

# Module 1

## General Notes

- Free Antivirus

## Information Technology, The Internet, and You

### Dictionary

- **App:** *See Application software.*
- **Application Software:** Also referred to as apps. Software that can perform useful work, such as word processing, cost estimating, or accounting tasks. The user primarily interacts with application software.
- **Blue-ray Disc (BD):** A type of high-definition disc with a capacity of 25 to 50 gigabytes.
- **Cloud Computing:** Data stored at a server on the Internet and available anywhere the Internet can be accessed.
- **Communication Device:** Computer systems that communicate with other computer systems using modems. For example, it modifies computer output into a form that can be transmitted across standard telephone lines.
- **Compact Disk (CD):** Widely used optical disc format. It holds 650 MB (megabytes) to 1 GB (gigabyte) of data on one side of the CD.
- **Connectivity:** Capability of the personal computer to use information from the world beyond one's desk. Data and information can be sent over telephone or cable lines and through the air so that computers can talk to each other and share information.
- **Data:** Raw, unprocessed facts that are input to a computer system that will give compiled information when the computer processes those facts.
  - Data is also defined as facts or observations about people, places, things, and events.
- **Database File:** File containing highly structured and organized data created by database management programs.
- **Desktop Computer:** Computer small enough to fit on top of or along the side of a desk and yet too big to carry around.
- **Digital Versatile Disc (DVD):** A type of optical disc similar to CD-ROMs except that more data can be packed into the same amount of space. See also DVD (digital versatile disc).
- **Display:** Output device like a television screen that displays data processed by the computer.
  - Same as **Monitor**.
- **Document File:** File created by a word processor to save documents such as letters, research papers, and memos.
- **Embedded Operating System:** An operating system that is completely stored within the ROM (read-only memory) of the device that it is in; used

for handheld computers and smaller devices like PDAs. Also known as a **real-time operating system (RTOS)**.

- **End Users:** Person who uses personal computers or has access to larger computers.
- **Hard Disk:** Enclosed disk drive containing one or more metallic disks. Hard disks use magnetic charges to record data and have large storage capacities and fast retrieval times.
- **Hardware:** Equipment that includes a keyboard, monitor, printer, the computer itself, and other devices that are controlled by software programming.
- **Information System:** Collection of hardware, software, people, data, and procedures that work together to provide information essential to running an organization
- **Information Technology (IT):** Computer and communication technologies, such as communication links to the Internet, that provide help and understanding to the end user.
- **Internet of Things (IoT):** Continuing development of the Internet that allows everyday objects embedded with electronic devices to send and receive data over the Internet.
- **Internet:** A huge computer network available to everyone with a personal computer and a means to connect to it. It is the actual physical network made up of wires, cables, and satellites as opposed to the web, which is the multimedia interface to resources available on the Internet.
- **Keyboard:** Input device that looks like a typewriter keyboard but has additional keys.
- **Laptop Computer:** Portable computer, also known as a notebook computer, weighing between 4 and 10 pounds.
- **Mainframe Computer:** This computer can process several million program instructions per second. Sizable organizations rely on these room-size systems to handle large programs and a great deal of data.
- **Memory:** Memory is contained on chips connected to the system board and is a holding area for data instructions and information (processed data waiting to be output to secondary storage). RAM, ROM, and CMOS are three types of memory chips.
- **Microprocessor:** The central processing unit (CPU) of a personal computer controls and manipulates data to produce information. The microprocessor is contained on a single integrated circuit chip and is the brains of the system. Also known as a processor.
- **Midrange Computer:** Refrigerator-sized machines falling in between personal computers and mainframes in processing speed and data-storing capacity. Medium-sized companies or departments of large companies use midrange computers.
- **Mobile Apps (Application):** Add-on features for a variety of mobile devices, including smartphones, netbooks, and tablets.
- **Modem:** Short for modulator-demodulator. It is a communication device that translates the electronic signals from a computer into electronic

signals that can travel over telephone lines.

- **Mouse:** Device that typically is moved across the desktop and directs the cursor on the display screen.
- **Network:** The arrangement in which various communications channels are connected through two or more computers. The largest network in the world is the Internet.
- **Networking Operating System (NOS):** Interactive software between applications and computers coordinating and directing activities between computers on a network. This operating system is located on one of the connected computers' hard disks, making that system the network server.
- **Notebook Computer:** *See Laptop and Laptop computer.*
- **Operating System (OS):** Software that interacts between application software and the computer, handling such details as running programs, storing and processing data, and coordinating all computer resources, including attached peripheral devices.
- **Optical Disk:** Storage device that can hold over 17 gigabytes of data, which is the equivalent of several million typewritten pages. Lasers are used to record and read data on the disc. The three basic types of optical discs are compact discs (CDs), digital versatile or video discs (DVDs), and Blu-ray discs (BDs).
- **Output Device:** Equipment that translates processed information from the central processing unit into a form that can be understood by humans. The most common output devices are monitors and printers.
- **People:** End users who use computers to make themselves more productive.
- **Presentation File:** A file created by presentation software to save presentation materials. For example, a file might contain audience handouts, speaker notes, and electronic slides.
- **Procedure:** Rule or guideline to follow when using hardware, software, and data.
- **Program:** Instructions for the computer to follow to process data. *See also Software.*
- **Random-access Memory (RAM):** Volatile, temporary storage that holds the program and data the CPU is presently processing. It is called temporary storage because its contents will be lost if electrical power to the computer is disrupted or the computer is turned off.
- **Real-time Operating System (RTOS):** *See Embedded Operating System*
- **Secondary Storage:** Permanent storage used to preserve programs and data that can be retained after the computer is turned off. These devices include hard disks, magnetic tape, CDs, DVDs, and more.
- **Server:** A host computer with a connection to the Internet that stores document files used to display web pages. Depending on the resources shared, it may be called a file server, printer server, communication server, web server, or database server.
- **Smartphone:** A type of cell phone that offers a variety of advanced

functionality, including Internet and e-mail.

- **Software:** Computer program consisting of step-by-step instructions, directing the computer on each task it will perform.
- **Specialized Applications:** Program that are narrowly focused on specific disciplines and occupations. Some of the best known are multimedia, web authoring, graphics, virtual reality, and artificial intelligence.
- **Stand-alone Operating System:** Also called desktop operating system; a type of operating system that controls a single desktop or notebook computer.
- **Supercomputer:** Fastest calculating device ever invented, processing billions of program instructions per second. Used by very large organizations like NASA.
- **System Software:** “Background” software that enables the application software to interact with the computer. System software consists of the operating system, utilities, device drivers, and language translators. It works with application software to handle the majority of technical details.
- **System Unit:** Part of a personal computer that contains the CPU. Also known as the system cabinet or chassis, it is the container that houses most of the electronic components that make up the computer system.
- **Tablet:** A type of personal computer that contains a thin system unit, most of which is the monitor.
- **Virus:** Hidden instructions that migrate through networks and operating systems and become embedded in different programs. They may be designed to destroy data or simply to display messages.
- **Wearable Device:** A type of mobile computer such as Apple’s Watch that contains an embedded computer chip. Also known as a smartwatch.
- **Web:** Prior to the introduction of the web in 1992, the Internet was all text. The web made it possible to provide a multimedia interface that includes graphics, animations, sound, and video.
- **Wireless Communication:** The revolutionary way we now communicate on devices like tablets, smartphones, and wearable devices.
- **Wireless revolution:** A revolution that is expected to dramatically affect the way we communicate and use computer technology.
- **Worksheet File:** Created by electronic spreadsheets to analyze things like budgets and to predict sales.

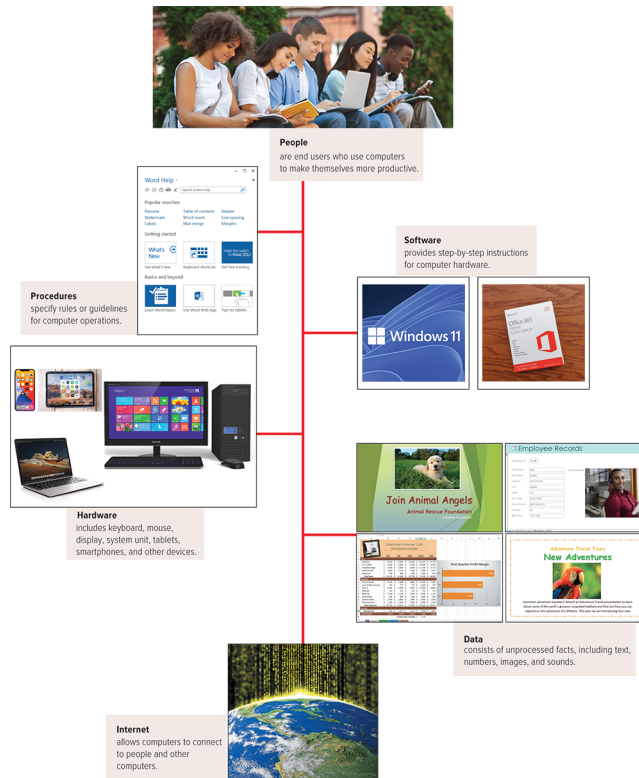
## Information Systems

A personal computer is part of an **Information System**, and an information system has many parts:

- **People**
  - The most important part of an information system.
- **Procedures**
  - Typically documented in manuals written by computer specialists. Software and hardware manufacturers provide manuals with their

products, typically in printed or electronic form.

- **Software**
  - Another name for a program or programs. Programs are the instructions that tell the computer how to process data into the form you want. In most cases, the words *software* and *programs* are interchangeable.
- **Hardware**
  - Equipment that processes the data to create information.
- **Data**
- **Internet**
  - Almost all information systems provide a way to connect to other people and computers, typically using the internet.



## Software

There are two major kinds of software:

- System Software
- Application Software

## System Software

- The user interacts primarily with application software.
- System Software enables the application software to interact with the computer hardware.
  - System software is “background” software that helps the computer manage its own internal resources.

System software is not a single program, rather it is a collection of programs including the following:

- **Operating Systems**
  - Programs that coordinate computer resources, provide an interface between users and the computer, and run applications.
  - Smartphones and many other mobile devices use **embedded operating systems**, also known as **real-time operating systems (RTOS)**.
  - Desktop computers use **stand-alone operating systems** like Windows 10 or MacOS
  - Networks use **network operating systems**.
- **Utilities**
  - Perform specific tasks related to managing computer resources.
  - One of the most essential utility programs for every computer system is an antivirus program.

## Application Software

Application software might be described as end-user software. Three types of application software are:

- General-purpose
- Specialized
- Apps

**General Purpose Applications** Used widely in nearly all career areas. They are the kinds of programs you have to know to be considered an efficient and effective end user. Some of the best known:

Type	Description
Word Processors	Prepare written documents
Spreadsheets	Analyze and summarize numerical data
Database Management Systems	Organize and manage data and information
Presentation Software	Communicate a message or persuade other people

**Specialized Applications** Include thousands of other programs that are more narrowly focused on specific disciplines and occupations. Two of the best known are graphics and web authoring programs.

**Mobile Apps** Also known as mobile applications, or just apps, are small programs primarily designed for mobile devices such as smartphones and for tablets.

- The most popular apps are for social networking, playing games, and downloading music and videos.

## Hardware

Computers are electronic devices that can follow instructions to accept input, process that input, and produce information.

- Much content covered focuses principally on personal computers.

## Types of Computers

There are four types of computers:

- **Supercomputers**
  - Special, high-capacity computers used by very large organizations.
  - Typically used to process massive amounts of data.
  - IBM's Blue Gene supercomputer is one of the fastest computers in the world.
- **Mainframe Computers**
  - Occupy specially wired, air-conditioned rooms.
  - Not as powerful as a supercomputer, but capable of great processing speeds and data storage.
  - Insurance companies use mainframes to process information about millions of policyholders.
- **Midrange Computers**
  - Also known as **servers**.
  - Less processing power than a mainframe computer, but more than a personal computer.
- **Personal Computers**
  - Least powerful, yet most widely used and fastest-growing type of computer.
  - There are five types of personal computers:
    - \* Desktops
    - \* Laptops
    - \* Tablets
    - \* Smartphones
    - \* Wearables

## Cell Phones

The cell phone is a computer and has many of the same components as desktops, laptops, and tablets.

## Personal Computer Hardware

Physical equipment falls into four basic categories:

### 1. System Unit

- Container that houses most of the electronic components that make up a computer system.
- Two important components of the system unit are:
  - Microprocessors
    - \* Controls and manipulates data to produce information.
  - Memory
    - \* A holding area for data, instructions, and information.
    - \* **RAM** is an example of memory that holds the program and data that are currently being processed.

### 2. Input / Output

- Translate data and programs that humans can understand into a form that the computer can process.
- **Output devices** translate the processed information from the computer into a form that humans can understand.
  - The most common output device is the **display / monitor**.

### 3. Secondary Storage

- Unlike memory, secondary storage holds data and programs even after electric power to the computer system has been turned off. The most important kinds of secondary media are:
  - Hard Disks
  - Solid-state Storage
  - Optical Discs
- **Hard Disks** Use rigid metallic platters and read/write heads that move across the platters. Data and information are stored in magnetic charges on the disk's surface.
  - **Solid-state storage** does not have any moving parts, is more reliable, and requires less power. It saves data and information electronically, similar to RAM, except that it is not volatile.
- **Optical discs** use laser technology to store data and programs. Three types optical discs:
  - **Compact Discs (CD)**
  - **Digital Versatile (or Video) (DVDs)**
  - **Blu-ray Discs (BD)**

### 4. Communication



- Computers use **communication devcies** to routinely communicate with other computer systems.
  - A **modem** is a widely used communication device that modifies audio, video, and other types of data into a form that can be transmitted across the internet.

## Data

Data is raw, unprocessed facts, including text, numbers, images, and sound.

When stored electronically in files, data can be used directly as input for the system unit.

Common filetypes:

- Document files
- Worksheet files
- Database files
- Presentation files

## Connectivity and The Mobile Internet

Connectivity is the capability of your personal computer to share information with other computers.

- Central to the concept of connectivity is the network.

Three things that are driving the impact of technology on our lives:

- **Cloud Computing**
- **Wireless Communication**
- **Internet of Things**

## Careers In IT

Career	Description
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.

Career	Description
Network Administrator	Creates and maintains computer networks.

## Creating and Editing Documents

- **Block Format:** All lines begin at the left margin
- **Backstage View:** The view when you hit the **File** tab in Word.
- In the salutation of a business letter, use “Dear” followed by a courtesy title, and the person’s last name.
  - *Example titles: Mr., Mrs., Ms., Miss, or Dr.*
- **SHIFT + ENTER** = Line-break
- **CTRL + SHIFT + SPACE** = Non-breaking space
- **CTRL + >** = Increase font size
- **CTRL + <** = Decrease font size
- **CTRL + D** = Open the font dialog box
- **F7** = Open *Editor* Pane
- An enclosure notation indicates to the reader that something is enclosed with the letter.

## Clipboard

The clipboard pane allows a user to see all previous things they’ve copied, and paste them as necessary.

## Quick Access Toolbar

Allows for shortcuts such as **Undo** and **Redo**.

- Can be found above or below the *Ribbon*.

## Repeat Change

When you perform an action or apply formatting in a document, the Repeat button is activated (the icon changes) so you can repeat the previous action or formatting.

## Fonts, Font Sizes, and Attributes

The two main categories of fonts are **serif** and **sans serif**.

- Serif fonts have structural details (flair) at the top and bottom of most of the letters.
  - Commonly used serif fonts include **Cambria**, **Times New Roman**, and *Courier New*.

- Sans serif fonts have no structural details on the letters.
  - Commonly used sans serif fonts include **Calibri**, **Arial**, and *Century Gothic*.
- The default font and font size in Microsoft Word are **Calibri** and **11pt**.

The **Change Case** feature is useful for changing the case of a single word or group of words.

### Font Dialog Box

The Font dialog box combines many of the font style and effect options in one location for easy access. Click the Font launcher in the bottom-right corner of the Font group to open the Font dialog box

### Character Spacing

Character Spacing options enable you to add more or less space between letters and words. You can also vertically raise and lower letters and words.

- **Scale:** Changes the horizontal spacing of a word or group of words by a percentage. Choose from preset percentages or type a custom percentage for scaling.
- **Spacing:** Increases or decreases the space between letters. Choose from three options: Normal, Expanded, and Condensed. For Expanded and Condensed, choose the number of points to expand or condense the selected text.
- **Position:** Vertically raises or lowers text by a selected number of points.
- **Kerning:** Adjusts the space between letters in a proportional font.

### Text Effects

Text Effects add special formatting features to selected text, such as Outline, Shadow, Reflection, and Glow. HOW TO: Use the Format Text Effects Dialog Box

1. Select the text to format.
2. Click the Font launcher [Home tab, Font group]. The Font dialog box opens.
3. Click the Text Effects button at the bottom. The Format Text Effects dialog box opens.
4. Click the Text Fill & Outline button to display fill and outline options.
  - Select Text Fill or Text Outline to expand and display options.
5. Click the Text Effects button to display text effect options.
  - Select Shadow, Reflection, Glow, Soft Edges, or 3-D Format to expand and display options.
  - Each of these categories has Presets, or you can customize the effect.
6. Format Text Effects dialog box
7. Figure 1-40 Format Text Effects dialog box

8. Click OK to close the Format Text Effects dialog box and click OK to close the Font dialog box.

## Search and The Search Pane

Search (formerly named Smart Lookup) is a research feature in Word that enables you to search for information on the internet without leaving Word. This feature uses Bing, an internet search engine, to find information about a selected word or words in a document without leaving the application.

The Search pane displays information from the internet about the words you select or type. You have options to refine the search and to find additional information about search results.

## Editor Pane

When finalizing a document, proofread it one last time and use the Editor pane to check an entire document for potential spelling and grammatical errors. The Editor pane also provides suggestions for clarity, conciseness, formality, punctuation conventions, and vocabulary.

**Office 365/2021 Note:** The Editor pane and how it checks spelling and grammar may differ slightly between the different versions of Office. The Editor button [Review tab, Proofing group] may be named Spelling & Grammar.

The Editor pane is contextual. The label below the Editor pane title (Spelling, Grammar, or Clarity and Conciseness) and the available options change depending on whether Word detects a potential spelling or grammatical error.

## Summary (Most Tasks Are Simple)

### 1.1 Create, save, and open a Word document (p. W1-3).

- New Word documents are based on the **Normal template** (*Normal.dotm*).
- Save documents with the existing file name or with a different file name.
- **AutoSave** automatically saves documents saved in OneDrive.
- A **Word document (.docx)** is the standard file format. Word documents can be saved in a variety of file formats.
- Open, edit, and save existing Word documents.

### 1.2 Customize a document by entering and selecting text, using word wrap, and using AutoComplete, AutoCorrect, and AutoFormat features (p. W1-7).

- **Word wrap** automatically wraps text to the next line as you reach the right margin of the document.
- The **Show/Hide** button displays formatting characters in the document to ensure properly and consistently formatted documents.

- Select text in a variety of ways: select individual words, an entire line, multiple lines of text, a sentence, a paragraph, multiple paragraphs, or the entire document.
- **AutoComplete** automatically completes a day, month, or date when entering text.
- **AutoCorrect** automatically corrects commonly misspelled words and capitalization errors.
- **AutoFormat** automatically controls the formatting of items such as numbered and bulleted lists.
- Add, delete, and edit AutoCorrect entries and customize AutoCorrect options in Word.
- **Text prediction** anticipates the next word a user will type and displays a suggestion.

**1.3** Format a document using paragraph breaks, line breaks, spaces, and non-breaking spaces (p. W1-10).

- The **Enter** key on the keyboard inserts a **paragraph break**. Click the *Show/Hide* button to display the **paragraph symbol**.
- **Line breaks** control breaks between lines or sentences to retain paragraph formatting between lines.
- **Non-breaking spaces** keep related words together.

**1.4** Edit a document using cut, copy, paste, the Clipboard, and the undo, redo, and repeat features (p. W1-15).

- Word provides a variety of methods to **cut, copy, and paste** text in a document.
- The **Clipboard** stores cut or copied text. Use the Clipboard to paste text into a document.
- Use **Undo, Redo, and Repeat** when working on a document. These features are available on the Quick Access toolbar.

**1.5** Customize a document using different fonts, font sizes, and attributes (p. W1-18).

- **Serif** and **sans serif** are the two main categories of **fonts**.
- Fonts are measured in **points** (pt.). Most documents use between 10 and 12 pt. font size.
- Change fonts and font size for specific text or the entire document.
- **Bold, Italic, and Underline** are font styles.
- Font effects include **Strikethrough, Subscript, Superscript, Small caps, and All caps**.
- Change the case of text in Word using the **Change Case** button or the **Font** dialog box.
- The **Font dialog box** provides many **font, size, style, and effect** options.
- Modify the **scale, spacing, position, and kerning** of selected text using the **Advanced** tab in the Font dialog box.

- The **Format Painter** applies formatting from selected text to other text.
- The **Clear Formatting** feature removes all formatting applied to selected text.
- Change the **default** font and font size in Word by opening the Font dialog box.

**1.6** Format a document using text alignment and line and paragraph spacing (p. W1-28).

- **Paragraph alignment** describes how text is aligned horizontally between the margins of a document: **Left**, **Center**, **Right**, or **Justified**.
- **Line spacing** refers to the amount of space between lines of text in a paragraph.
- **Paragraph spacing** is the amount of space between paragraphs. Paragraph spacing is measured in points.
- Modify alignment, line spacing, and paragraph spacing on the Home or Layout tab or in the **Paragraph dialog box**.
- Change the default line and paragraph spacing in Word by opening the Paragraph dialog box.

**1.7** Finalize a document using Word's research, proofing, and learning tools (p. W1-32).

- **Search** (formerly Smart Lookup) is used to research selected word(s) without leaving Word. Research results display in the **Search pane**.
- Word automatically checks documents for **spelling** and **grammatical errors**.
- Word marks potential spelling, incorrect word, or grammatical errors with a colored line under the words. Correct errors by selecting options in the context menu.
- Manually spell and grammar check a document using the **Editor** pane. The Editor pane also suggests Refinements to improve your writing.
- Customize the **Word dictionary** by adding, deleting, or modifying words in the word list.
- Use the **Thesaurus** to find synonyms for words in your document.
- **Rewrite Suggestions** displays alternate wording for a word, phrase, or sentence and displays suggestions display in the Editor pane.
- The **Acronym** feature searches for the meanings of acronyms in your document and displays potential definitions in the Acronyms pane.
- Word includes a **Word Count** feature.
- The **Read Aloud** feature reads text in a document.
- **Immersive Reader** enables users to change page width, page color, line focus, and text spacing; view spaces between syllables in words; and use the Read Aloud feature.
- **Focus Mode** provides an environment that is free from distractions where the reader can more fully focus on the document.

**1.8** Apply custom document properties to a document (p. W1-39).

- Add **document properties**, such as Title, Author, Company, Subject, Created, and Last Modified.
- Add document properties in the Info area on the Backstage view or in the Properties dialog box.

## Three Things To Keep You Safe Online

- Article 1: <https://www.getsafeonline.org/protecting-your-computer/>
- Article 2: <https://usa.kaspersky.com/resource-center/preemptive-safety/top-10-internet-safety-rules-and-what-not-to-do-online>
- Article 3: <https://edu.gcfglobal.org/en/internetsafety/creating-strong-passwords/1/>
- Article 4: <https://www.nortonsecurityonline.com/security-center/safety-tips-using-public-computer.html>