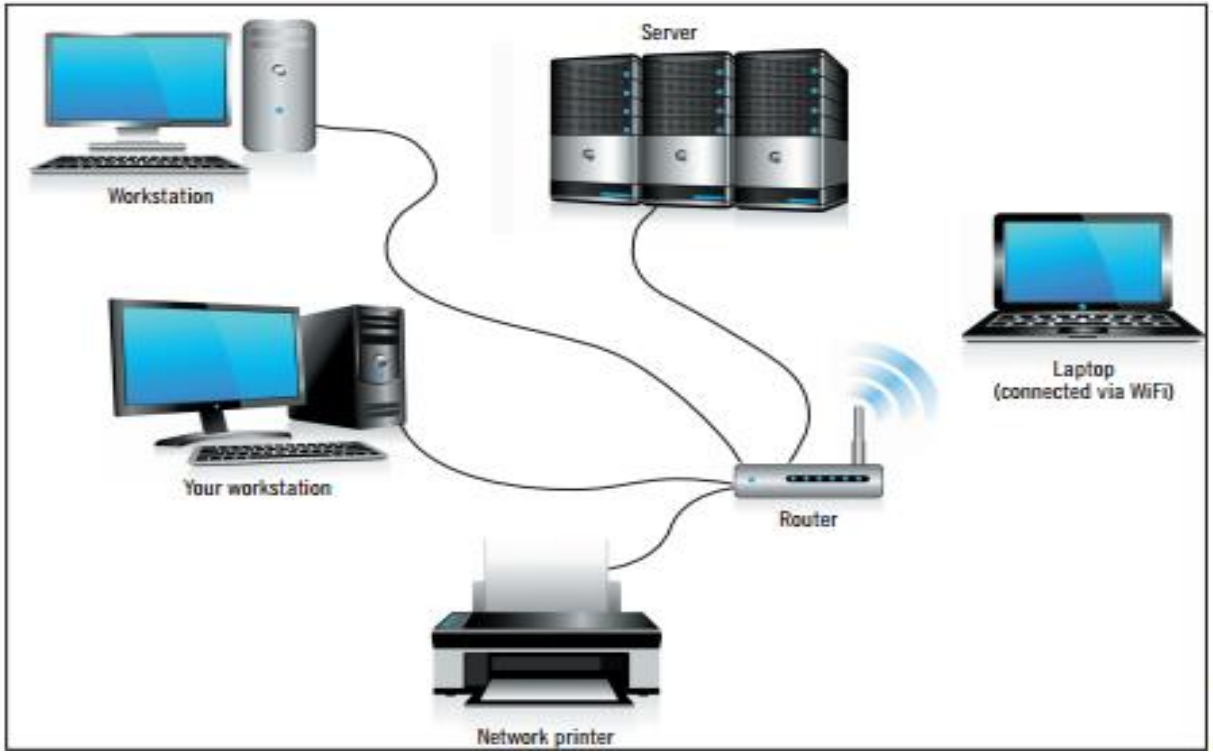
- A **network** connects one computer to other computers and peripheral devices, enabling you to share data and resources with others
- To connect with a network via Ethernet, a computer must have a **network interface card,** which creates a communications channel between the computer and the network
- Many desktops PC's and laptops come with a NIC built-in, and an Ethernet cable is used to make the connection to a router or modem
  - A **router** is a device that controls traffic between network components
- **Network software** is also essential, establishing the communication protocols that will be observed on the network

Define Types of Networks (2 of 3)

- There are a variety of network types
- **Peer-to-peer network**
- **Local area network (LAN)**
- **Wide area network (WAN)**
- **Wireless local area network (WLAN)**
- **Personal area network (PAN)**
- **Infrared technology** use infrared light waves to “beam” data from one device to another

Define Types of Networks (3 of 3)

- Typical network configuration



Assess Security Threats (1 of 3)

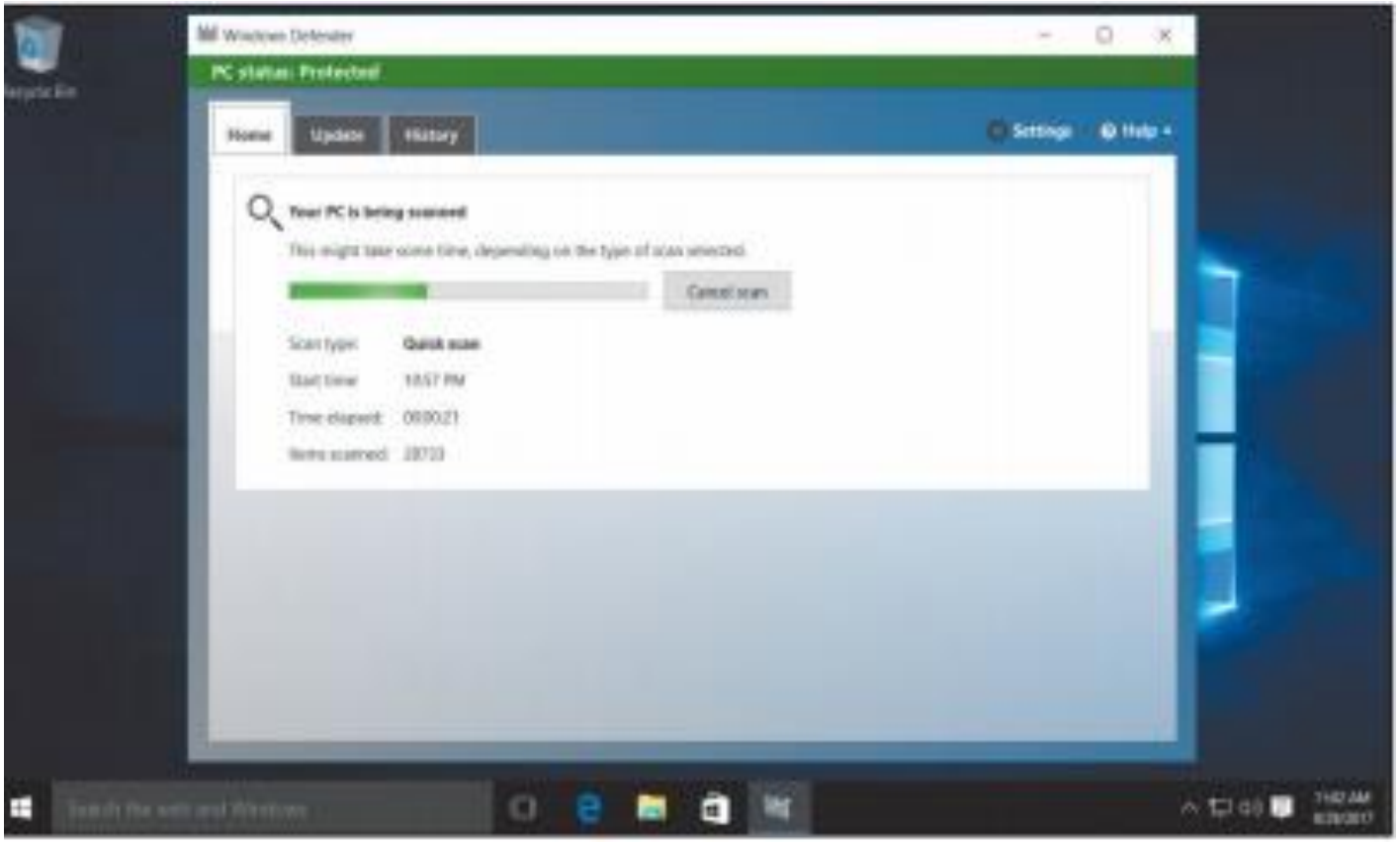
- **Security** refer to the steps a computer user takes to prevent unauthorized use of or damage to a computer
- **Malware** is a broad term that describes any program designed to cause harm or transmit information without permission of the computer owner
- In order to protect computers against a **virus,** users should use **antivirus software**
- **Spyware** is software that secretly gathers information from your computer and then sends this data to a company or person that created it
- A **firewall** is like a locked door on your computer or network and prevents other computers on the internet from accessing it

Assess Security Threats (2 of 3)

- Criminals are relentlessly searching for new and aggressive ways of accessing computer users' personal information and passwords
  - A **spoofed** site is a fake website set up to look like a legitimate website
  - **Phishing** refers to the practice of sending email to customers or potential customers of a legitimate website encouraging them to click a link in the email
  - **Pharming** occurs when a criminal breaks into a **DNS server** and redirects any attempts to access a particular website to the spoofed site

Assess Security Threats (3 of 3)

- Windows Defender scan in progress

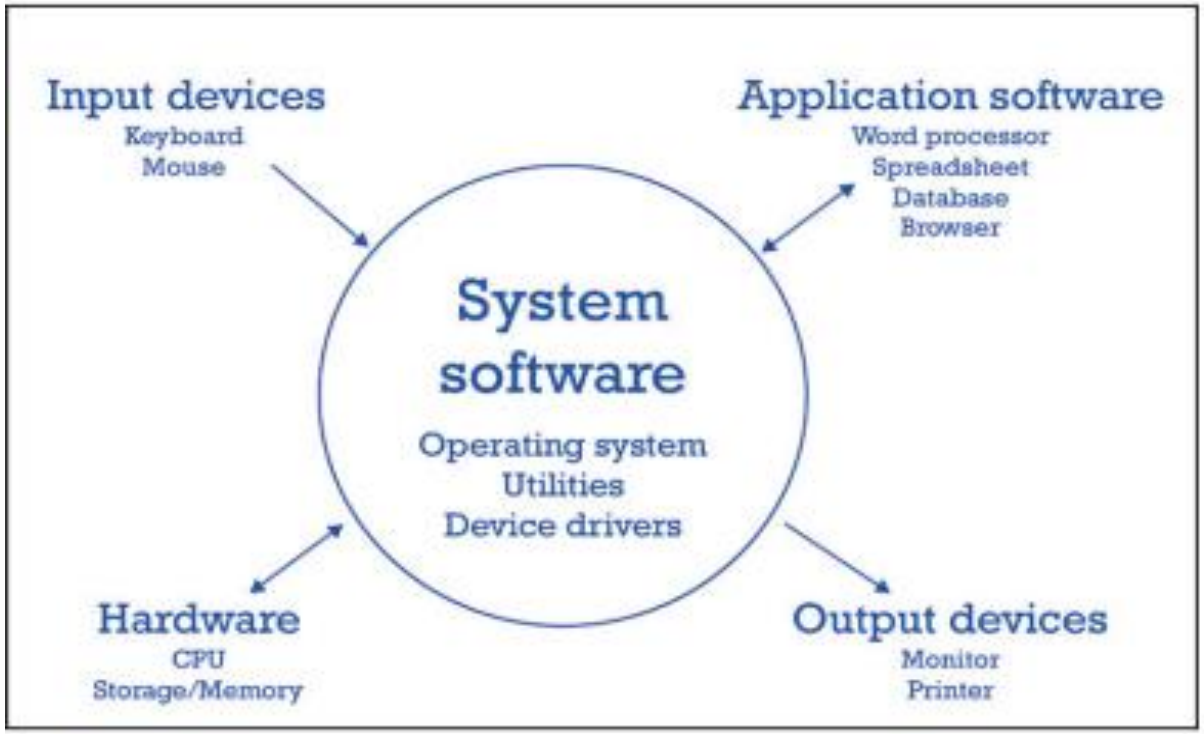


Understand System Software (1 of 2)

- **System software** allocates system resources, manages storage space, maintains security, and detects equipment failure
- Components of system software:
  - The **operating system** manages the system resources, which includes controlling basic data **input and output**
  - **Utility software** helps analyze, optimize, configure, and maintain a computer
- Protecting information with passwords
  - To prevent anyone from guessing your passwords, always create and use strong passwords
  - A strong password consists of at least eight characters of upper and lowercase letters and numbers

Understand System Software (2 of 2)

- Relationships between system software and other system components



Describe Types of Application Software (1 of 2)

- **Application software** enables you to perform specific tasks such as writing letters, creating presentations, analyzing statistics, creating graphics, enhancing photos, and much more
- Typical application software includes the following:
  - **Document production software,** which allows you to write and format text documents
  - **Spreadsheet software,** of which Microsoft Excel is an example
  - **Database management software** lets you collect and manage data
  - **Presentation software** allows you to create a visual slide show as with Microsoft PowerPoint
  - **Multimedia authoring software** allows you to record and manipulate image files
  - **Information and task management software**
  - **Website creation and management software**

Describe Types of Application Software (2 of 2)

1. Automatic spell checking in Microsoft Word
2. Editing a worksheet in Microsoft Excel