



Computer Skills



Lecture 1: General Overview of Personal Computer System

Systems and Control Engineering Department

College of Electronics Engineering

Ninevah University

1st Class

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Syllabus – First Semester

- General Overview of Personal Computer System
- Computer Peripherals: (hardware)
- Operating Systems: (Software)
 - MS-DOS
 - Microsoft Windows
- Managing Windows Files & Folders
- Windows Control Panel
- Microsoft Office:
 - Microsoft Word
 - Microsoft Power point
 - Microsoft Excel

Outline

- **What is a Computer Science?**
- **Definition of Computer?**
- **Computer Classifications.**
- **Computer Architecture.**
- **The Main Components of a Computer.**

What is a Computer Science?

- Computer Science is the study of computers and computational systems including study the performance of computer hardware and software, programming languages, computer architecture, computer networks, artificial intelligence, etc.

Definition of Computer

- **A computer** is an electronic device, operating under the control of instructions (software) stored in its own memory unit, that can accept data (input), manipulate data (process), and produce information (output) from the processing.

Definition of Computer

- **A computer** is an electronic device which is capable of receiving the inputs (data from the user), storing it for a desired period of time, manipulating it according to the set of instructions (called program) and producing the output to the user in desired form. It performs a variety of operations in accordance to the set of instructions.

Definition of Computer

- The first computers were huge, room-sized machines that took teams of people to build, manage, and maintain as shown in Fig 1.
- The computer systems of today are exponentially faster and small in size compared with those of original computers.



Figure 1: First Computer Generation

Definition of Computer

- A computer system consists of **hardware** and **software** components.
- **Hardware** is the physical equipment. It includes the case, keyboard, monitor, cables, storage drives, speakers, and printers.
- The **software** includes the operating system and programs.
- The operating system manages computer operations such as identifying, accessing and processing information.

Computer Architecture

- **computer architecture** is a set of rules and methods that describe the functionality, organization, and implementation of computer systems.
- Description of the requirements (especially speeds and interconnection requirements) or design implementation for the various parts of a computer. (Such as memory, motherboard, electronic peripherals, or most commonly the CPU).
- The interface between the hardware and the lowest level software.

Computer System

HARDWARE AND SOFTWARE



HARDWARE



SOFTWARE

Computer Classifications

The computers classified by the size and power as follows:

1. **Microcomputer**
2. **Minicomputer**
3. **Mainframe**
4. **Supercomputer**



1. Microcomputer

- The most mutual type of computer in the late 20th century.
- The term “microcomputer” was introduced with the advent of systems based on single-chip microprocessors.
- The following are a common type of microcomputer:
 - Personal computers (Tower computer)
 - Rackmount computers
 - In-car computers
 - Smart phones, smart books, and Palmtop computers
 - Video game consoles

➤ **Personal computers:**

- A small, relatively inexpensive single-user computer based on a microprocessor such as desktop, Laptop, notebook and Tablet. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.
- Cheap and easy to use therefore they are very popular.



Personal Computer

- **Rackmount computers** – The cases of these computers fit into racks. A dedicated display, keyboard, and mouse may not exist, but a KVM ("keyboard, video and mouse") switch or built-in remote control.
- KVM switch is a hardware device stands for "**keyboard, video, mouse**," that allows you to control multiple computers from a single keyboard, mouse, and monitor. These switches are often used to manage racked servers where a number of servers are placed in a single rack.



Rackmount KVM
Computer

- **In-car computers (carputers)**- Built into automobiles, for entertainment, navigation, etc.
- **Smart phones, smart books, and Palmtop computers** – Small handheld personal computers with limited hardware specifications.
- **Video game consoles** – Fixed computers built specifically for entertainment purposes.

2. Minicomputer

- A multi-user computer capable of supporting from 10 up to hundreds of users simultaneously.
 - Expensive,
 - big powerful,
 - very high speed but less than mainframe,
 - used by mid-size companies.

3. Mainframe

- A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- Large (room size), powerful and expensive computers.
- Used within large systems (banks, government departments) & large organizations.
- Can be used by more than one user simultaneously.
- Large storage capacities.
- They are connected to a large number of terminals.



4. Supercomputer:

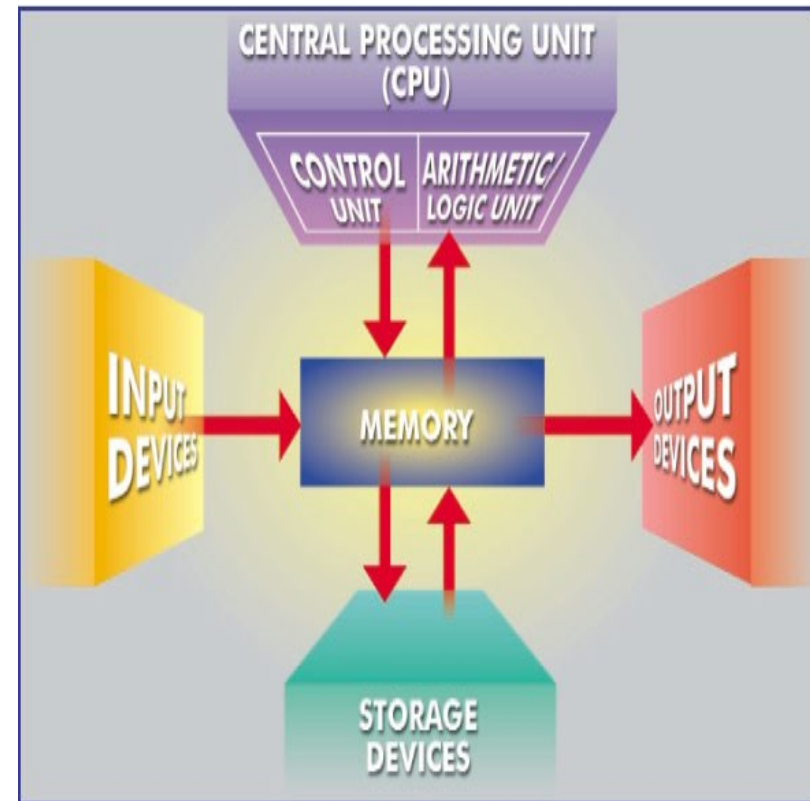
- An extremely fast computer that can play an important role in the field of computational science, and are used for a wide range of computationally intensive tasks in various fields, such as weather forecasting and climate research.
- Computers with very high speed.
- Very powerful capacity for processing data.
- Used in large scientific and research laboratories, weather forecasting space operations.
- Cost several million dollars.



The Main Components of Personal Computer

- The components of a computer system are the primary elements which make the functioning of an electronic device smooth and faster. There are five basic components which include:

1. **Input devices.**
2. **Central Processing Unit (CPU)**
3. **Memory.**
4. **Output devices.**
5. **Storage devices.**



1. Input devices

- Keyboard. →



- Mouse. →



- Optical Scanner →



- Bar-Code Reader →



- Joystick →



- Digital Web Camera →



- Microphone



Keyboard

- **keyboard:** is a peripheral input device that enables a user to input text into a computer or any other electronic machinery by typing certain keys.
- A keyboard is the most basic way for the user to communicate with a computer.



Mouse

- **The Mouse:** is a pointing device which is used to control the movement of a mouse pointer on the screen to make selections from the screen.
- A mouse has one to five buttons. The bottom of the mouse is flat and contains a mechanism that detects movement of the mouse.



2. Output devices

- Monitor
- Printer
- Headphone
- Speaker
- projectors



2. Output devices

- An output device is any piece of computer hardware equipment which converts information into a human-readable form.
- The two output devices more commonly used are the computer screen (monitor) and the printer.
- The computer screen produces a soft copy of your output, and the printer produces a hard copy of your output.

Input

Both

Output



3. Central Processing Unit (CPU)

- The CPU:
 - is known as the brain of the computer. It is also referred to as the processor. It is also called a computer “chip” .
 - It performs all of the instructions and calculations that are needed and manages the flow of information through a computer.
 - Is an electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions.

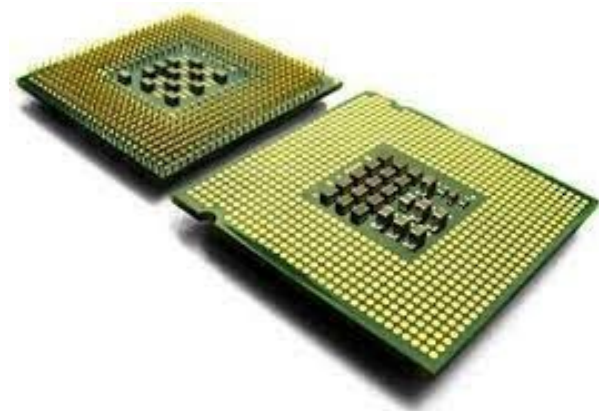


3. Central Processing Unit (CPU)

- The CPU:
 - is containing the control unit and the arithmetic/logic unit.
 - Nowadays, processors are continually evolving and becoming faster and more powerful.
 - The speed of a processor is measured in megahertz (MHz) or gigahertz (GHz).
 - An older computer might have a processor with a speed of 1000 MHz (equivalent to 1 GHz) or lower, but processors with speeds of over 2GHz are now common. Today's processors run at speeds near 5GHz.

3. Central Processing Unit (**CPU**)

- The **CPU**:
 - A processor inserts into a socket or slot, depending on the model.
 - Most processors nowadays insert into a **socket**.
 - There are different types of sockets such as **pin grid array (PGA)** and **land grid array (LGA)** as shown in figure below



4. Memory

- In computer system, there are two types of primary memory: **R**ead **O**nly **M**emory (**ROM**) and **R**andom **A**ccess **M**emory (**RAM**)

ROM



RAM



1. ROM

- ROM is a memory that is etched on a chip located on the motherboard.
- ROM has start-up information for your computer.
- contain instructions that the CPU can access directly.
- ROM stores basic instructions for booting the computer and loading the operating system.
- Retain their contents even when the computer is powered down.
- Any information stored in **ROM** is **not lost** when the computer is turned off.
(It is permanent memory).

2. RAM

- RAM is the abbreviation for Random Access Memory.
- RAM is the main memory of the computer and It consists of electronic components that store data including numbers, letters of the alphabet, graphics and sound.
- Any information stored in **RAM** is **lost** when the computer is turned off (**it is temporary memory**).
- The amount of RAM in a computer is one of the factors that affect the speed of a computer.
- The RAM has changed and developed over the years.

Differences between RAM and ROM

RAM	ROM
1. Temporary Storage.	1. Permanent storage.
2. Store data in MBs.	2. Store data in GBs.
3. Volatile.	3. Non-volatile.
4.Used in normal operations.	4. Used for startup process of computer.
5. Writing data is faster.	5. Writing data is slower.

How is memory size measured?

- The amount of memory in computers is typically measured by number of **bytes** available for storage **Kilobytes (KB) or Megabytes (MB)**.
- A memory location, or byte, usually stores one character.
 - 8 bits = 1 byte
 - 1 KB = 1024 bytes
 - 1 MB = 1024 KB

How is memory size measured?

- One kilobyte (KB) equals approximately 1,000 memory locations and one megabyte (MB) equals approximately one million locations.
- Therefore, a computer with 8 MB of memory can store approximately 8 million characters.
- One megabyte can hold approximately 500 pages of text information.

How is memory size measured?

Table: the number of bytes available for storage

Term	Abbreviation	Approximate Size
Kilobyte	KB or K	1 thousand bytes
Megabyte	MB	1 million bytes
Gigabyte	GB	1 billion bytes
Terabyte	TB	1 trillion bytes

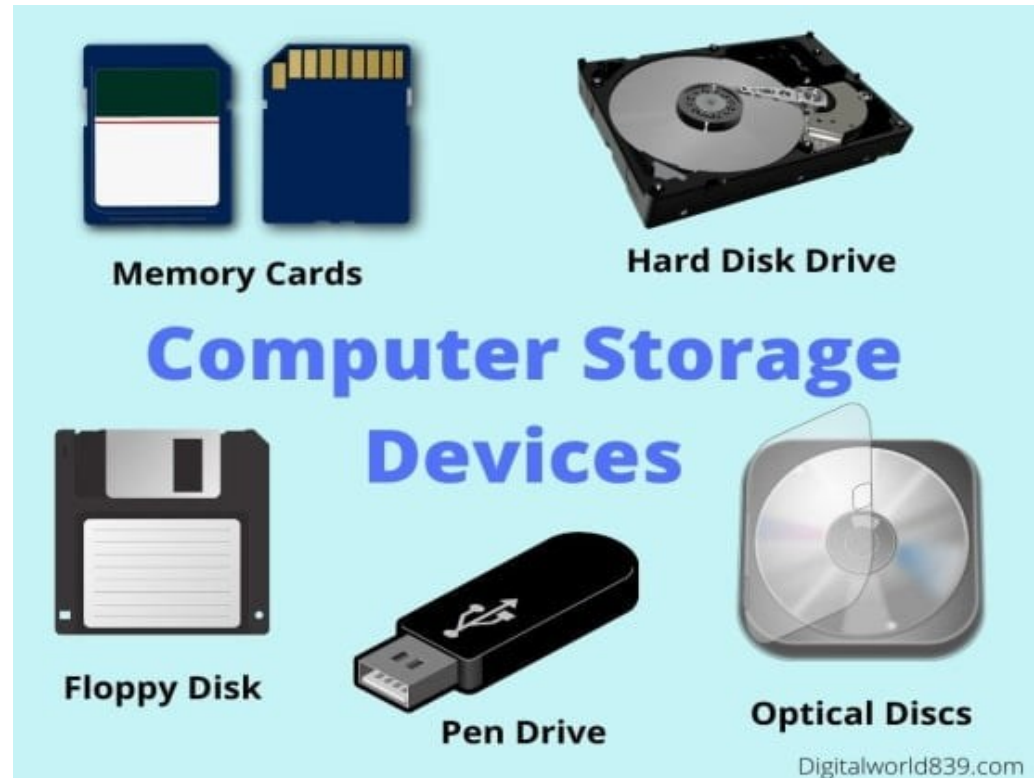
5. Storage Devices

- **Storage devices**:- are used to store data when they are not being used in memory.
- The most common types of storage devices used on personal computers are, floppy disks, hard disks, CD-ROM drives, and USB flash.



5. Storage Devices

- The drives can be used to store data permanently or to retrieve information from a media disk.
- This figure shows an example of different types of storage drives.



5. Storage Devices – Floppy Disk Drive

- A Floppy disk:- is a portable, inexpensive storage medium that consists of a thin, circular, flexible plastic disk with a magnetic coating enclosed in a square-shaped plastic shell, and it is a magnetic disk, which means that it used magnetic patterns to store data.



5. Storage Devices – Floppy Disk Drive

- Initially Floppy disks were 8-inches wide, they then shrank to 5.25 inches, and then shrank again to be 3.5 inches and can typically store 720 KB or 1.44 MB of data.
- Floppy disks store data which can be read and written when the disk is inserted into a **floppy disk drive (FDD)** connected to or inside a computer or other device.
- A track is a narrow recording band that forms a full circle on the surface of the disk.

5. Storage Devices – **Hard Disk Drive (HDD)**

- **A Hard disk drives (HDD)** is another form of auxiliary storage consists of one or more rigid metal plates coated with a metal oxide material that allows data to be magnetically recorded on the surface of the platters.
- The speed of a hard drive is measured in revolutions per minute (RPM).
- PRM measures how many revolutions a computer hard drive platter makes in a single minute. The higher the PRM, the faster the data will be accessed
- The hard disk platters spin at a high rate of speed, typically 5400 to 7200 (RPM).



5. Storage Devices – **Hard Disk Drive (HDD)**

- The hard disk drive (**HDD**) is a magnetic storage device. The storage capacity is measured in **gigabytes** (GB).
- Storage capacities of hard disks for personal computers range from 120 GB to 1000 GB and more. (one billion bytes are called a gigabyte).
- HDD Provides greater storage capacity than a floppy disk, CD-ROM, or USB flash drive.
- Multiple hard drives can be added to increase storage capacity.
- The hard drive is usually configured as the first drive in the boot sequence.

5. Storage Devices – Optical Drives

- An optical drive is a storage device that uses lasers to read data on the optical media.
- There are three types of optical drives:
 - Compact Disc (**CD**)
 - Digital Versatile Disc (**DVD**)
 - Blu-ray Disc (BD)



5. Storage Devices – Optical Drives (CD)

- A compact disk (CD):- also called an optical disc, is a flat round, portable storage medium that is usually 4.75 inch in diameter.
- A CD-ROM (Read Only Memory), is a compact disc that used the same laser technology as audio CDs for recording music. In addition it can contain other types of data such as text, graphics, and video.
- The capacity of a CD-ROM is start from 650 MB of data and more.

5. Storage Devices – Optical Drives (DVD)

- The **DVD** is a digital optical disk data storage format.
- It can store any kind of digital data and was widely used for software and other computer files as well as video programs watched using [DVD players](#).
- DVDs have a data storage capacity of approximately **4.3 GB** on a single-layer disc, and approximately 8.5 GB on a dual-layer disc.
- **DVDs** offer higher storage capacity than compact disks (**CD**) while having the same dimensions.

5. Storage Devices – Flash memory

- An external flash drive, also known as a thumb drive or pin drive, is a removable storage device that connects to a USB port interface.
- A USB flash drives is a data storage device that includes memory with an integrated USB interface.
- It is typically removable, rewritable and much smaller than an optical disc.
- Most weight less than 30 g, first appearing on the market in late 2000.



5. Storage Devices – Flash memory

- As of 2018, 2TB (Tera Byte) flash drives were the largest available in terms of storage capacity.
- Compared with floppy disks or CDs, they are **smaller, faster**, have significantly **more capacity**, and are **more tough** due to a lack of moving parts.
- Additionally, they are **immune to electromagnetic interference** (unlike floppy disks), and are **unharmed by surface scratches** (unlike CDs).



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Lecture 2: Computer Peripherals

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Outline

➤ Computer Cases (Internal Components):

1. Power Supply

2. Cooling Systems

3. Motherboard (Main board)

- CPU Socket
- Memory Slots
- Expansion Slots
- Connectors
- BIOS
- Cables and Ports

Computer Cases

- The computer case (also called a tower, housing, or cabinet) is the box that contains most of the components of computer parts such as power supply, fans, motherboard, etc as shown in figure below.
- It has attachment points, slots and screws that allow these parts to be fitted onto the case.
- The case should be durable, easy to service, and have enough room for expansion.



Computer Cases

- The size and shape of the computer case is usually determined by the **motherboard** and other **internal components**.
- The size and layout of a case is called a **form factor**.
- The case comes in many different types and sizes depending on the manufacture company.
- There are many types of cases, but the basic form factors for computer cases include desktop and tower.



Computer Cases

- The aim (benefits) of computer case is:
 1. Provide protection and support for internal components - such as dust, liquids, etc..
 2. Provide an environment designed to keep the internal components cool - proper airflow over the computer parts.
 3. Prevent damage from static electricity - Internal components of the computer are grounded by attachment to the case.

1. Power Supply

- A power supply is a hardware component of a computer that supplies all other components with power.
- It is usually found at the back of the computer case.
- Computers normally use power supplies ranging from 250W to 650W output capacity.
- However, some computers may need 850W and higher capacity power supplies.



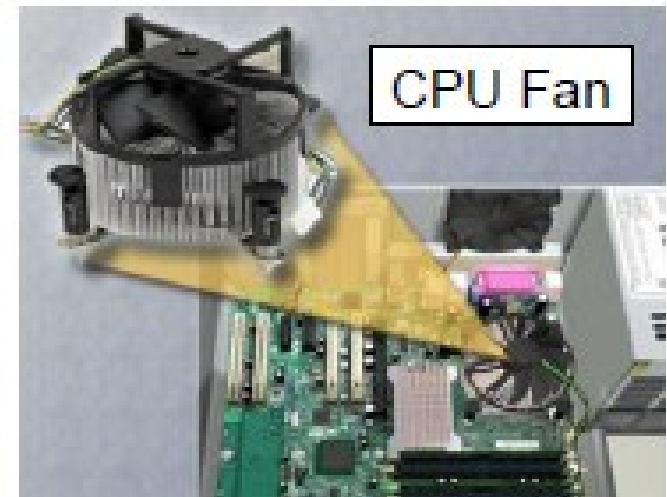
1. Power Supply

- A power supply converts 110-115 or 220-230volt alternating-current (AC) into direct-current (DC) power, which is a lower voltage (steady low-voltage).
- A power supply **distributes** lower-voltage DC power to components throughout the computer, and **provides** cooling through the use of a fan located inside the power supply.
- Each part of the connector has a colored wire with a different voltage running through it, as seen in the table.



2. Cooling Systems

- Electronic components generate heat. Heat is caused by the flow of current within the components.
- Computer components perform better when kept cool.
- If the heat is not removed, the computer may run slower.
- If too much heat builds up, computer components can be damaged.
- Air Cooling system includes **Case fan**, **CPU fan**, and **Northbridge fan** (heat sink).



2. Cooling System

- A heat sink draws heat away from the core of the CPU. A fan on top of the heat sink moves the heat away from the CPU.
- Generally, two types of cooling system provided in computer systems:
 - **Air cooling**
 - **Water cooling**
- Computers with extremely fast CPUs may use water cooling system which is most popular for modern computers.
- Modern processor cooling systems come with heat pipes. These contain a special liquid which transports the heat via convection rather than through pipes.

3. Motherboard

- The **motherboard**, also known as the **system board** or the **main board**, is the backbone of the computer.



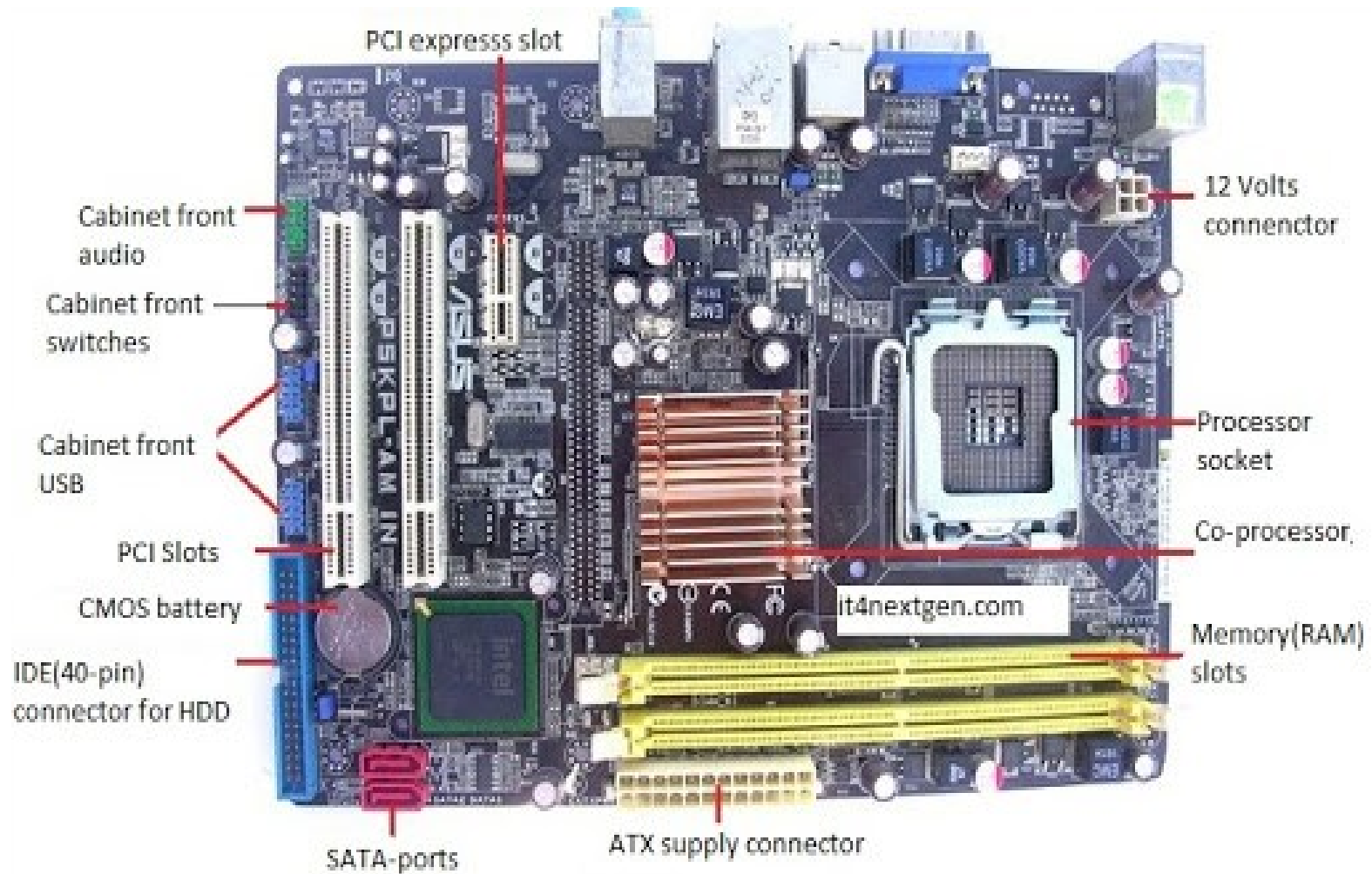
3. Motherboard

- The computer motherboard is a large electronic board that is used to connect the power supply to various other electronic parts, and to hold these parts in place on the computer.
- The motherboard contain components, these components may be **soldered** directly to the motherboard, or **added** using sockets, expansion slots, and ports

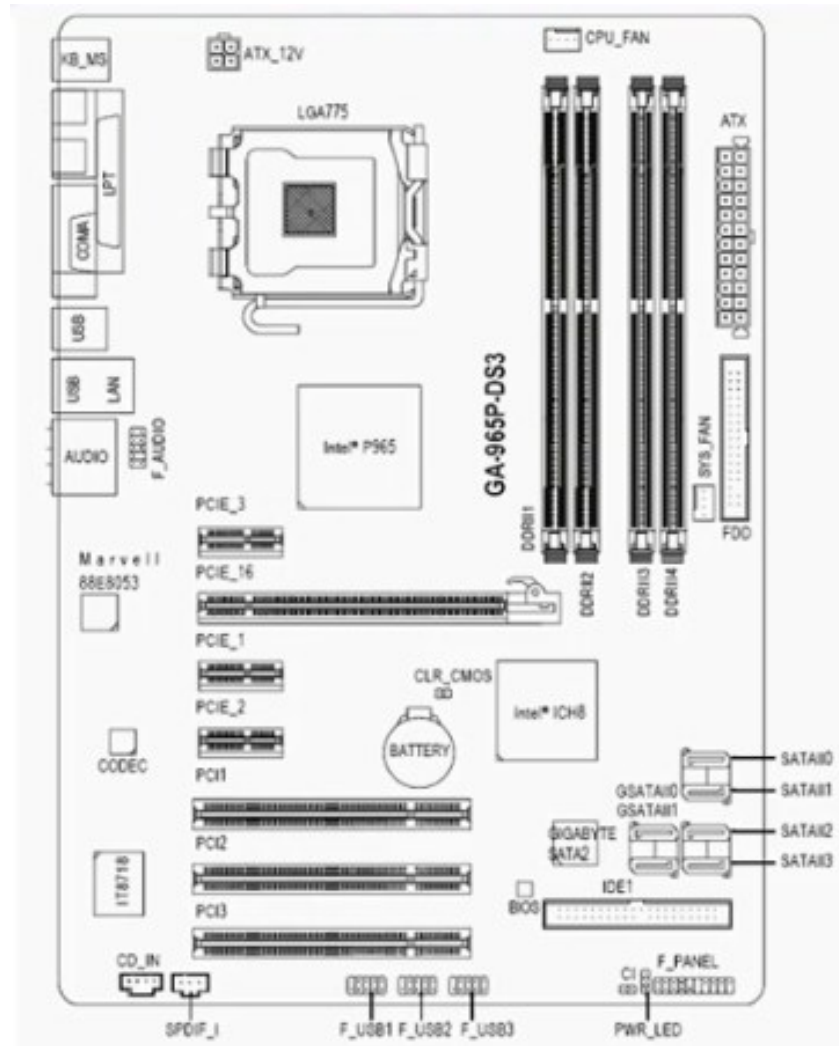
3. Motherboard

- Accommodates CPU, RAM, expansion slots, heat sink/fan assembly, chip set, sockets, internal and external connectors, various ports, and the embedded wires are interconnect the motherboard components.
- The motherboard also contains the **BIOS** (**B**asic **I**nput/**O**utput **S**ystem) chip that is responsible for some fundamental operations of the computer, such as linking hardware and software.

3. Motherboard



3. Visualizing the Motherboard



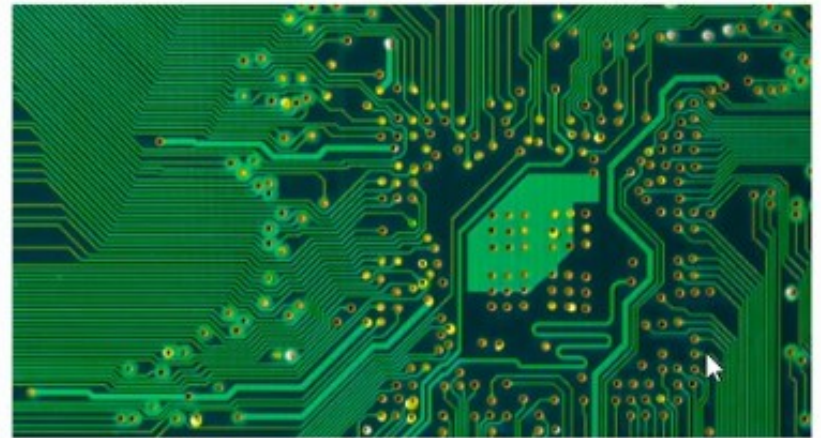
3. Motherboard

- This figure shows different type and size of Motherboard
- The **form factor** of motherboards pertains to the size and shape of the board.



3. Motherboard

- a motherboard is a printed circuit board (PCB) that contains buses, or electrical pathways, that interconnect electronic components.

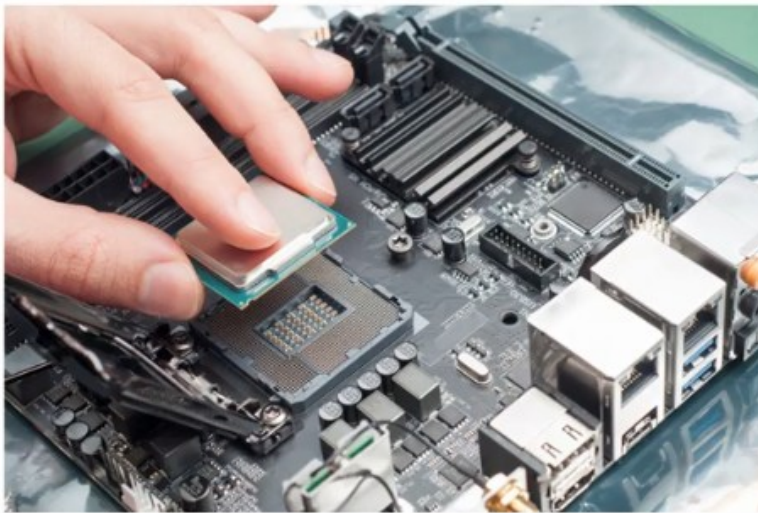


3. Motherboard

- There are some connections on the motherboard where computer components can be added:
 - **CPU Socket**
 - **Memory Slots**
 - **Expansion Slots**

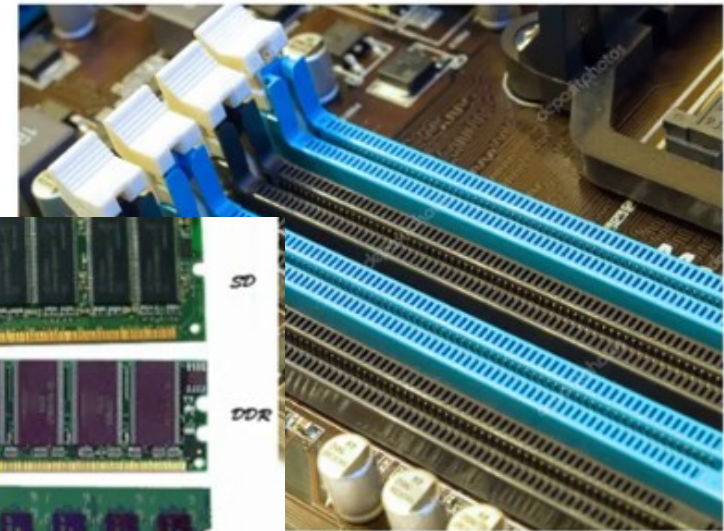
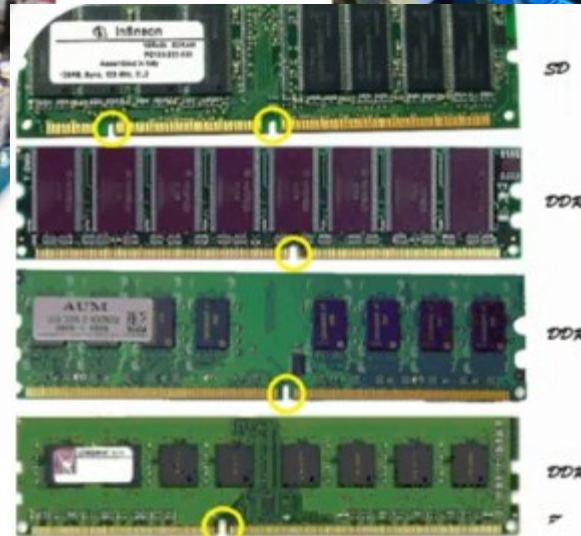
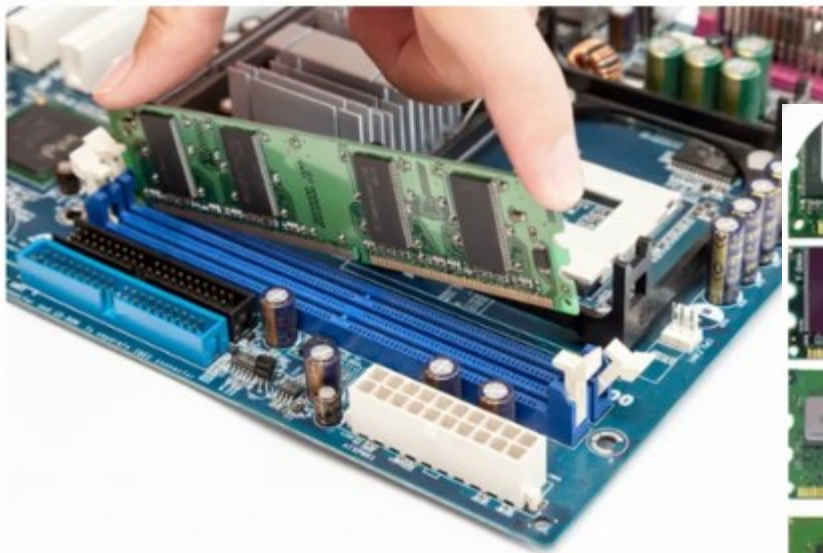
3. Motherboard

- **CPU Socket:** In computer hardware, a CPU socket or CPU slot contains one or more mechanical components providing mechanical and electrical connections between a microprocessor and printed circuit board (PCB).



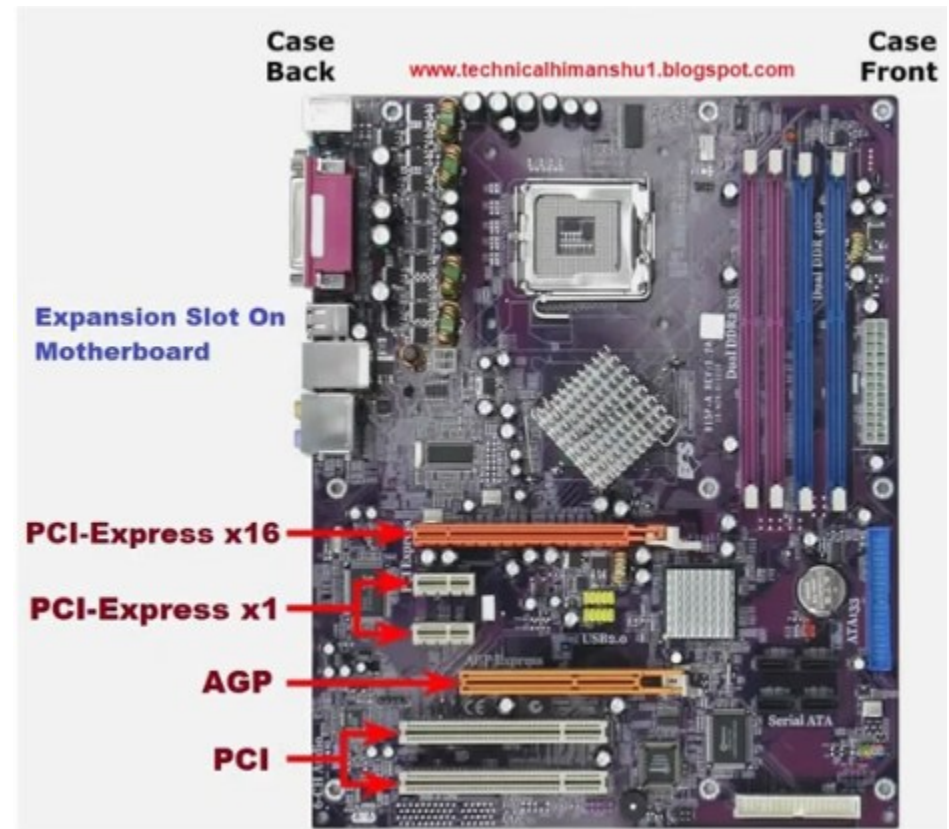
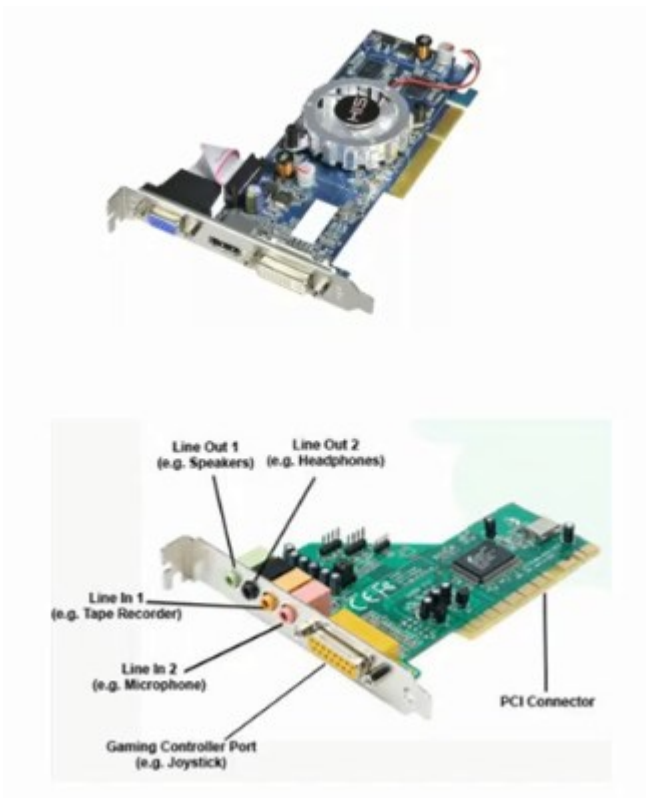
3. Motherboard

- **Memory Slots** (DIMM (dual in-line memory module)): A memory slot or RAM chip/stick to be inserted into the computer. Depending on the motherboard, there are usually 2 to 4 memory slots (sometimes more on high-end motherboards).



3. Motherboard

- **Expansion Slots:** These slots provide locations to connect additional components such as:

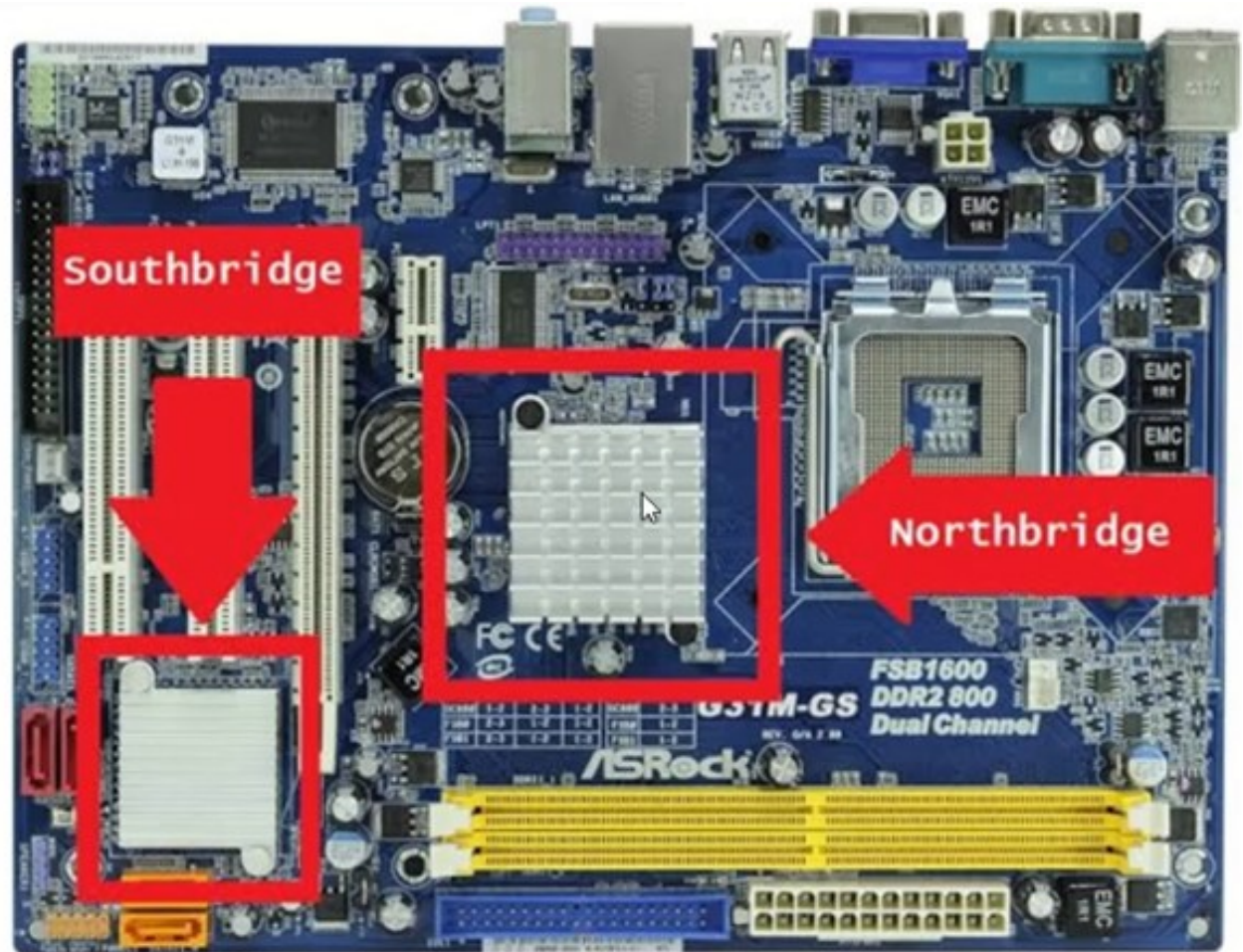
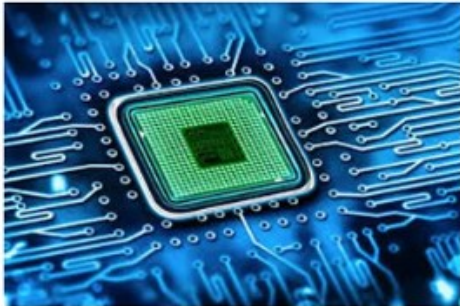


3. Motherboard

- The **chipset** of a motherboard allows the CPU to communicate and interact with the other components of the computer, and to exchange data with system memory, or RAM, hard disk drives, video cards, and other output devices.
- The chipset consists of the two integrated circuits on the motherboard (**Northbridge, Southbridge**) that control how system hardware interacts with the CPU and motherboard.

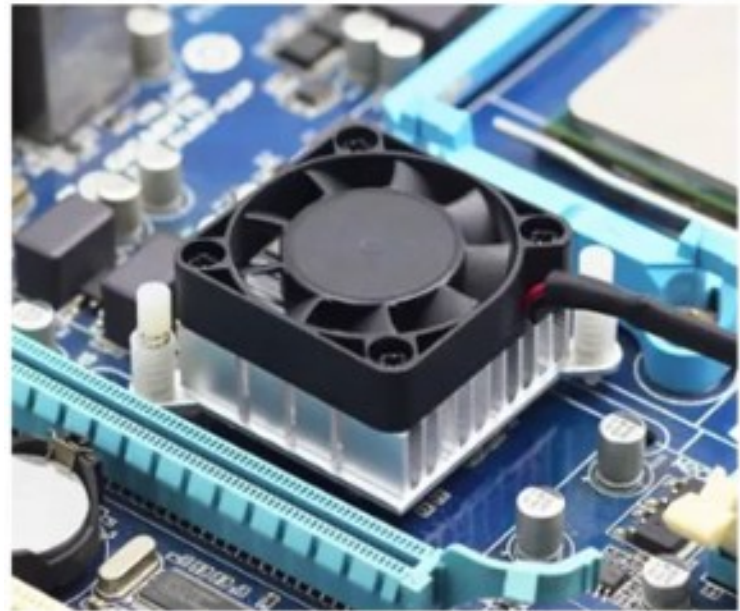
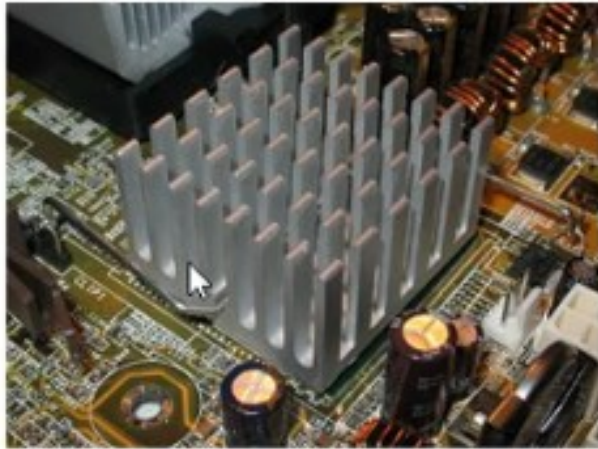
3. Motherboard

chipset



3. Motherboard

1. **Northbridge Chipset:** Controls high speed access to the **RAM** and **video card**. It also controls the speed at which the CPU communicates with all of the other components in the computer.



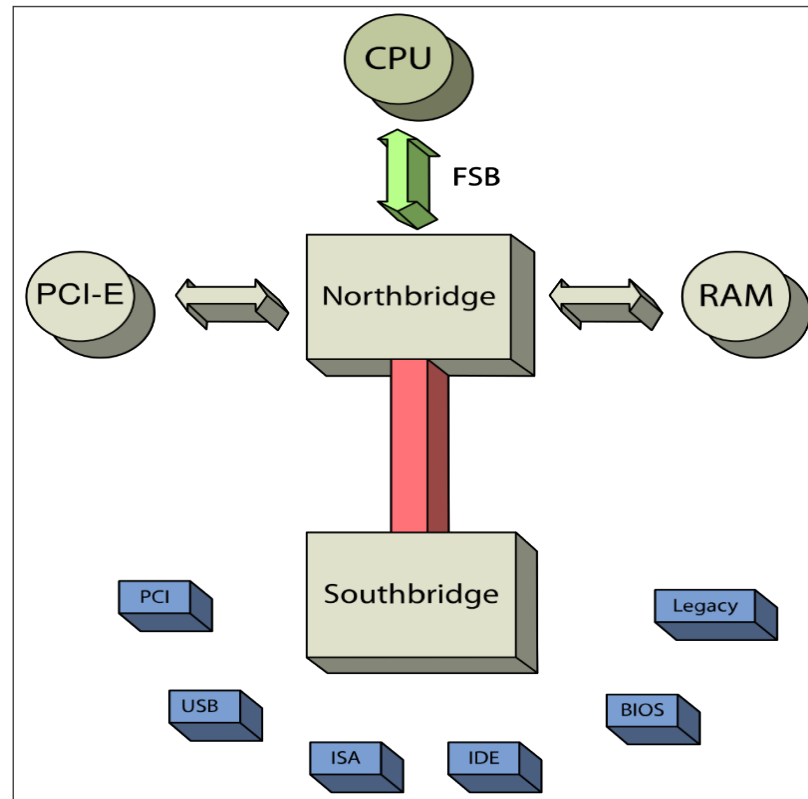
3. Motherboard

- 2. Southbridge Chipset:** Allows the **CPU** to **communicate with slower speed devices** including hard drives, Universal Serial Bus (USB) ports, and expansion slots.



3. Motherboard

- A Typical North/Southbridge Layout



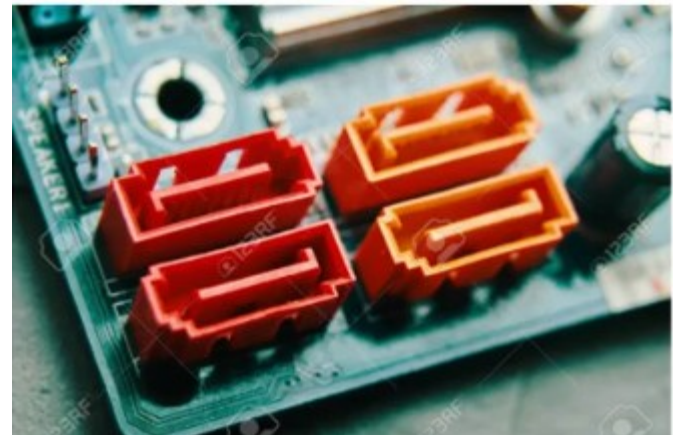
3. Motherboard - Connectors

1. **IDE Connector:** The Integrated Drive Electronics (IDE) connectors are used to connect storage device such as **Hard disk drives (HDD)**, **Solid State Drive (SDD)**, and **CD/DVD drives** to the computer. It was introduced in the year 1986. It contains 40-pin male connector. The data transfer speed ranges from 100MB/s to 133 MB/s.



3. Motherboard

2. SATA Connector: The Serial Advance Technology Attachment (SATA) connector was introduced in the year 2003. it has **7-pin** connectors used to connect hard disks or optical drivers. This connector was designed to replace the older connector, 40-pin as it is much faster than IDE interface. The data transfer speed from 150 MB/s to 300 MB/s.

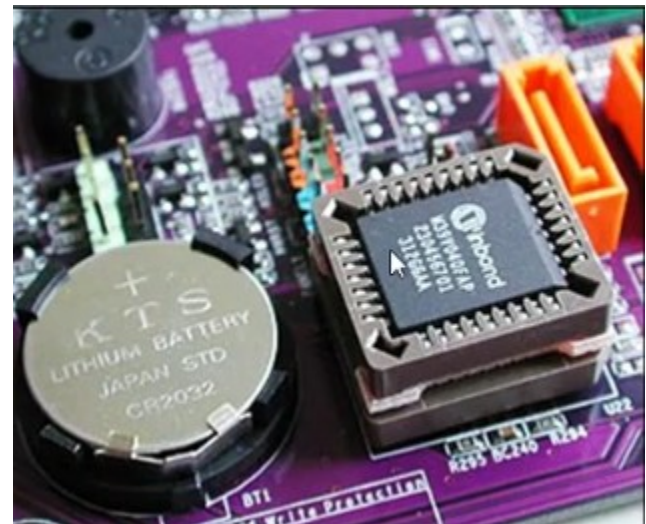


3. Motherboard - BIOS

- **Basic Input/Output Device** is used to help boot the computer after it is power on.
- The BIOS also manages the flow of data between the computer's operating system (OS), and attached devices such as a hard drive, video card, keyboard, mouse and printer.
- BIOS contains (program) **software** that is stored in ROM and required to make your computer work with your operating system.
- For instance, it is responsible for copying your operating system into ROM when you switch on your computer.

3. Motherboard - BIOS

- It is a memory for reading only.
- Non-volatile memory (data stays on it after the power off).
- As show in figure below, it is a special chip held on your computer's system (motherboard).



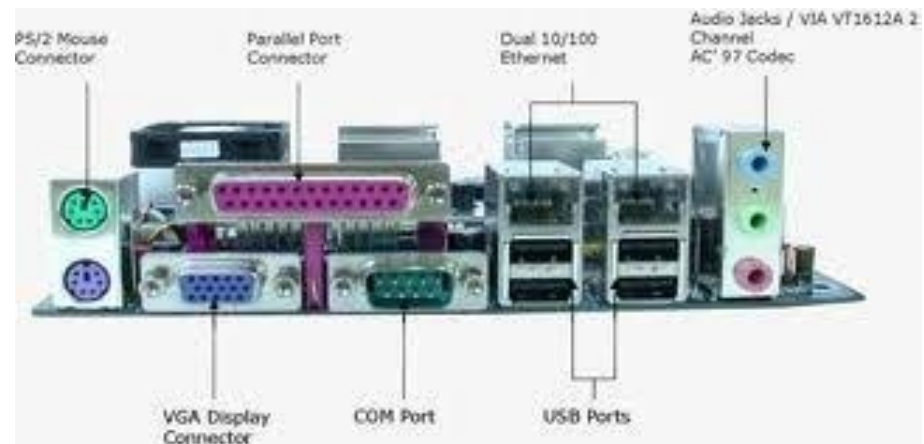
Computer Ports

- A computer port is also called a Communication Port as it is responsible for communication between the computer and its peripheral (Input/Output) devices such as printers.
- They are located on the backside of the system unit.
- There are a variety of ports present on a computer for these attachments.
- These ports have gradually changed over time as computers have changed to become faster and easier to work with.



Computer Ports:

1. Serial Ports (COM)
2. Parallel Port (LPT Port)
3. PS/2 Port
4. USB Port
5. TRS Port
6. Ethernet (Network) Port
7. Video Ports:
 - VGA
 - DVI
 - HDMI
8. Wireless Connectivity:
 - Bluetooth
 - WiFi



Computer Ports



1. Serial Port (COM Port):

- is capable of transmitting one bit at a time.
- It comes with a 9-pin , and it uses for terminals.
- Nowadays, serial ports are still used in some industrial digital devices, and it is no longer commonly used in general PC computers but is found on many older computers.
- They are commonly labeled as COM.
- It enables you to connect items to the computer, such as **older camera and satellite**.
- It consists of two signal types: **data** signals and **control** signals as well as the signal ground.

Computer Ports

2. Parallel Port (LPT Port):

- A hardware interface that transfers one or more bytes simultaneously.
- It's no longer commonly used, but was the most common way of attaching a **printer or scanner** to a computer until the introduction of USB ports.
- The most common **parallel** port has holes for 25 pins. The **25-pin parallel port** is divided into a **data** area, a **control** area, and a status area.



Computer Ports

3. PS/2 Port:

- The most commonly used connection for **keyboards** and **mouse** to a PC compatible in older computer system.
- It has **6-pins** connectors, one for the **mouse (green color)** and one for the **keyboard (purple color)**.
- PS/2 port is now considered a legacy port as **USB** port.
- PS/2 is alike to serial ports, which are consisted of two signal types: data signals and control signals.



Computer Ports

4. USB Port:

- The Universal Serial Bus (USB) is now the most common type of port on a computer.
- It was developed in the late 1990s as a way to replace the variety of ports described above.
- It can be used to connect mouse, keyboards, printers, scanners, and external storage devices such as DVD-RW drives and flash drives.



Computer Ports







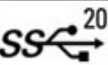
4. USB Port:

- USB port can be used to transfer data, act as an interface for peripherals and even act as power supply for devices connected to it.
- As compared to other ports, USB has only 4-pins where two pins are used for **power** and two pins are used for **data transmission**
- USB has gone through three different models (USB 1.0, USB 2.0, USB 3.0), with USB 3.2 being the fastest at sending and receiving information.



Computer Ports

4. USB Port: the following figure shows different type of USB port as well as the standard type

Connector Type Standard		USB Type A  Male Female		USB 3.0 Type A  Male Female		USB Type C  Male Female	
USB 1.1		12 Mb/s (Full Speed)		12 Mb/s (Full Speed)			
USB 2.0		480 Mb/s (High Speed)		480 Mb/s (High Speed)		480 Mb/s (High Speed)	
USB 3.0 <small>*USB 3.1 Gen 1; USB 3.2 Gen 1x1</small>				5 Gb/s (SuperSpeed)		5 Gb/s (SuperSpeed)	
USB 3.1 <small>*USB 3.1 Gen 2; USB 3.2 Gen 2x1</small>				10 Gb/s (SuperSpeed+)		10 Gb/s (SuperSpeed+)	
USB 3.2 <small>*USB 3.2 Gen 2x2</small>						20 Gb/s	

Computer Ports

Advantages of USB Port:

- Single interface for multiple devices
- Auto configuration
- Easy to expand
- Compact size
- No external power needed
- Low cost



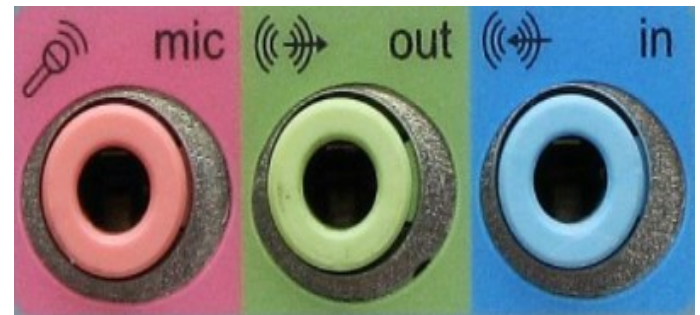
Computer Ports



Computer Ports

5. TRS Port:

- TRS (tip, ring and sleeve) ports are also known as ports for mini-jacks or audio jacks.
- They are commonly used to connect audio devices such as **headphones, speakers and microphones** to computers.



Computer Ports

6. Ethernet (Network) Port

- For faster Internet connections and for networking, an Ethernet or network port is used.
- The network port allows you to plug a 'network cable' into your computer, which then lets you communicate with other computers connected to your local network or to other computers via the Internet.
- Although many computers now connect wirelessly, this port is still the standard for wired networked computers.



Computer Ports

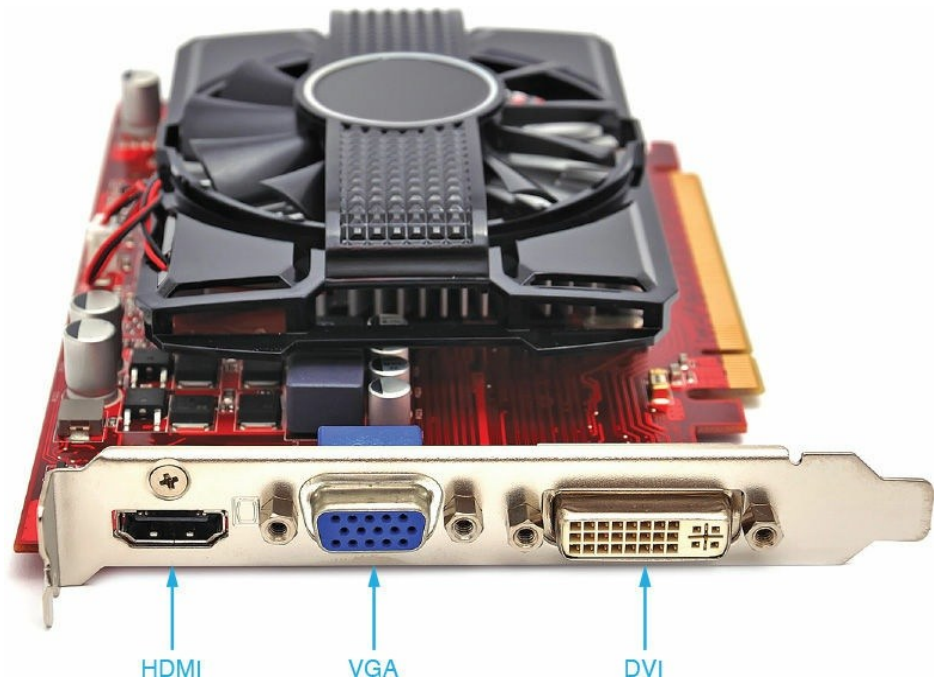
6. Ethernet (Network) Port

- Ethernet adapters commonly contain an RJ-45 port. UTP (unshielded twisted pair) cable connects to the RJ-45 port so the computing device can be connected to a wired network.
- Data moves through them at speeds of either 10 megabits or 100 megabits or 1 gigabit (1,000 megabits) depending on what speed the network card in the computer supports.

Computer Ports

7. Video Ports:

- A video port is used to connect a display monitor to a computer's video card.
- There are many types of video ports, here; we display the most common types as follows:
 - **VGA**
 - **DVI**
 - **HDMI**



Computer Ports - Video Ports

7.1 VGA Port:

- The **Video Graphics Array (VGA)** port is found in many old computers, projectors, video cards, and TVs.
- It was designed for analog output to a CRT (Cathode-ray tube) **monitors**
- VGA ports are easy to identify because they have 3 rows of 15 holes.
- VGA ports are gradually being replaced by **HDMI** and Display Ports
- The maximum resolution claimed for a VGA connector is **2053 x 1536**.



Computer Ports - Video Ports

7.2 DVI Port:

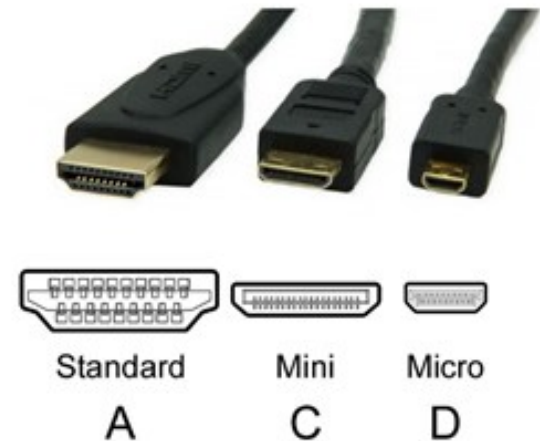
- The **Digital Visual Interface (DVI) Port** is a high-speed digital interface between a display controller like a computer and a display device like a monitor.
- It was developed with an aim of transmitting lossless digital video signals and replacing the analog VGA technology.
- The DVI connector is usually white and consists of 24 pins (3 rows of 8 pins) for digital signals, 4 pins for analog signals, and a flat pin called a ground bar.
- DVI cables support supports 2560×1600 resolution.



Computer Ports - Video Ports

7.3 HDMI Port:

- Another upgrade to DVI is **High-Definition Multimedia Interface (HDMI)**.
- a digital interface that can carry **audio and video over the same cable**.
- HDMI is found to connect High Definition and Ultra High-Definition devices like computer monitors, televisions, video adapters, laptops, desktops, and tablets.
- **Mini-HDMI**, or **Micro-HDMI** connectors, is used with devices such as cameras, tablets, and smart phones. HDMI has been updated since its first introduction with several versions as shown in table 2.



Computer Ports - Video Ports

7.3 HDMI Port:

- This figure shows different versions of HDMI port with data bandwidth can support and maximum resolution for each version

HDMI Version	Data Bandwidth [Gbit/s]	Max Resolution @ 60Hz*
1.1-1.2	3.96	1920 × 1080
1.3-1.4	8.16	2560 × 1440
2.0	14.4	3840 × 2160
2.1	42.6	5120 × 2880

Computer Ports

8. Wireless Connectivity:

- Many input devices, such as keyboards, mice, game pads, touch pads, and headphones, have wireless connectivity.
- Technologies used to connect without a cord include infrared, radio, Bluetooth.
- Many computing devices, especially smartphones and other mobile devices, have cordless connectivity integrated into the device.



Computer Ports - Wireless Connectivity



8.1 Bluetooth

- **Bluetooth** is a wireless technology standard used for exchanging data between fixed and mobile devices over **short distances** using radio waves.
- It has three classes of devices (3, 2, and 1) that have a range of less than (1 meter), (10 meters), and (100 meters), respectively.
- Bluetooth devices include audio/visual products, automotive accessories, keyboards, mice, phones, printer adapters, cameras, wireless cell phone headsets, sunglasses with radios and wireless speakers, and other small wireless devices.

Computer Ports - Wireless Connectivity



8.2 WiFi

- Wireless Fidelity (Wi-Fi) is a wireless networking technology that allows a device such as PC, laptop, mobile phone, or tablet device to connect at high speed to the internet **without the need for a physical wired connection.**
- The technology uses radio signals to transmit information between your Wi-Fi enabled devices and the internet, allowing the device to receive information from the web in the same way that a radio or mobile phone receives sound.
- Internet connectivity occurs through a wireless router.

Syllabus – First Semester

- General Overview of Personal Computer System
- Computer Peripherals: (hardware)
- Operating Systems: (Software)
 - MS-DOS
 - Microsoft Windows
- Managing Windows Files & Folders
- Windows Control Panel
- Microsoft Office:
 - Microsoft Word
 - Microsoft Power point
 - Microsoft Excel



Computer Skills



Lecture 3: Operating System (MS-DOS)

Systems and Control Engineering Department

College of Electronics Engineering

Ninevah University

1st Class

By:

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2025- 2026

Outline

- General Definition of **Software**
- Basic Types of **Software**
- Introduction to **Operating Systems (OS)**
- The Purpose of Operating System (OS)
- Introduction to **MS_DOS**
- **MS_DOS** Functions & Commands

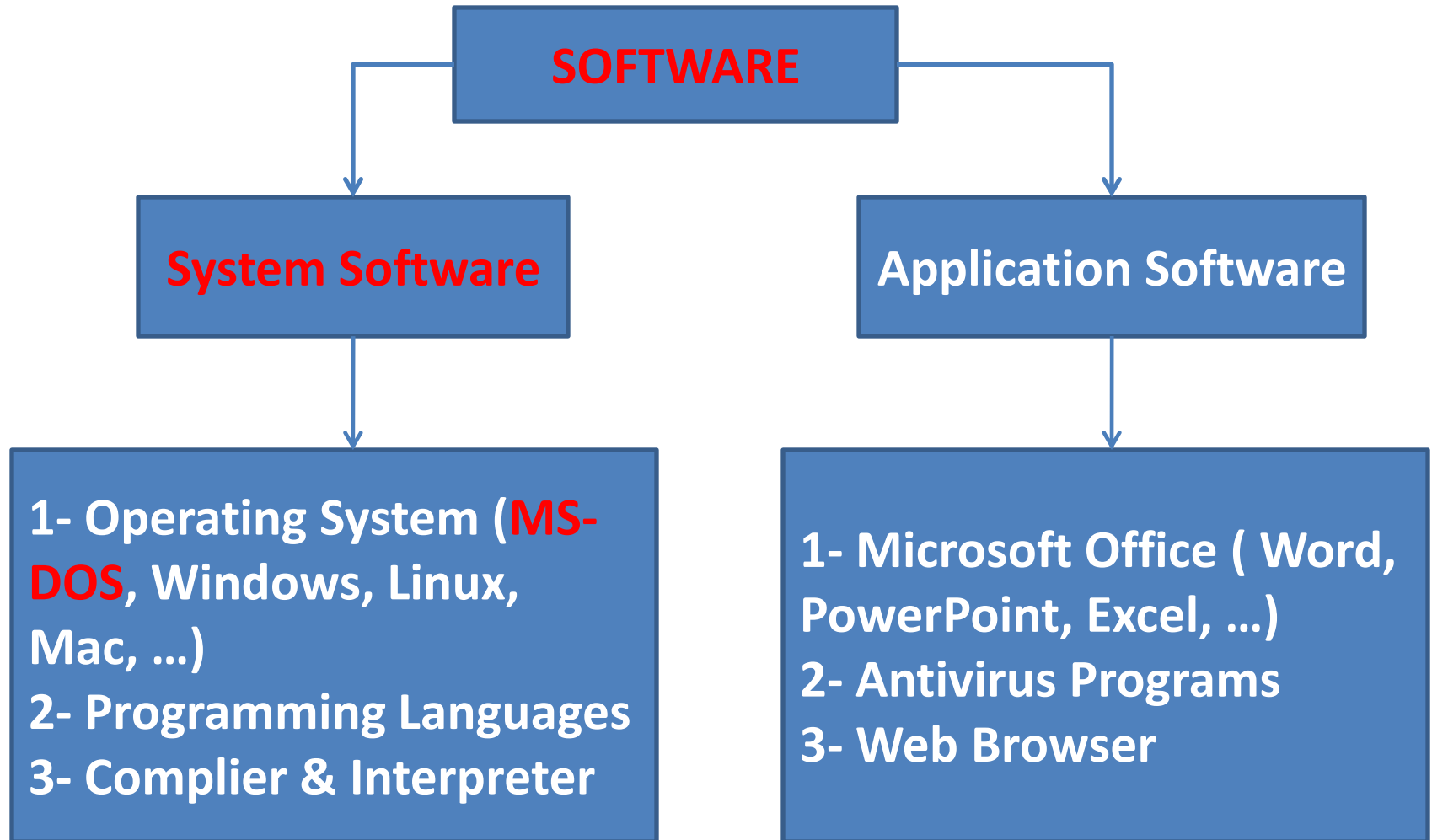
General Definition - Software

- As we mentioned in the previous lectures; a computer system consists of **Hardware** and **Software** components.
- We defined and explained the basic hardware components.
- The **software** is the collection of instructions which makes the computer work.
- Hence, **Software** is a set of instructions written in machine language that instruct computer to do some specific tasks.

General Definition - Software

- **Software** is held either on your computer's hard disk, CD-ROM, DVD or on a diskette (floppy disk) and is loaded (i.e. copied) from the disk into the computers RAM (Random Access Memory) when required.

Types of Software



Types of Software: (Examples)

System Software



Application Software



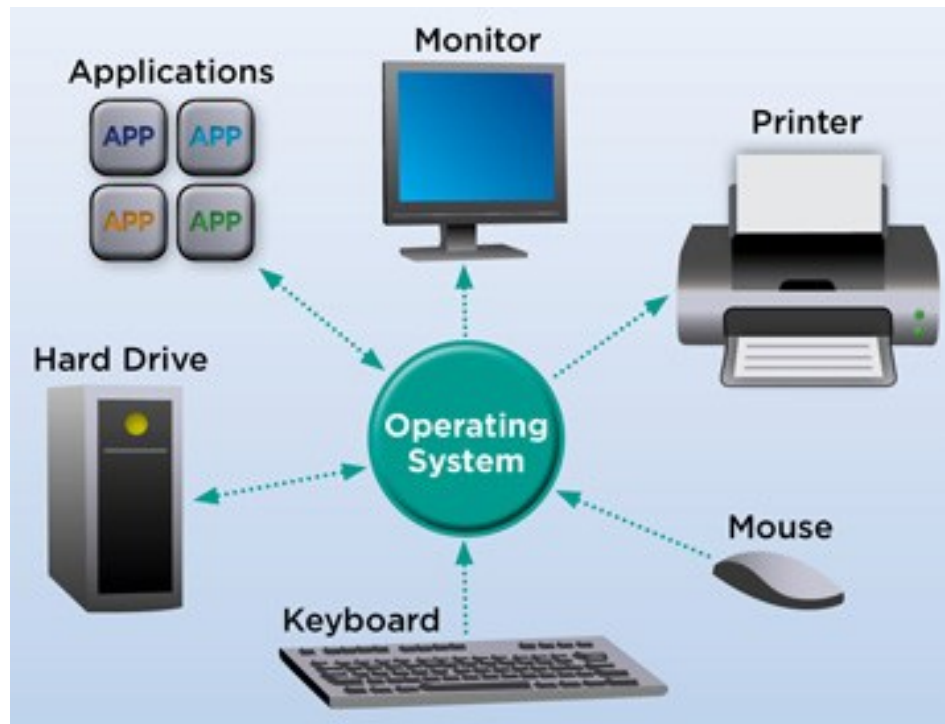
Introduction to Operating Systems (OS)

- The **operating system** (**OS**) is a special type of **program** which loads automatically when you start your computer. **Ex:** MS-DOS, Windows
- The operating system allows you to use the advanced features of a modern computer without having to learn all the details of how the hardware works.



Introduction to Operating Systems (OS)

- The **operating system (OS)**
 - controls almost all functions on a computer.
 - manages the computer's memory and processes
 - also manage its software and hardware



Introduction to Operating Systems (OS)

- There are different types of operating system in common use.
- The IBM PC (Personal Computer) was introduced in 1981 and was originally supplied with an operating system called **DOS (Disk Operating System)**.
- This operating system was very basic, and you had to be a bit of a computer expert just to understand how to use it.
- It was NOT user-friendly.

Introduction to Operating Systems (OS)

- Later on, Microsoft introduced **Windows** and this is the operating system which is most widely used on PCs today.
- **UNIX** and **Linux** are other examples of operating systems which may be run on PCs.
- **IOS** for Apple and **Android** for Samsung are other types of OS used by Mobile and computer.
- In this Lecture, we will learn about the functions and commands related to **Microsoft Disk Operating System (MS-DOS)**

The Purpose of Operating Systems (OS)

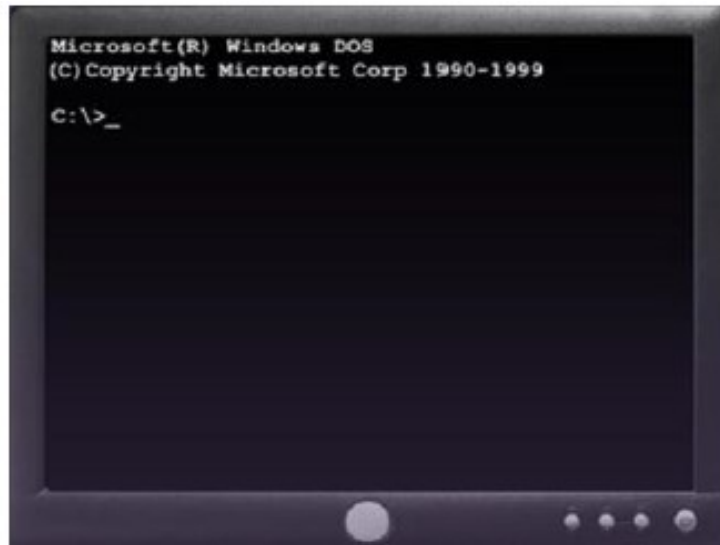
- Almost all modern operating systems can support more than one user, task, or CPU.
- **Functions and Roles of an operating system (OS) include:**
 1. Control hardware access
 2. Manage files and folders
 3. Provide **user interface**
 4. Manage applications
 5. Booting up
 6. Monitoring
 7. System security

The Purpose of Operating Systems (OS)

User Interface

- The operating system enables the user to interact with software and hardware. There are two types of user interfaces:
 1. **Command-line interface (CLI):** The user types commands at a prompt.
 2. **Graphical user interface (GUI):** The user interacts with menus and icons.
- Most operating systems, such as Windows 2000 and Windows XP, include both a GUI and a CLI.

User Interface Types:



CLI



GUI

Minimum **Hardware Requirements** and Compatibility with **OS Platform**

- Operating systems have minimum hardware requirements that must be met for the OS to install and function correctly.
- If hardware upgrades are necessary to meet the minimum requirements for an OS, conduct a cost analysis to determine the best course of action.
- In some cases, it might be less expensive for the customer to purchase a new computer than to upgrade the current system.

Minimum Hardware Requirements and Compatibility with OS Platform

- In other cases, it might be cost effective to upgrade one or more of the following components:
 - ✓ RAM
 - ✓ Hard disk drive
 - ✓ CPU
 - ✓ Video adapter card
 - ✓ Motherboard

Introduction to MS-DOS

- There are different types of operating system in common use. In this Lecture, we will learn about **MS-DOS**
- **MS-DOS** stands for Microsoft Disk Operating System.
- DOS (Disk Operating System) is an oldest type of Operating System used in personal computer.
- MS-DOS is a single-user, single-task operating system with a command line interface **CLI** and **no GUI** (Graphical User Interface).
- In spite of its very small size and relative simplicity, it is one of the most successful operating systems that has been developed to date.

Introduction to MS-DOS

- The **CLI** is a **text-only** environment where commands are issued to run programs, create and move files and folders, and perform all other functions of the computer.
- DOS acts on **commands**. Because DOS is ready to perform when given proper command hence, it is also known as **Command Prompt**.
- DOS is strictly Command Line functional, which simply means **No “Icons”, “Mouse” or “Graphics”**.

Introduction to MS-DOS

- The **CLI** is still available from within Windows, although with limited capability.
- When troubleshooting problems with the OS, you may need to use CLI commands and options to perform tasks.
- MS-DOS is **not case sensitive** that is mean you can write in DOS screen using capital or small letters
- Structure information: **16-bit** operating system.
- System environment: minimum **512 Kbytes RAM, 5 Mbyte hard disk storage.**

The Command Prompt

- When you first turn on your computer, you will see some cryptic information flash by. MS-DOS displays this information to let you know how it is configuring your computer. You can ignore it for now. When the information stops scrolling past, you'll see the following:

C:\>_ (flashing underscore)



- This is called the **command prompt** or **DOS prompt**. The flashing underscore next to the command prompt is called the **cursor**. The cursor shows where the command you type will appear.

Open Command Screen

- There are two ways to open **command prompt screen**:
 1. from Start menu -> All Programs -> accessories -> Command Prompt
 2. Start menu -> type Run -> type cmd
- you'll see the following screen opened:

C:\Users\your computer name>



Typing a Command

- This section explains how to type a command at the command prompt and demonstrates the "**Bad command or file name**" message.
- To type a command at the command prompt try this training: (you can type the command in either **uppercase or lowercase letters**):
 1. **nul** Type this letters at the command prompt. If you make a typing mistake, press the **BACKSPACE** key to erase the mistake, and then try again.
 2. Press **ENTER**. (You must press **ENTER** after every command you type)

The following messages appear:

- **Bad command or file name**
- **Access is denied**
- **Is not recognized as an internal or external command**

Typing a Command

- The "Bad command or file name" message appears when you type something that MS-DOS does not recognize. Because **nul** is not a valid MS-DOS command, MS-DOS displays the "Bad command or file name" message.

3. Now, type the following command at the command prompt:

- **ver** (The following message appears on your screen):

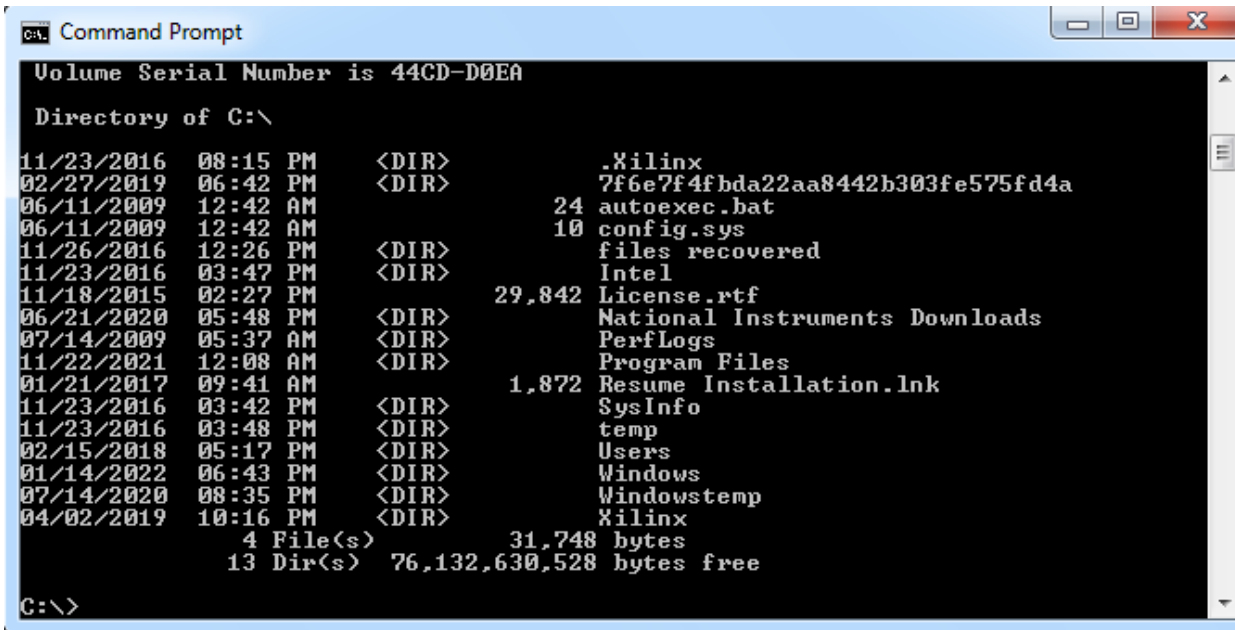
MS-DOS version 6.1 (The **ver** command displays the version number of MS-DOS)

```
C:\>ver  
Microsoft Windows [Version 6.1.7601]  
C:\>_
```

Viewing the Contents of a Directory

- In this section, you will view the contents of a directory by using the **dir** command. The **dir** command stands for "**directory**."
- To view the contents of a directory , type the following at the command prompt: **dir**

A list similar to the following appears:



```
Command Prompt
Volume Serial Number is 44CD-D0EA

Directory of C:\

11/23/2016  08:15 PM  <DIR>          .Xilinx
02/27/2019  06:42 PM  <DIR>          7f6e7f4fbda22aa8442b303fe575fd4a
06/11/2009  12:42 AM          24 autoexec.bat
06/11/2009  12:42 AM          10 config.sys
11/26/2016  12:26 PM  <DIR>          files recovered
11/23/2016  03:47 PM  <DIR>          Intel
11/18/2015  02:27 PM          29,842 License.rtf
06/21/2020  05:48 PM  <DIR>          National Instruments Downloads
07/14/2009  05:37 AM  <DIR>          PerfLogs
11/22/2021  12:08 AM  <DIR>          Program Files
01/21/2017  09:41 AM          1,872 Resume Installation.lnk
11/23/2016  03:42 PM  <DIR>          SysInfo
11/23/2016  03:48 PM  <DIR>          temp
02/15/2018  05:17 PM  <DIR>          Users
01/14/2022  06:43 PM  <DIR>          Windows
07/14/2020  08:35 PM  <DIR>          Windowstemp
04/02/2019  10:16 PM  <DIR>          Xilinx
               4 File(s)          31,748 bytes
              13 Dir(s)  76,132,630,528 bytes free

C:\>
```

■ This is called a **directory list**. A directory list is a list of all the files and subdirectories that a directory contains.

■ In this case, you see all the files and directories in the main or **root** directory of your drive. All the files and directories on your drive are stored in the root directory.

Changing Directories

- Look at the list on your screen. All the names that have **<DIR>** beside them are directories.
- You can see a list of the files in another directory by changing to that directory, and then using the **dir** command again.
- To change from the **root directory (c:\>)** to the **WINDOWS** directory, use the **cd** command.
- The **cd** command stands for "*change directory.*"

```
C:\>cd windows  
C:\Windows>
```

- **To view a list of the files in the WINDOWS directory**
Type the following at the command prompt: **dir**

Changing Directories

- A list of the files in the WINDOWS directory appears.

```
C:\Windows>dir
Volume in drive C has no label.
Volume Serial Number is 44CD-D0EA

Directory of C:\Windows

01/14/2022  06:43 PM    <DIR>          .
01/14/2022  06:43 PM    <DIR>          ..
07/14/2009  07:52 AM    <DIR>          addins
02/18/2018  06:25 PM    <DIR>          AppCompat
04/07/2019  08:45 PM    <DIR>          AppPatch
07/14/2009  11:16 AM    <DIR>          ar-SA
11/20/2010  04:16 AM             65,024 bfcvc.exe
07/14/2009  07:52 AM    <DIR>          Boot
07/14/2009  07:52 AM    <DIR>          Branding
02/04/2017  10:00 AM    <DIR>          CheckSur
11/23/2016  03:16 PM    <DIR>          CSC
07/14/2009  07:52 AM    <DIR>          Cursors
06/12/2021  11:04 AM    <DIR>          debug
07/14/2009  07:52 AM    <DIR>          diagnostics
07/14/2009  11:16 AM    <DIR>          DigitalLocker
07/14/2009  07:52 AM    <DIR>          Downloaded Program Files
02/06/2021  04:24 PM             81,144 DPINST.LOG
11/23/2016  03:16 PM             1,774 DtcInstall.log
```

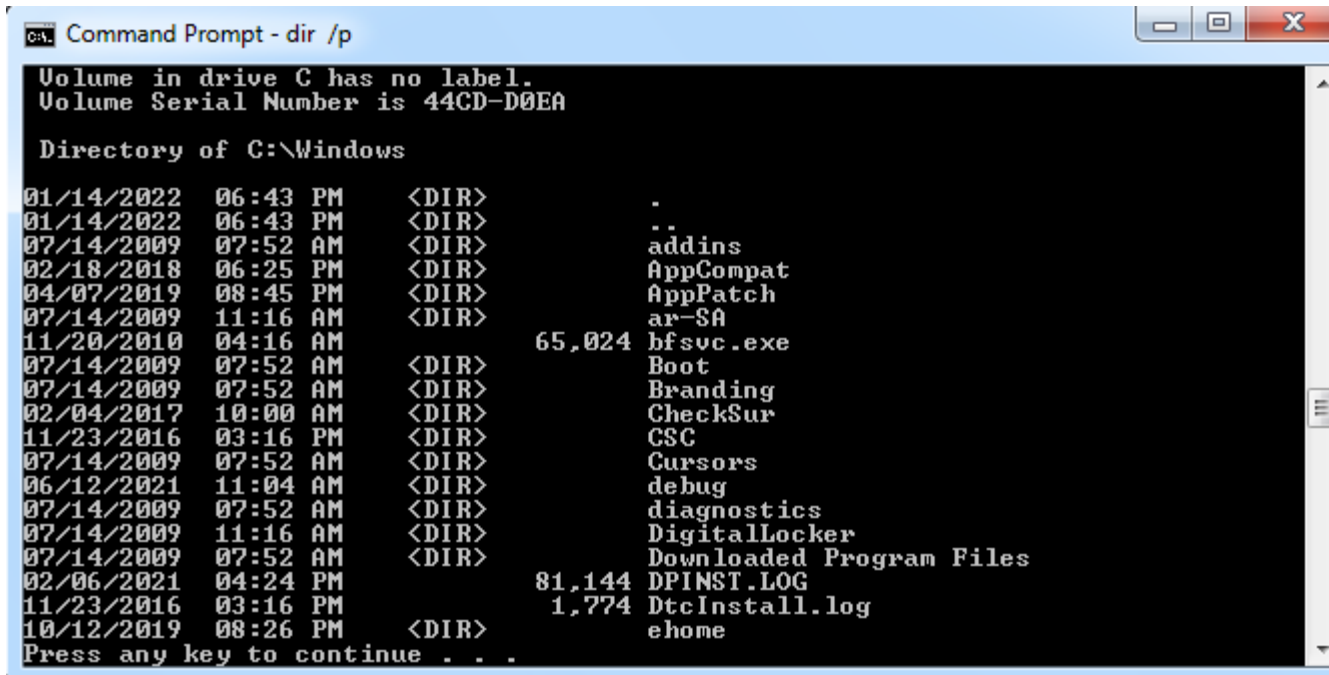

Changing Directories

- Type the following at the command prompt:

dir /p

- One screen of information appears.** At the bottom of the screen, you will see the following message:

Press any key to continue . . .



```
Command Prompt - dir /p
Volume in drive C has no label.
Volume Serial Number is 44CD-D0EA

Directory of C:\Windows

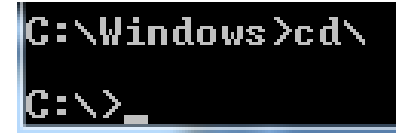
01/14/2022  06:43 PM    <DIR>        .
01/14/2022  06:43 PM    <DIR>        ..
07/14/2009  07:52 AM    <DIR>        addins
02/18/2018  06:25 PM    <DIR>        AppCompat
04/07/2019  08:45 PM    <DIR>        AppPatch
07/14/2009  11:16 AM    <DIR>        ar-SA
11/20/2010  04:16 AM    65,024  bfsvc.exe
07/14/2009  07:52 AM    <DIR>        Boot
07/14/2009  07:52 AM    <DIR>        Branding
02/04/2017  10:00 AM    <DIR>        CheckSur
11/23/2016  03:16 PM    <DIR>        CSC
07/14/2009  07:52 AM    <DIR>        Cursors
06/12/2021  11:04 AM    <DIR>        debug
07/14/2009  07:52 AM    <DIR>        diagnostics
07/14/2009  11:16 AM    <DIR>        DigitalLocker
07/14/2009  07:52 AM    <DIR>        Downloaded Program Files
02/06/2021  04:24 PM    81,144  DPINST.LOG
11/23/2016  03:16 PM    1,774  DtcInstall.log
10/12/2019  08:26 PM    <DIR>        ehome
Press any key to continue . . .
```

To view the next screen of information, press any key on your keyboard. Repeat this step until the command prompt appears at the bottom of your screen.

Changing Back to the Root Directory

- Next, you will change from the **Windows** directory to the root directory. Before you begin this section, make sure your command prompt looks like the following:

C:\WINDWOS>



```
C:\Windows>cd\  
C:\>
```

- **To change to the root directory**

Type the following at the command prompt: **cd **

- Note that the slash you type in this command is a backslash (\), not a forward slash (/).
- No matter which directory you are in, this command always **returns you to the root directory of a drive**. The root directory does not have a name. It is simply referred to by a backslash (\).
- The command prompt should now look like the following: **C:\>**

Changing Drive

- Changing drives is useful if you want to work with files that are on a different drive.
- To change the default drive, type the desired drive letter followed by a carriage return.
- For example, if we want to change from drive **C** to drive **D**, type **d:** and press **Enter**

```
C:\>d:  
D:\>
```

Creating a **Directory**

- In this section, you will create two directories. Creating a directory is helpful if you want to organize related files into groups to make them easy to find. Before you begin this section, make sure the command prompt looks like the following:

D:\>

- To create a directory, you will use the **md** command. The **md** command stands for "make directory."

To create and change to a directory named **FRUIT**

Type the following at the command prompt:

D:\>md fruit

Creating a **Directory**

- You have now created a directory named **FRUIT**. You won't see the new FRUIT directory until you carry out the **dir** command in the next step.
- To confirm that you successfully created the FRUIT directory, type the following at the command prompt:

D:\>dir

```
D:\>DIR
Volume in drive D has no label.
Volume Serial Number is 06E1-250D

Directory of D:\

11/01/2019  12:07 PM    <DIR>          D
01/21/2022  10:07 PM    <DIR>          FRUIT
04/02/2019  11:36 AM             528 MediaID.bin
07/20/2020  03:13 PM    <DIR>          MOYASAR-PC
11/02/2019  05:20 PM    <DIR>          My EndNote Library.Data
11/02/2019  05:20 PM             0 My EndNote Library.enl
06/20/2021  07:06 PM    <DIR>          ZAHRAA
                2 File(s)             528 bytes
                5 Dir(s)      3,735,552 bytes free
```

Creating a **Directory**

- To change to the new FRUIT directory, type the following at the command prompt:

D:\>cd fruit

The command prompt should now look like the following:

D:\FRUIT>

- You will now create a directory within the FRUIT directory, named **GRAPES**.

md grapes

- To confirm that you successfully created the GRAPES directory, type the following at the command prompt:

dir

Creating a **Directory**

- A list similar to the following appears:

```
D:\FRUIT>dir
Volume in drive D has no label.
Volume Serial Number is 06E1-250D

Directory of D:\FRUIT

01/21/2022  10:16 PM    <DIR>          .
01/21/2022  10:16 PM    <DIR>          ..
01/21/2022  10:16 PM    <DIR>          grapes ←
               0 File(s)                0 bytes
               3 Dir(s)                3,735,552 bytes free
```

- The **GRAPES** directory is a *subdirectory* of the FRUIT directory. A subdirectory is a directory within another directory. Subdirectories are useful if you want to further subdivide information.
- To change to the GRAPES directory, type the following at the command prompt: **cd grapes**

Creating a **Directory**

- The command prompt should now look like the following:

C:\FRUIT\GRAPES>

- To **switch back** to the **FRUIT** directory, type the following:

cd ..

The command prompt should now look like the following:

C:\FRUIT>

- When the **cd** command is followed by two periods (..), MS-DOS **moves up one level** in the directory structure. In this case, you moved up one level from the GRAPES directory to the FRUIT directory.

Deleting a **Directory**

- If you no longer use a particular directory, you may want to delete it to simplify your directory structure. Deleting a directory is also useful if you type the wrong name when you are creating a directory and you want to delete the incorrect directory before creating a new one.
- In this section, you will delete the **GRAPES** directory. Before you begin this section, make sure the command prompt looks like the following:

C:\FRUIT>

- To delete a directory, use the **rd** command. The **rd** command stands for "***remove directory.***"

.

Deleting a **Directory**

- To delete the GRAPES directory

1. Type the following at the command prompt:

rd grapes

2. To confirm that you successfully deleted the GRAPES directory, type the following at the command prompt: **dir**

```
D:\FRUIT>rd grapes

D:\FRUIT>dir
Volume in drive D has no label.
Volume Serial Number is 06E1-250D

Directory of D:\FRUIT

01/21/2022  10:40 PM    <DIR>          .
01/21/2022  10:40 PM    <DIR>          ..
               0 File(s)                0 bytes
               2 Dir(s)              3,735,552 bytes free
```

Note: You cannot delete a directory if you are in it. Before you can delete a directory, you must make the directory that is one level higher the current directory. To do this, type `cd..` at the command prompt.

- The GRAPES directory should no longer appear in the directory list.

Creating **Files**

- In similar to directories, you can also **create, delete, copy,** and **move/rename** files with the CLI on your computer.
- To create file, you will use the **copy con** command. When you use the copy command, you must include three parameters:
 1. The first is the **name of the file** you want to create
 2. The second is the **extension of the file** .txt, .doc, .ppt, ..
 3. The third is the **location** (directory or drive) you want to create the file, or the destination.
- The **copy con** command follows this pattern:

C:\> copy con filename.txt **or**

C:\fruit>copy con filename.txt

Creating **Files**

- When you are finished, press enter to get to a new/fresh line.
- Then press **Ctrl+Z** together at the same time and release.
- This should produce a **^Z** on the new line.
- Press **Enter** and the file will be saved to your working directory.
- You can use the **dir** command to verify the existence of the new file.

Open/Read **Files**

- You might want to open the file from the command line in order to check that you created it correctly.
- Just type the path of the file into the command prompt and press enter.
- This opens the file just as if you had used a browser to open the file. It selects the default program to open the file type based on the extension.
- In this case:

C:\fruit>filename.txt

- you can also use a **type** command to read **what is written inside the file.**

C:\fruit>type filename.txt

Copying **Files**

- Copying files is the process of making an exact copy of a file in a separate location on the file system.
- This section describes how to copy a **single file** and a **group of files**. Copying files creates a duplicate of the original file and does not remove the original file.
- To copy a file, you will use the **copy** command. When you use the copy command, you must include two parameters:
 1. The first is the **name of the file** you want to copy, or the source.
 2. The second is the **location** to which you want to copy the file, or the destination.

You separate the source and destination with a space. The copy command follows this pattern:

copy source destination

1. Copying a Single File

- In this section, you will copy the **class.txt** file from the **C:\fruit** directory to the **D:\fruit** directory.
- You will specify the source and destination of these files in two different ways.
- Before you begin this section, make sure the command prompt looks like the following:

C:\FRUIT>

- To copy the class.txt files from the C:\fruit directory to the D:\fruit directory

```
C:\fruit>copy class.txt d:\fruit
          1 file(s) copied.
C:\fruit>_
```

2. Copying Multiples File

- **XCOPY:** this command Copy files, or entire directories with their subdirectories, to other disks or directories.

XCOPY D:\fruit D:\fruit2

```
D:\>xcopy d:\fruit d:\fruit2
Does D:\fruit2 specify a file name
or directory name on the target
<F = file, D = directory>? d
D:\fruit\class.txt
D:\fruit\zzzz.txt
2 File(s) copied

D:\>dir
Volume in drive D has no label.
Volume Serial Number is 06E1-250D

Directory of D:\

11/01/2019  12:07 PM    <DIR>          D
01/22/2022  01:29 PM    <DIR>          FRUIT
01/22/2022  01:39 PM    <DIR>          fruit2
04/02/2019  11:36 AM                528 MediaID.bin
07/20/2020  03:13 PM    <DIR>          MOYASAR-PC
11/02/2019  05:20 PM    <DIR>          My EndNote Library.Data
11/02/2019  05:20 PM                0 My EndNote Library.enl
06/20/2021  07:06 PM    <DIR>          ZAHRAA
                2 File(s)          528 bytes
                6 Dir(s)        3,735,552 bytes free

D:\>
```


Rename **Files**

- This section explains how to rename files. You may want to rename a file if the information in it changes or if you decide you prefer another name.
- To rename a file, you will use the **ren** command. The **ren** command stands for "**rename**".
- When you use the **ren** command, you must include two parameters.:
 1. The first is the **file you want to rename**,
 2. The second is **the new name** for the file.

ren oldname newname

```
D:\>cd fruit
D:\FRUIT>ren class.txt lemon.txt
D:\FRUIT>
```

Deleting Files

- This section explains how to delete, or remove, a file or a groups of files that you no longer want on your disk.
- If you don't have very much disk space, deleting files you no longer use is essential.
- To delete a file, you will use the **del** command. The **del** command stands for "**delete**".
- Before delete a file, use **dir** command to view the files in your directory as shown:

```
D:\FRUIT>dir
Volume in drive D has no label.
Volume Serial Number is 06E1-250D

Directory of D:\FRUIT

01/22/2022    02:01 PM        <DIR>          .
01/22/2022    02:01 PM        <DIR>          ..
01/22/2022    02:01 PM                0 class.txt
01/22/2022    02:01 PM                0 lemon.txt
01/22/2022    12:31 PM               10 zzzz.txt
               3 File(s)                10 bytes
               2 Dir(s)              3,735,552 bytes free

D:\FRUIT>_
```

Deleting Files

1. **Deleting a single file:** to delete a single file, use the parameter:

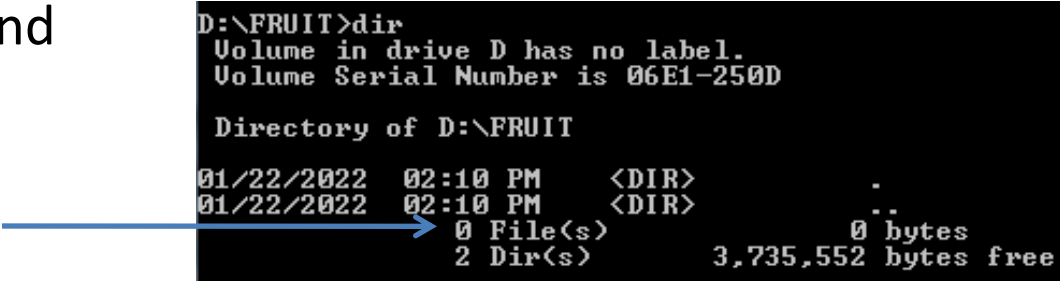
D:\fruit>del filename.txt

2. **Deleting a groups of files:** to delete all files end with **txt** in **fruit** directory, make sure your command prompt looks like the following:
D:\fruit>

Delete all files ending with TXT by typing the following at the command prompt: **del *.txt**

D:\fruit> del *.txt

To make sure that all files ending with.txt was deleted, use **dir** command



```
D:\FRUIT>dir
Volume in drive D has no label.
Volume Serial Number is 06E1-250D

Directory of D:\FRUIT

01/22/2022  02:10 PM    <DIR>          .
01/22/2022  02:10 PM    <DIR>          ..
                                0 bytes
                                3,735,552 bytes free
0 File(s)
2 Dir(s)
```

Fc Command

- File compare (**fc**): This command compares two files or sets of files and display the differences between them.

D:\fruit> **fc** class.txt first.txt

```
D:\FRUIT>fc class.txt first.txt
Comparing files class.txt and FIRST.TXT
***** class.txt
Hello
hi
***** FIRST.TXT
Hello
how are you
how old are you
*****
```

Time and Date Command

- To display and change the current date and time.
- If your computer does not have a real-time clock installed to display date of the pc or laptop in Command window.
- Use the following commands:

C:\users\date

C:\users\time

D:\>time

D:\>date

If you wish, you can change the date and time, if not, just click Enter to skip changing

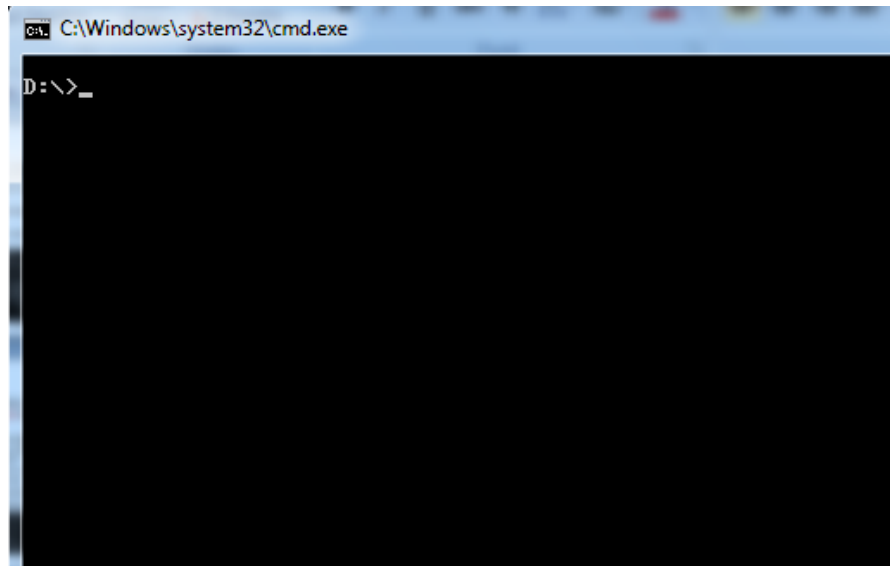
CLS Command

Clearing the MS-Dos Screen:

- To clear the MS-Dos screen use the following command prompt:

D:\cls

The screen now should appear clear.



Attrib Command

- To change the attribute of a directory or a file such as Read only, Archive, Hidden and System attribute.
- **Examples:**

D:\fruit>Attrib [±r] Filename

C:\> ATTRIB [± r] [± a] [± h] [± s] <File name>

Help Attrb Command

- To see all attrib use the command **help attrib**

```
D:\>help attrib
Displays or changes file attributes.

ATTRIB [+R | -R] [+A | -A ] [+S | -S] [+H | -H] [+I | -I]
      [drive:][path][filename] [/S [/D] [/L]]

+      Sets an attribute.
-      Clears an attribute.
R      Read-only file attribute.
A      Archive file attribute.
S      System file attribute.
H      Hidden file attribute.
I      Not content indexed file attribute.
[drive:][path][filename]
      Specifies a file or files for attrib to process.
/S     Processes matching files in the current folder
      and all subfolders.
/D     Processes folders as well.
/L     Work on the attributes of the Symbolic Link versus
      the target of the Symbolic Link

D:\>
```


Exit Command

- To exit from DOS screen.
- After you finished working with command prompt, you may want to exit the screen
- Use the following command:

D:\exit

The screen now closed.

Home work

- **What is the Functions of DOS (Disk Operating System)?**
- **Why You Need MS-DOS?**

Syllabus – First Semester

- General Overview of Personal Computer System
- Computer Peripherals: (hardware)
- Operating Systems: (Software)
 - MS-DOS
 - Microsoft Windows
- Managing Windows Files & Folders
- Windows Control Panel
- Microsoft Office:
 - Microsoft Word
 - Microsoft Power point
 - Microsoft Excel



Computer Skills



Lecture 4: Operating System (Windows 10)

Systems and Control Engineering Department

College of Electronics Engineering

Ninevah University

1st Class

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2025-2026

Outline

- Overview to **Windows** Operating System
- History of **Windows**
- Windows 10 Desktop Features
- Windows 10 Tools:
 - Microsoft Edge
 - Snipping Tools
 - Cortana



Overview to Windows OS

- As we mentioned before, computers require software to operate.
- An **operating system**, often called an **OS**, is software that coordinates the interaction between hardware and any software applications, as well as the interaction between a user and the computer.
- Examples of operating systems include Apple's Mac OS X and iOS; Unix/Linux, Windows Vista, 7, 8, and 10; and MS-DOS.
- An operating system can be a graphical user interface (**GUI**) or a command-based interface (**CLI**), or it can contain both, which is the most common.
- In this lecture, we will focus on **Windows 10 OS**.
- Windows is operating system from Microsoft. Microsoft also offers different versions of Windows operating system as follows:

History of Windows OS


1. **Windows 1.0- 2.0** (1985-1992). Window 1.0 allowed users to point and click to access the windows. Window 2.0 added icons, keyboard shortcuts and improved graphics.
2. **Windows 3.0-3.1** (1990-1994). Support better icons and program manager.
3. **Windows 95** (August 1995). It runs faster and has ability to automatically delete and configure installed hardware (plug and play).
4. **Windows 98** (June 1998). It offers supports for new technology FAT32, AGP, USB, DVD. It is an active desktop which integrates the web browser (Internet Explorer).
5. **Windows ME- Millennium** Edition (2000). Booting is in Dos option.
6. **Windows 2000**. It is an operating system for business desktop and laptop systems to run software applications.

History of Windows OS

7. **Windows XP** (October 2001). It has a better look and feel. There are two versions Home and professional.
8. **Windows Vista** (November 2006). It offered an advancement in reliability, security and ease of deployment.
9. **Windows 7** (October 2009). Improved performance and start-up-time and window media centre.
10. **Windows 8** (August 2012). It was developed with touch screen use in mind. Better start-up. Start screen replaced look and feel screen made up of “live Tiles”.
11. **Windows 10** (2015). Fast start-up, Microsoft edge, Microsoft new browser, Cortana app.

Minimum Hardware Requirements and Compatibility with the OS Platform

- OS have minimum hardware requirements that must be met for the **OS to install** and function correctly.
- Table below provide a chart of the minimum hardware requirements and features for the various Windows operating systems.



	Windows 2000	Windows XP	Windows Vista	Windows 7	Windows 10
CPU	133 MHz	233 MHz	800 MHz	1 GHz	1 GHz
RAM	64 MB	64 MB	512 MB	1 GB	2 GB RAM
Hard Drive	650 MB	1.5 GB	15 GB	16 GB	20 GB for 64-bit

Windows 10 Desktop features

- After logging the computer, Windows 10 desktop will be appeared. The Desktop layout is as follows:

1. The Desktop:

- It is the screen that displays once you have turned on the computer
- It is responded for your user name and password. This is your workspace.
- It is the place to open your software opens on the desktop.
- It can manipulate your files and folders on the desktop.

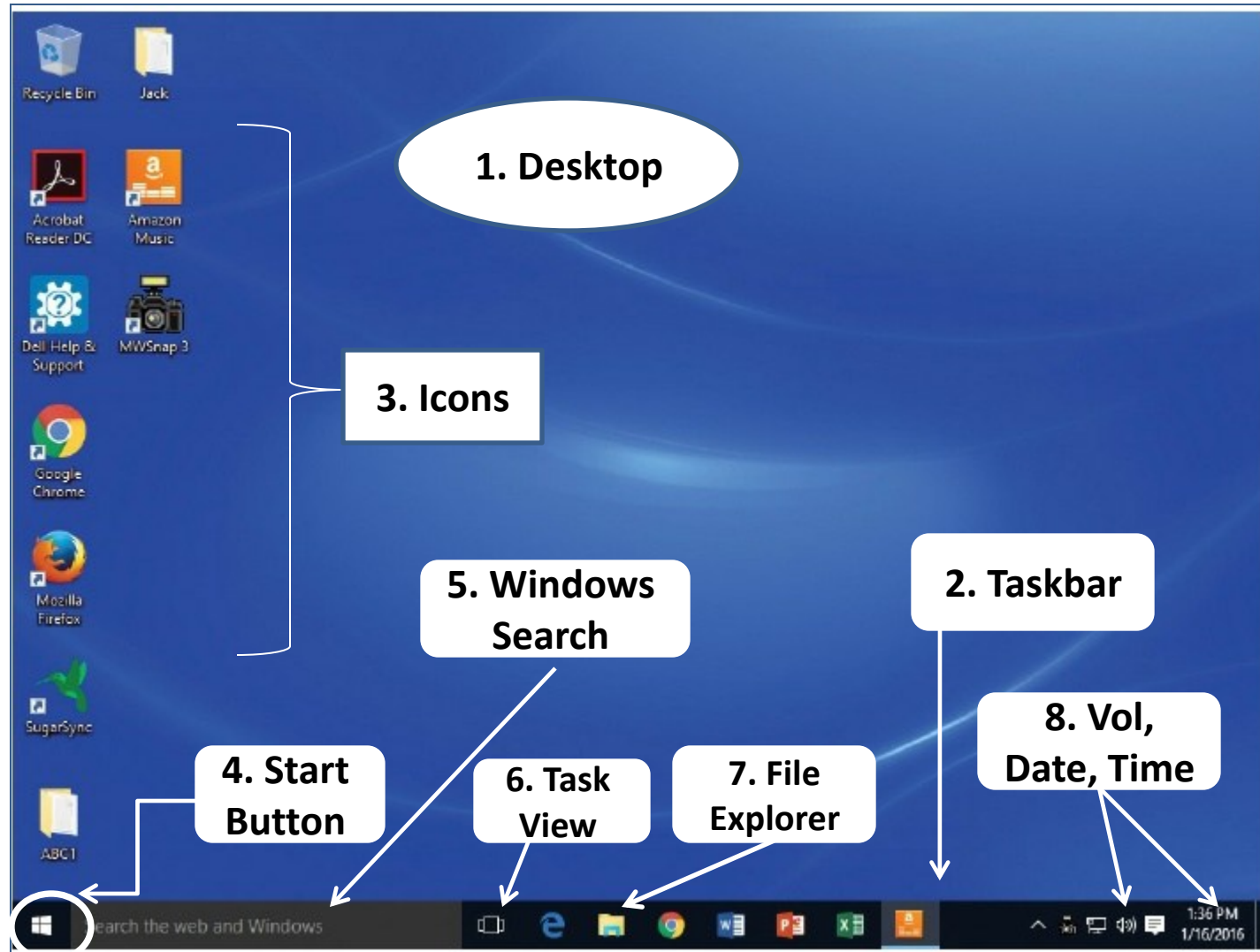
Windows 10 Desktop features

2. **Taskbar:** It is a horizontal bar that appears at the bottom of the screen.
 - It provides you fast access to the software applications.
 - It enables you to move between the applications.
 - It gives you access to system resources.
3. **Icons:** are small pictures that represent programs, files, folders, or other things on the desktop. Software icons are unique so that you can quickly find the software application.

Windows 10 Desktop features

4. **Start Button:** Found on the bottom left of your screen, the Start button allows you to access computer programs and configuration options such as Windows Settings.
5. **Windows Search:** Allows you to search for programs, folders, and files.
6. **Task View:** A new feature in Windows 10 that gives you a Virtual Desktop
7. **File Explorer (Windows Explorer):** File Explorer is a file manager application that allows you to access files and folders on the computer.
8. **Volume/ Date/ Time:** Allows you to adjust the computers volume as well as Date/Time options.

Windows 10 Desktop features



Windows 10 Desktop Components

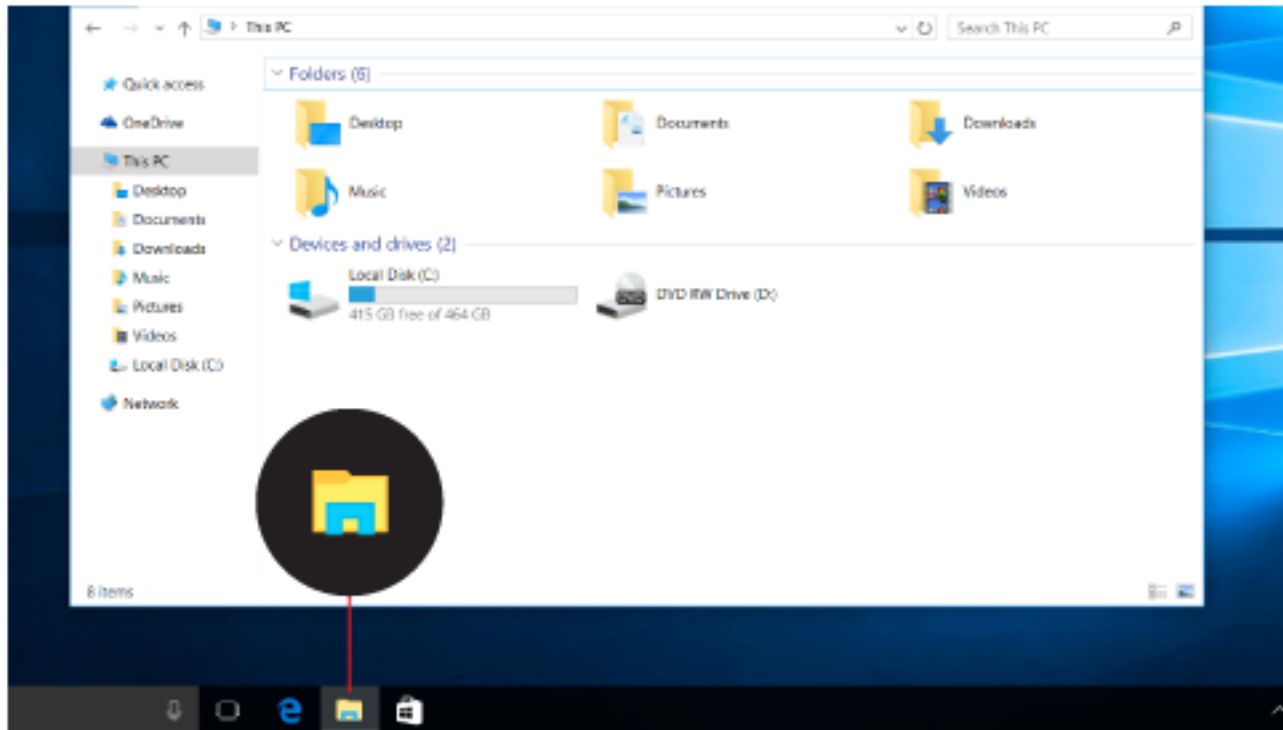
- Before getting started with windows 10 programs, we will explain some important desktop icons as shown in table below:

Icon	Purpose
Documents	Maps to a folder located on the hard drive that is the default storage location for files
Computer/This PC	Accesses hardware, software, and files
Network	Accesses network resources, such as computers, printers, scanners, fax machines, and files
Recycle Bin	Holds files and folders that have been deleted
Internet Explorer/Edge	Starts the Microsoft browser used to access the Internet

Windows 10 Desktop Features

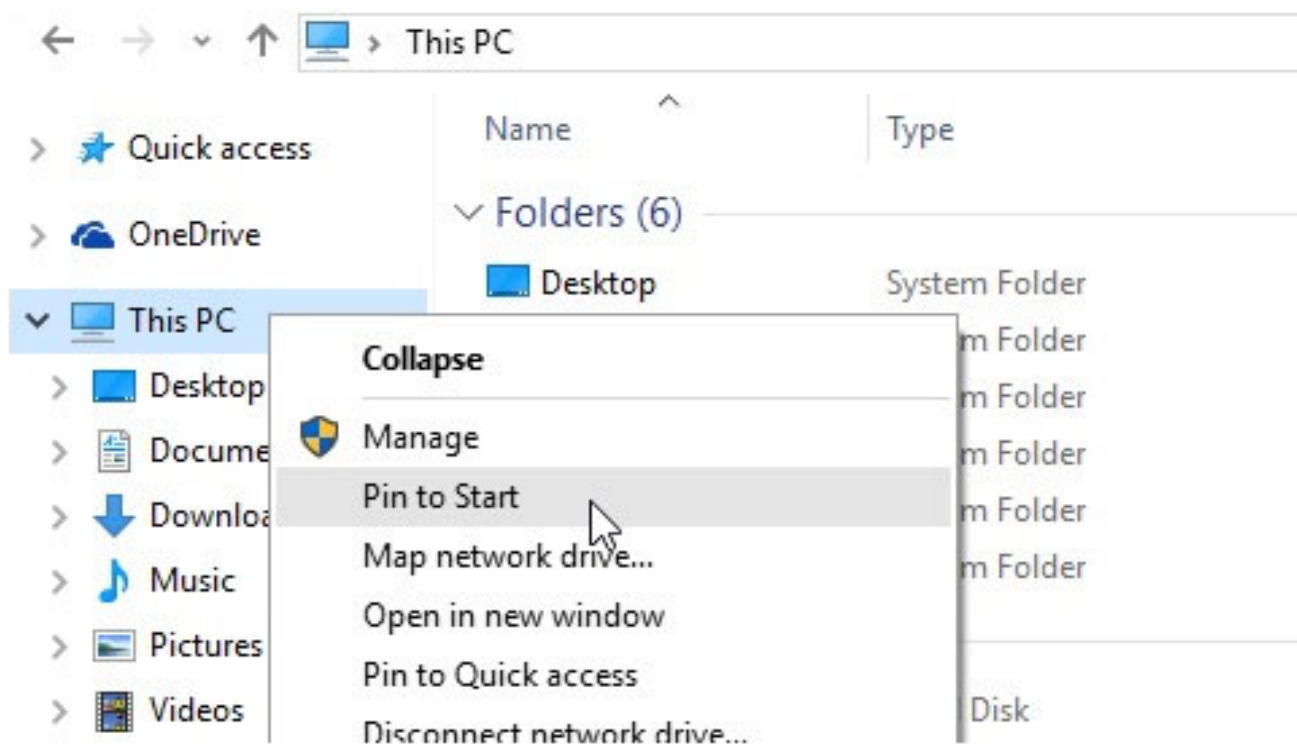


- **This PC Icon/ My Computer Icon:** My Computer allows the user to explore the contents of their **computer drives** as well as manage their computer files
- To get to ***This PC*** in Windows 10, open **File Explorer** from the taskbar and select ***This PC*** in the left pane.



Windows 10 Desktop Features

- If you want **This PC** to show up in your Start menu, open File Explorer, right-click (or press and hold) **This PC** in the left pane, and then select **Pin to Start**.



Windows 10 Desktop Features





➤ Recycle Bin:

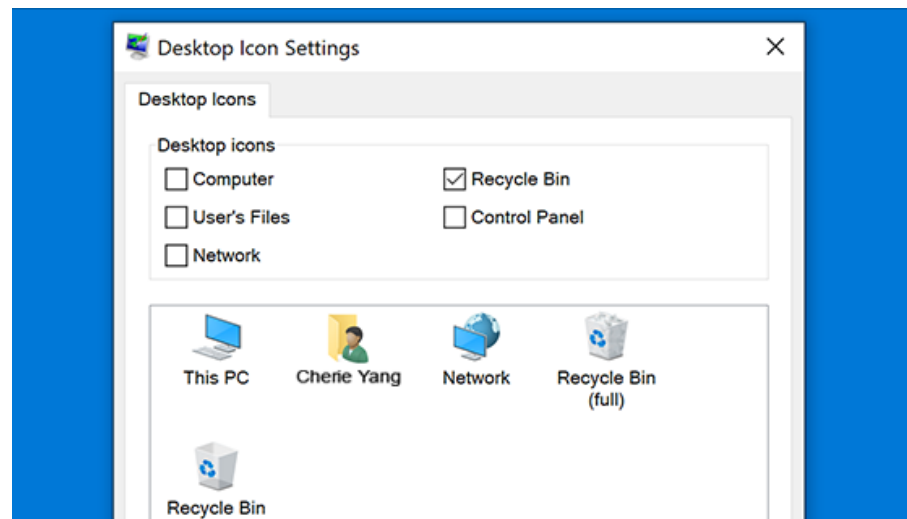
- An important Windows desktop icon is the ***Recycle Bin***, which **holds files and folders that the user deletes**. When a file or folder is deleted, it is not actually gone. Instead, it goes into the Recycle Bin, which is just a folder on the hard drive. The deleted files or folders can be permanently **delete or restore** from the Recycle Bin. Deleted files and folders in the Recycle Bin use hard drive space.
- The Recycle Bin is shown in this figure as a basket with the recycle symbol on it. Double-clicking on this icon will open the Recycle Bin window.



Windows 10 Desktop Features

➤ Your desktop icons may be hidden. To add icons to your desktop such as This PC, Recycle Bin and more:

1. Select **Start** , open **Settings** , then under **Personalization** , select **Themes** .
2. Under **Themes**, scroll down and select **Desktop icon settings**.
3. Choose the icons you would like to have on your desktop, then select **Apply** and **OK**.



Windows 10 Start button – Opening programs

- The Windows 10 Start button: to open a programs, click on start button.



Windows 10 Start button – Searching programs

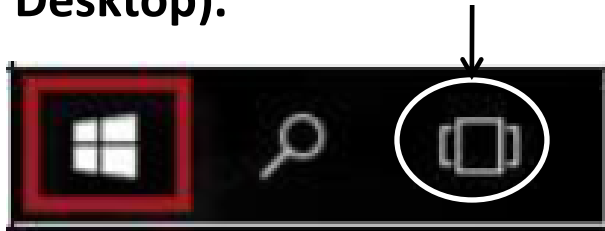
- Alternatively, you can search for a program by typing the program name after clicking the *Start button*. The following explains how to search for a program in Windows 10:



1. Click the **Start button**.
2. Begin **to type the name of the program that you wish to open. For example, Word 2016**
3. A list of programs will appear. Click **Word 2016**.

Windows 10 - Task View

- The Windows 10 **Task View** icon is **new to Windows**
- The **Task View button** enables you to view thumbnails of open apps and easily select which one to access, as shown in Figure
- Task View also enables you to create **more than one desktop (Virtual Desktop)**.



Windows 10 **Taskbar**

- The Taskbar is located along the bottom frame of the monitor. With it, you can access the **Start button, view running programs, and view the date/time and volume adjustment features.**
 1. **Organizing the taskbar**
 2. **Pinning a Program to the Taskbar**
 3. **Removing a Program from the Taskbar**

Windows 10 Taskbar - Organizing the taskbar

- The following explains how to rearrange buttons on the taskbar:

1. Click and hold the **program** that you wish to move.



Click the button

2. Drag the **program** to a different location on the taskbar.



Drag the button

1. Drop the **program** by releasing the mouse.



Dropping the program

Windows 10 Taskbar - Pinning a Program to the Taskbar

- You may pin programs to the taskbar. In doing so, these programs will remain on the taskbar even when they are not open. The following explains how to pin programs to the taskbar:
1. Click the **Start** button.
 2. Navigate to the **program** that you wish to pin to the taskbar.
 3. Right-click the **program** that you wish to pin to the taskbar.
 4. Click the **More** button.
 5. Click **Pin to Taskbar**.



Windows 10 Taskbar - Removing a Program from the Taskbar

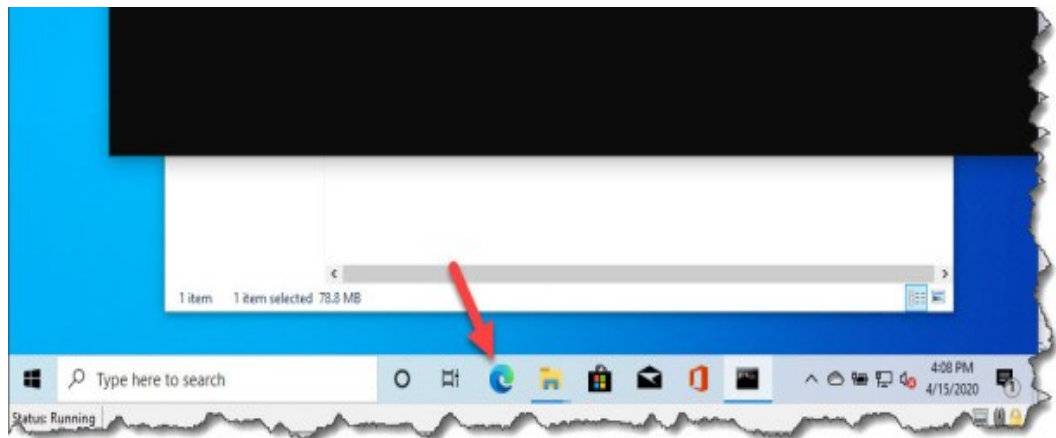
- You may also remove programs from the taskbar if so desired. The following explains how to do so:
 1. Click the **Start** button.
 2. Right-click the **program** that you wish to remove from the taskbar
 3. Click **Unpin from Taskbar**



Windows 10 – Microsoft Edge



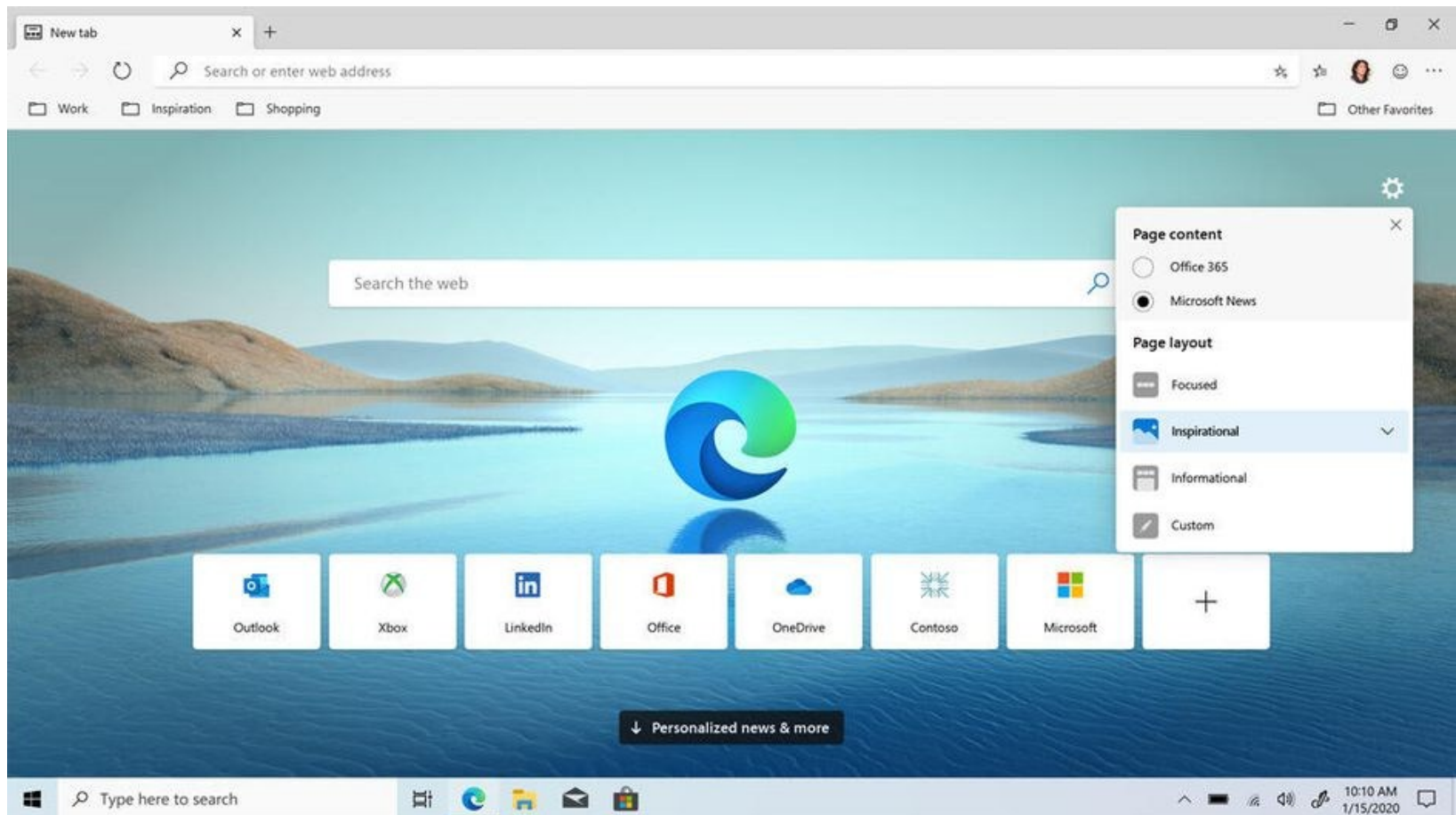
- **Microsoft Edge** is a browser window that offers the following features:
- It offers the highest rated **protection** against malware attacks on Windows 10.
 - It's **faster** compared with other windows browsers.
 - Let you **write notes**, and **highlight** directly on webpage using different colors.
 - Let you save and share the web page.



Windows 10 – Microsoft Edge

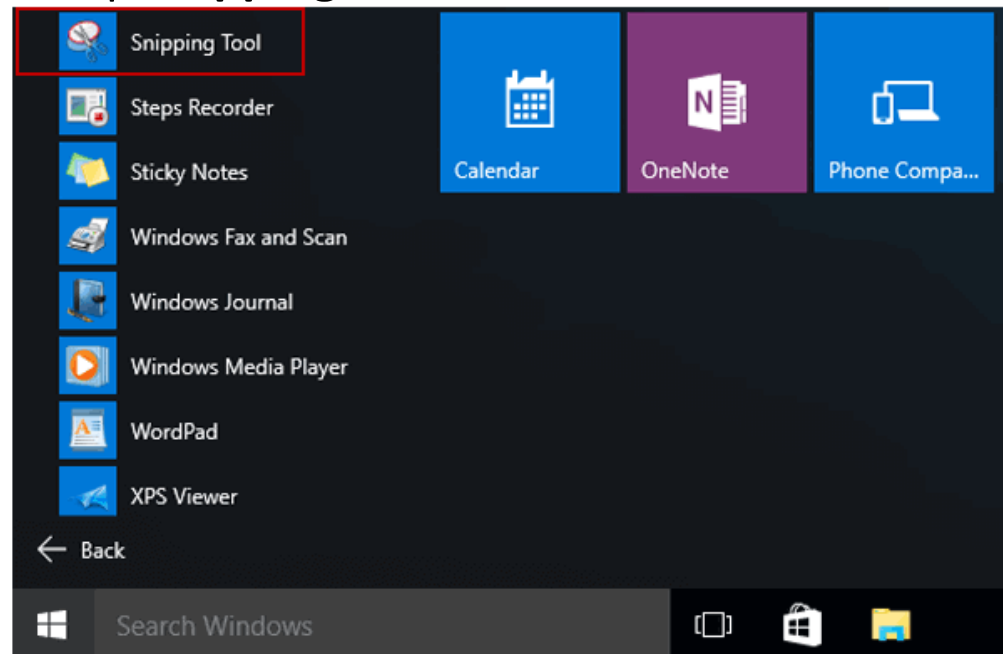


Microsoft Edge browser window



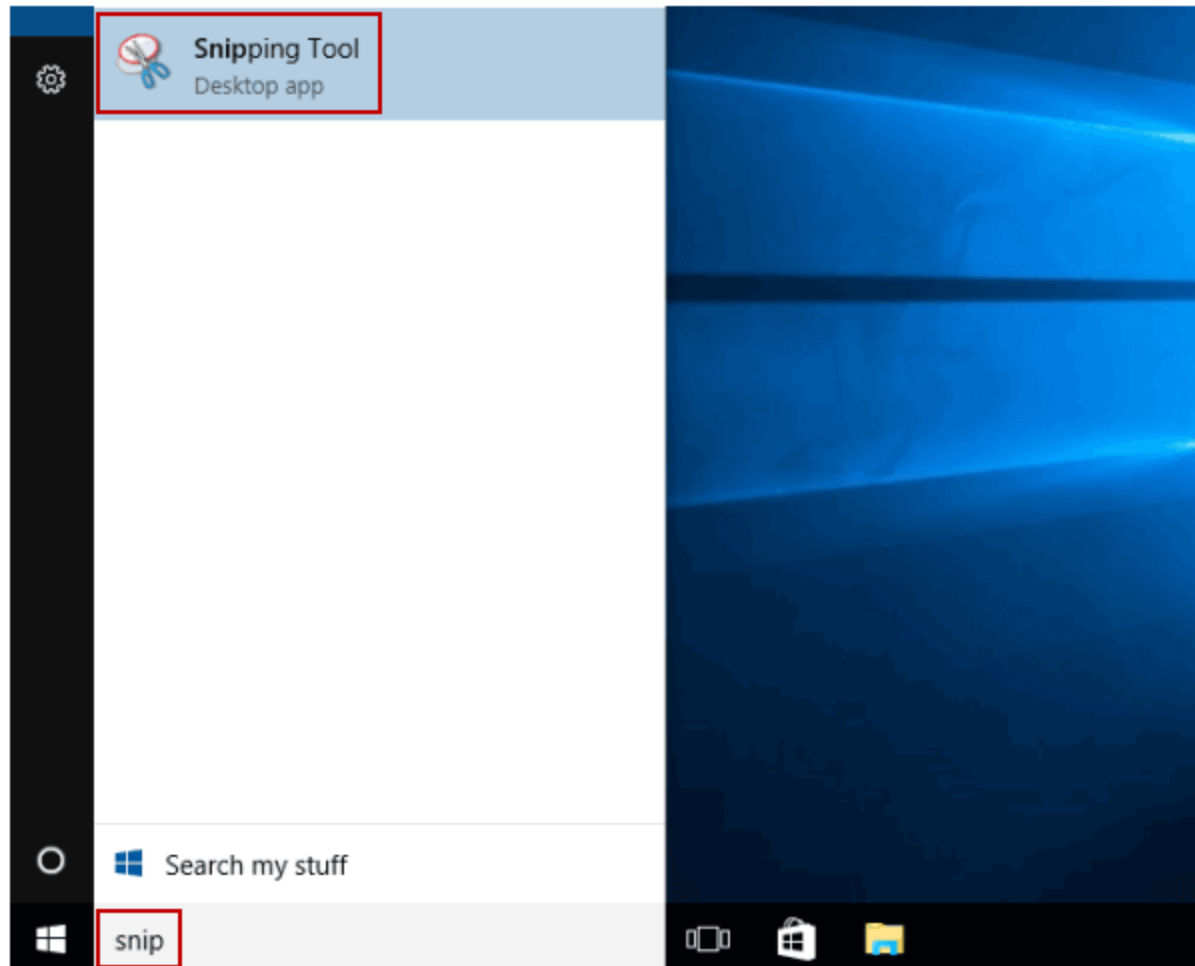
Windows 10 – Snipping Tool

- The **Snipping Tool** enables you to capture everything that shows on the screen (any object on your screen), like a paragraph in a document, a picture you're editing, or a section of a Web page, or when you simply want to capture an **icon** or **symbol**.
- To open snipping tool, do the following:
 1. **Turn it on in Start Menu:** open **Start** menu, select **All apps**, choose **Windows Accessories** and tap **Snipping Tool**.



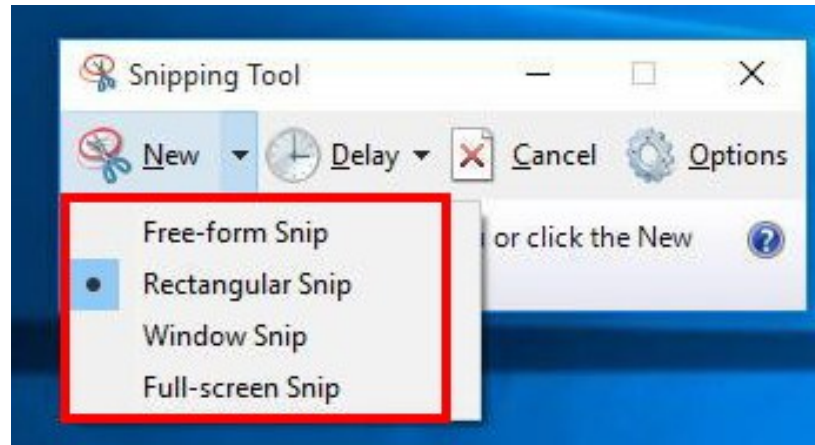
Windows 10 – Snipping Tool

2. Open it by searching: click on search button then write snip.



Windows 10 – Snipping Tool

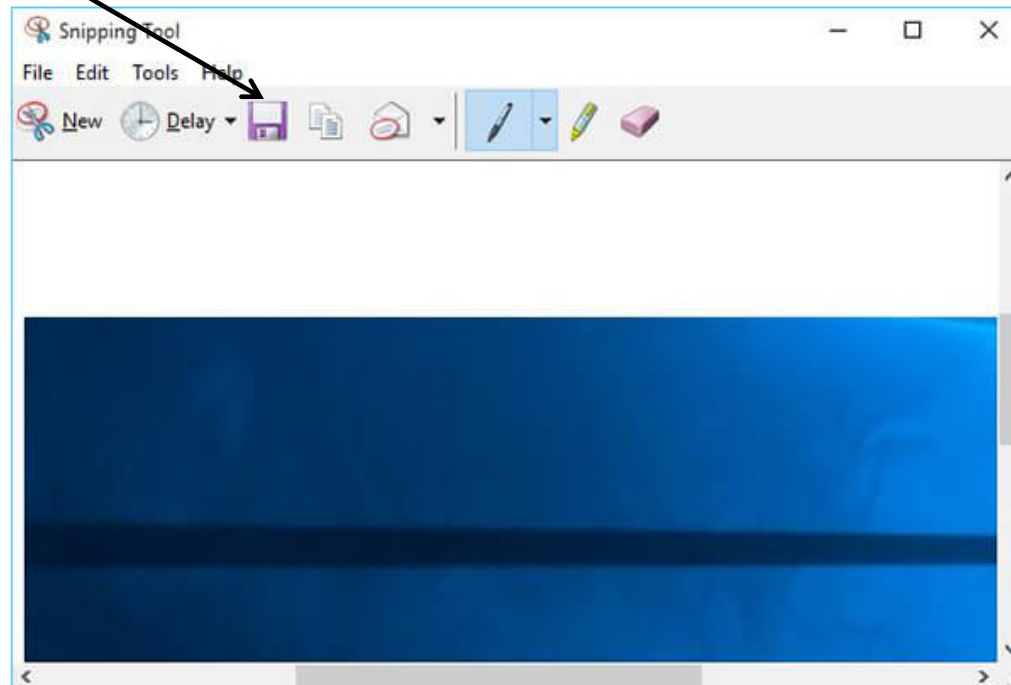
- **How to Snip on Windows 10:** After you open the snipping tool application, a small window open,



- click the icon behind **New** option and then get the drop menu:
 - **Free-form Snip.** Draw a free-form shape around an object
 - **Rectangular Snip.** Drag the cursor around an object to form a rectangle
 - **Windows Snip.** Select a window, such as a browser window or dialog box, that you want to capture.
 - **Full-screen Snip.** Capture the entire screen

Windows 10 – Snipping Tool

- You can choose the one you like and then click the New button. After that, you can use the **mouse** to select the area that you want to take a **screenshot**.
- Next, you can edit the screenshot with the tools in snipping tool. Also, you can **save** the screenshot as PNG, GIF, JPEG or Single file HTML.



Windows 10 – Cortana

- Microsoft's digital assistant **Cortana** was one of the major additions to Windows 10.
- **Cortana** can be integrated directly into the Windows Search box, or run as an entirely separate app.
- Cortana is a very useful tool and can do a lot for you. In addition, it can make your life easier and more efficient.

- Cortana features:
 - It is ready to help you find anything on your Windows 10 PC (ex: open applications on your computer)
 - It can alerting you to upcoming meetings by sending you reminders.
 - It can telling you about the weather forecast, news, and sports; and a lot more.

Windows 10 – Cortana

➤ How to set up and use **Cortana** on Windows 10 PC?

1. Click on the **Start Menu button**. It's the Windows icon in the bottom left corner of your screen.
2. Click **All apps**.

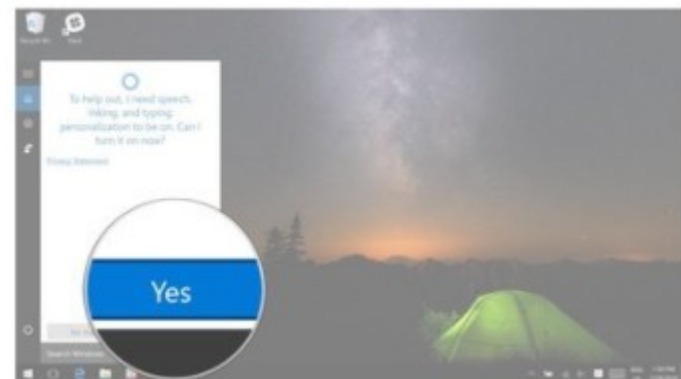


3. Click **Cortana**
4. Click on the **Cortana** button. It's the **circle icon** above the Windows icon

Windows 10 – Cortana

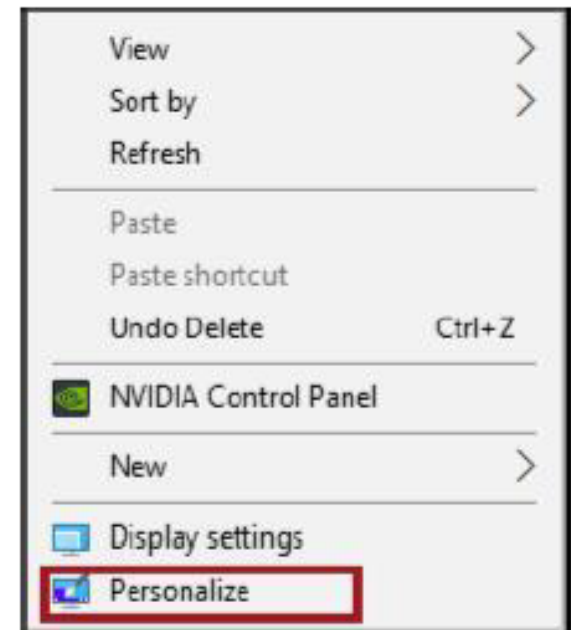


5. Click **Use Cortana**
6. Click **Yes** if you want speech, and typing personalization turned on. You can also choose **No thanks** if you don't want this feature turned on.



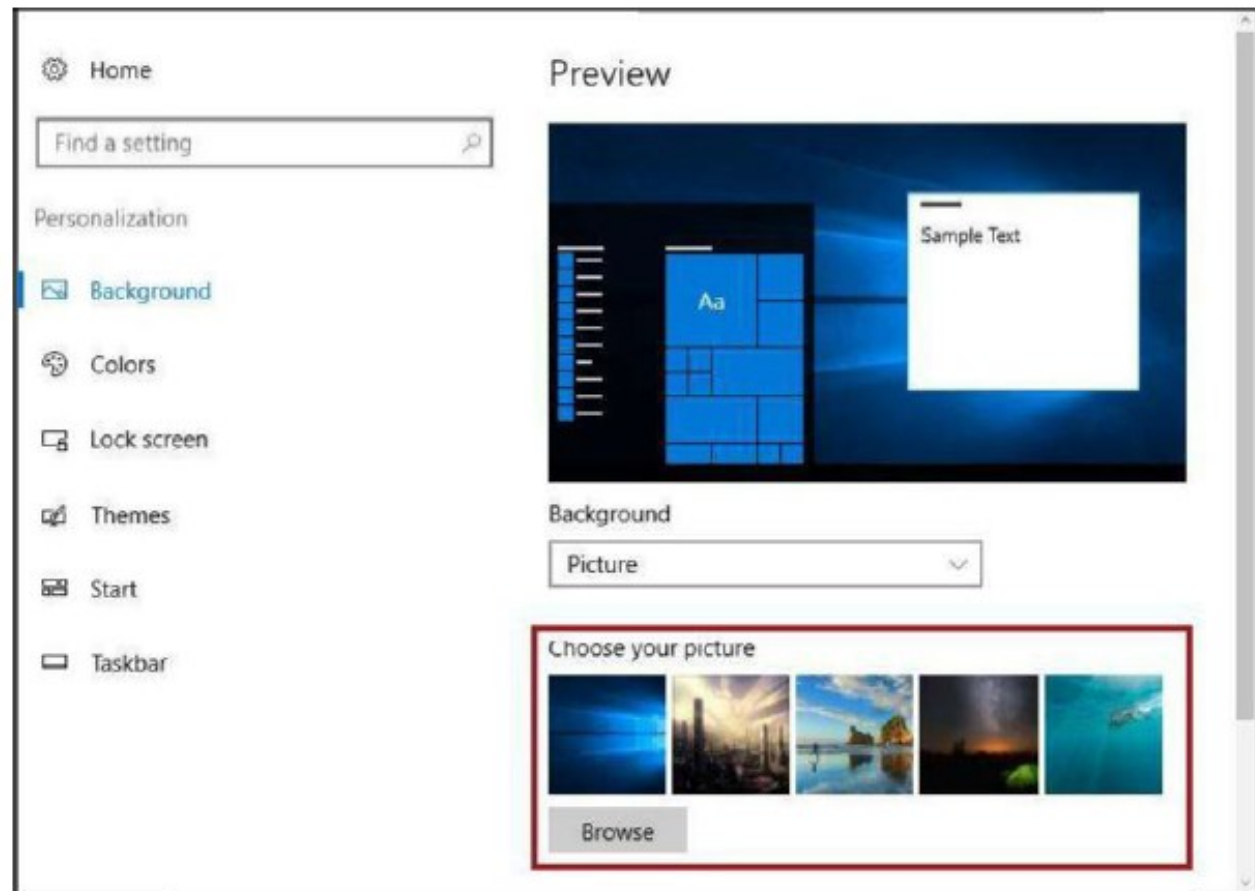
Windows 10 - Changing the Desktop Background

- You may change the desktop background in Windows 10 as follows:
 1. Right-click the **desktop**.
 2. Click **Personalize** in the window that appears.
 3. You will be taken to the Personalize Desktop window. Here, you may toggle the type of desktop background in the **Background** drop-down. If you wish to select a different picture, you can choose from the Choose your picture fields.



Windows 10 - Changing the Desktop Background

4. The desktop background will be changed. Click **X** to close the window.

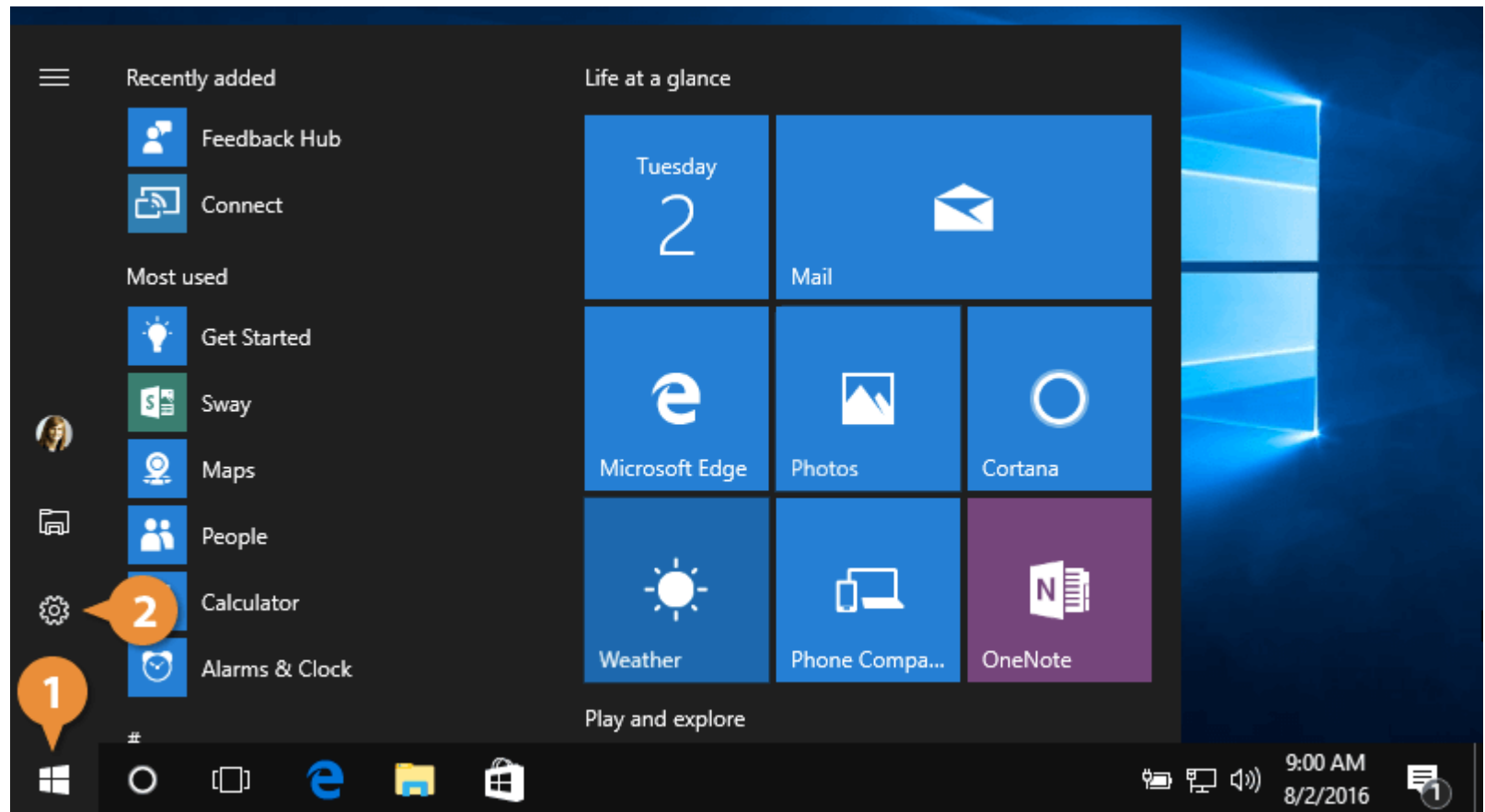


Windows 10 – The Setting App

- Windows **Settings** is a component that allows users to adjust their user preferences, configure their operating system, and manage their connected devices.
- The Setting contains the following categories:
 - System
 - Devices
 - Network & Internet
 - Personalization
 - Accounts
 - Time and language
 - Ease of Access
 - Privacy
 - Update and Security

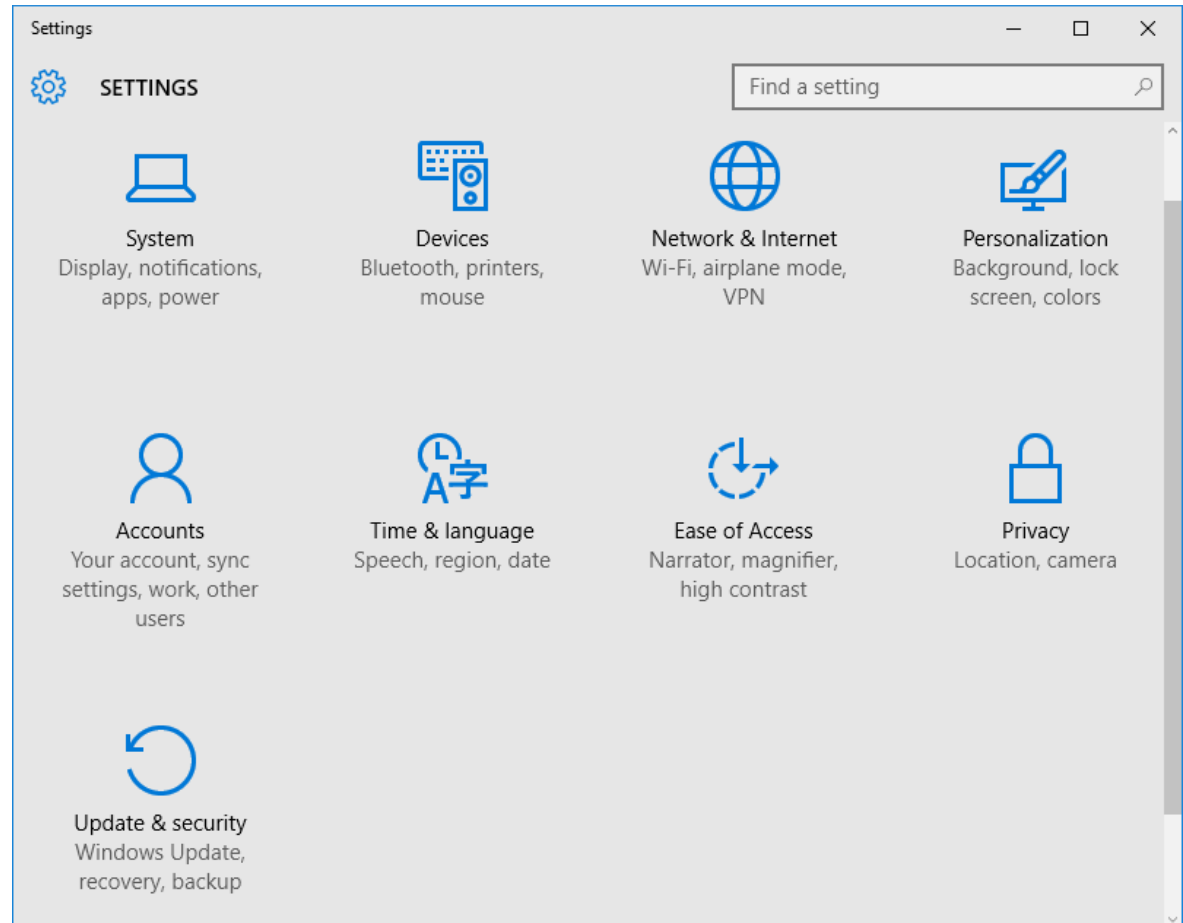
Windows 10 – The Setting App

1. Use the **Start** menu to access Settings.
2. Click on **Setting**

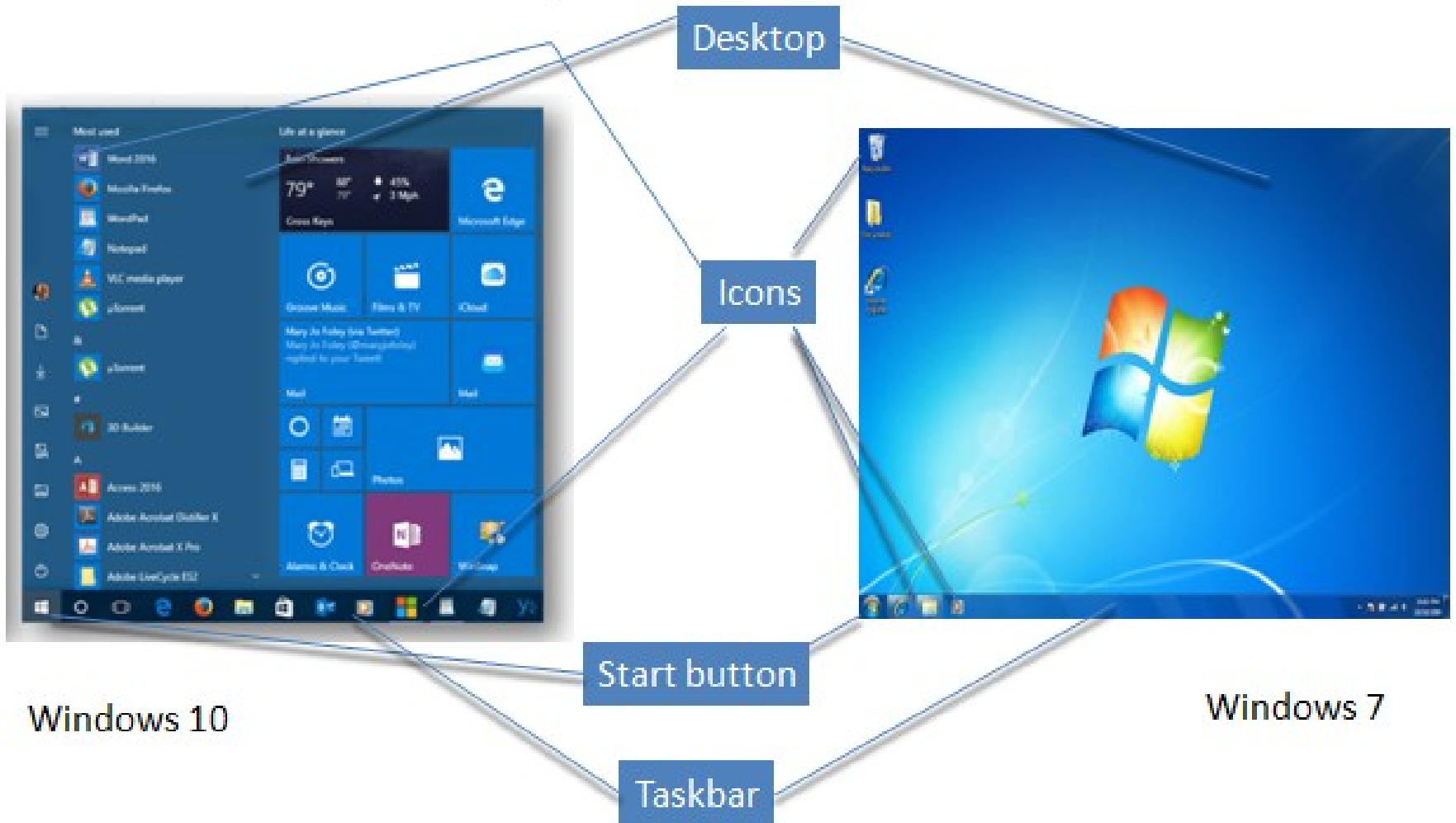


Windows 10 – The Setting App

3. A **Setting** window will open
4. Now you can select and choose which category according to what you want to do.



Windows 7/10 Desktop



Differences between MS-DOS & Windows OS

Difference

Windows

- GUI – icons n menus
- Multi – tasking
- Clipboard
- Drag n Drop
- Mutliple fonts
- Multimedia capability
- Dialog boxes

Dos

- Command based (CUI)
- Single tasking
- Not available
- No pointer
- Default font
- Textual medium
- No dialog boxes

Syllabus – First Semester

- General Overview of Personal Computer System
- Computer Peripherals: (hardware)
- Operating Systems: (Software)
 - MS-DOS
 - Microsoft Windows
- Managing Windows Files & Folders
- Windows Control Panel
- Microsoft Office:
 - Microsoft Word
 - Microsoft Power point
 - Microsoft Excel



Computer Skills



Lecture 5: Managing Windows Files & Folders

Systems and Control Engineering Department

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1st Class

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2025 - 2026

Outline

- Overview of Windows Files & Folders
- **Icons Types:** folders, files, and shortcut
- **Files and Folders**
 - Creating, deleting
 - Moving, copying
 - Selecting, Renaming








Overview of Windows Files & Folders

- Each drive in a computer is represented by a **drive letter followed by a colon**.
- For example, the first hard drive partition is represented by (**C:**)
- The optical drive, flash drive, and any external drives are each represented by a drive letter followed by a colon.
- Inside all above mentioned drives, there are different types of files and folders.

Overview of Windows Files & Folders

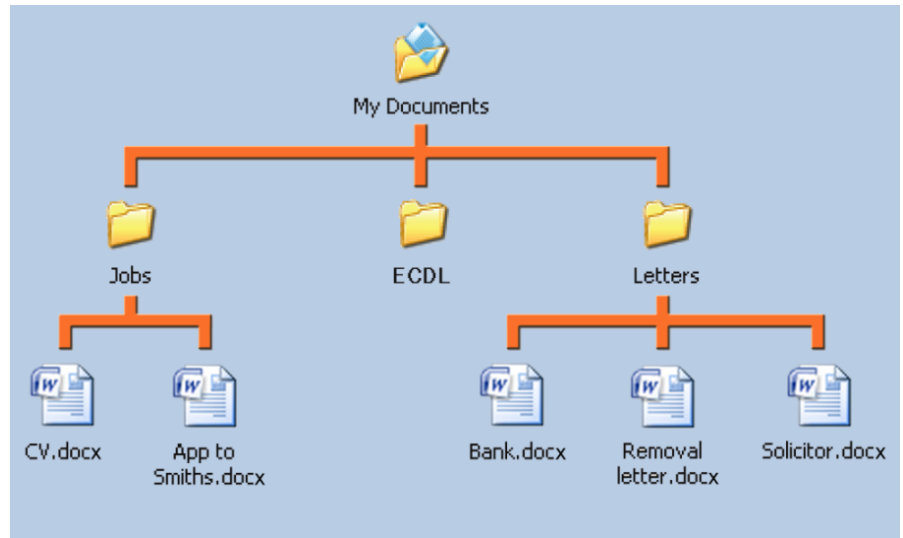
Desktop Icons

	A folder icon	Double-click to open a folder and select a file
	A file icon	Double-click to open a file in the appropriate application (in this case Microsoft® Word)
	An application icon	Double-click to open the application
	The Recycle Bin	A deleted file is stored here. You can retrieve it later if you change your mind, so long as you haven't emptied the bin!
	A printer icon	Double-click to control how and when documents are printed

Icons Types

➤ **Icons** is a small graphical representation of a program or file. Icons can be classified as the following:

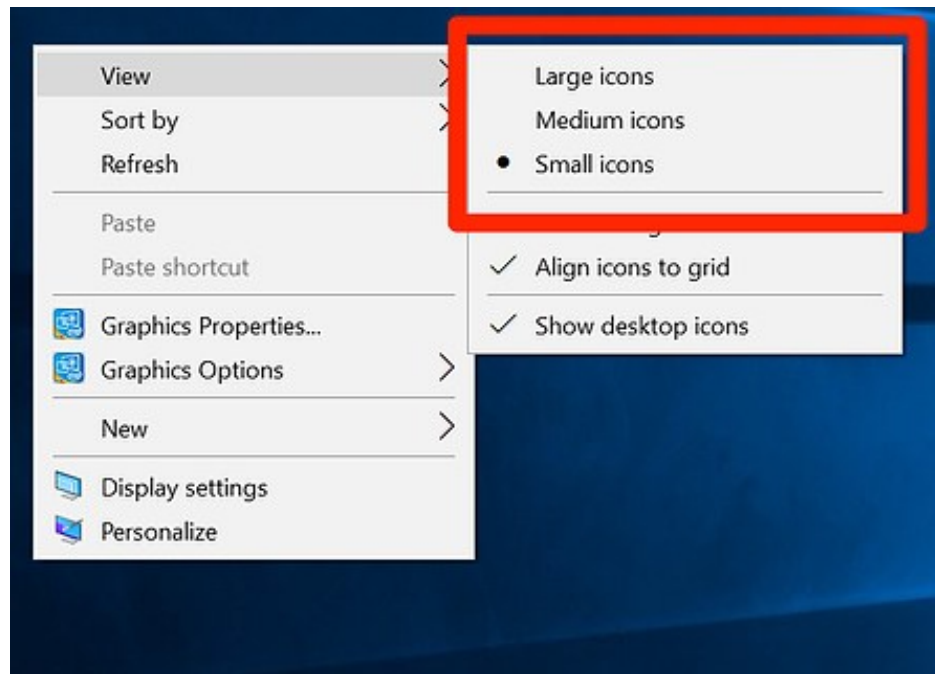
1. **Folder Icons**
2. **File icons**
3. **Shortcut icons**



Change Icon size

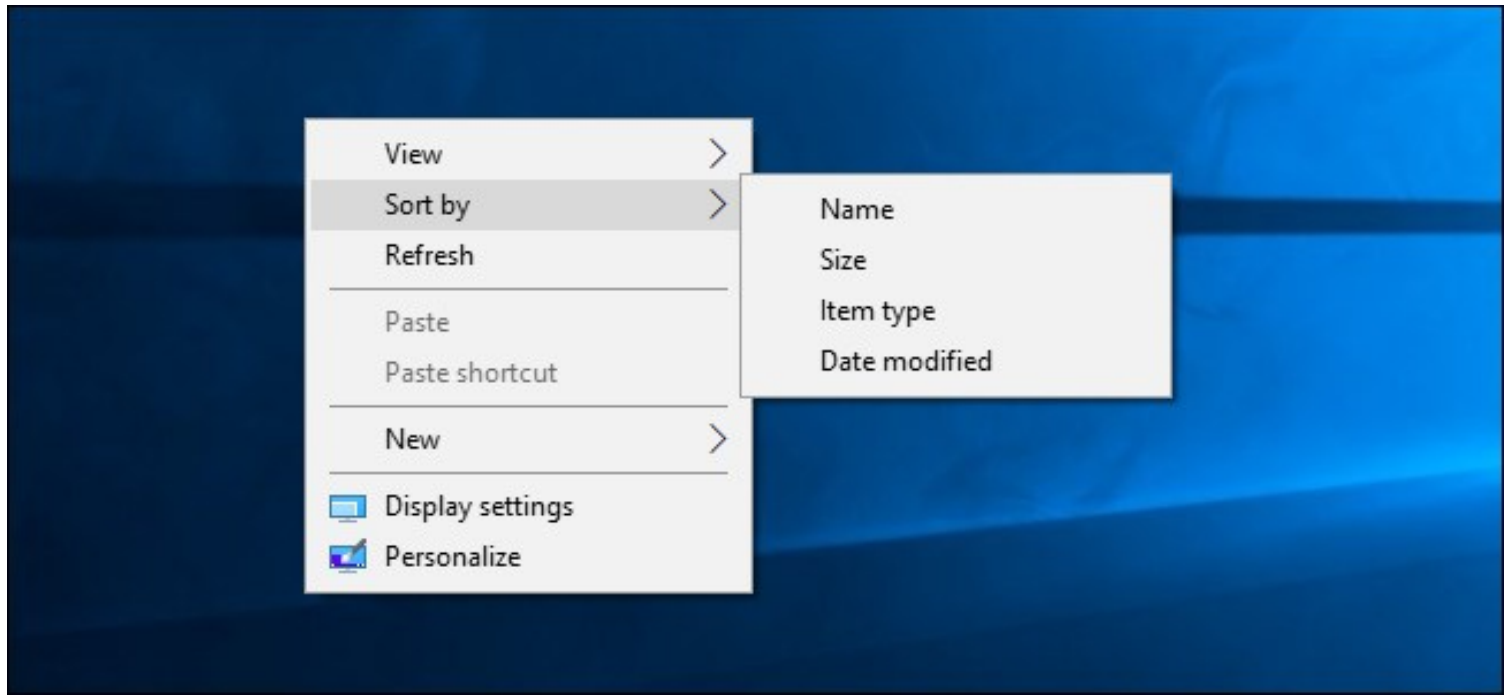
1. Right Click on the desktop
2. Click **View**
3. Show the required size

Right Click → View → Large/Medium/Small icons



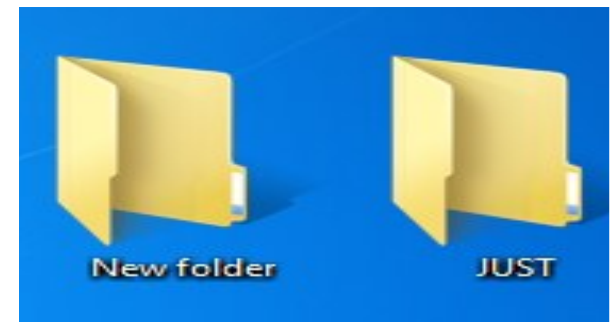
Arrange Icons On the Desktop

1. Right Click on the desktop
2. Click **Sort by**
3. Select one of the 4 options to arrange icons from sub-menu



1. Folder Icon

- **Folder Icons "Directories"**: is used to store files and other folders. They are used to organize files on computer. The folders themselves take up virtually no space on the hard drive.
- You can put files inside a folders, just like you would put documents inside a real folder.
- A folder within a folder is usually called a **subfolder**.
- You can create any number of subfolders, and each can hold any number of files and additional subfolders.



2. Shortcut Icon

- **Shortcut icons:** a link that points to a program on the computer. Shortcuts allow users to create links to their programs in any folder, Start bar, Taskbar, Desktop or other locations on their computer.



3. Files Icon

- **File icons:** a file is a collection of data or information stored in a secondary storage device, identified by a filename. They can be documents, programs, libraries, and other compilations of data.



- File name consists of two part:- **name and extension**
- Windows uses the file extension to identify the program used to create the file.



3. Files Icon

- On your computer, the files are represented with icons, this makes it easy to recognize a type of file by looking at its icon.



Common file extensions



<u>.accdb</u> , <u>.mdb</u>	A database created in Microsoft Access
<u>.bmp</u>	A bitmapped graphic created in a graphics package
<u>.docx</u> , <u>.doc</u>	A word-processed file created in Microsoft Word
<u>.exe</u>	An executable file (that is a program that can be run)
<u>.htm</u>	A web page file
<u>.jpg</u> , <u>.gif</u> , <u>.tif</u>	Different types of graphics file
<u>.mp3</u> , <u>.mid</u> , <u>.wav</u>	Different types of audio file
<u>.pdf</u>	A file format that can be viewed in Adobe Reader
<u>.pptx</u> , <u>.ppt</u>	A presentation file created in Microsoft PowerPoint
<u>.tmp</u>	A temporary file
<u>.txt</u>	A plain text file
<u>.xlsx</u> , <u>.xls</u>	A spreadsheet created in Microsoft Excel
<u>.zip</u>	A compressed file

File vs. Folder: Comparison Chart

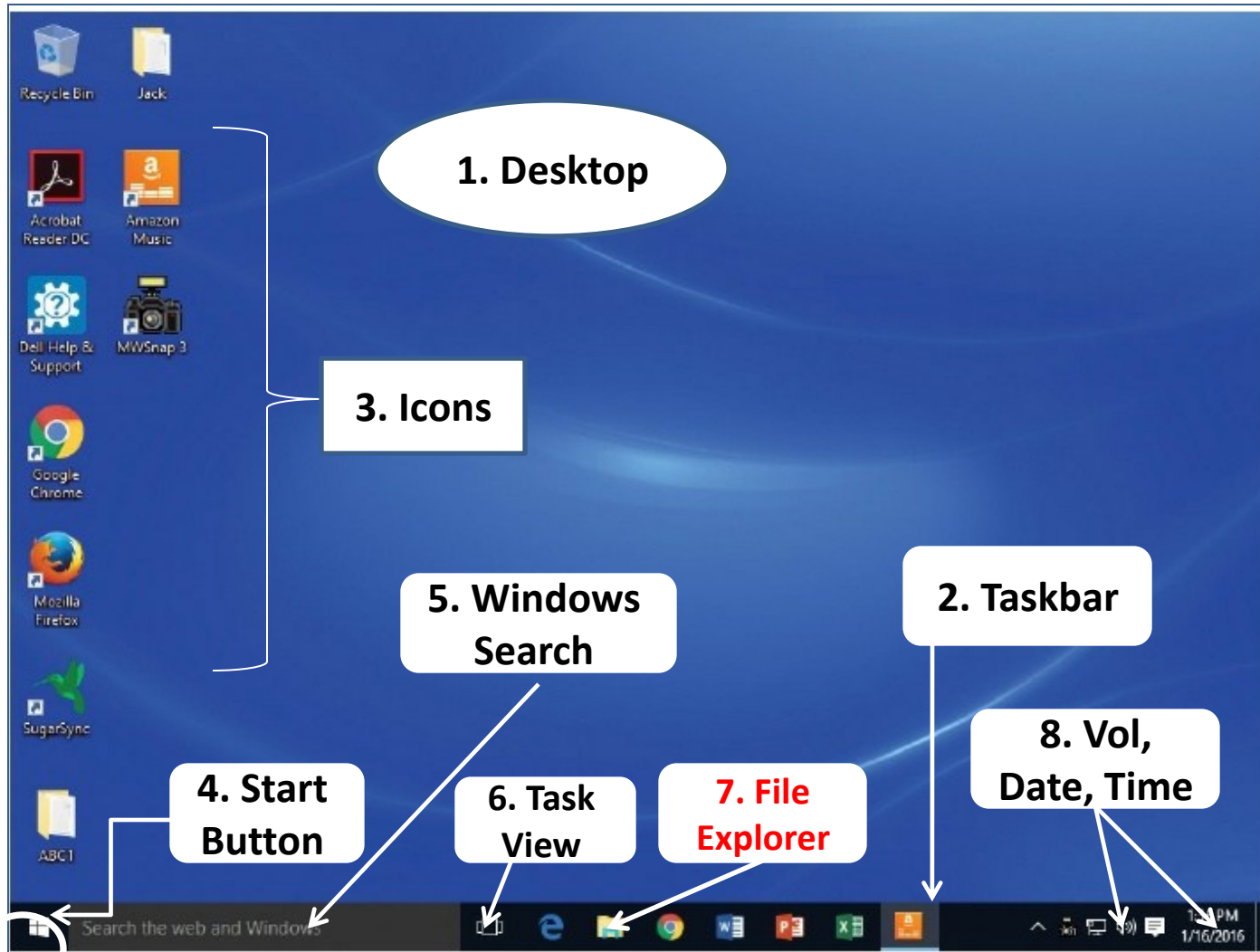
File	Folder
A file is a collection of related data or information that is stored in a secondary storage device.	A folder is a way to organize files into groups and put them under a common heading.
Files take space on computer memory.	Folders do not take spaces on computer memory.
A file basically stores data or information in a given order in a single unit.	A folder can hold different types of files or other folders within folders.
Files can have extensions to indicate the type of the programs they belong to.	Folders do not have such extensions.
A file cannot contain other files.	A folder can contain other folders.

File Explorer

- **File Explorer** is the file management application used by Windows operating systems **to browse folders and files**.
- It provides a graphical interface for the user to **navigate and access** the files stored in the computer.
- ***To open File Explorer :***
 - by clicking the folder icon in the Taskbar. After clicking the icon, the File Explorer window will open.

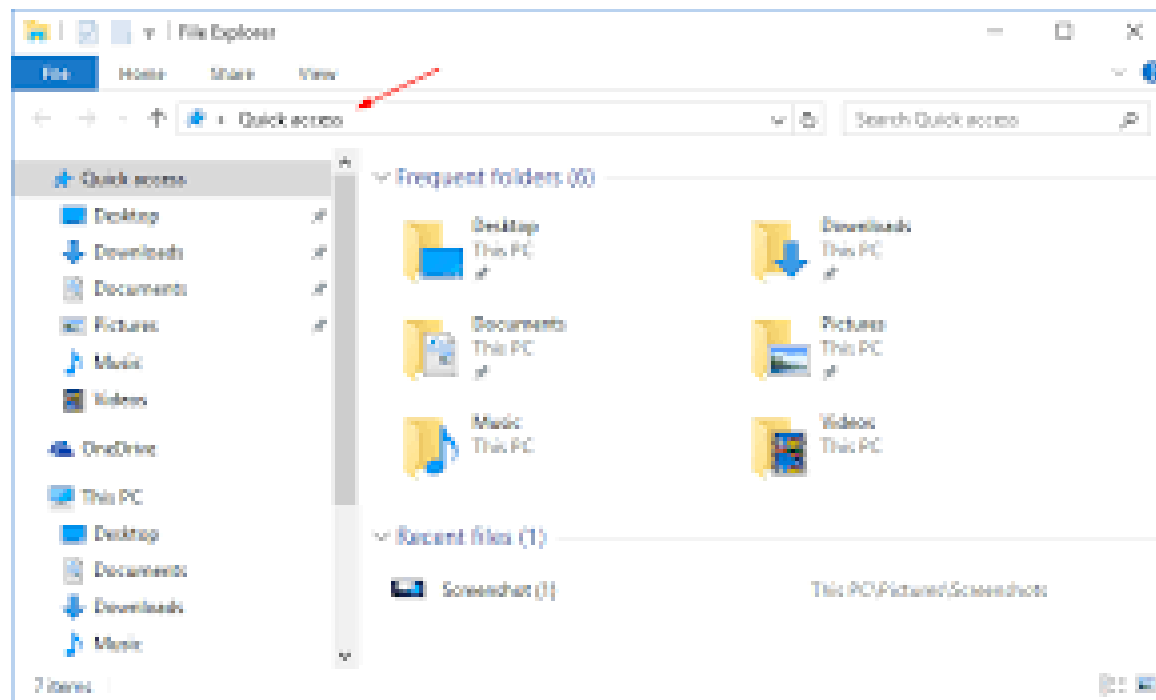


File Explorer



To open File Explorer:

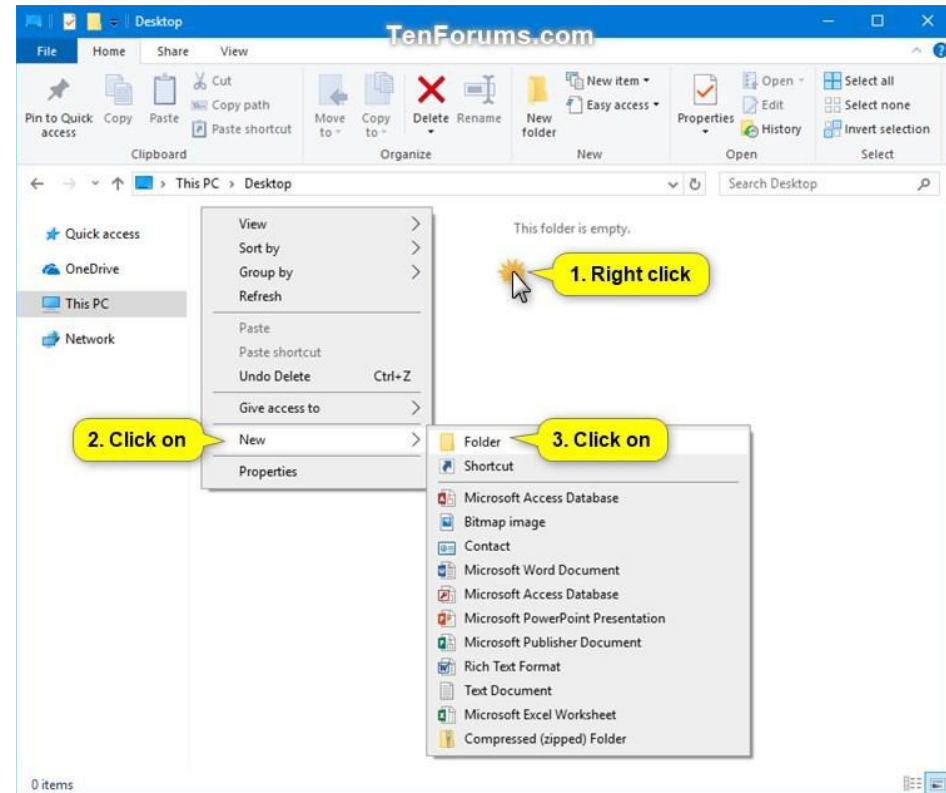
1. Click the File Explorer icon located in the taskbar
2. Or double click on any folder on your Desktop.



Create a new Folder

➤ First Method (within file explorer)

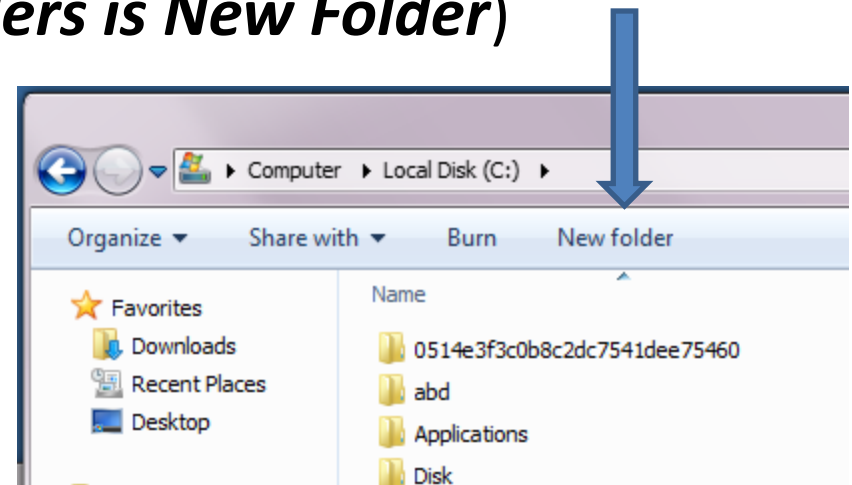
1. Open **file Explorer** window
2. **Right click** an empty space.
3. Point to the **New** option and click the **Folder** option.
4. A folder appears in the right window with the words **New Folder** highlighted
5. The default name for folders is **New Folder**.
Write the desired Name for the folder and press Enter.



Create a new Folder

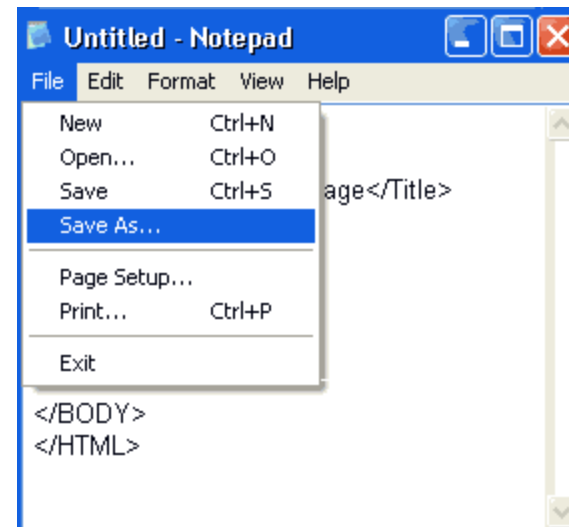
➤ Second Method (within drives)

1. Open the drive (C: or D: or E:...) where you want to create a folder.
2. Click on (New folder) option in the toolbar of the open window.
3. With the New Folder name selected, type a new name.
(the default name for folders is New Folder)
4. Press Enter.



Creating File

- The most common way to create new files is by **using a program.**
- For example, you can create a text document in a **word processing program, Notepad, WordPad.**
- For example: To open Notepad
 - Click the start button, In the search box,
 - Write Notepad, and then Click Notepad.
 - To save the file: Click File **Save** as write name of File.



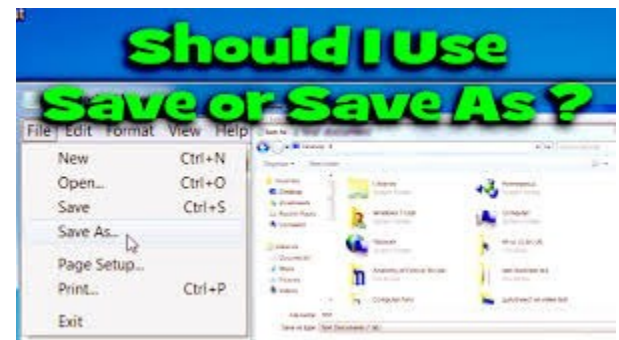
Save / Save As

i File, Save

- i Use to save a file for the first time.
- i Use to save changes to a file without changing the file name.

i File, Save As

- i Use to save the file with a **different file name**.
- i Use to save a file to a **different location**.
- i Use to save a file in a different **format to the original**.



Opening an Existing file

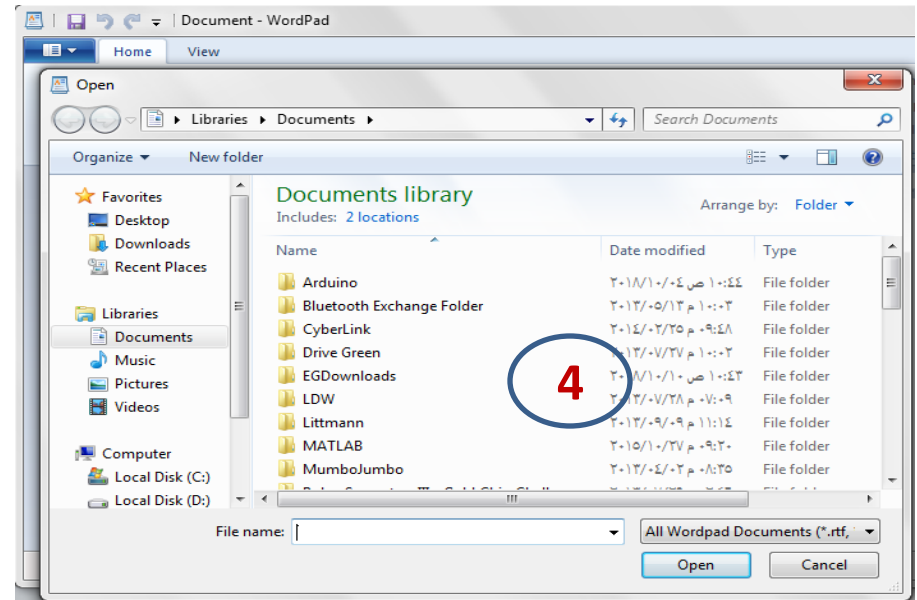
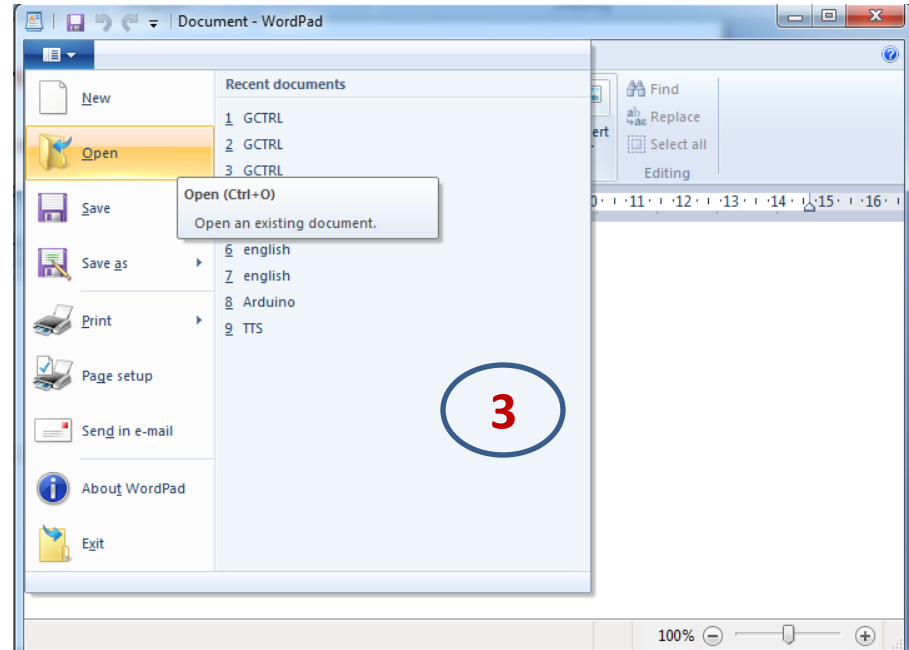
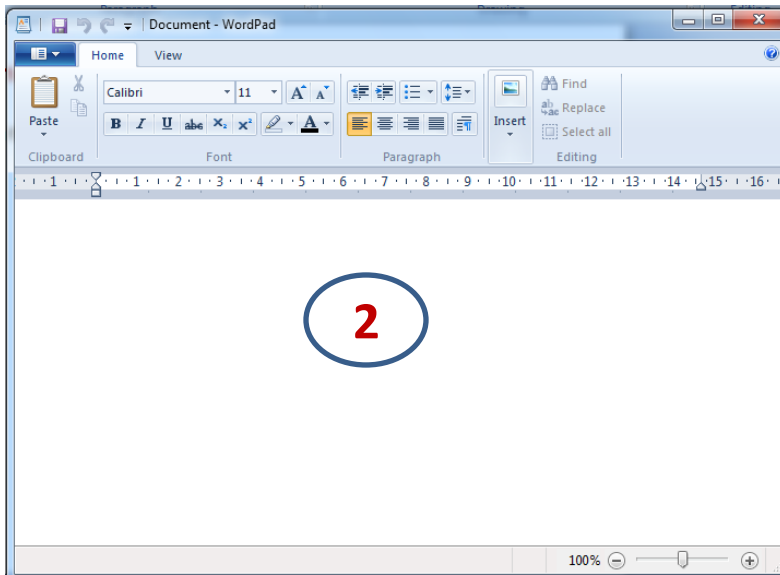
➤ There are two main methods to open a file:

1. By **Double-Click** it, this will open the file in its default application.
2. Open the **application (ex: power point, word)**, after the application is open ,go to the **File menu** at the top of the window and select **Open**.

➤ **Ex: open an existing file using WordPad application?**

1. Open **WordPad** by searching on WordPad in Search bar
2. the Open dialogue box appear
3. go to the **File menu** at the left top of the window and select **Open**.
4. The open dialogue box appear **showing the contents of the My Documents folder**
5. Select the file you want and click the Open button

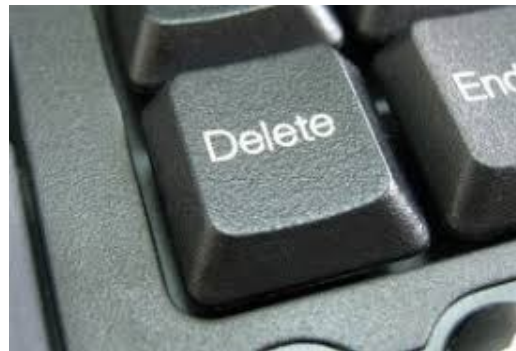
Opening an Existing file



Deleting *files or Folder*

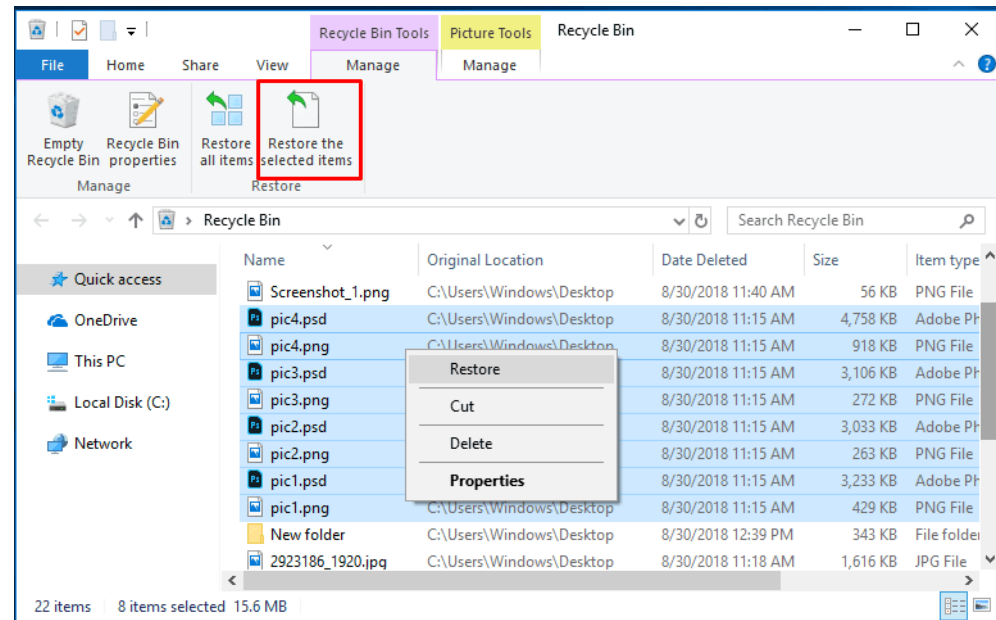
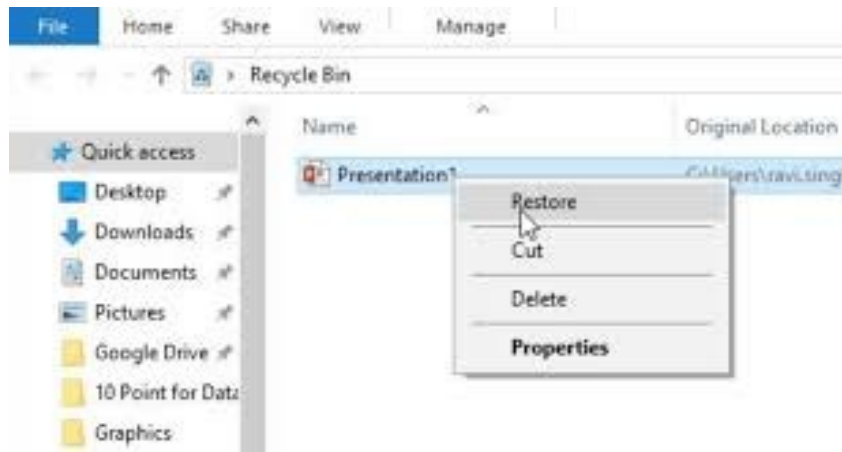
➤ **There are two methods to delete a file or folder:**

1. **Right-Click** the file or folder that you want to delete and then choose **Delete** from the menu
 2. Select file or folder that you want to delete and then press **Delete** key on your keyboard.
- When you delete the file it is moved to recycle bin



Restoring Deleted *files or Folder*

- After deleting files or folders, it will be in the **recycle bin**.
- you can retrieve the file (from the recycle bin) back to its original location. By Click **Restore**



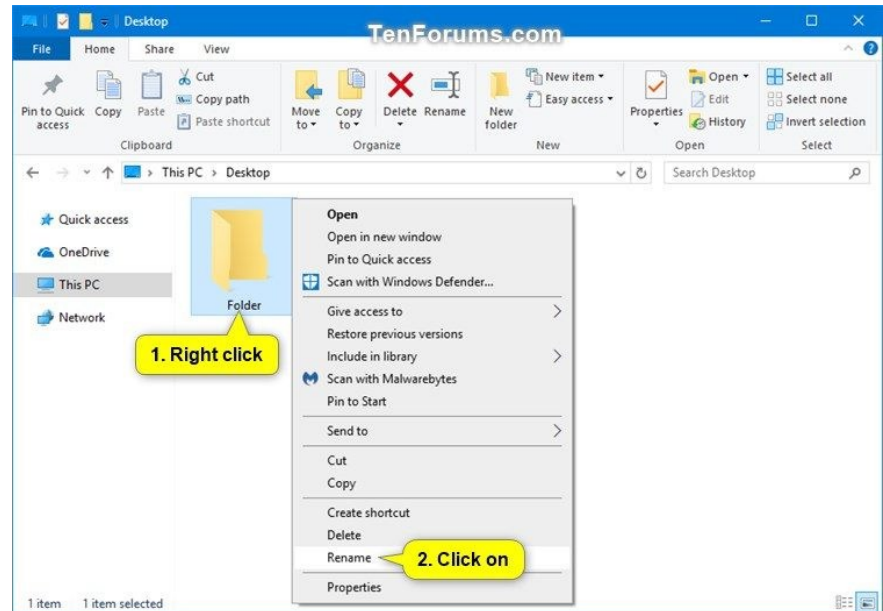
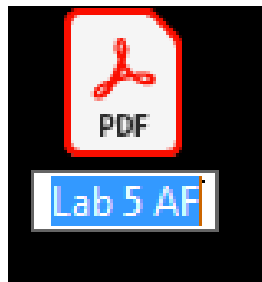
Rename a file or folder

■ There are two methods to rename a file or folder:

1. Right-click the File\Folder, then select Rename. Write the new name and press Enter.
2. Select File\Folder, then press F2 key on keyboard. Write the new name and press Enter.

(1)

(2)



Copying Files and Folders

➤ When you copy an item, the original item remains in its original location— plus you have the new copy.

➤ Method 1:

- Open the location that contains the file you want to copy.
- Select the file you want to copy then click the **Organize** button on the left top of toolbar, and then click **copy**.
- Display the destination folder where you want to move the files or folder.
- Click the **Organize** button on the toolbar, and then click **paste**

Copying Files and Folders Using **Copy** and **Paste**

➤ **Method 2:**

- **Select** *the file or files you want to copy*
- **Right-click** the selected file, and then click **Copy**.
- **Open the location** where you want to store the copy.
- Right-click an empty space within the location, and then click **Paste**.

➤ **Method 3:**

- Select the file or files you want to copy
- use the **keyboard key Ctrl+C** for (Copy)
- **Open the location** where you want to store the copy.
- use the **keyboard key Ctrl+V** for (Paste).

Moving Files and Folders

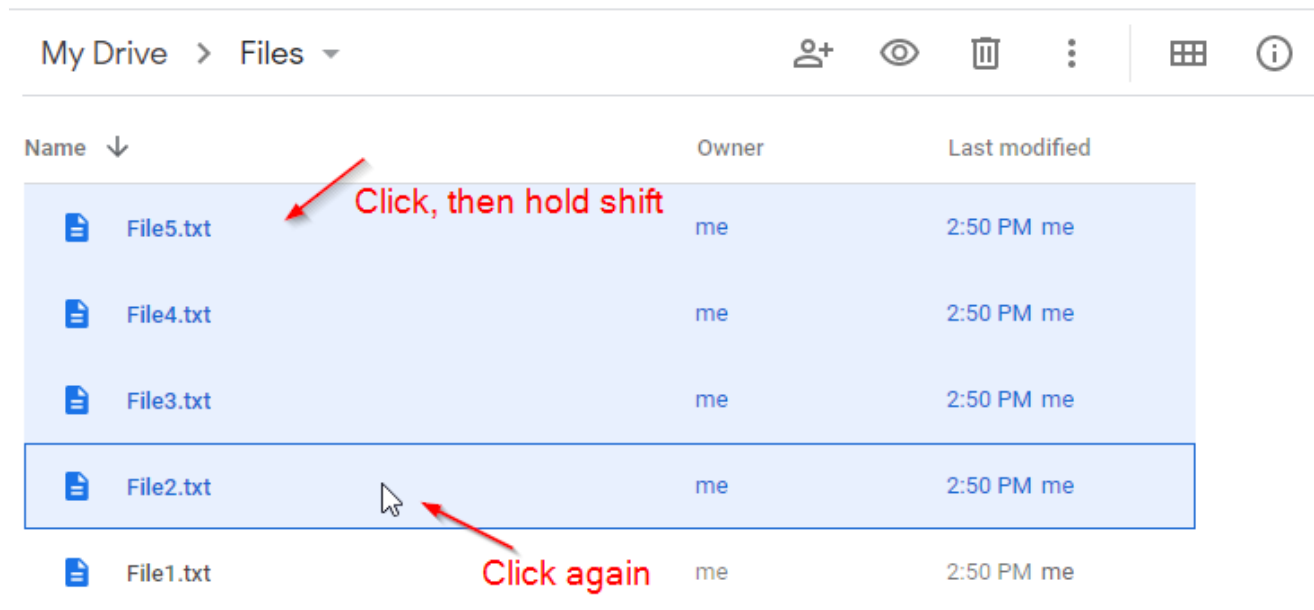
➤ Moving (cut)

- Moving is the **cuts** the item from its previous location and places it in a new location.
- You can use the **same methods** as in the copy options except use the **keyboard key Ctrl+X** for (Cut)

Selecting multiple files from a folder:

To select group of files:

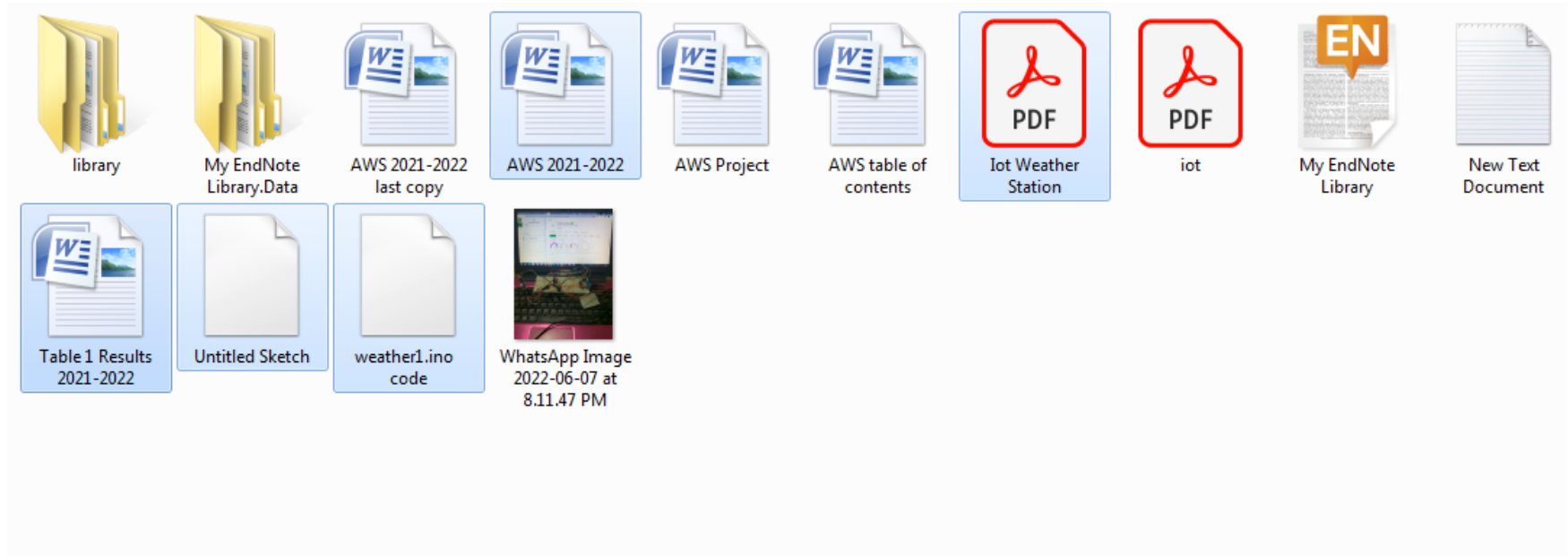
- Use the **Shift** key and select the first and last file at the ends of the entire range you want to select. All of the files between the first and last ones will be selected.



Selecting multiple files from a folder:

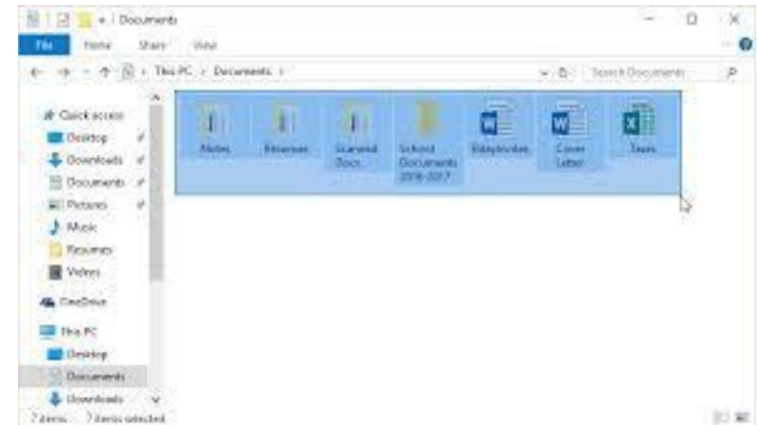
To select a specific files:

- Hold down the Ctrl key as you click on each file until all are selected. (Example: to select multiple files from your desktop).



Selecting multiple files from a folder:

- To Select All files or folders:
 - Click **Ctrl + A** from your keyboard.



Syllabus – First Semester

- General Overview of Personal Computer System
- Computer Peripherals: (hardware)
- Operating Systems: (Software)
 - MS-DOS
 - Microsoft Windows
- Managing Windows Files & Folders
- Windows Control Panel
- Microsoft Office:
 - Microsoft Word
 - Microsoft Power point
 - Microsoft Excel



Computer Skills



Lecture 6: Windows Control Panel

Systems and Control Engineering Department

College of Electronics Engineering

Ninevah University

1st Class

By:

Mohammed Alsayed

mohammed.alsayed@uoninevah.edu.iq

2025 - 2026

Outline

- Overview of Windows **Control Panel**
- Windows Control Panel Categories

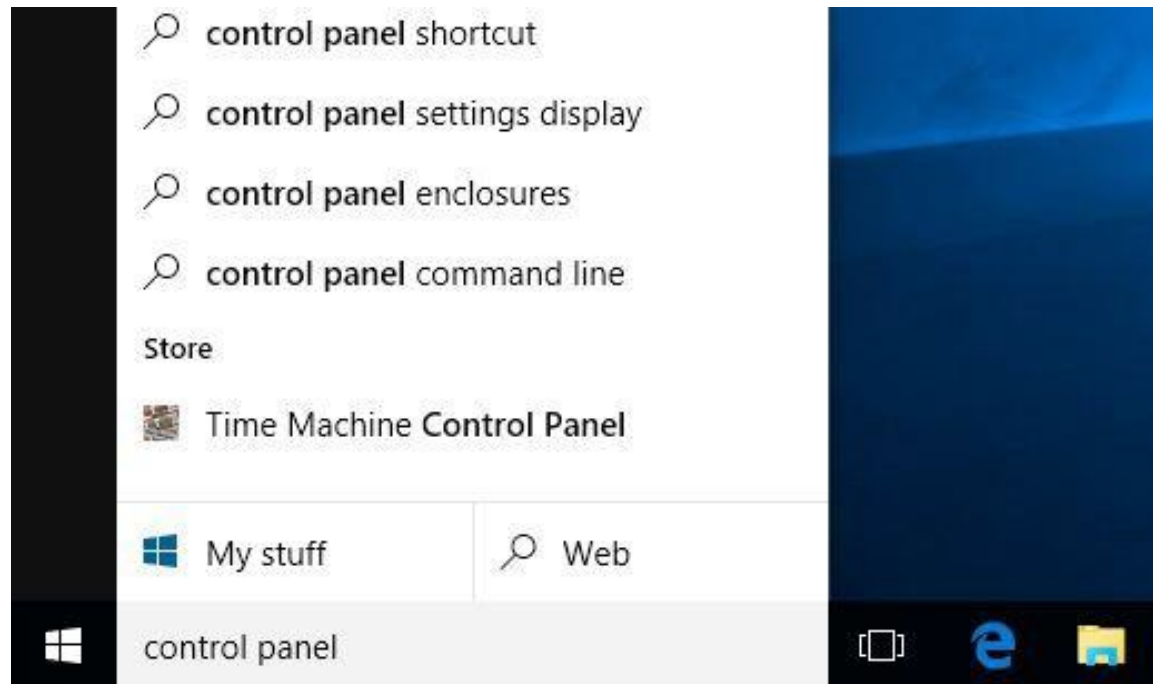
Overview of Windows Control Panel

- The Control Panel is a component of Microsoft Windows that provides the ability to view and change system setting, adding or removing hardware and software, controlling user accounts, and etc.
- The Control Panel features a number of tools that will help you control how Windows 7 features look and act.
- Therefore, most basic Windows system settings can be changed through the control panel.

Overview of Windows Control Panel

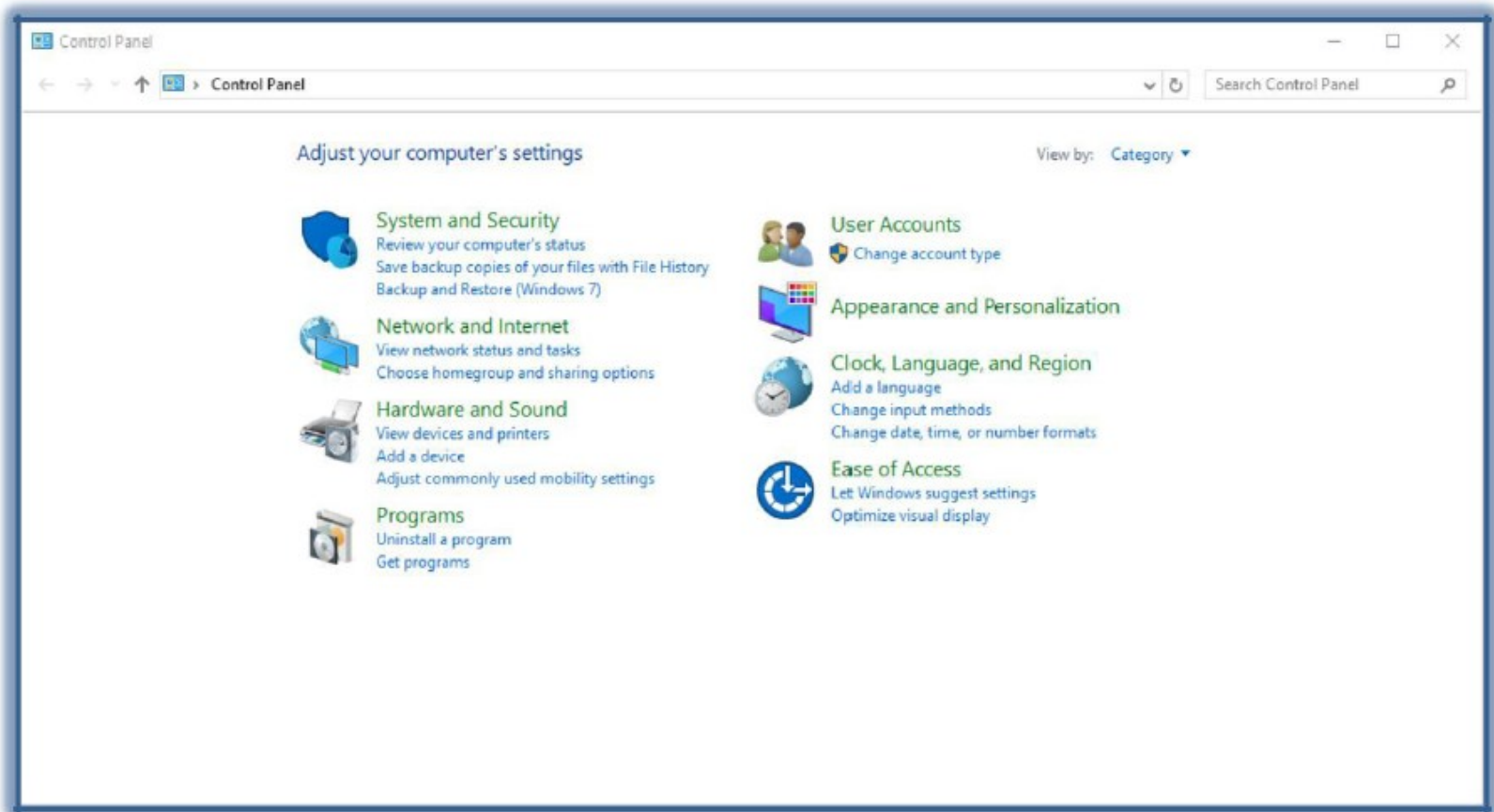
➤ To open Control panel

1. From the **Start menu** go to Control Panel and press Enter.
2. Type control panel in **windows search box** (The Search Box appears to the right of the Start Menu).



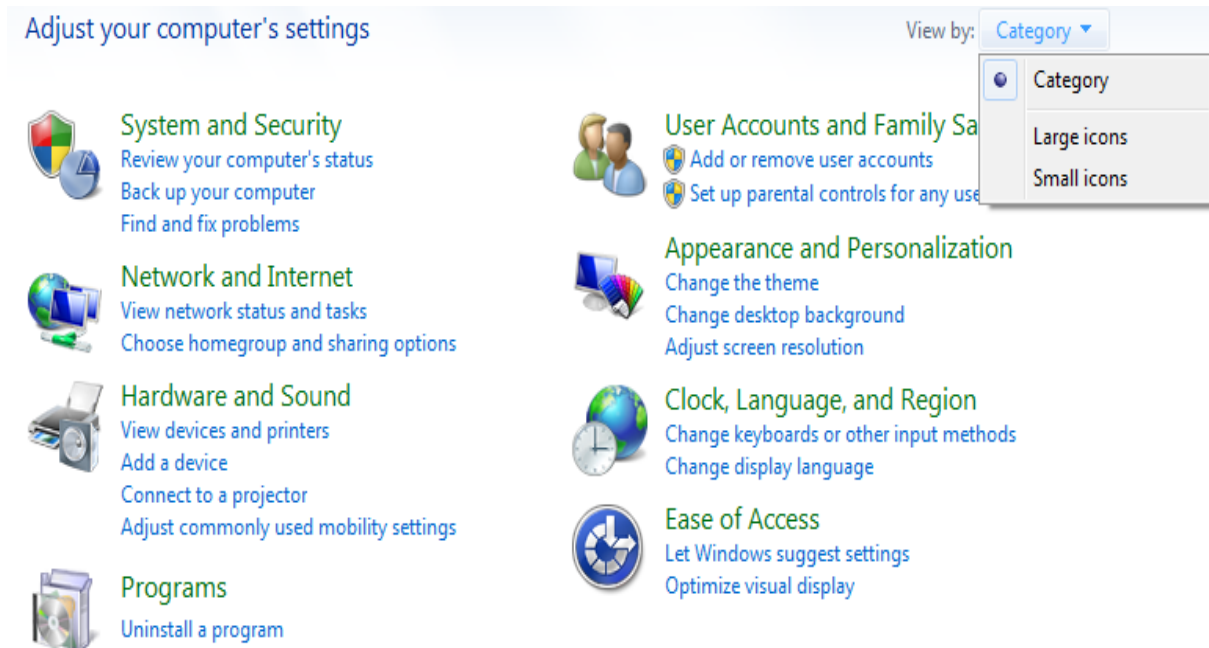
Navigate the Control Panel

➤ The Control Panel window will display.



Navigate the Control Panel

- You can adjust how the Control Panel setting is viewed by changing the **View by** option.
- In the top-right corner of Control Panel window, change the **View by** from **Category** to **Large icons** or **Small icons**.

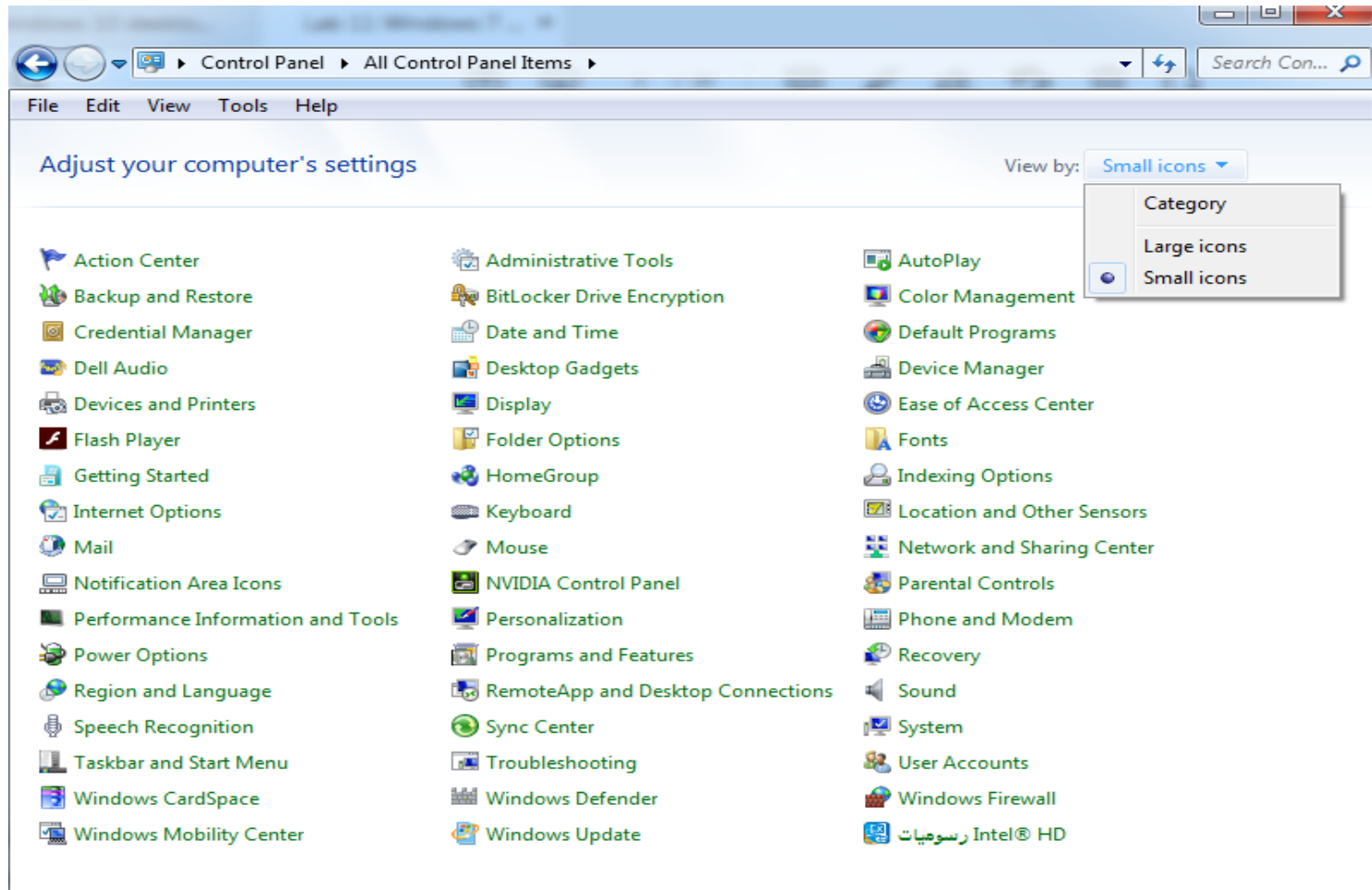


Navigate the Control Panel

- **Category** – In this view, Control Panel items are divided into eight categories. Links to the most common tasks are available under the category name.
- **Large Icons** – When this option is selected, the All Control Panel Items window will display in large icons.
- **Small Icons** - When this option is selected, the All Control Panel Items window will display as a list of small icons.

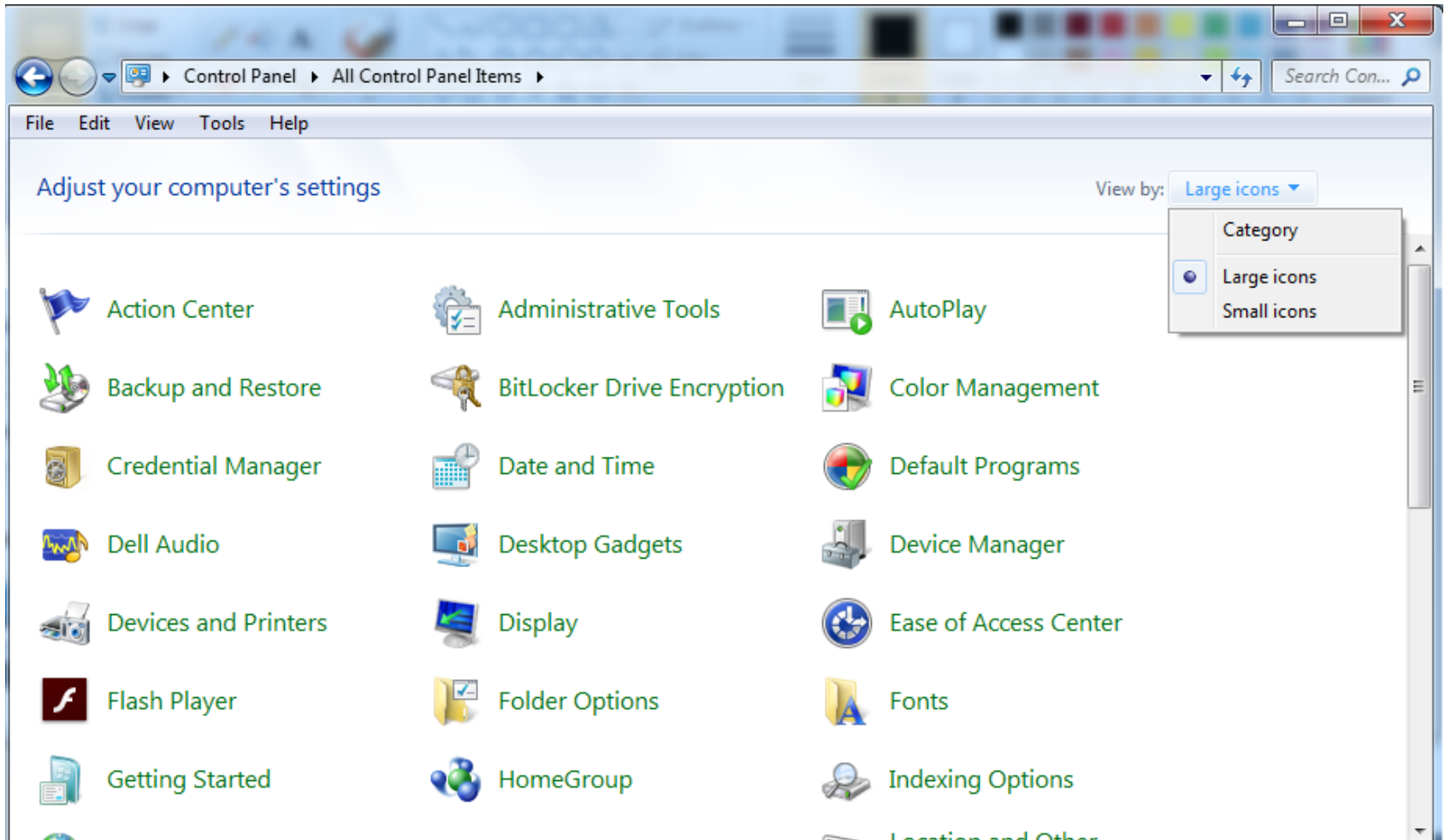
Navigate the Control Panel

- View by Small icons.



Navigate the Control Panel

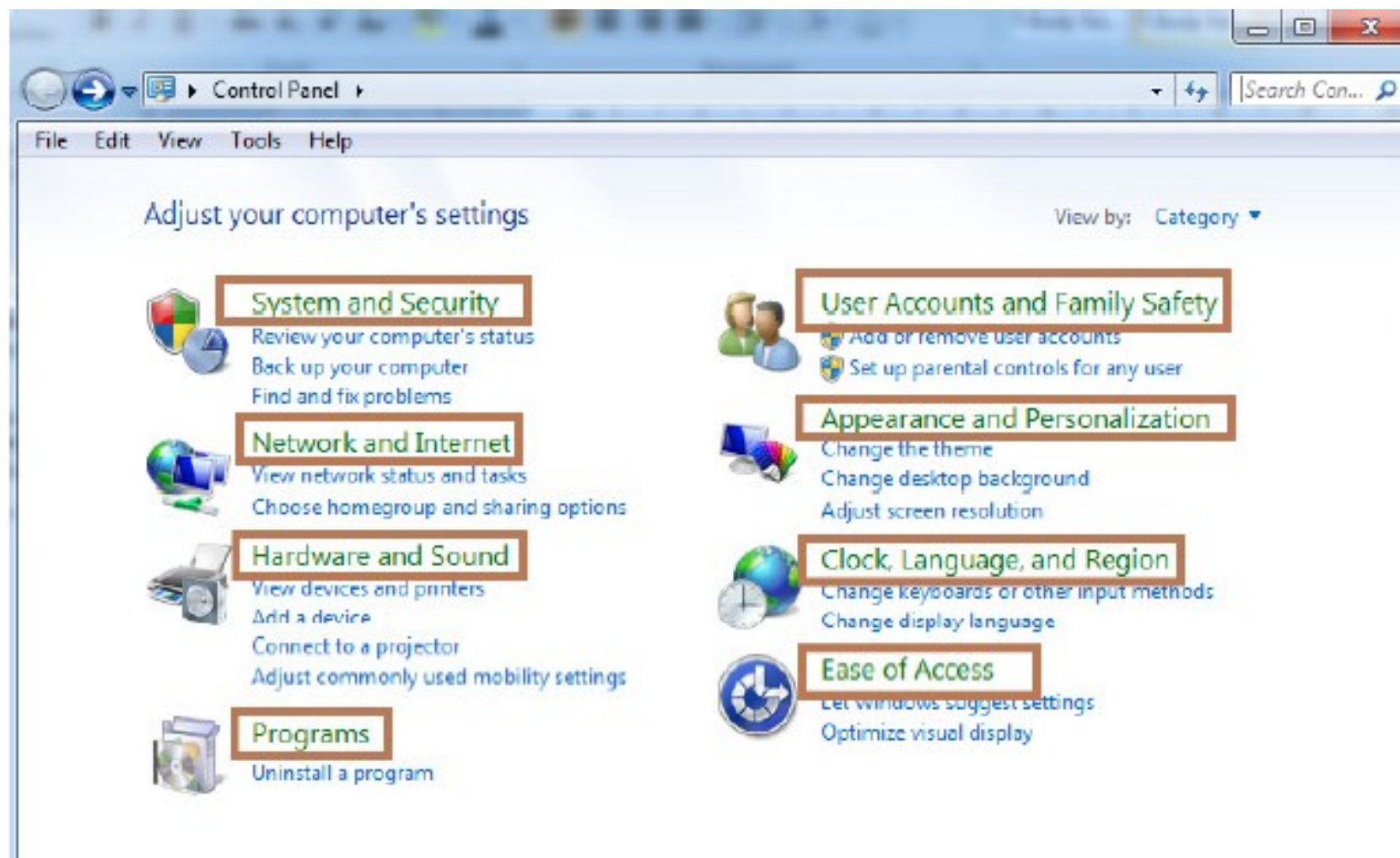
- View by Large icons.



Windows Control Panel Categories

- There are eight main categories in the Control Panel, each category contains subcategory with its functions and features:
 1. System and Security
 2. Network and Internet
 3. Hardware and Sound
 4. Programs
 5. User Account and Family Safety
 6. Appearance and Personalization
 7. Clock, Language, and Region
 8. Ease of Access

Windows Control Panel Categories

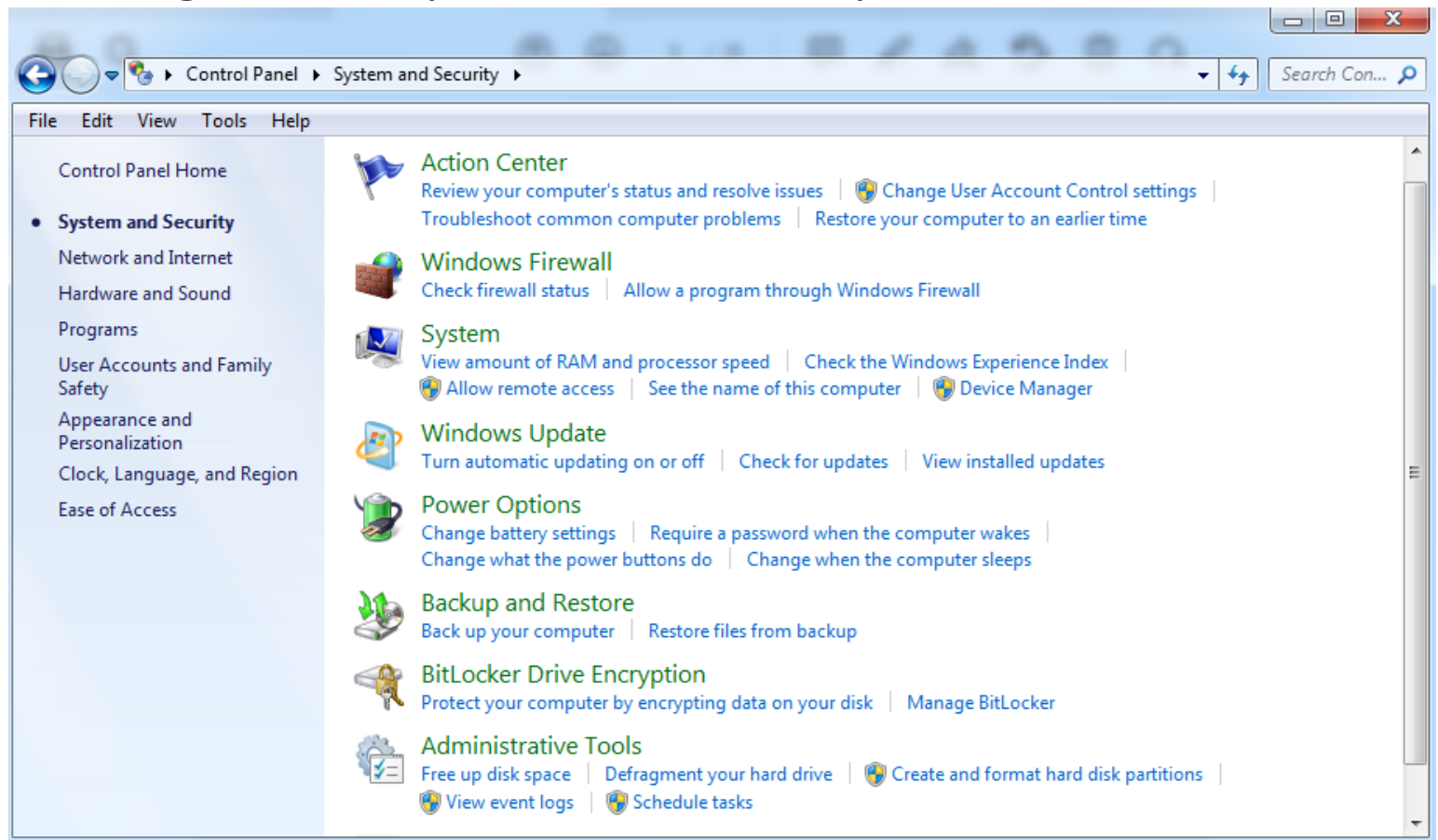


1. System and Security

- The **System and Security category** allows you to view computer system information and settings.
- With **System and Security**, you can determine the amount of **RAM** installed, **processor** installed, and **Windows version.**

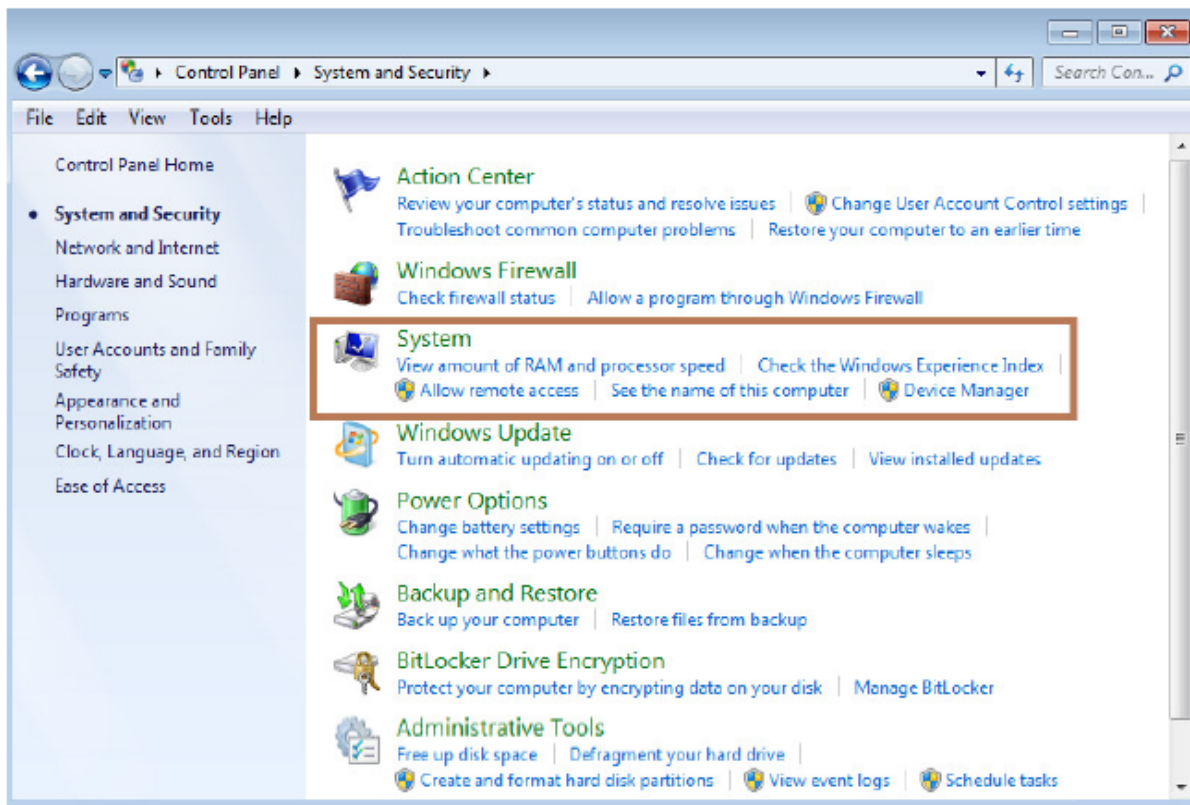
1. System and Security

- Click on **System and Security**, a window will display the subcategories of system and security.



1. System and Security - System

- Click on **System** to display computer information. Information includes the version of Windows, **processor speed**, **RAM size**, if it's 32-bit or 64-bit, if **pen or touch** is enabled, computer name, workgroup, and if **Windows is activated**.



1. System and Security - System

■ Example 1:



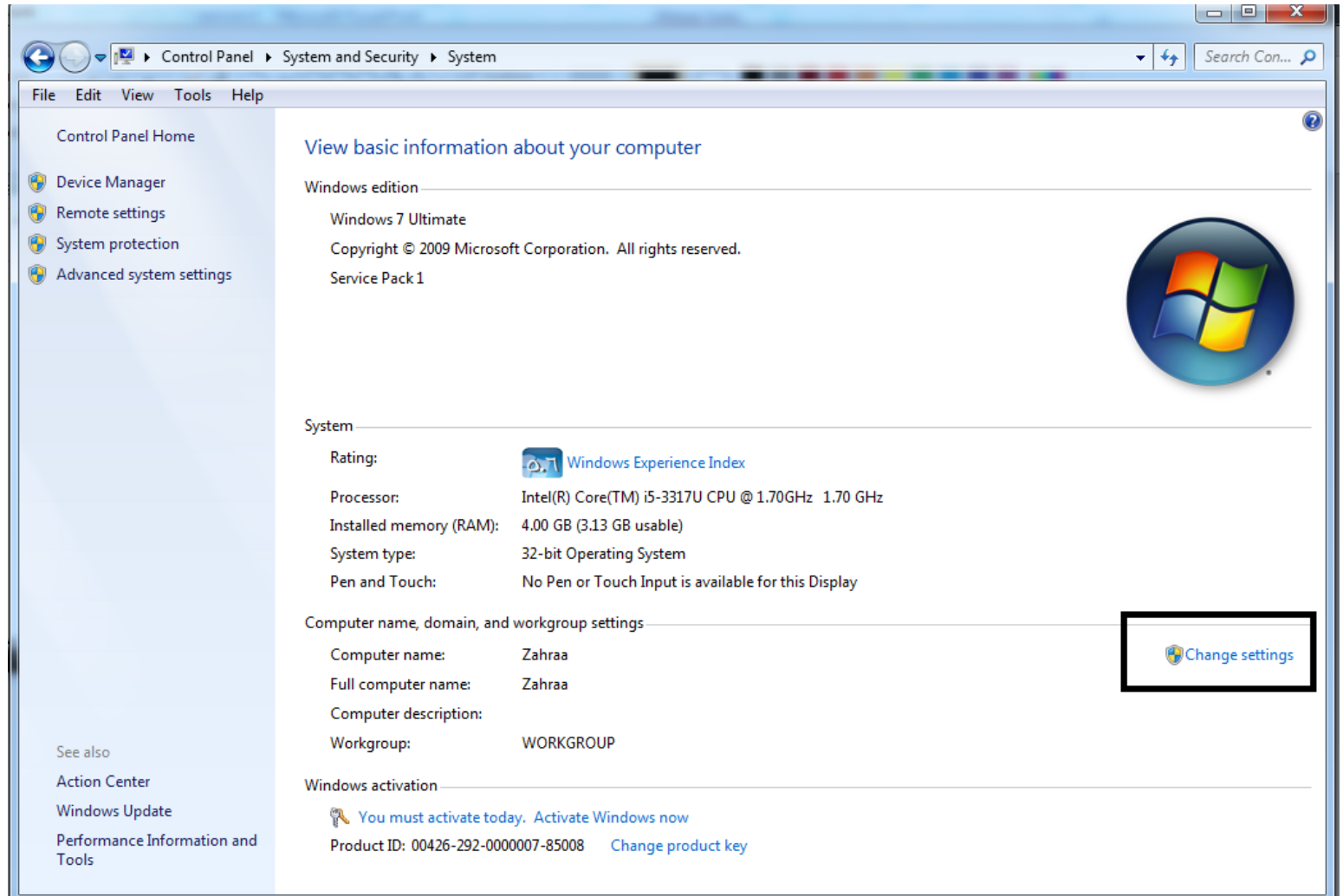
The screenshot shows the Windows 10 Control Panel window with the 'System' link selected in the breadcrumb navigation. The left sidebar contains links to 'Control Panel Home', 'Device Manager', 'Remote settings', 'System protection', and 'Advanced system settings'. The main content area is titled 'View basic information about your computer' and displays the following information:

- Windows edition:** Windows 10 Home, © 2015 Microsoft Corporation. All rights reserved. (Accompanied by the Windows 10 logo)
- System:**
 - Processor: Intel(R) Core(TM) i7-4790 CPU @ 3.60GHz 3.60 GHz
 - Installed memory (RAM): 24.0 GB
 - System type: 64-bit Operating System, x64-based processor
 - Pen and Touch: No Pen or Touch Input is available for this Display
- Computer name, domain, and workgroup settings:**
 - Computer name: CheryIXPS
 - Full computer name: CheryIXPS
 - Computer description: CheryIXPS
 - Workgroup: CAS
- Windows activation:** Windows is activated [Read the Microsoft Software License Terms](#)

Additional elements include a 'Support Information' link with the Dell logo, a 'Change settings' link, and a 'See also' section with a link to 'Security and Maintenance'.

1. System and Security - System

■ Example 2:

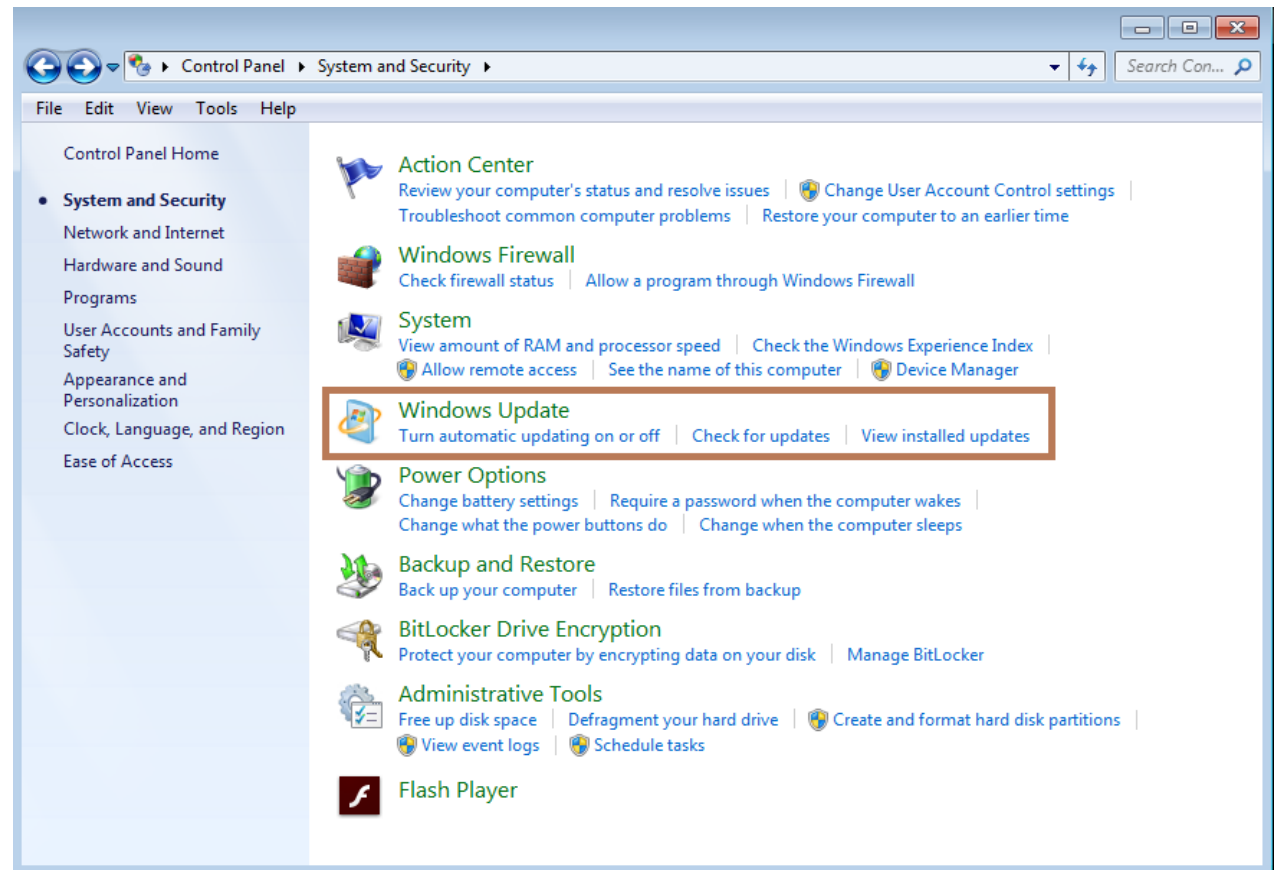


1. System and Security – Windows Update

- Windows has a method called **Windows Update** or Automatic Updates.
- Microsoft **Windows Update** is a Microsoft service for the Windows families of operating system which automates **downloading and installing Microsoft Windows software updates** over the internet and for **upgrading the operating system**.

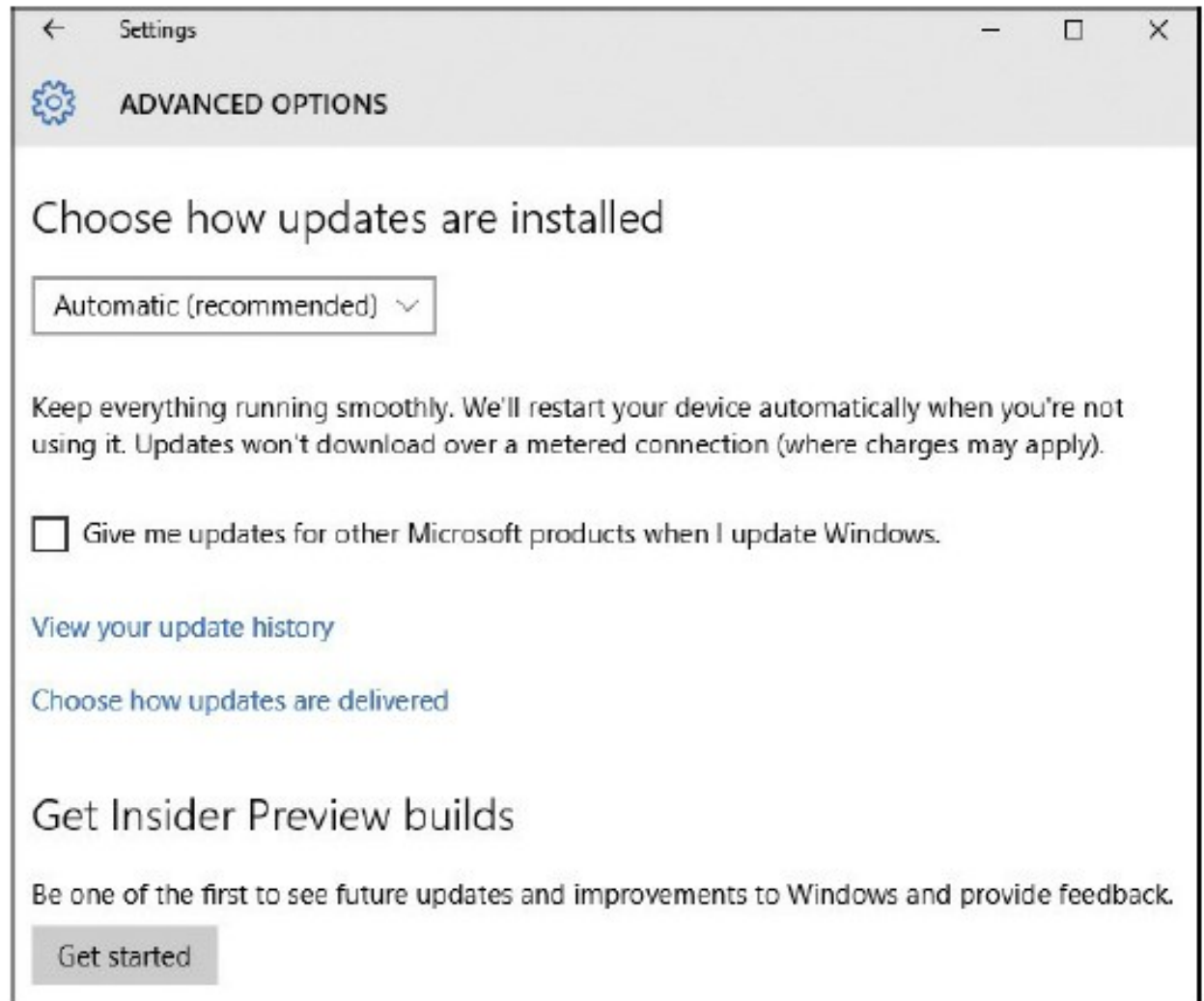
1. System and Security – Windows Update

- Click on **Windows Update**,
- In this category, you can **Check for updates**, **Turn automatic updating on or off**, and **Viewed installed updates**.



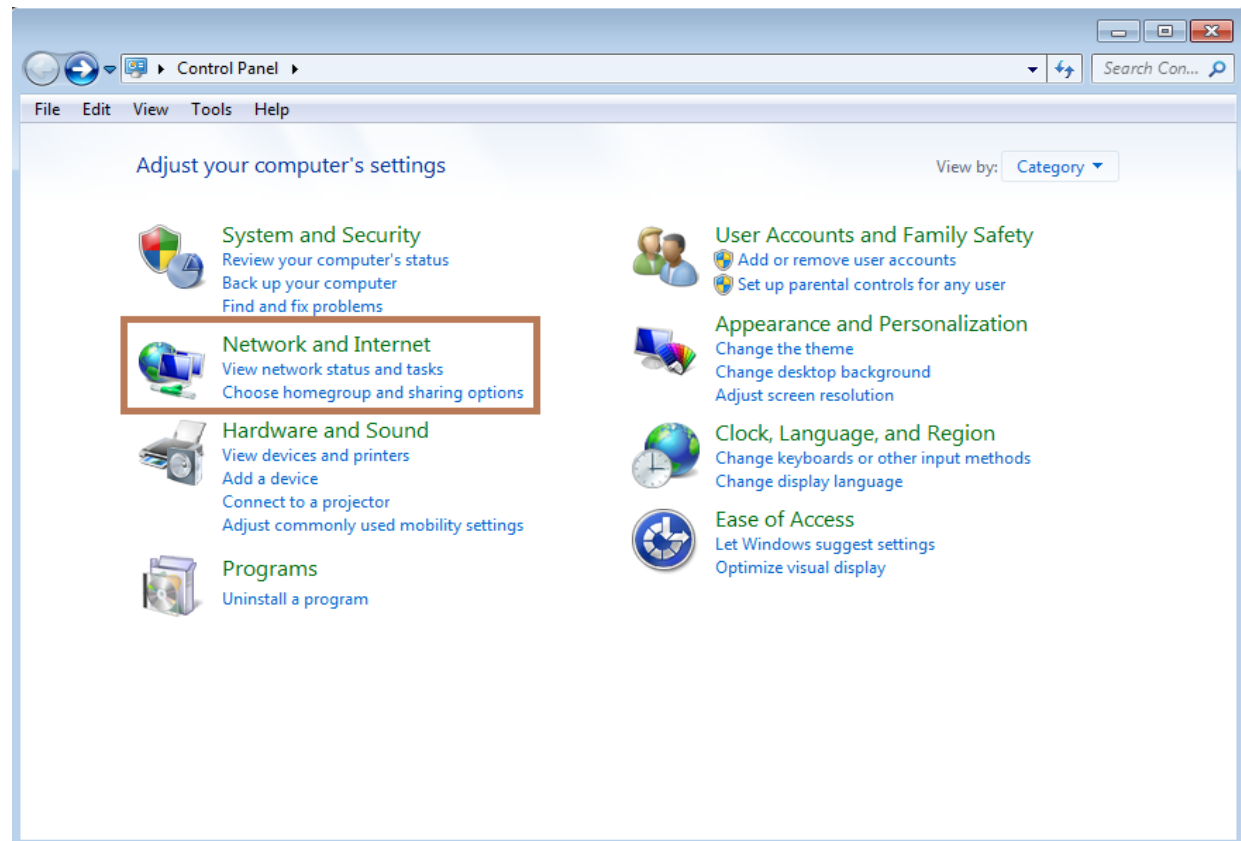
1. System and Security – Windows Update

- Try all these options under the permission of your instructor.



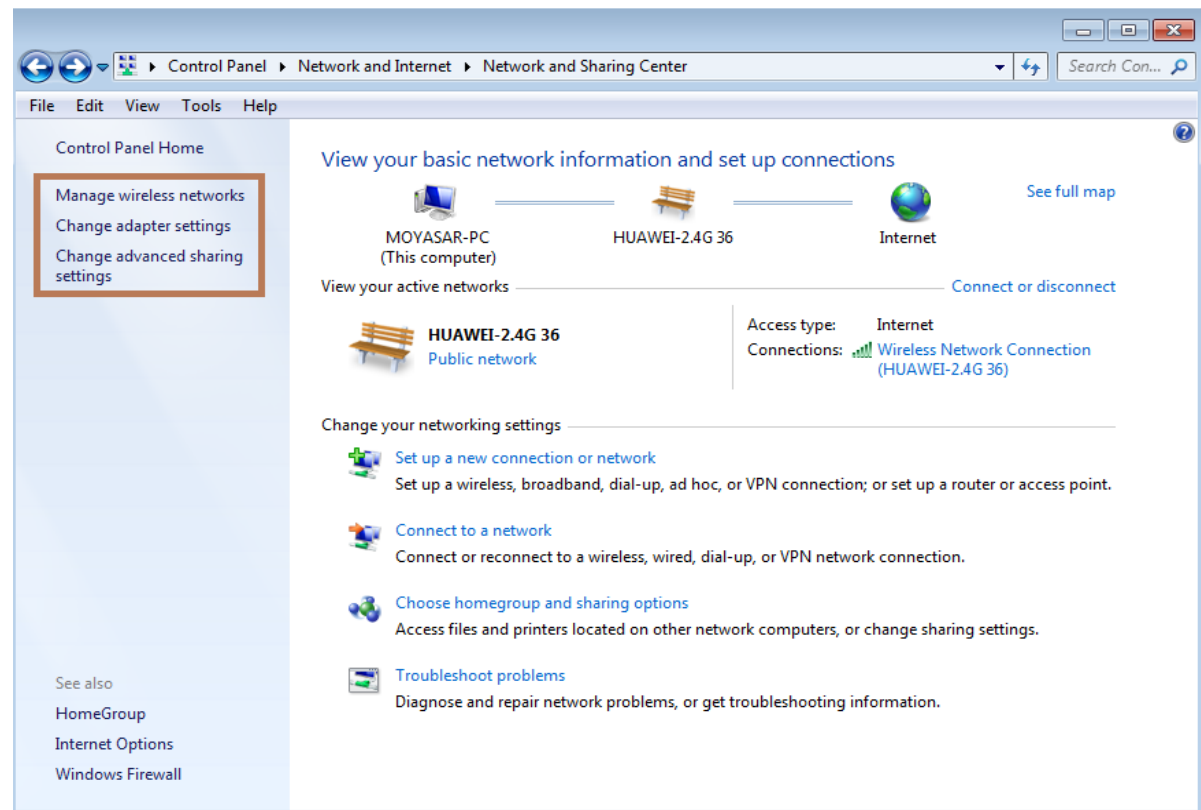
2. Network and Internet

- The Network and Internet category allows you to view your network status and configure other network settings and preferences.



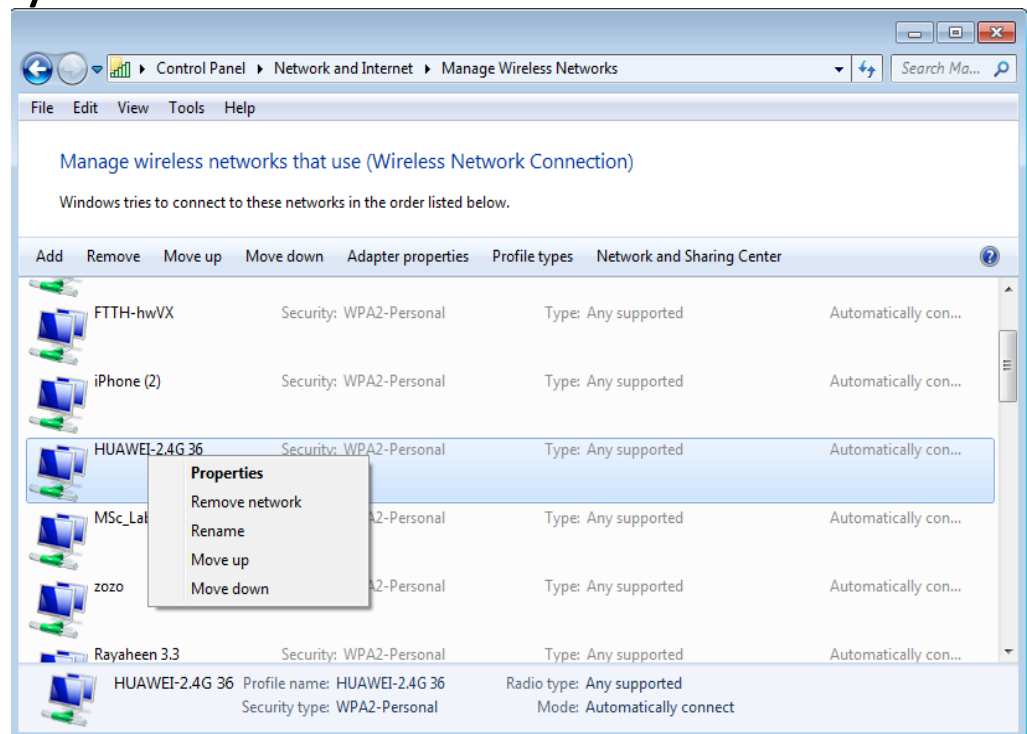
2. Network and Internet

- Under the **Network and Internet**, click on **View network status and tasks**, a window will open which contains the details of connecting wireless or wired network.



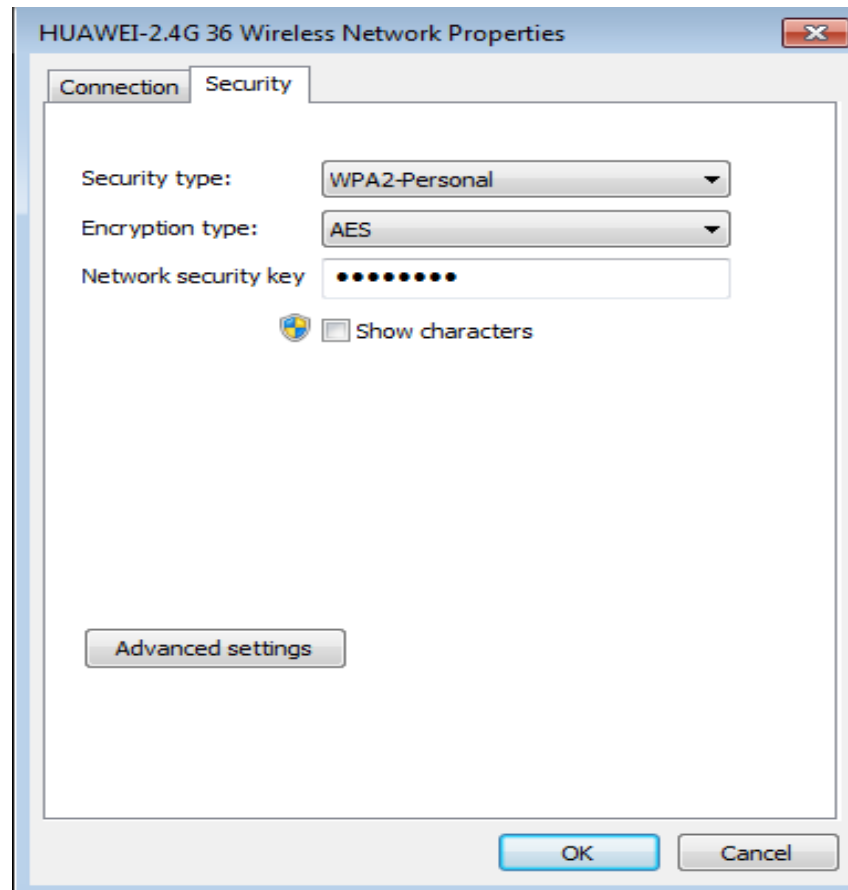
2. Network and Internet

- On the left pane, click on **Manage wireless networks** to choose the available or suitable network.
- Choose one of the wireless network viewed and click on **properties** to view network information about this network such as security key.



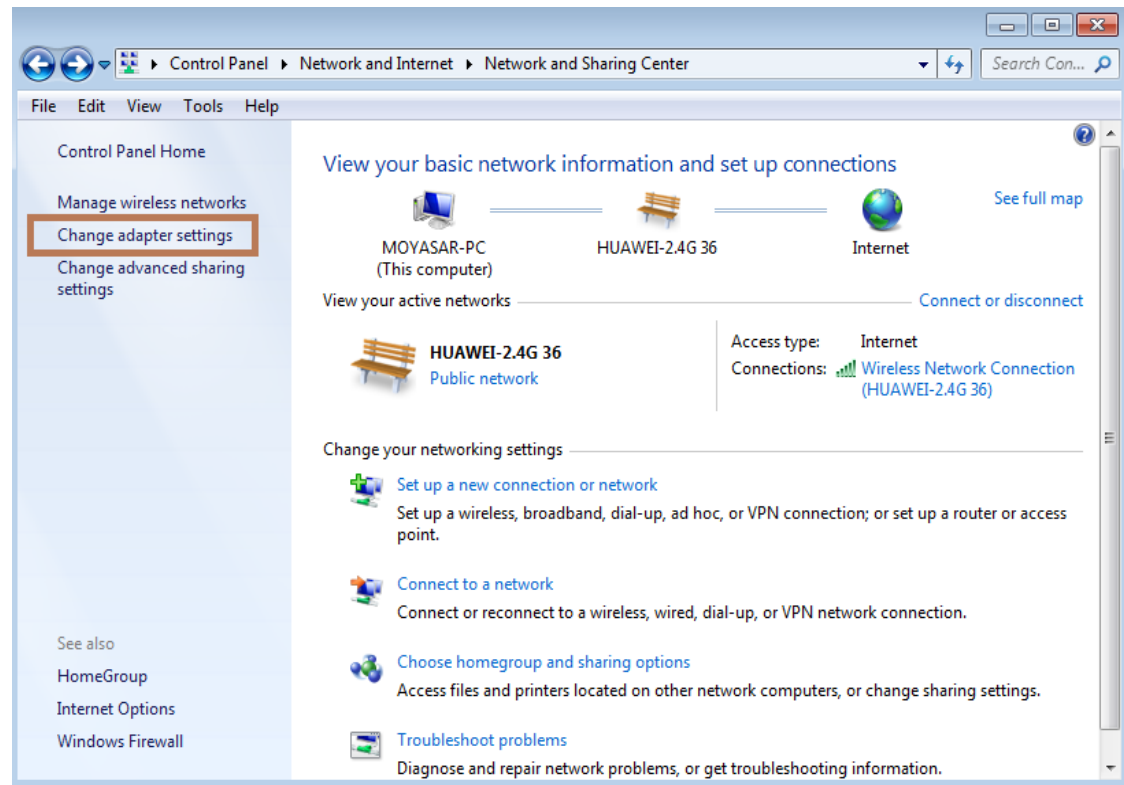
2. Network and Internet

- Under the **Security**, you can view Network security key and changed it to be more secure.



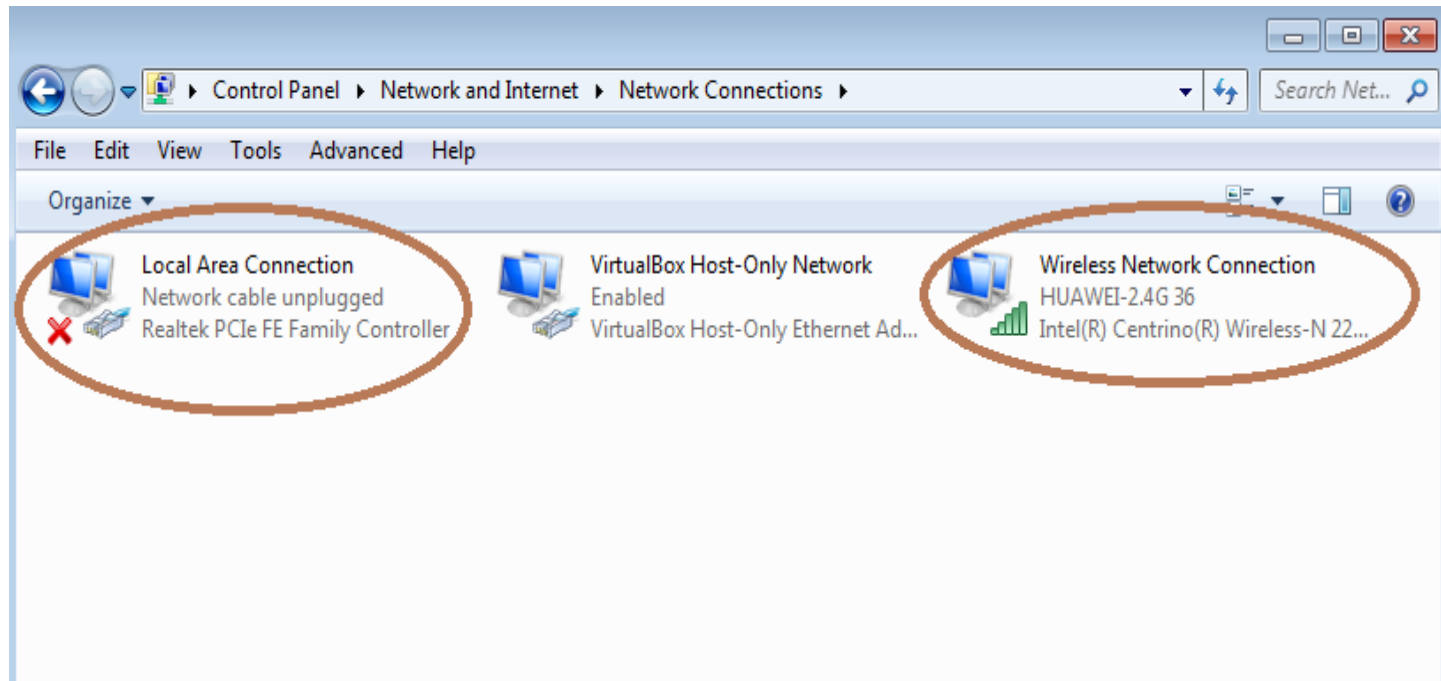
2. Network and Internet

- You also can change the adapter setting by clicking on **Change adapter settings** to choose wired (**Local Area Connection**) network or wireless (**Wireless Network Connection**) network that are available.



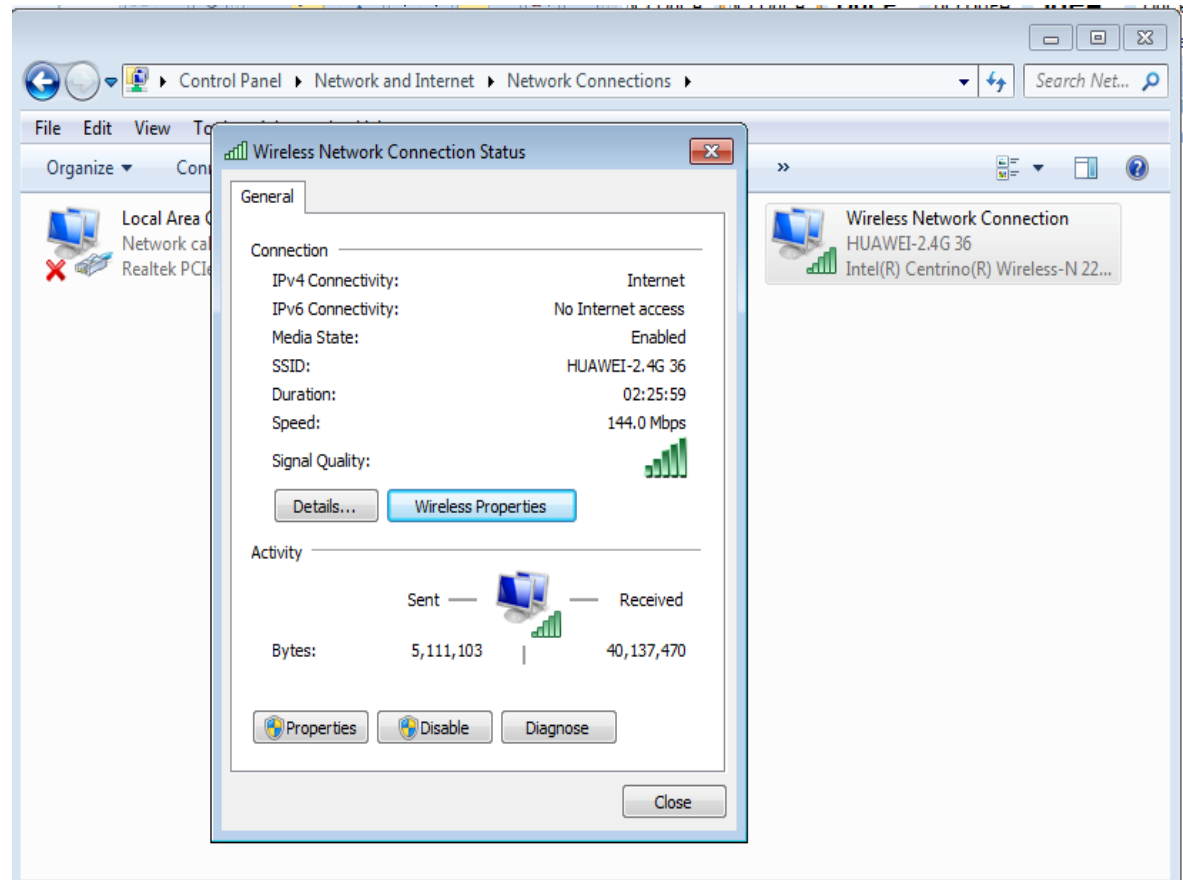
2. Network and Internet

- Double click on **Wireless Network Connection** to view the general status of Wireless Network Connection.



2. Network and Internet

- This will provide information about the connecting network such as the type of connection, wireless properties and, security key.



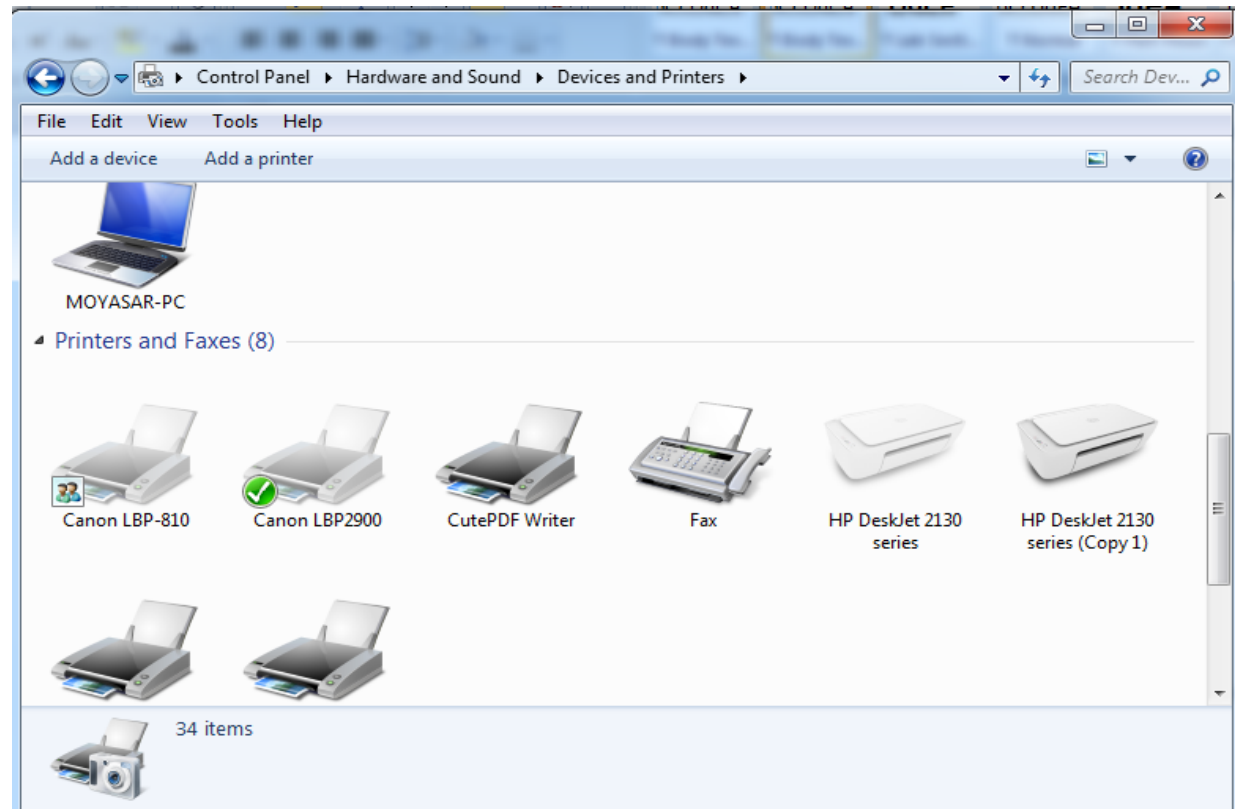
3. Hardware and Sound

- The **Hardware and Sound** category show you the devices and printers that connected to your PC. You can add or remove a device, and Connect to a projector.



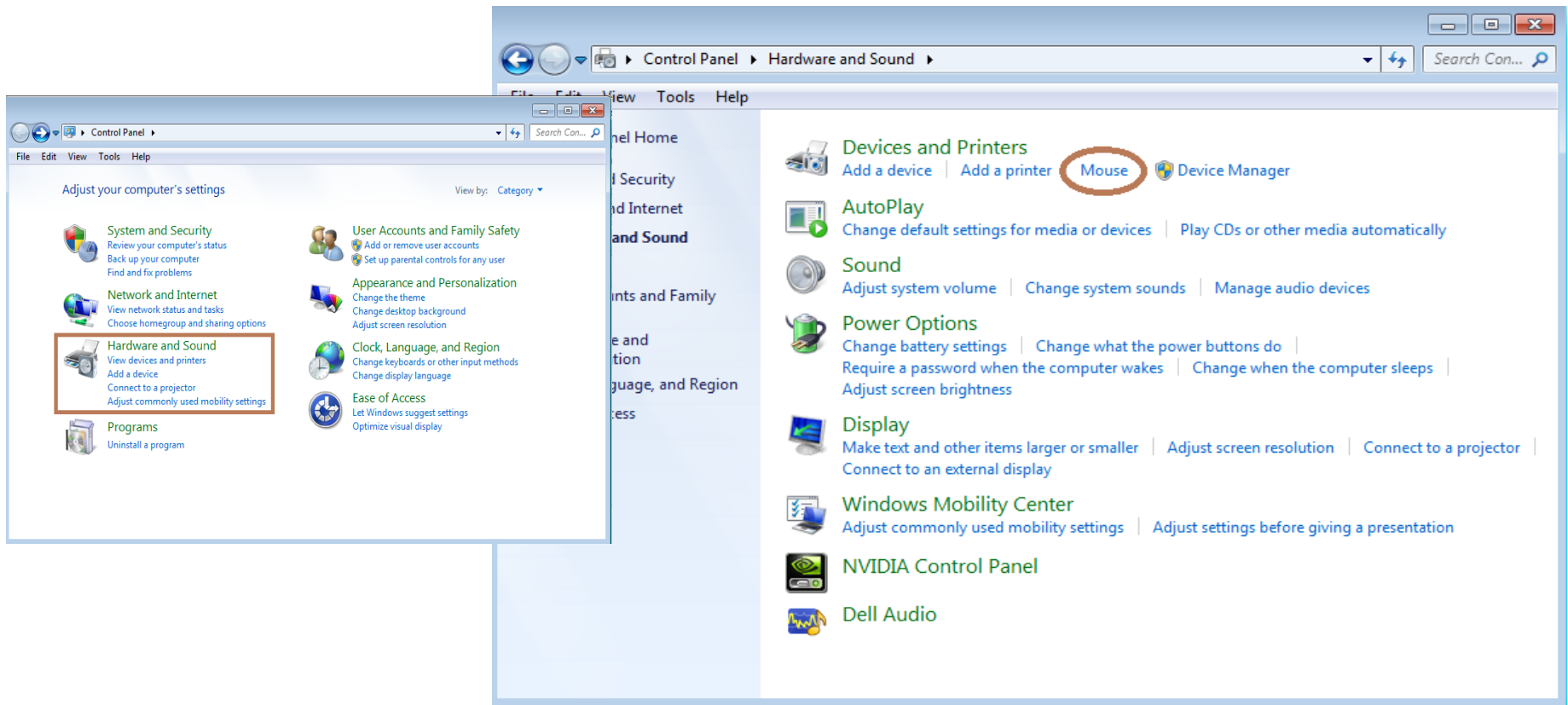
3. Hardware and Sound

- Under **Hardware and Sound**.
 - a. Click **View devices and printers**, a window will display.
 - b. How many devices and printers available in your PC?



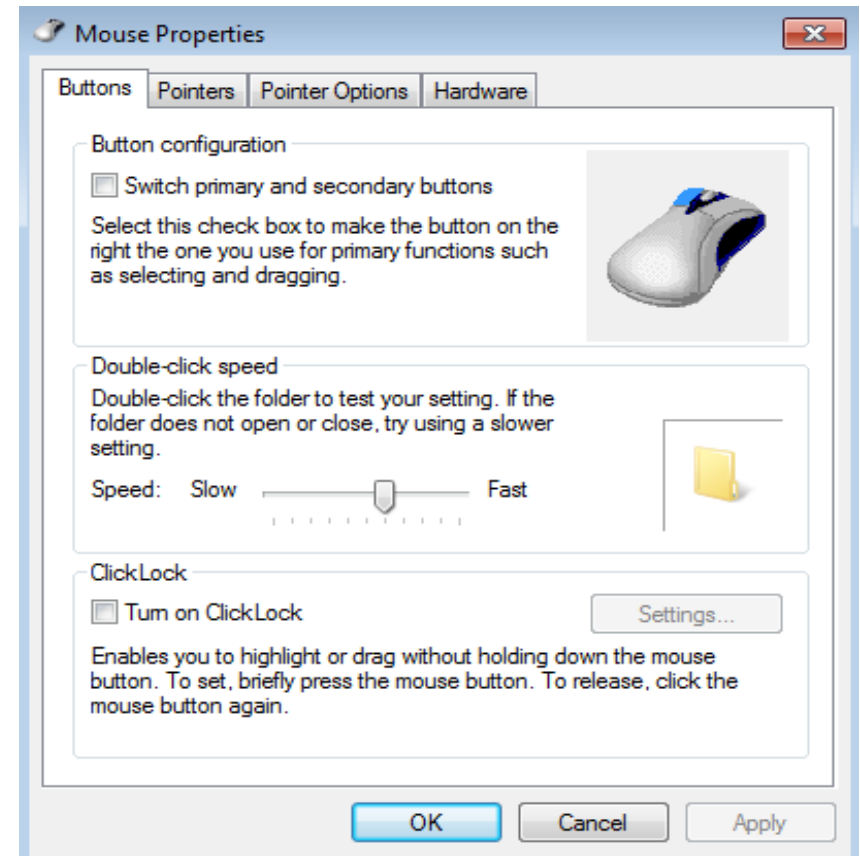
3. Hardware and Sound

- Click **Hardware and Sound**, a window will display, click on **Mouse**.



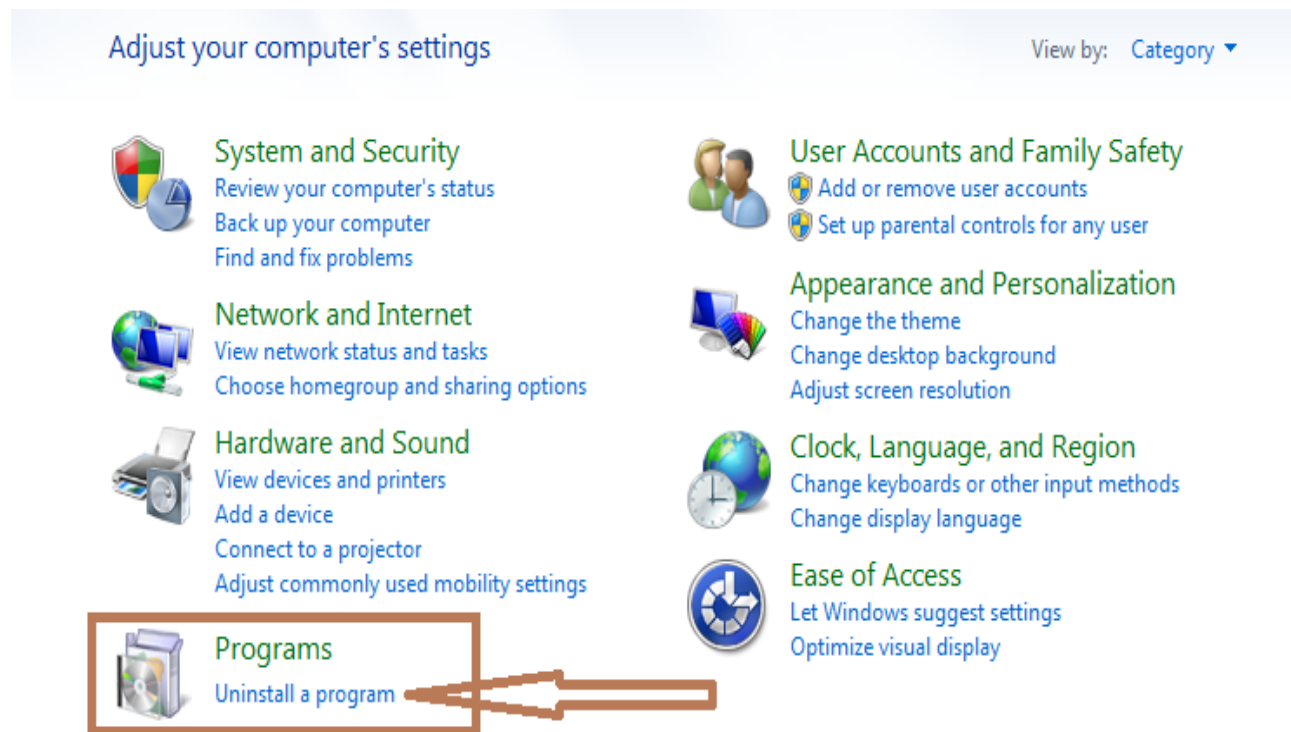
3. Hardware and Sound

- In **Mouse** option, adjust the **Buttons configuration** and **speed**. You can switch between primary and secondary buttons so you can choose the left or right buttons of your Mouse to be primary or secondary buttons.
- Adjust the **Double-click speed** by moving the cursor to be slow or fast.
- In **pointers** options, you can change the pointer scheme.



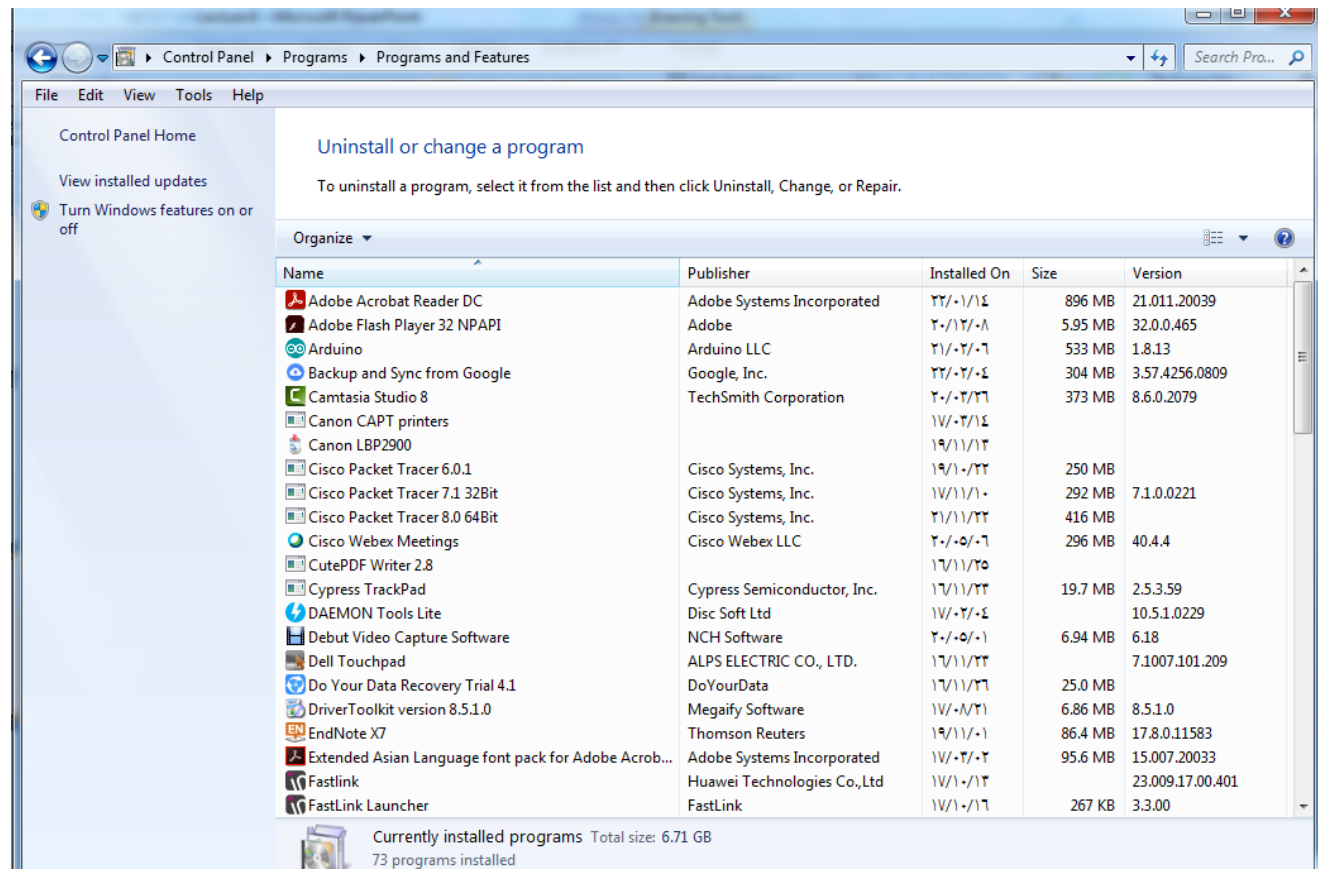
4. Programs

- **Programs** category allows you to get new programs and uninstall programs on your computer. So, you can view all installed programmes in your PC under the **Programs**.



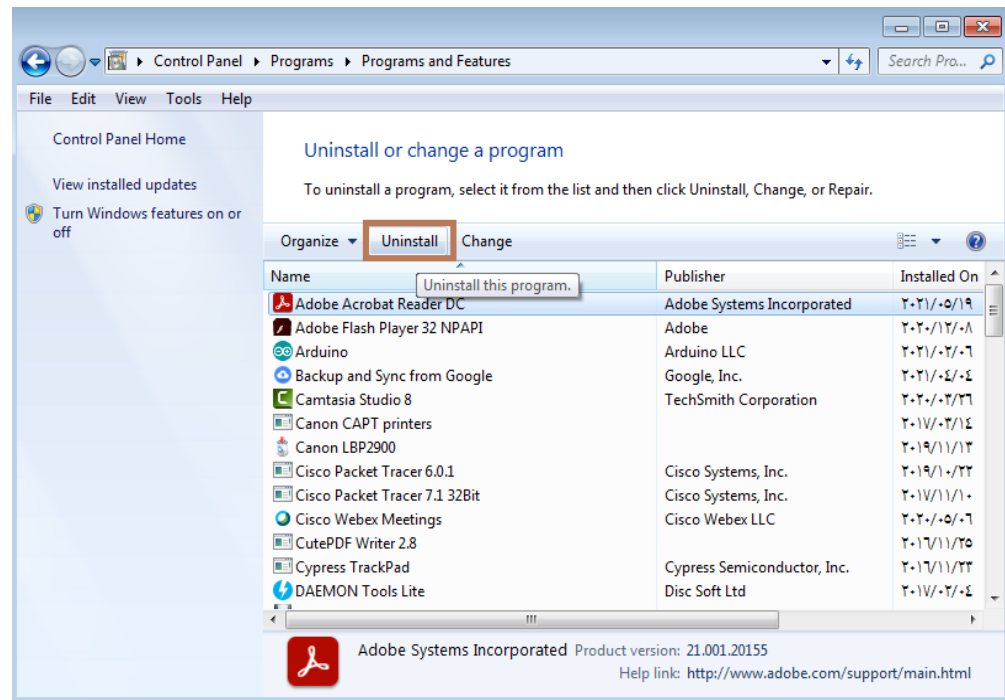
4. Programs

- Click on **Uninstall a program**, window will display all installed programs, the day of installation, the size and version of each application installed.



4. Programs

- Be careful if you want to remove a particular program.
- To uninstall program:
 - Select a program you want to **uninstall**
 - Click **uninstall** if you're sure you're ready to uninstall a piece of software,
 - A window will pop up asking you to confirm.



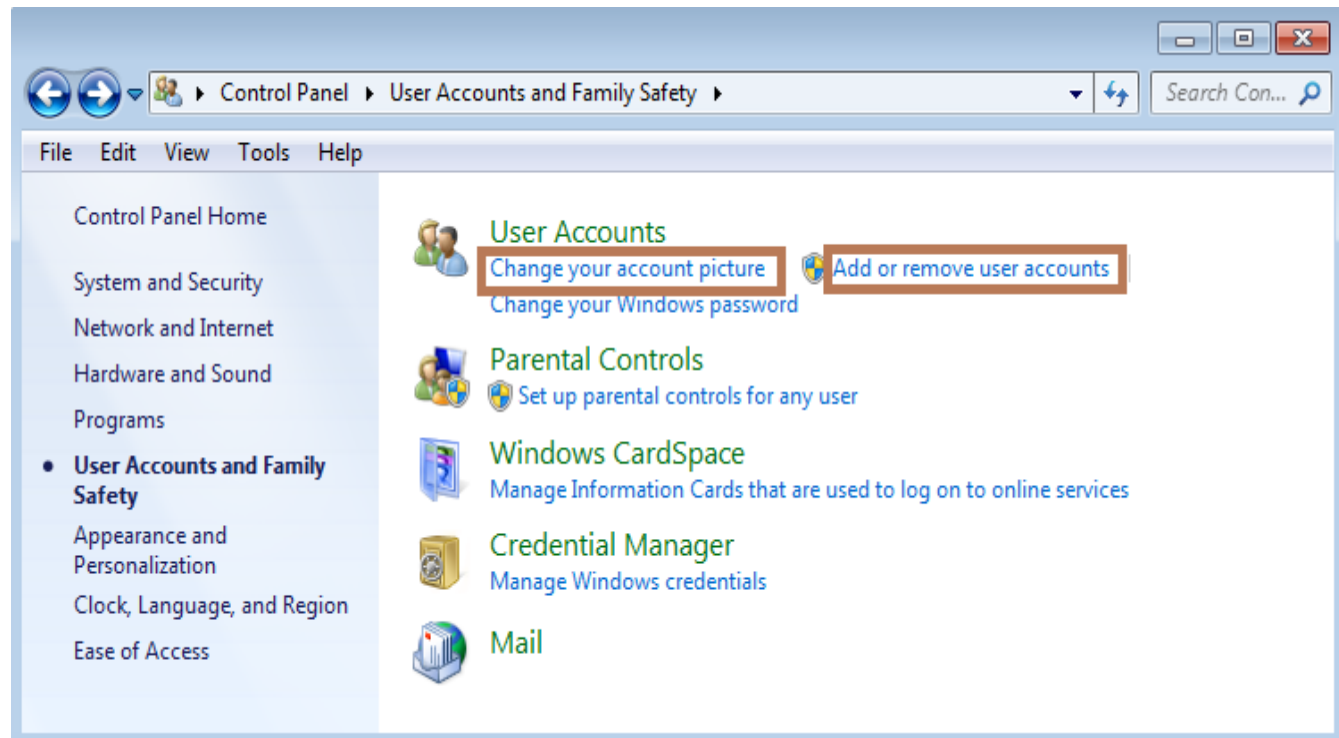
5. User Account and Family Safety

- The **User Accounts** category allows you to view user accounts, adjust user settings (e.g., user name, password) and adjust other user settings.



5. User Account and Family Safety

- Click on **User Account and Family Safety** to list of subcategories of the User Accounts.
- A window will open – under the **User Accounts**; you can make changes to your user account, change your account type, picture, and manage another account by adding or removing user accounts.



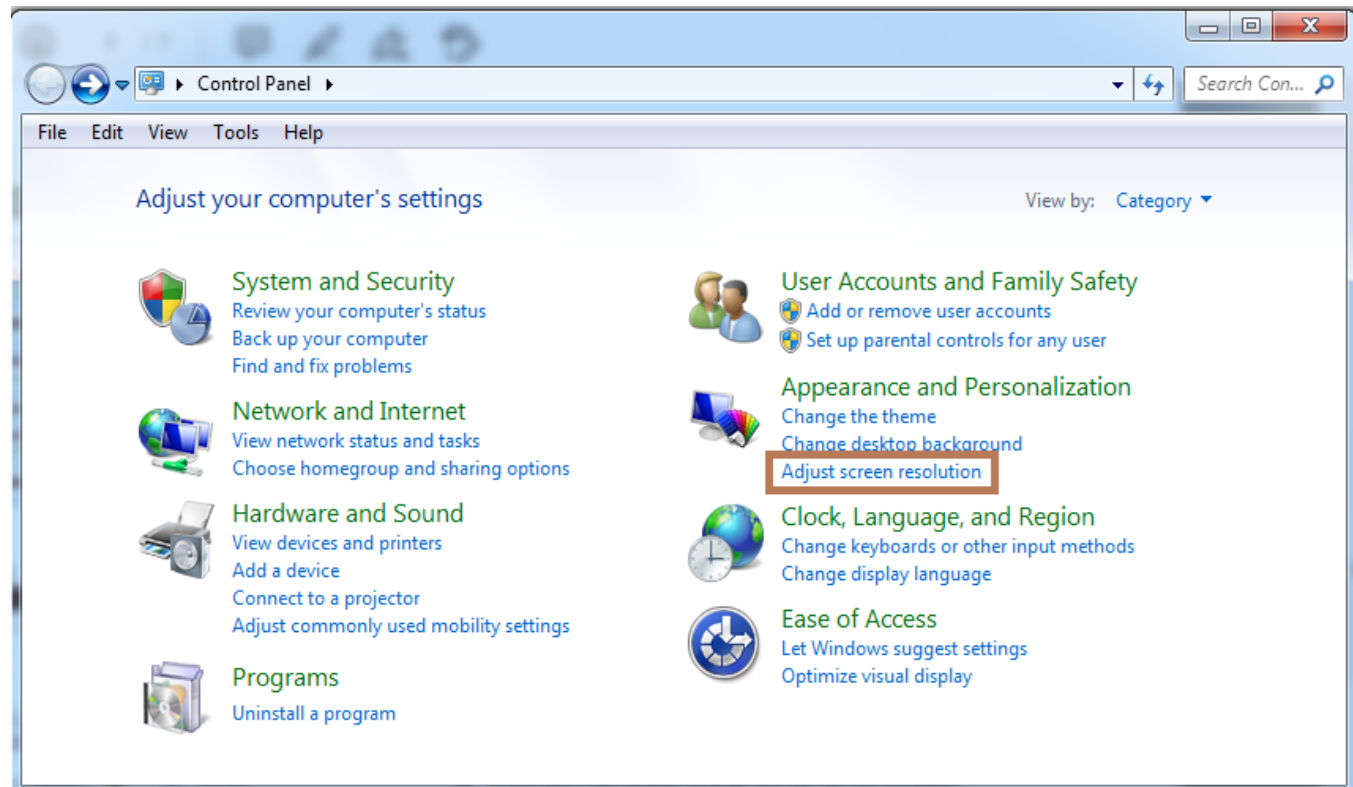
6. Appearance and Personalization

- The **Appearance and Personalization** category allows you to change the look of your Windows 10, which includes adjusting the theme (background, screen saver, and taskbar).
- It consists of a list of subcategories such as **Change the theme**, **Change desktop background**, and **Adjust screen resolution**.
- **Note:** you can also right click on your Desktop and choose Personalize to get here.



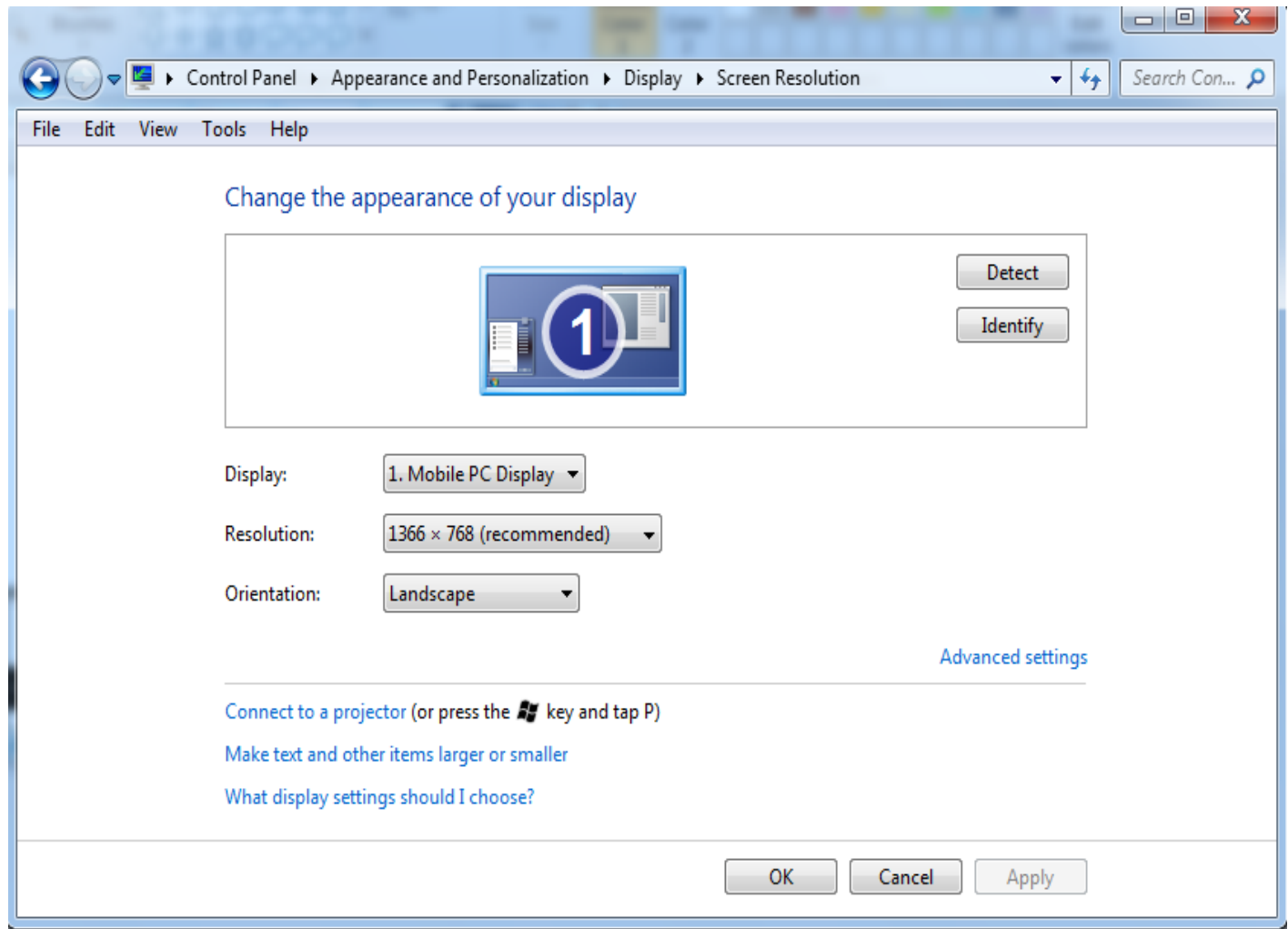
6. Appearance and Personalization

- From **Appearance and Personalization**, you can **adjust screen resolution**
- To **adjust screen resolution**, click **adjust screen resolution**, and orientation.



6. Appearance and Personalization

- Select **high recommended resolution** and **landscape** orientation



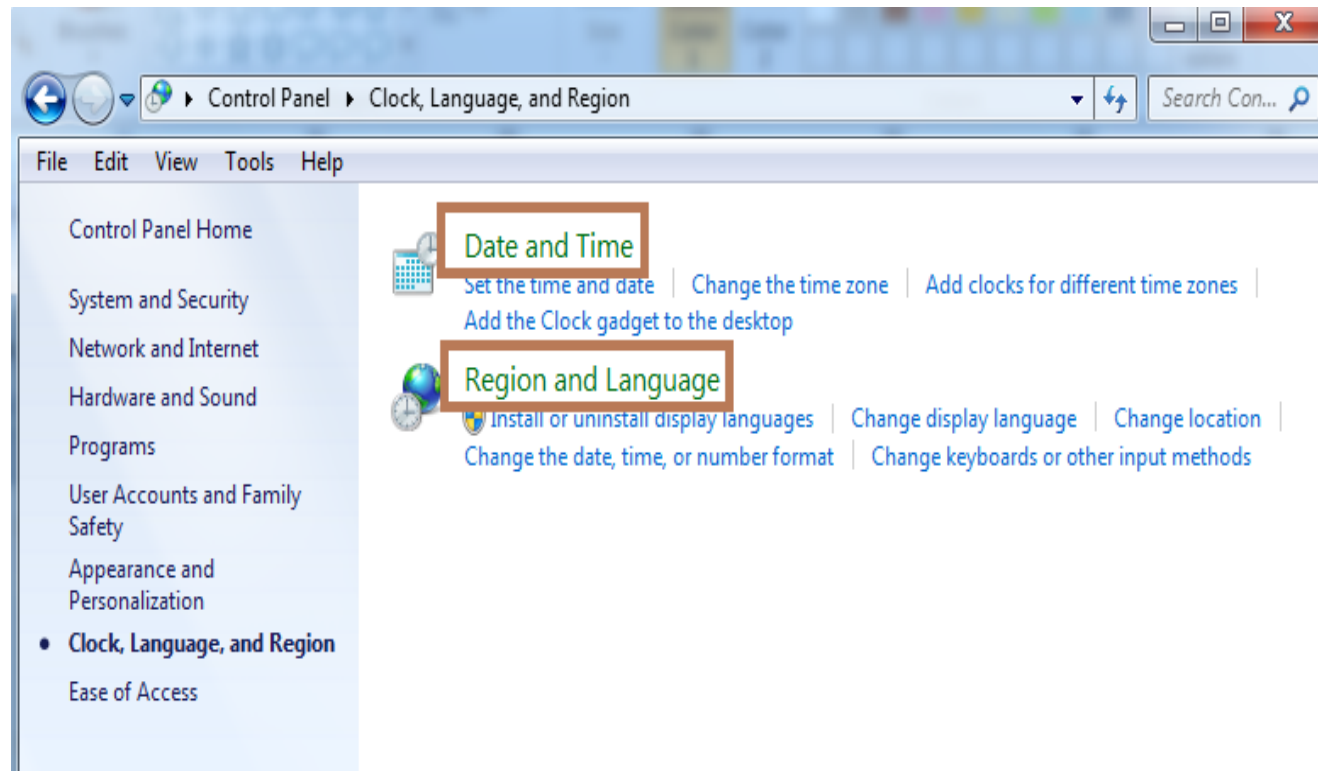
7. Clock, Language, and Region

- The Clock, Language, and Region category allows you to change the date, time, language, and region settings in Windows.
- You also can **Change keyboards or other input methods** and **Change display language**.



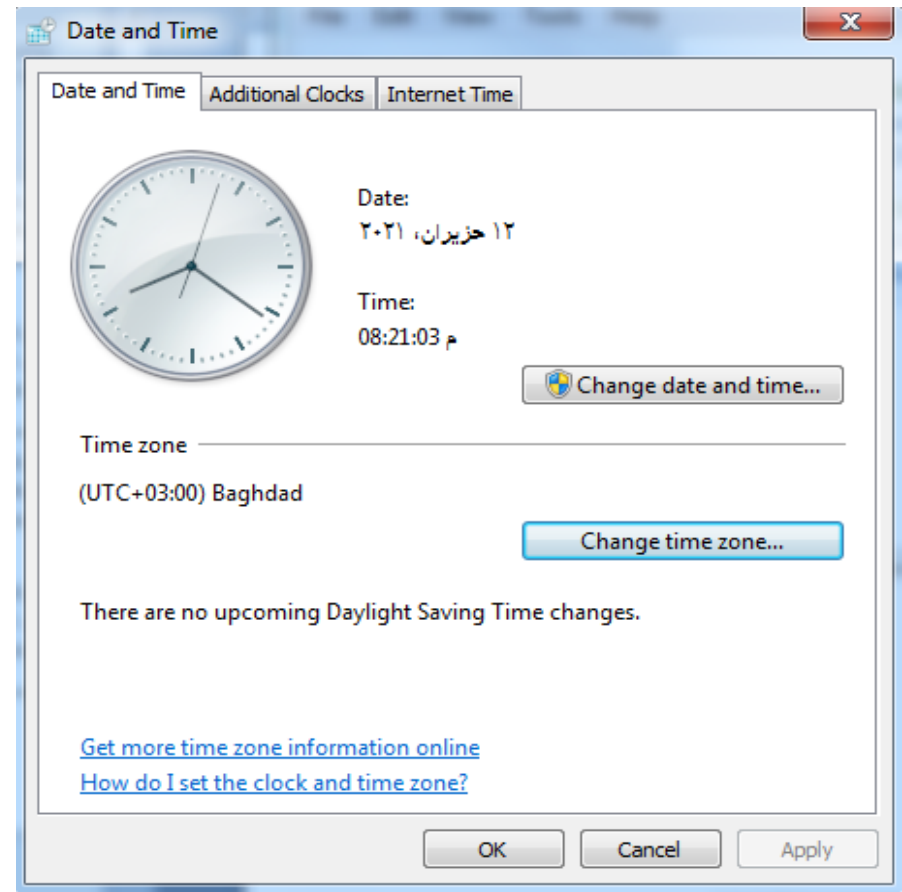
7. Clock, Language, and Region

- Click **Clock, Language, and Region** category, a window will display two subcategories; **Date and Time**, **Region and Language**



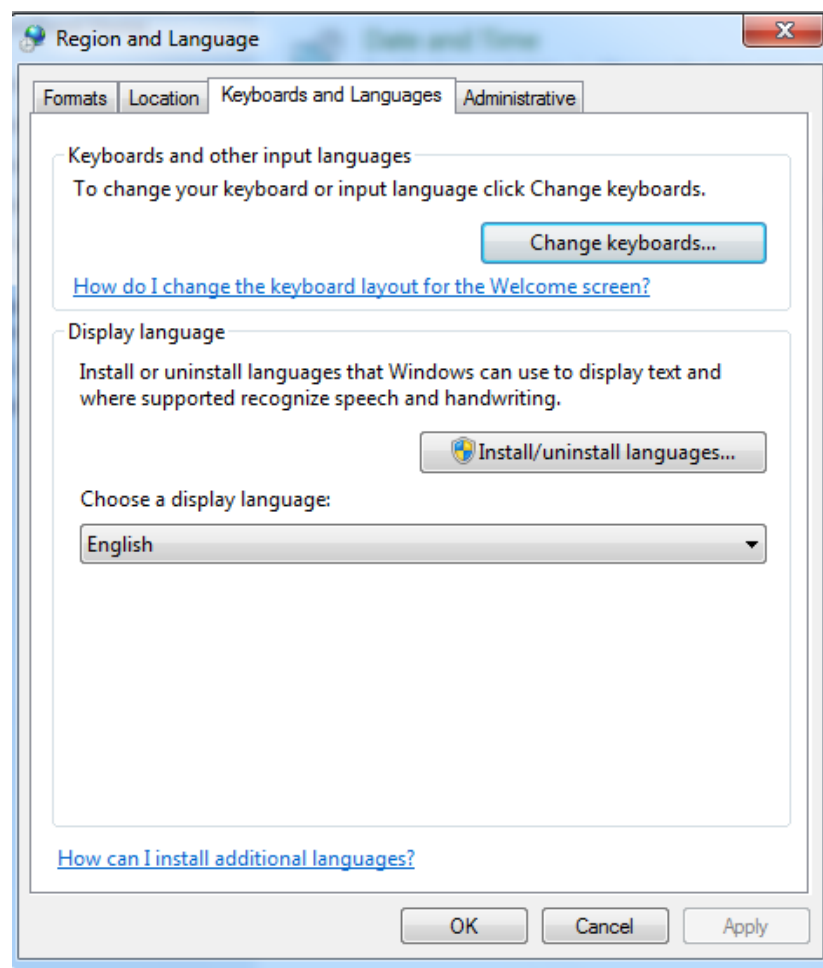
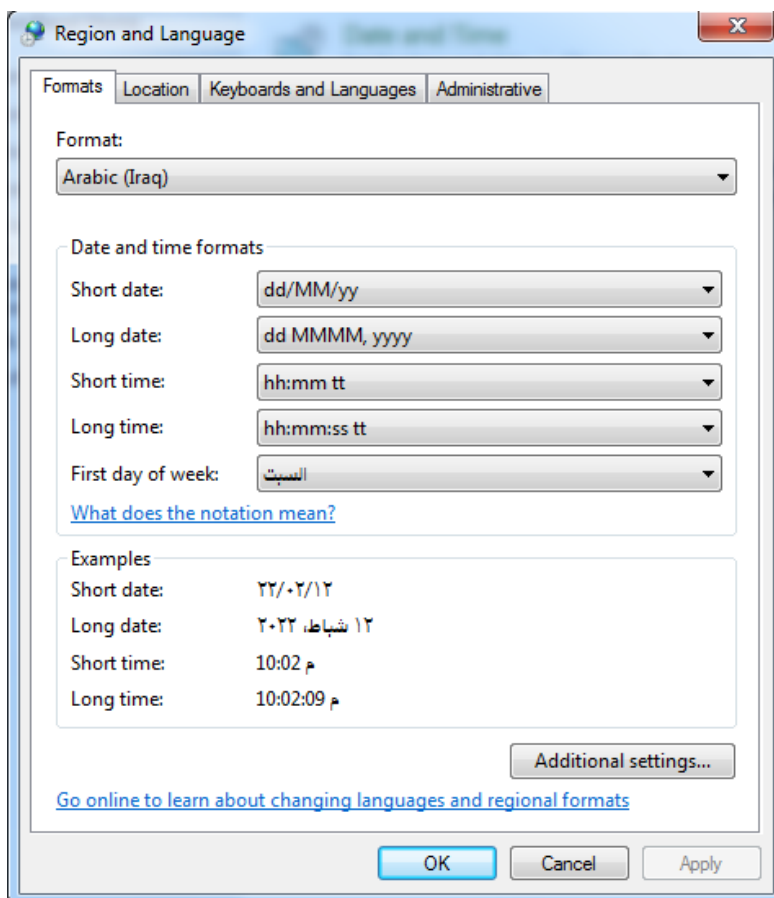
7. Clock, Language, and Region

- Click **Clock, Language, and Region** category, a window will display two subcategories; **Date and Time**, **Region and Language**
- Under the **Date and Time**, click **set the time and date**, a window will open click **Change date and time** option



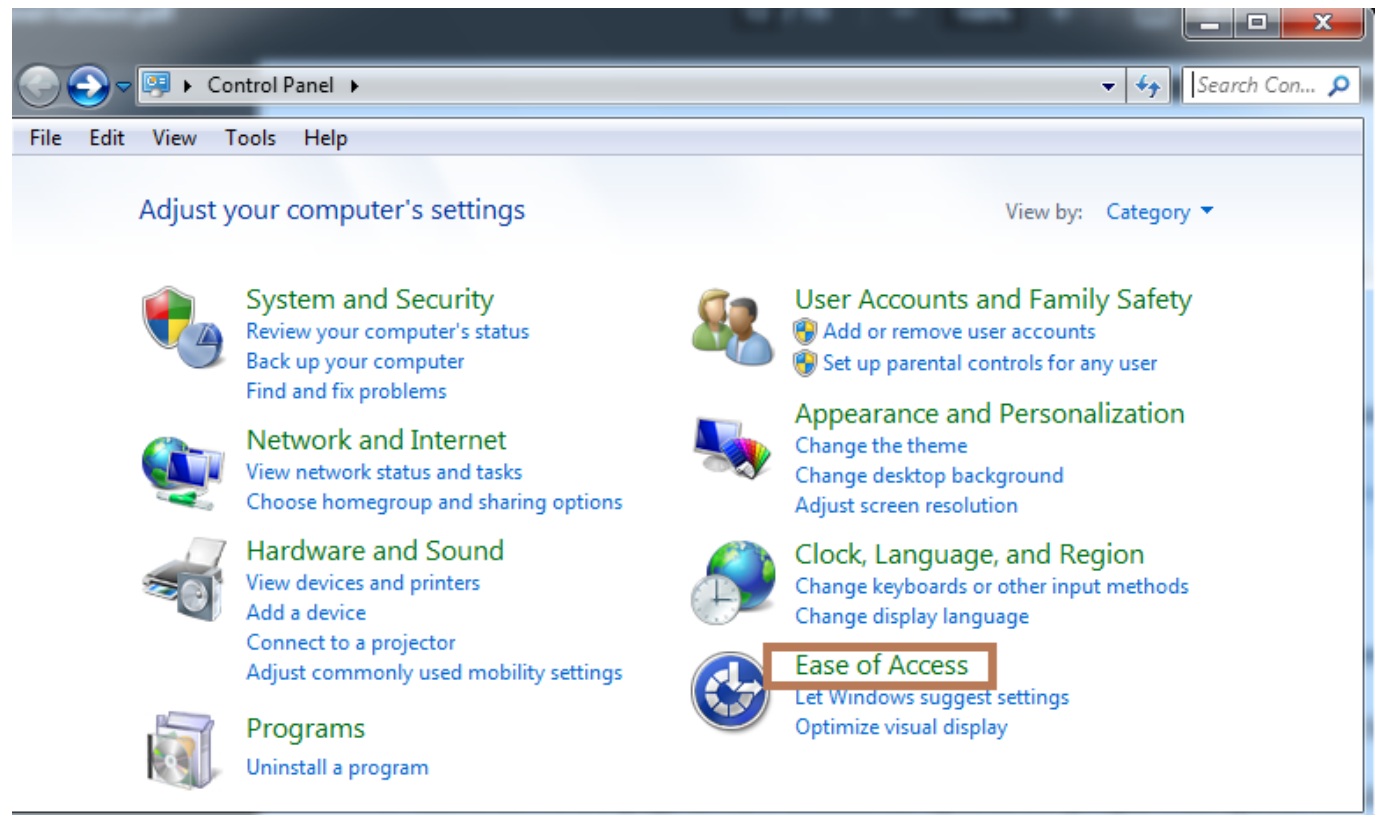
7. Clock, Language, and Region

- **Region and Language:** in this subcategory, you also can change the format of the date, change your current location, change the keyboard language or add another language to your keyboard.



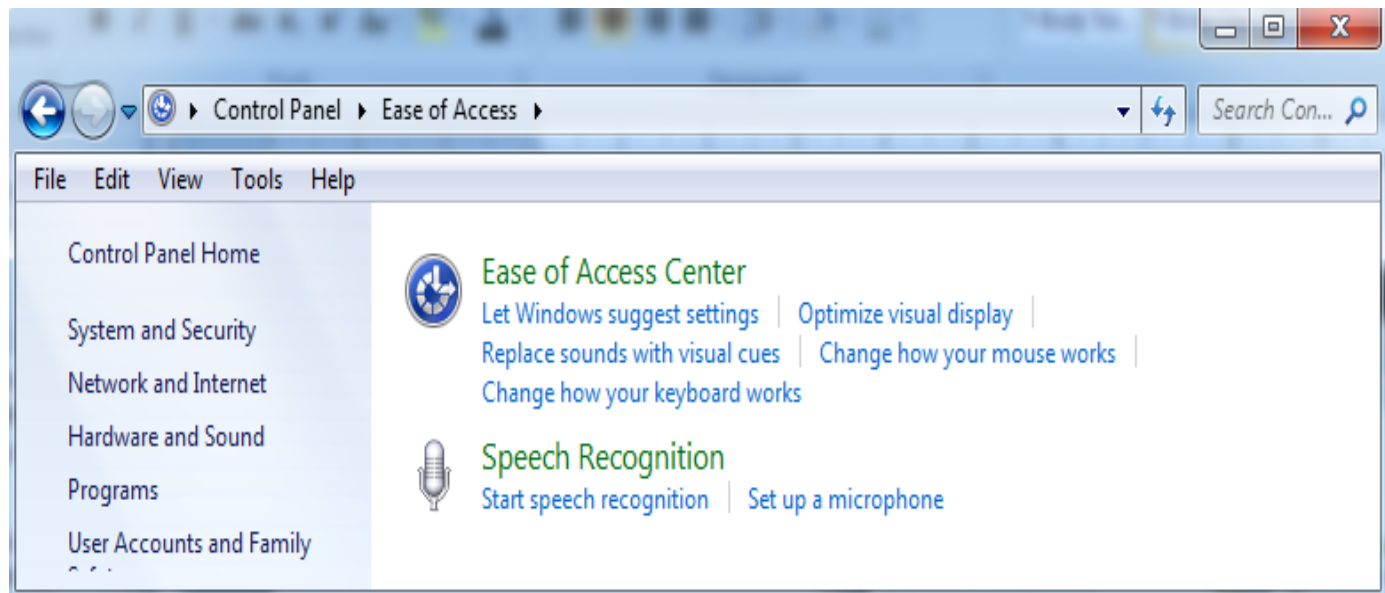
8. Ease of Access

- The **Ease of Access** is a category makes Windows settings and programs easy to use by people with special needs.
- It adjusts the vision, hearing, speech recognition, and mobility settings.



8. Ease of Access

- Click the **Ease of Access** link.
- The **Ease of Access Center** window will display.
- Try out some of the options available in this window such as **Change how your mouse works**.
- Scroll down the page to view additional options for people with special needs.



Syllabus – First Semester

- General Overview of Personal Computer System
- Computer Peripherals: (hardware)
- Operating Systems: (Software)
 - MS-DOS
 - Microsoft Windows
- Managing Windows Files & Folders
- Windows Control Panel
- Microsoft Office:
 - Microsoft Word
 - Microsoft Power point
 - Microsoft Excel



Computer Skills



Lecture 7: Microsoft Office – MS Word

Systems and Control Engineering Department

College of Electronics Engineering

Ninevah University

1st Class

By:

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2025 - 2026

Outline

- **Introduction to Microsoft Office**
- **Microsoft Office Applications**
- **Introduction to Microsoft Word 2007**



Introduction to Microsoft Office

- Is a set of computer applications mainly used for business, students, and office purposes.
- First introduced in 1990 (by the Microsoft Corporation).
- MS OFFICE helps simplify basic office tasks and improve work productivity
- The first version of Office contained **Microsoft Word**, **Microsoft Excel**, and **Microsoft PowerPoint**.
- Over the years, Office applications have grown substantially closer to include Microsoft access, Microsoft publisher, etc.
- Each application is designed to address specific tasks
- available as a package or stand-alone applications, such as Word or Excel separately.

Microsoft Office Applications

- The most important (must-learn) programs in Microsoft Office are:

1. **Microsoft Word.**
2. **Microsoft PowerPoint.**
3. **Microsoft Excel.**
4. **Microsoft Access**

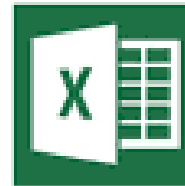
Microsoft Office Suite



Word



PowerPoint



Excel



Access

Microsoft Office Applications

1. Microsoft Word: is a (**word processing program**) created by Microsoft that lets users to enter, edit, format, save, retrieve and print text documents, such as reports and letters.
2. Microsoft Excel: is a (**spread sheet program**) that helps you store, organize and manipulate data by creating simple to complex spreadsheets.
3. Microsoft PowerPoint: is a (**slide presentation program**) allows you to visually display information, using anything from basic slideshows to professional multimedia presentations.



Introduction to Microsoft Word 2007

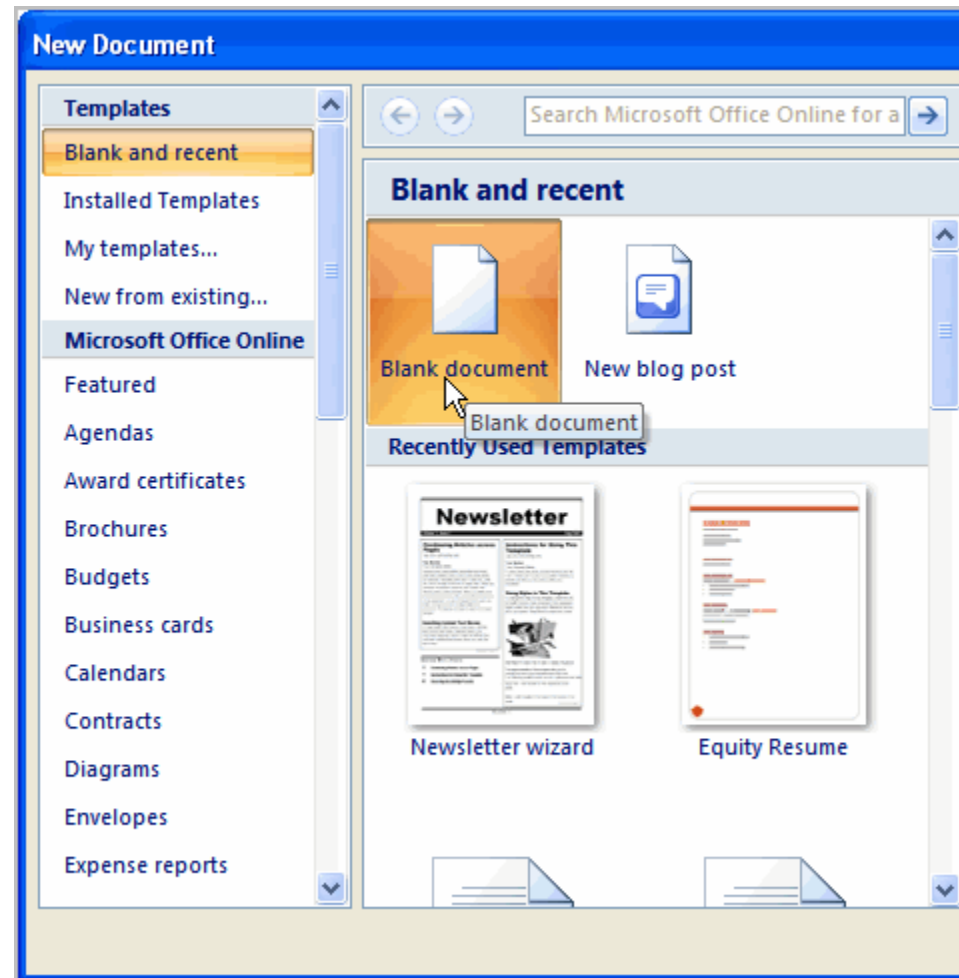
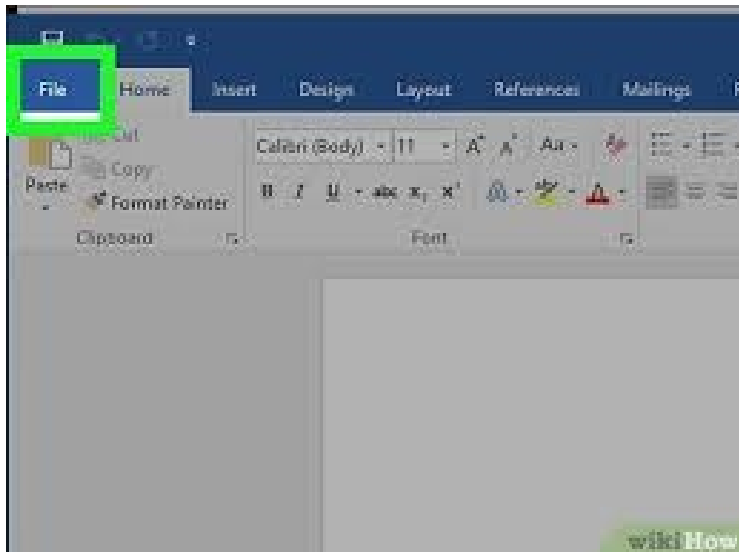
- There are different versions of MS Word.
- While different versions have different appearances, they all have most of the same features. If you know what you need, you should be able to find it in other versions.
- After installing MS Office in your PC, double click to MS Word application
- A window will open



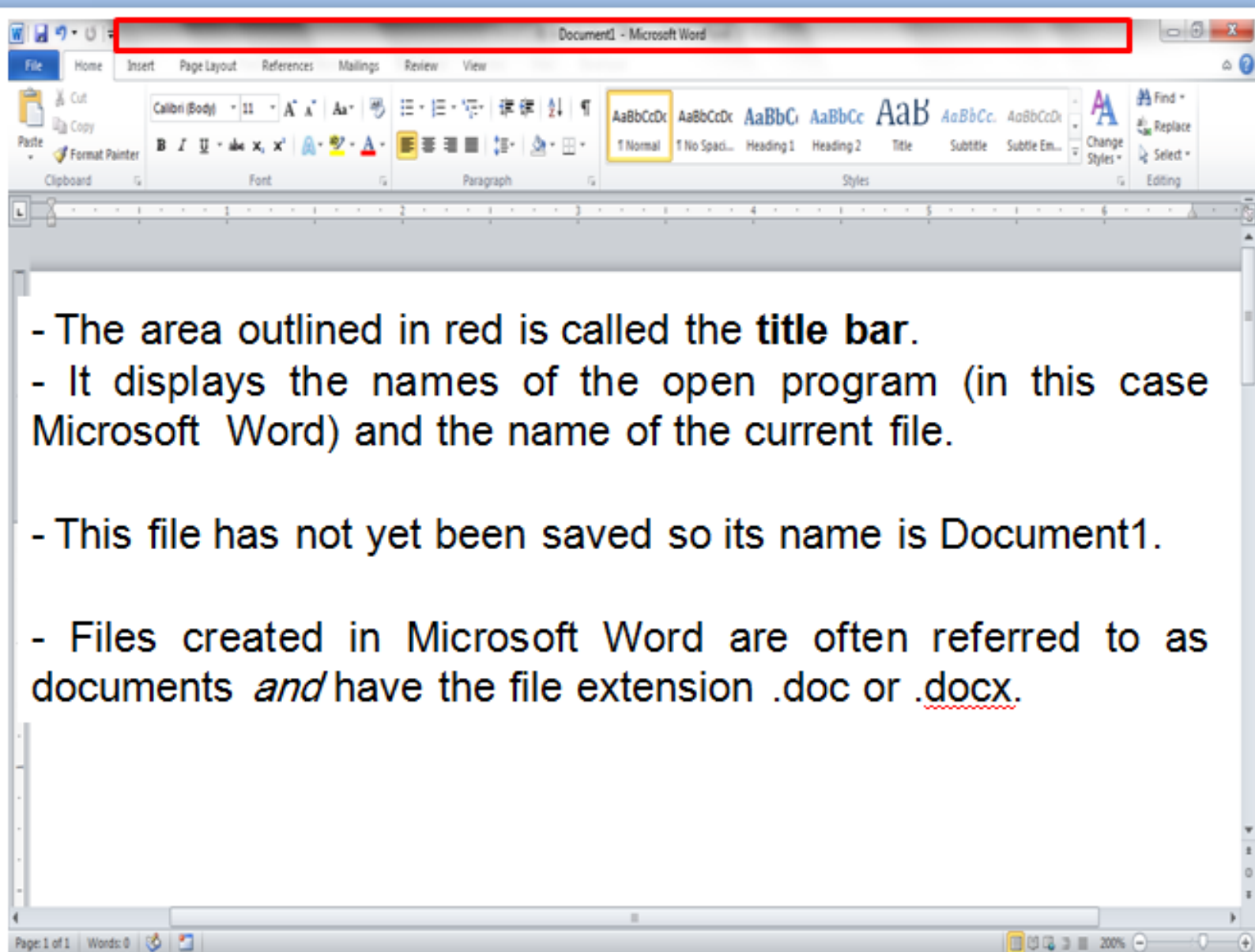
Opening Microsoft Word 2007

- Create a New Word Document:

- 1. Click the File Tab.**
- 2. Click New.**
- 3. Click Blank Document.**

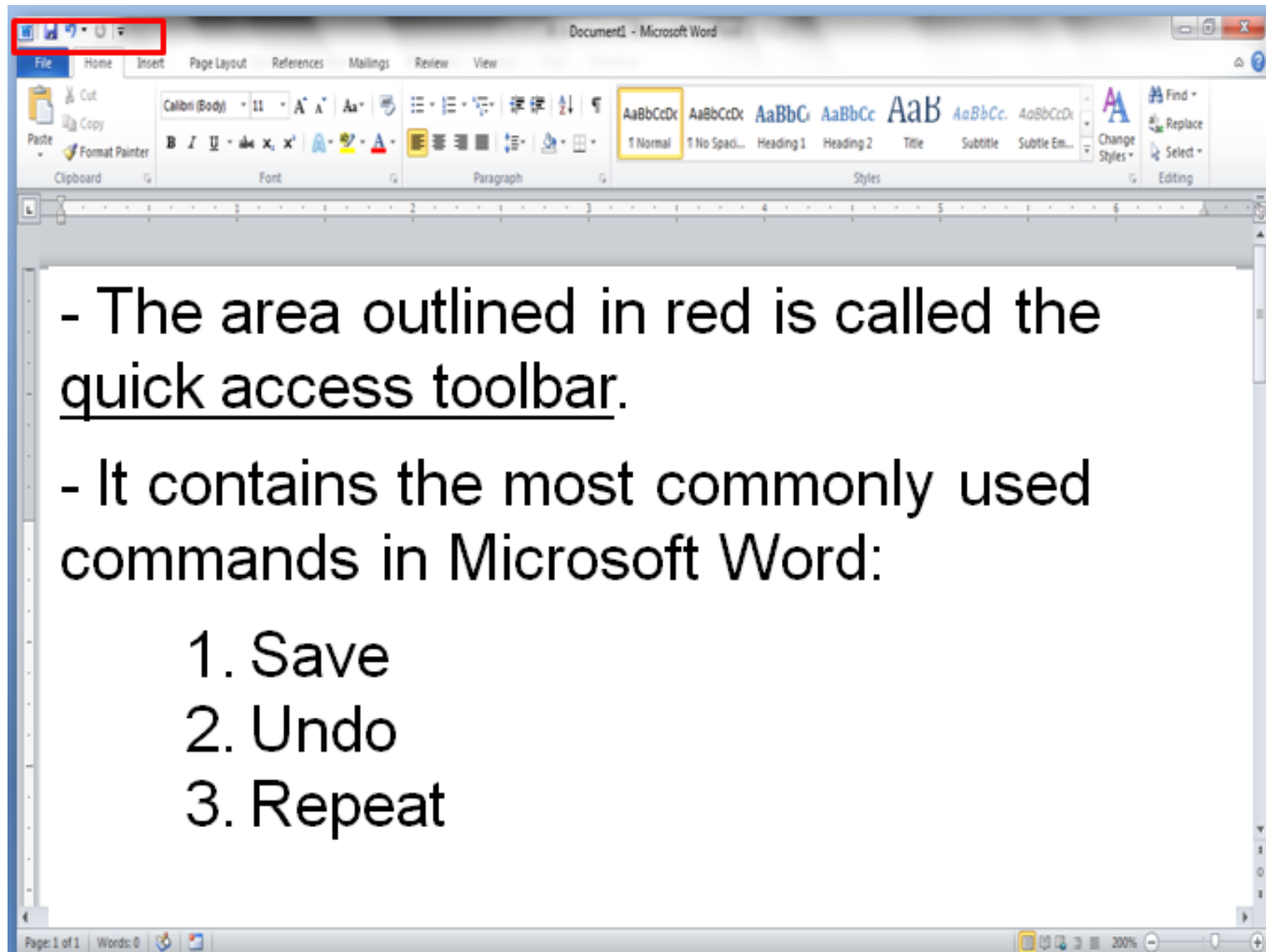


Opening Microsoft Word 2007



- The area outlined in red is called the **title bar**.
- It displays the names of the open program (in this case Microsoft Word) and the name of the current file.
- This file has not yet been saved so its name is Document1.
- Files created in Microsoft Word are often referred to as documents *and* have the file extension .doc or .docx.

Opening Microsoft Word 2007

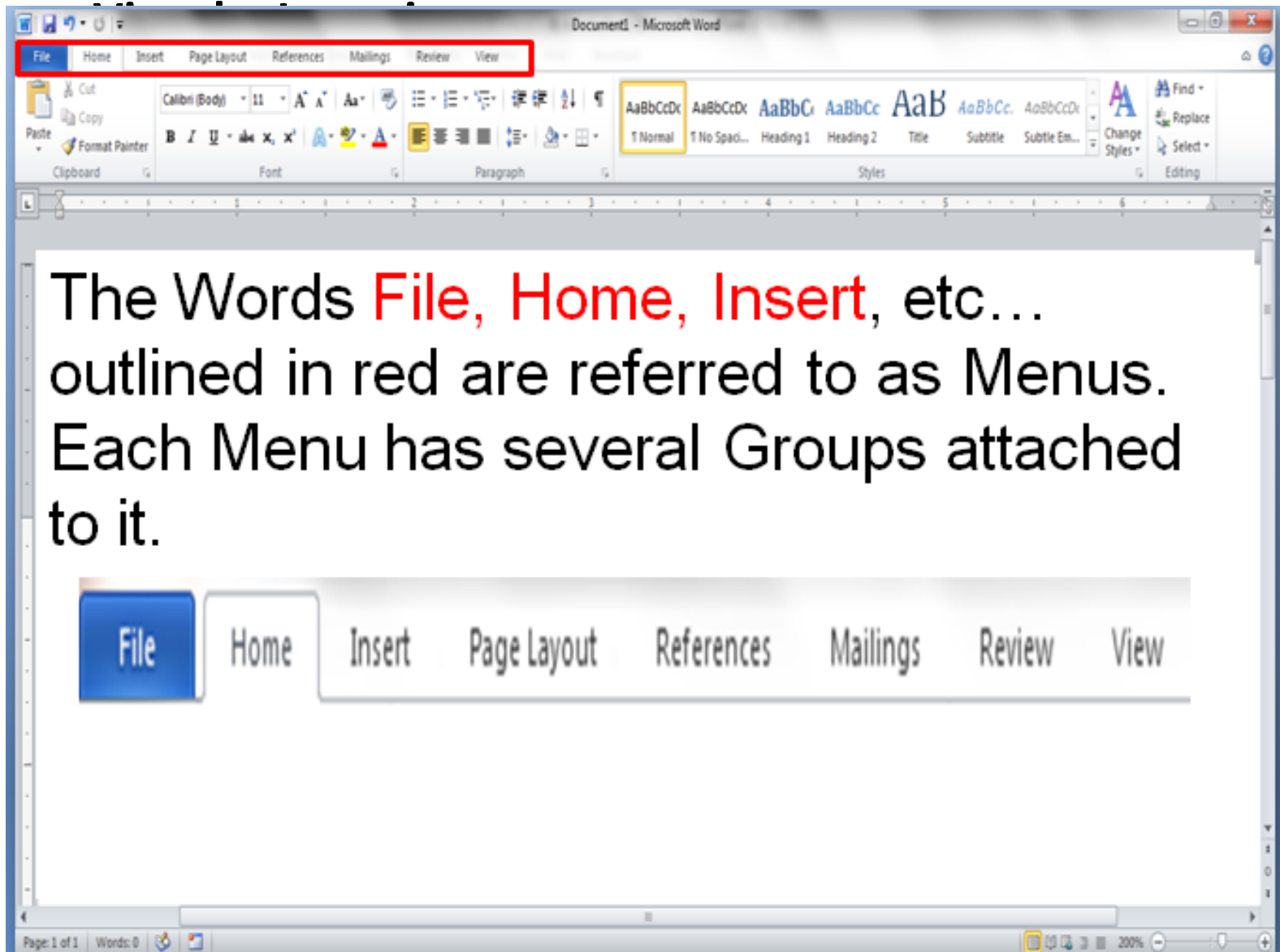


- The area outlined in red is called the quick access toolbar.

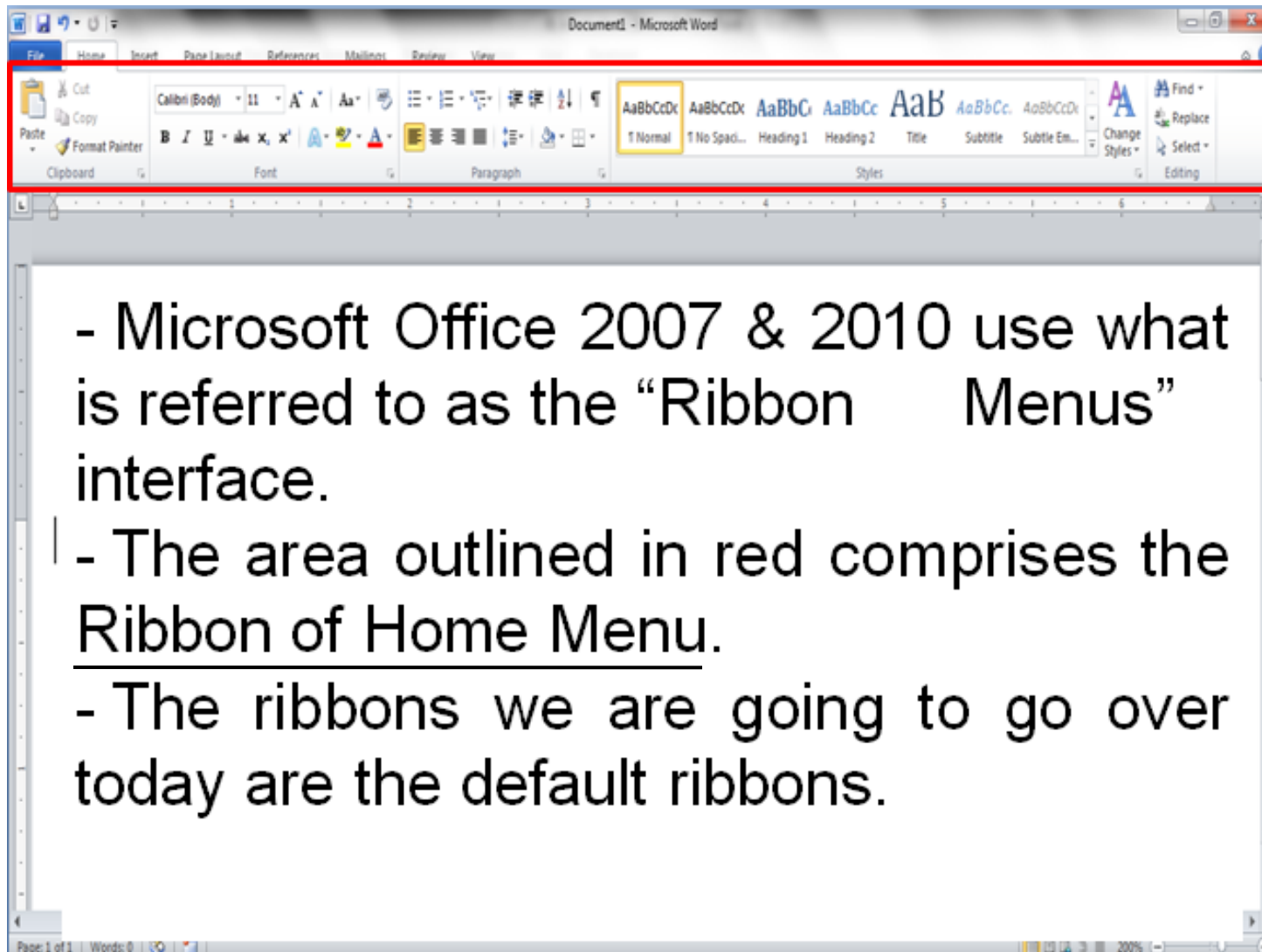
- It contains the most commonly used commands in Microsoft Word:

1. Save
2. Undo
3. Repeat

Opening Microsoft Word 2007



Opening Microsoft Word 2007



- Microsoft Office 2007 & 2010 use what is referred to as the “Ribbon Menu” interface.
- The area outlined in red comprises the Ribbon of Home Menu.
- The ribbons we are going to go over today are the default ribbons.

Opening Microsoft Word 2007

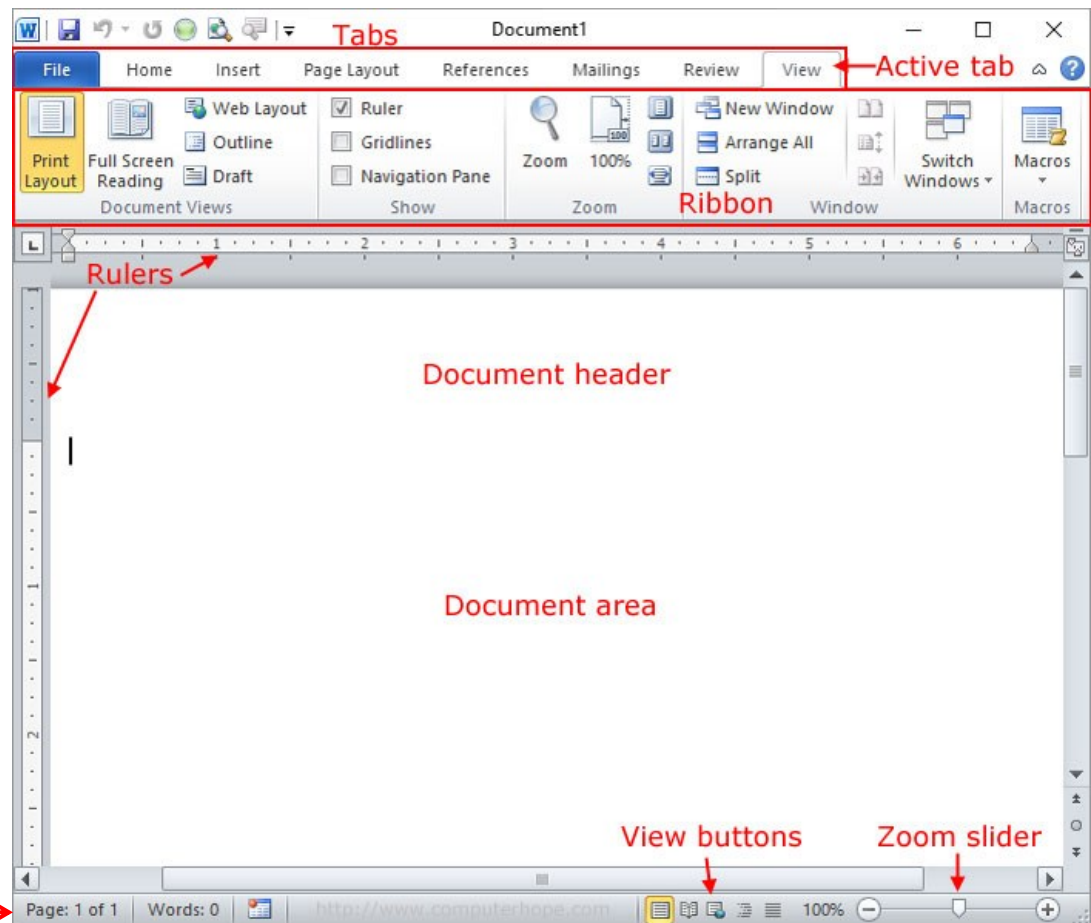
Q/ What is a Ribbon of Insert Menu ?

Opening Microsoft Word 2007

Ribbon:

is a set of toolbars across the top of the screen. It consists 3 basics components :

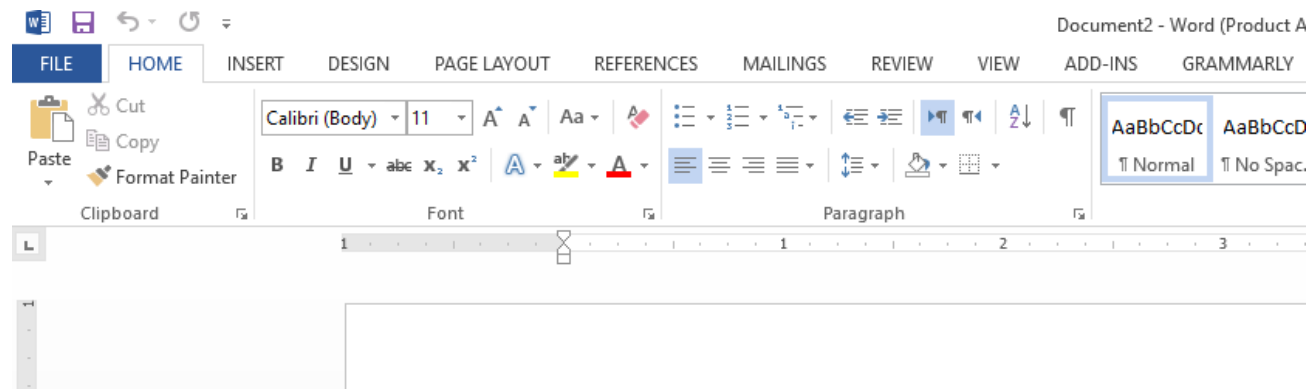
- 1) Tabs (Tab Bar)
- 2) Groups
- 3) Commands



Opening Microsoft Word 2007

➤ **Tabs:** An area on the Ribbon that contains buttons that are organized in groups.

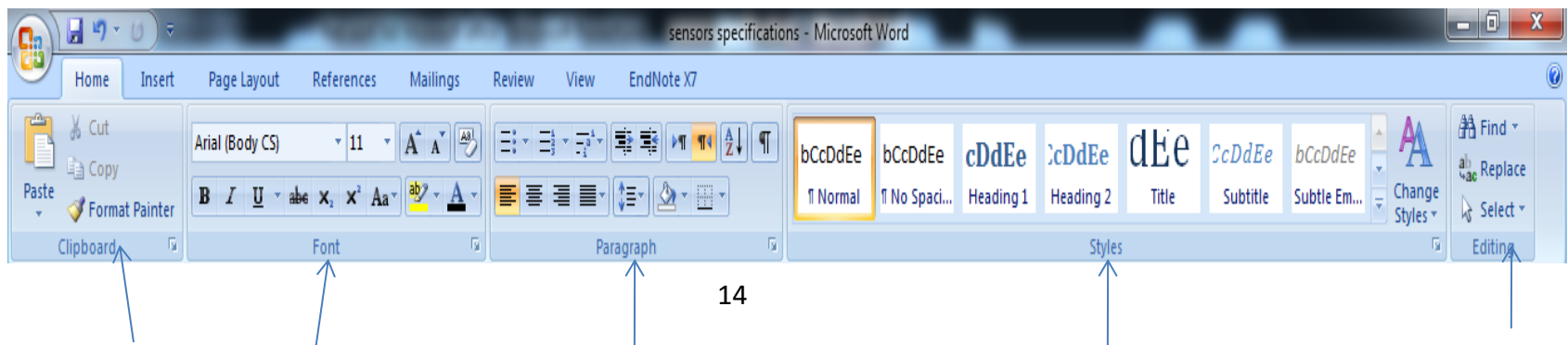
1. File
2. Home Tab
3. Insert
4. Design
5. Page Layout
6. References
7. Mailings
8. Review
9. View
10. Add-Ins



Opening Microsoft Word 2007

➤ **Groups:** Within each tab, there are tasks of related tasks found on activity tab. For example :the tasks of Home Tab are :

- 1) Clipboard
- 2) Font
- 3) Paragraph
- 4) Styles
- 5) Editing



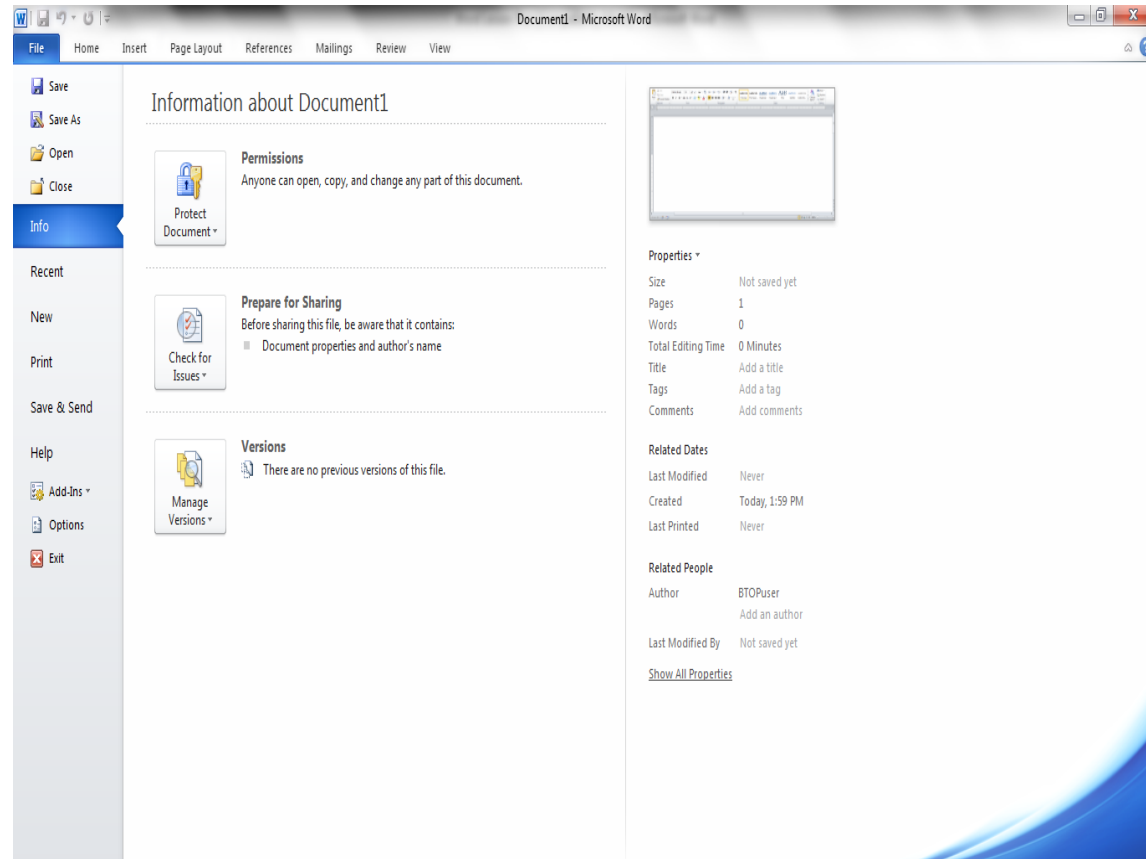
Opening Microsoft Word 2007

➤ **Commands:** Buttons in each group contain a command. For example: in Clipboard group in home tab contains the Commands :

- 1) Cut
- 2) Copy
- 3) Paste
- 4) Format Painter

File Tab:

- manages your files and data
- allows you to Create, Save, Save as Adobe PDF, Open, Close.
- After click in File tab, the windows appear to contain the term Info and Arrow
- INFO: You find information about document your work in such as where you save, properties, and protected document.



SAVING AND CLOSING A NEW DOCUMENT

- **1. SAVE DOCUMENTS:**

- **A) ON THE QUICK ACCESS TOOLBAR, CLICK THE SAVE BUTTON.**

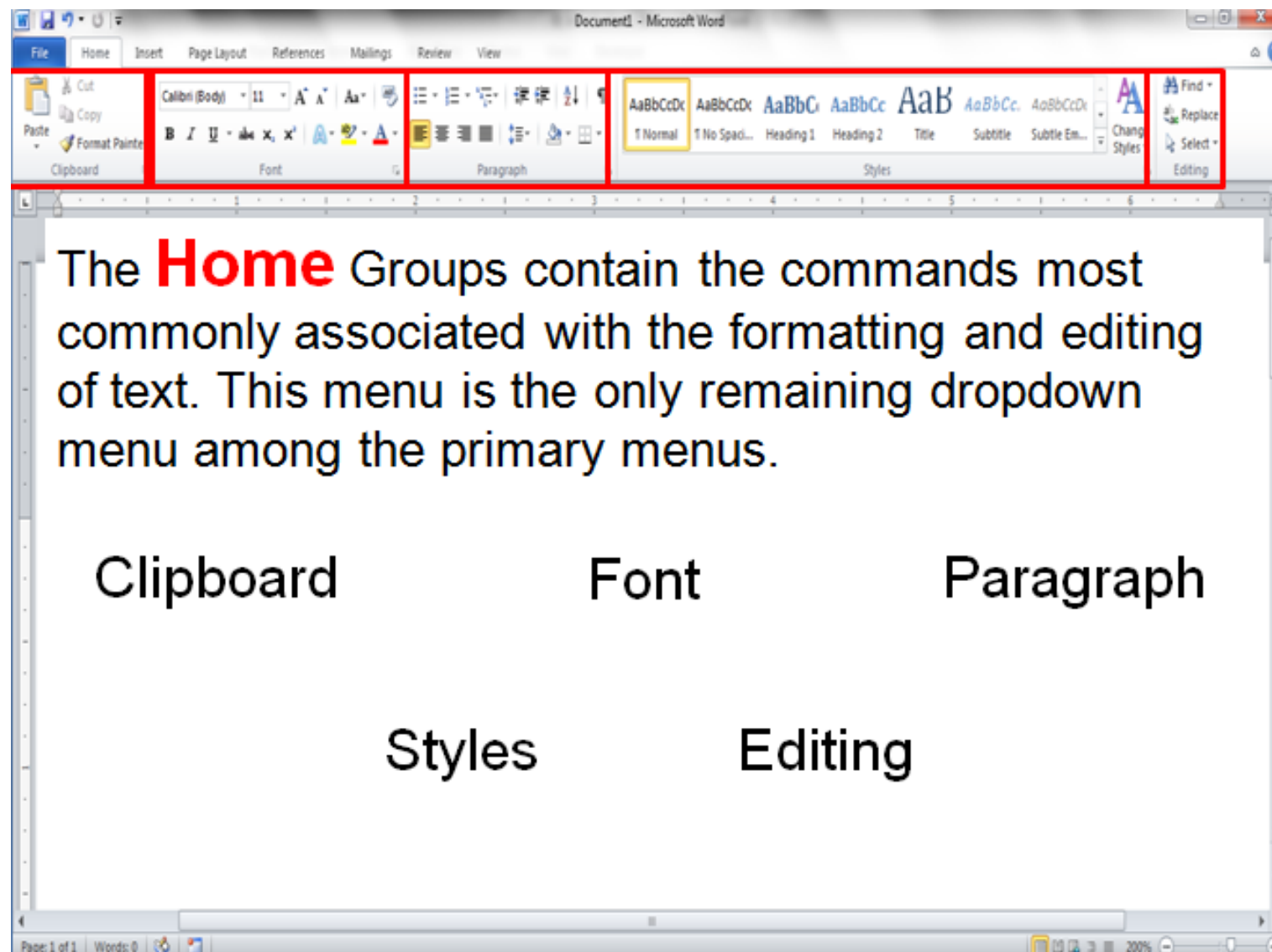
OR

- **B) CLICK THE FILE TAB.**
- **C) CLICK SAVE AS, THE SAVE AS DIALOG BOX WILL APPEAR.**
- **D) IN THE FILE NAME FIELD, TAP THE NAME OF THE DOCUMENT.**
- **E) CLICK SAVE.**

- **CLOSE AND OPEN:**

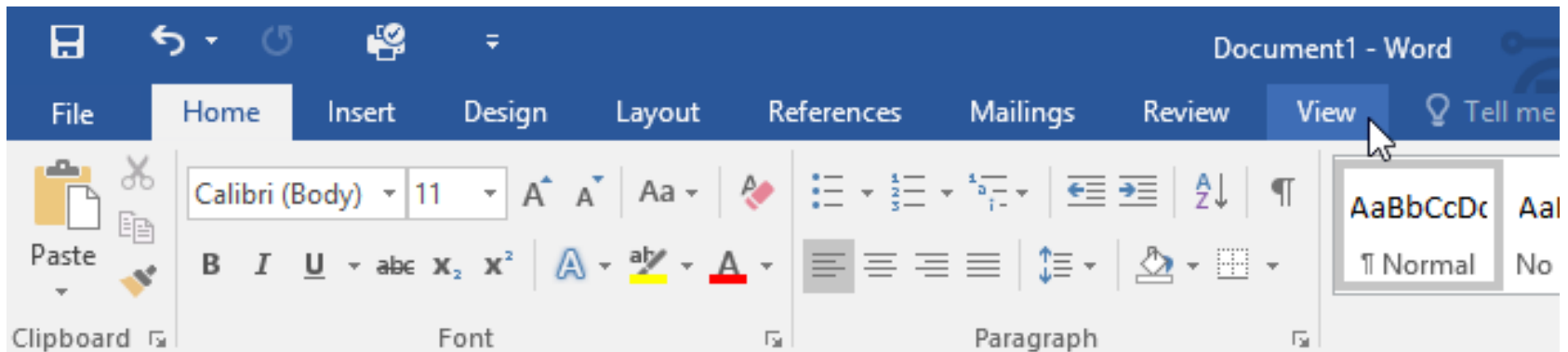
- **CLICK THE FILE TAB, AND THEN CLICK CLOSE.**
- **TO OPEN FILE CLICK ON THE FILE + OPEN.**

1. Home Tab



1. Home Tab

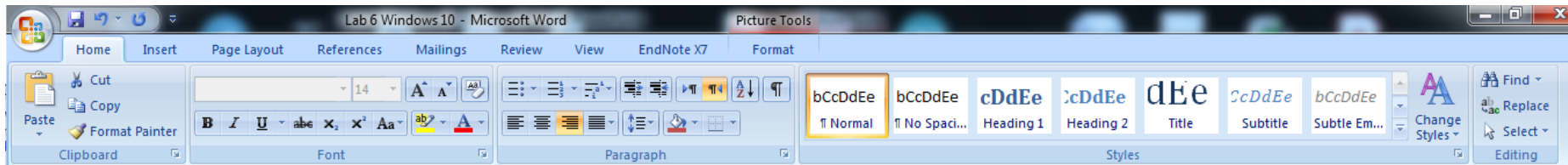
- is the default tab in MS word
 - It allows you to format text by (Font Style, Font Size, Bold, Italic, Underline, Alignment, Numbered list, Bulleted list, Indentation, Spacing, and Font Color)
- *The Groups of Home Tab are : Clipboard, Font, Paragraph, Styles, and Editing*



1. Home Tab

■ What is the Groups of Home tab?

The Groups of Home Tab are : Clipboard, Font, Paragraph, Styles, and Editing



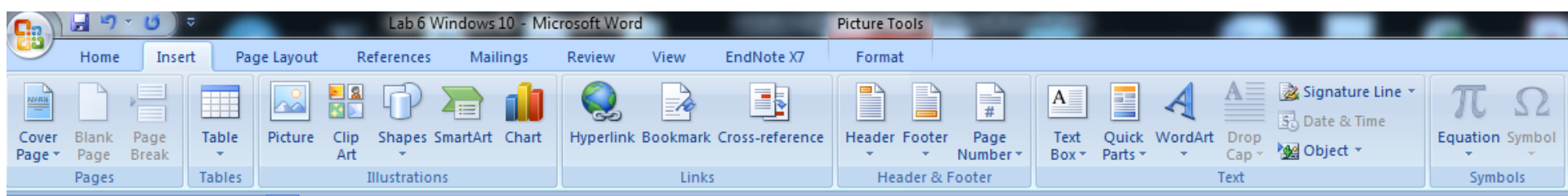
■ What is the Command of Home tab?

- Cut
- Copy
- paste

1. Home Tab

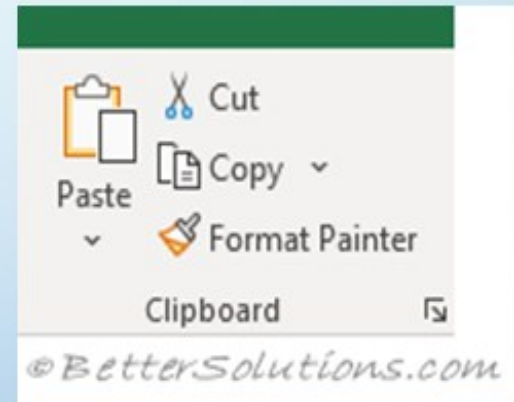
■ What is the Groups of Insert tab?

The Groups of Home Tab are : Pages, Tables, illustrations, Links, Header & Footer, Text, and Symbols



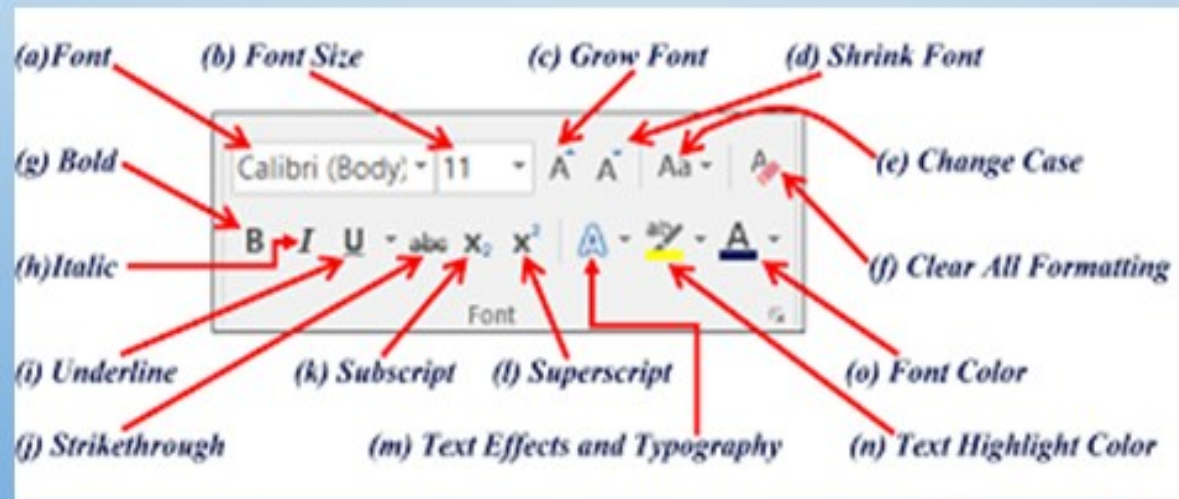
1)-CLIPBOARD GROUP:

- **THE CUT COMMAND:(CTRL+X)**
- REMOVES THE SELECTED DATA FROM ITS ORIGINAL POSITION
- **THE COPY COMMAND:(CTRL+C)**
- CREATES A DUPLICATE
- **PASTE:(CTRL+V)**
- **FORMAT PAINTER:**
- QUICKLY APPLY THE SAME FORMATTING .
- THE FORMAT PAINTER LETS YOU COPY ALL OF THE FORMATTING FROM ONE OBJECT AND APPLY IT TO ANOTHER ONE.
- TO STOP FORMATTING, PRESS ESC.



2)- FONT GROUP:

- CONTROLLING HOW TEXT APPEARS IN YOUR DOCUMENT.
- THIS INCLUDES THE SIZE, COLOR, AND FONT OF THE TEXT.
- IT ALSO COVERS TEXT ALIGNMENT, SPACING, AND LETTER CASE.



3)- PARAGRAPH GROUP:

- IF YOU APPLY PARAGRAPH FORMATTING WHEN NO TEXT IS SELECTED, THE FORMATTING APPLIES TO THE PARAGRAPH IN WHICH THE INSERTION POINT IS CURRENTLY LOCATED.
- TO SET THE PARAGRAPH FORMATTING FOR THE ENTIRE DOCUMENT AT ONCE, PRESS CTRL+A AND THEN ISSUE THE PARAGRAPH FORMATTING COMMANDS.

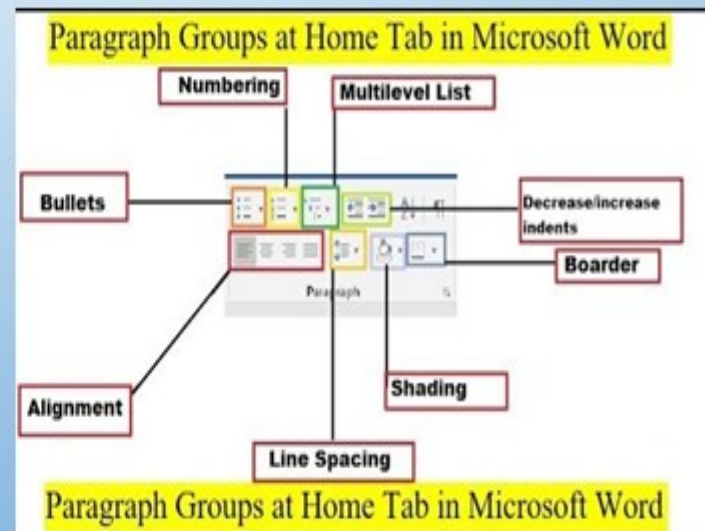
TEXT ALIGNMENT

INCREASE \ DECREASE INDENTATION

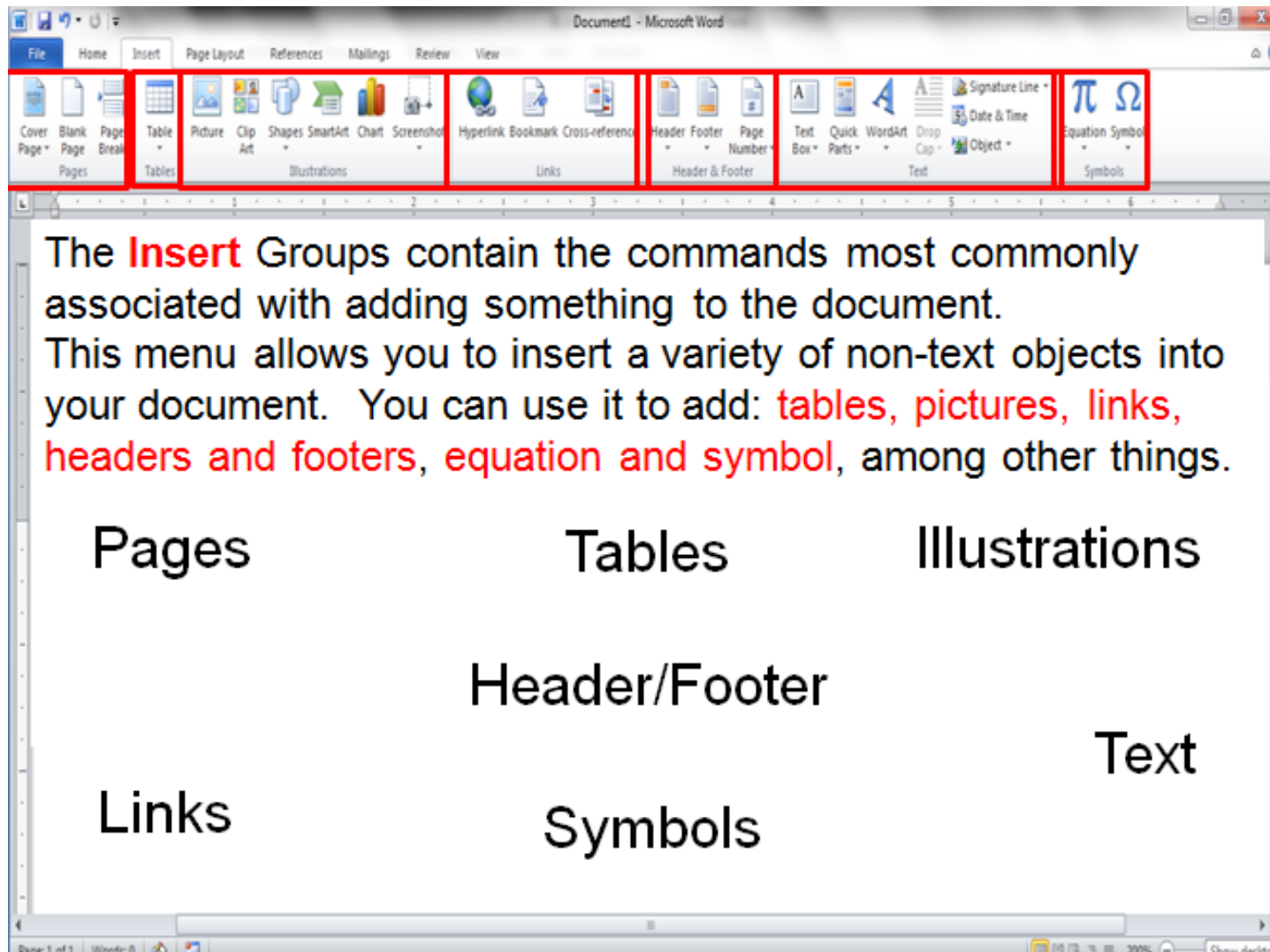
BULLETS & NUMBERING

LINE & AND PARAGRAPH SPACING

SORT TEXT OR NUMBER



2. Insert Tab



2. Insert Tab

- it is one of the most heavily used Ribbons
- contains a variety of features that will allow you to enhance any document.
- Consist of seven different group tabs which are:

Pages

Tables

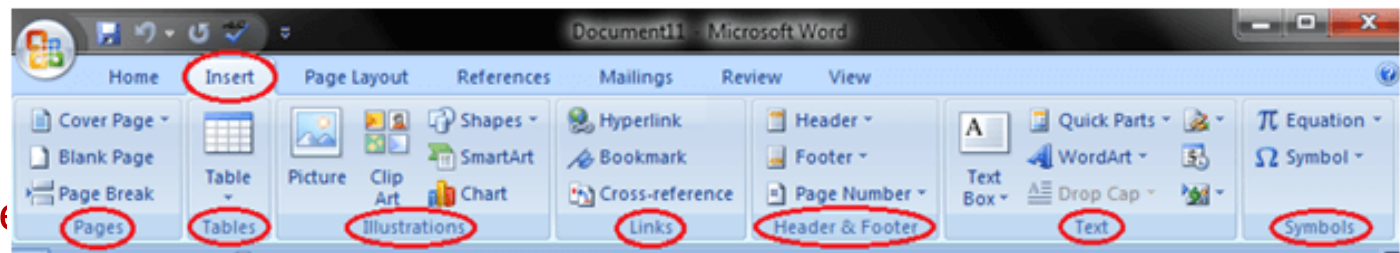
Illustrations

Links

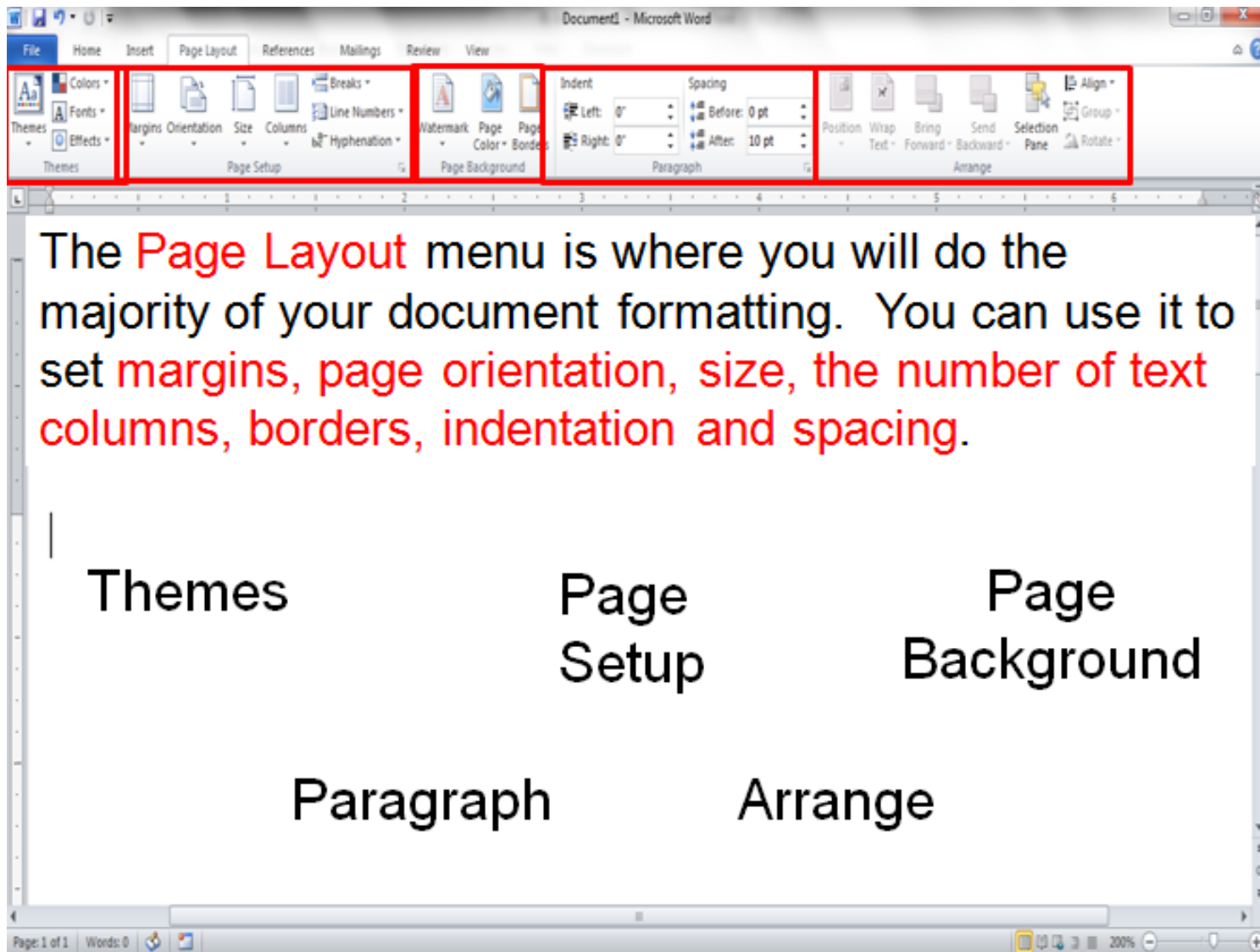
Header & Footer

Text

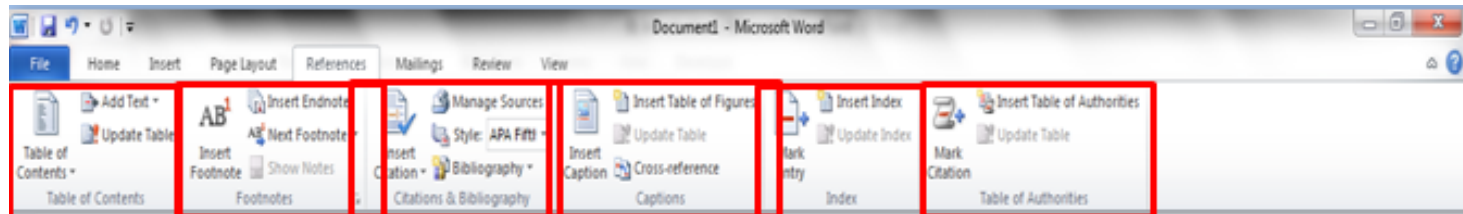
Symbols



3. Page Layout Tab



4. References Tab



The screenshot shows the Microsoft Word interface with the 'References' tab selected. The ribbon contains several groups of commands, each enclosed in a red rectangular box. These groups are: 'Table of Contents' (containing 'Add Text' and 'Update Table'), 'Footnotes' (containing 'Insert Endnote', 'Next Footnote', 'Insert Footnote', and 'Show Notes'), 'Citations & Bibliography' (containing 'Manage Sources', 'Style: APA Fifth', 'Insert Citation', and 'Bibliography'), 'Captions' (containing 'Insert Table of Figures', 'Update Table', 'Insert Caption', and 'Cross-reference'), 'Index' (containing 'Insert Index', 'Update Index', 'Mark Entry', and 'Update Index'), and 'Table of Authorities' (containing 'Insert Table of Authorities' and 'Update Table').

The main text area of the document contains the following text:

The **References** Groups contain the commands most commonly associated with writing a research paper, essay, and term paper.

Table of Contents	Footnotes	Citations & Bibliography
Captions	Index	Table of Authorities

Exercise:

- *Open a blank MS word file and do the followings:*
 1. *Write a text (your University , College, and Department Name in the middle of word sheet*
 2. *Select the names*
 3. *Center align names*
 4. *Change the font of names to **Arial**.*
 5. *Make the names bold and **underlined**.*
 6. *Change the font size to 32.*
 7. *Insert a picture*
 8. *Insert a symbol (√)*
 9. *Copy College Names and Paste them at the end of page without underling and without symbol.*
 - 10. Numbering all College Names**
 - 11. Bullets all College Names**


Solution

Font Paragraph

16 14 12 10 8 6 4 2

Ninevah University

√ **College of Electronics Engineering** √



• **Ninevah University**
• **College of Electronics Engineering**

(1) **Ninevah University**
(2) **College of Electronics Engineering**

arabic (Saudi Arabia)

Exercise:

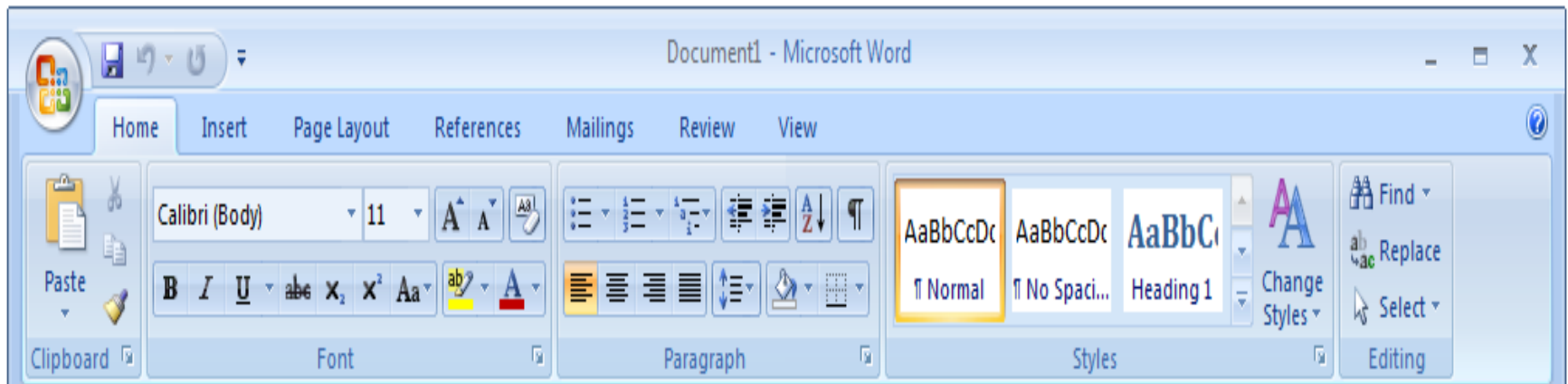
➤ According to the picture below:

1. What are the ribbon components?

Tabs, groups, commands.

2. How many groups are there, what they are?

5 groups (Clipboard, Font, Paragraph, Styles, Editing)

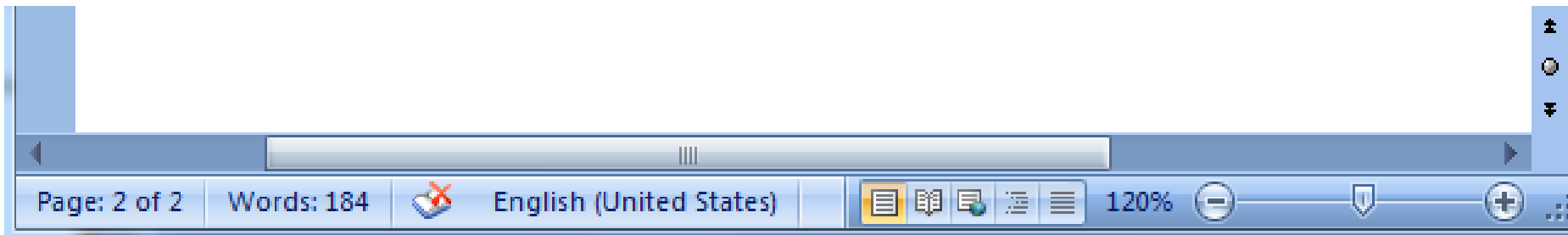


Exercise:

➤ According to the picture below, a **status bar** gives us information. What are these information?

Sol:

- How many pages and words in the document,
- the display mode: language (-Arabic/English),
- Zoom in/out.



Exercise:

➤ What are these bottom do in MS. Office programs?

- CTRL+A (Select all)
- CTRL+C (Copy)
- CTRL+X (Cut)
- CTRL+V (Paste)
- CTRL+F (Find/Search)
- CTRL+Z (Undo)
- CTRL+Y (Redo)

Syllabus – First Semester

- General Overview of Personal Computer System
- Computer Peripherals: (hardware)
- Operating Systems: (Software)
 - MS-DOS
 - Microsoft Windows
- Managing Windows Files & Folders
- Windows Control Panel
- Microsoft Office:
 - Microsoft Word
 - Microsoft Power point
 - Microsoft Excel

Systems and Control Eng. Dept.



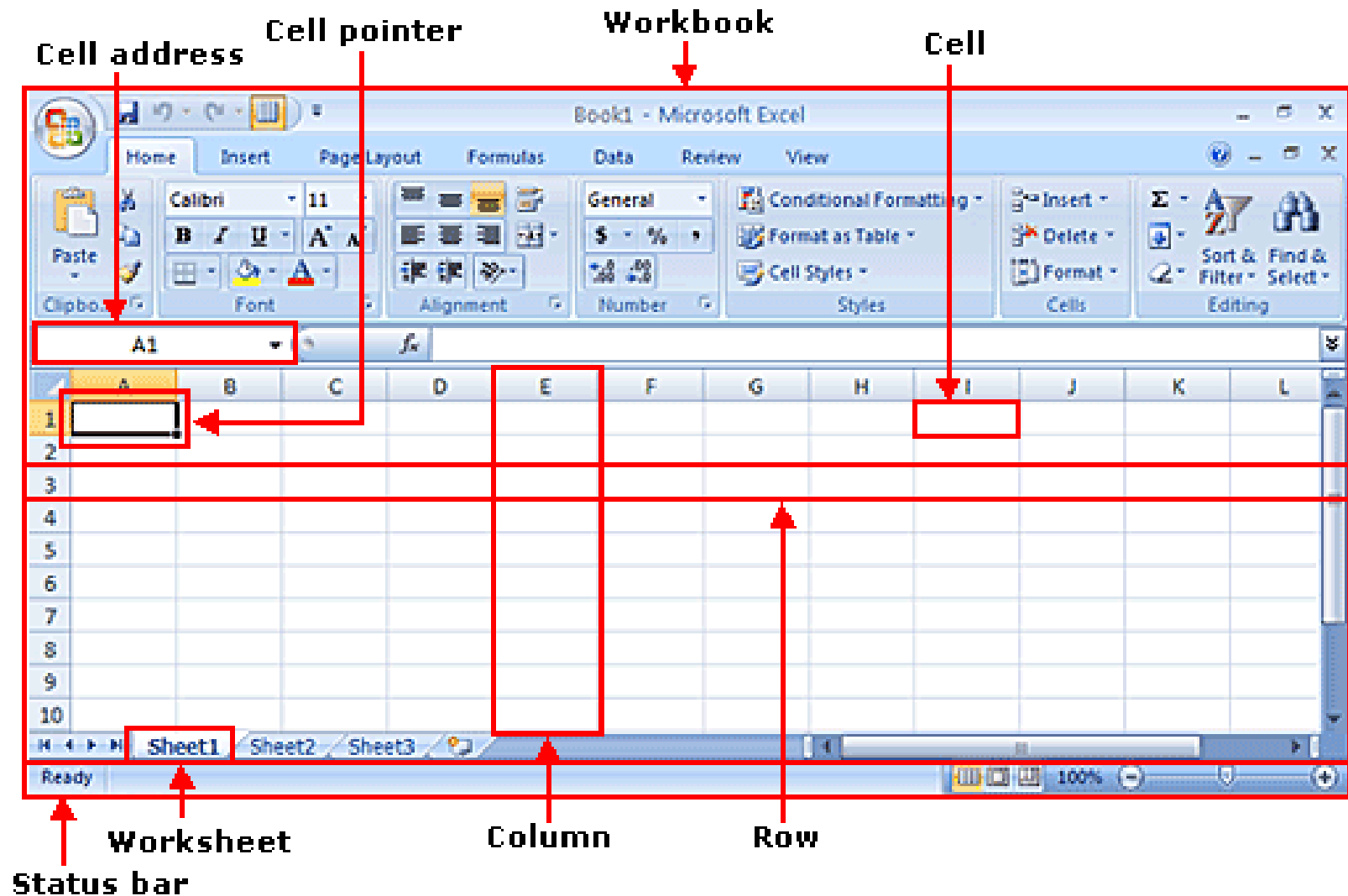
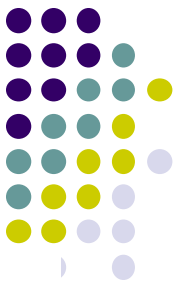
Computer Skills

First Year Class

**The Basics of Microsoft
Excel for Microsoft
Windows**

2025 - 2026

Excel 2007 Interface



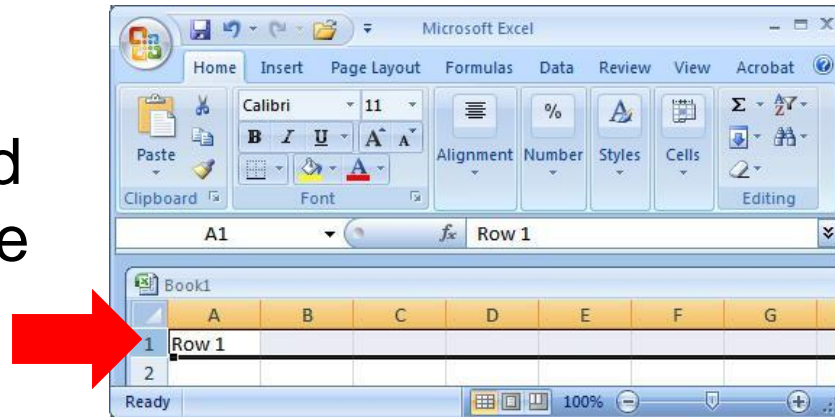
Excel Basics



Excel spreadsheets organize information (text and numbers) by rows and columns:

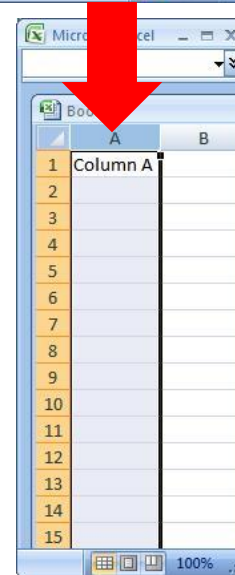
This is a **row**.

Rows are represented by **numbers** along the side of the sheet.



This is a **column**.

Columns are represented by **letters** across the top of the sheet.

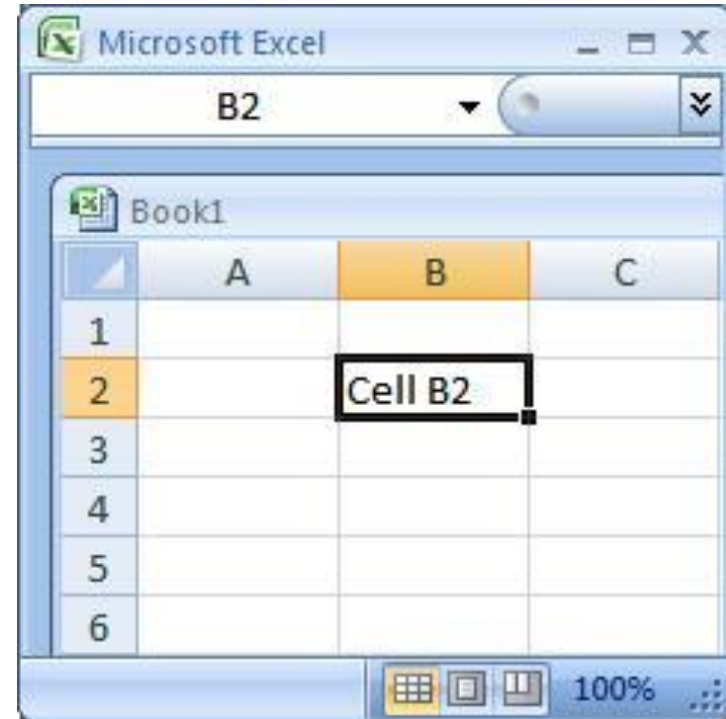




Excel Basics

A **cell** is the intersection between a column and a row.

Each cell is named for the column letter and row number that intersect to make it.

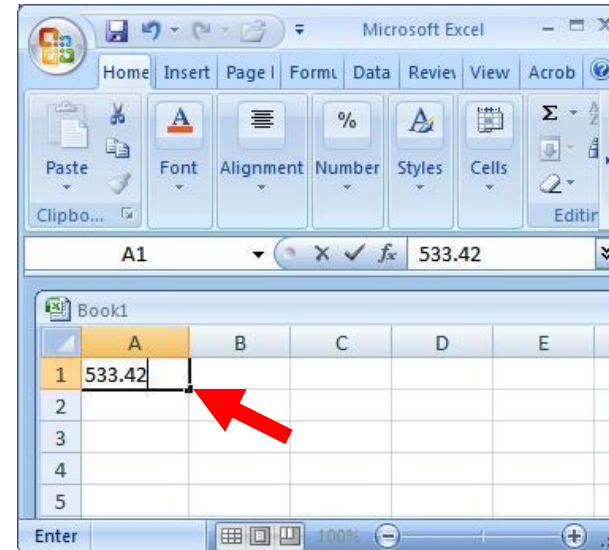


Data Entry

There are two ways to enter information into a cell:

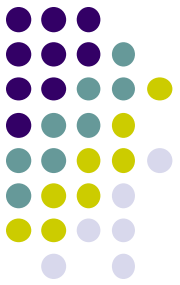
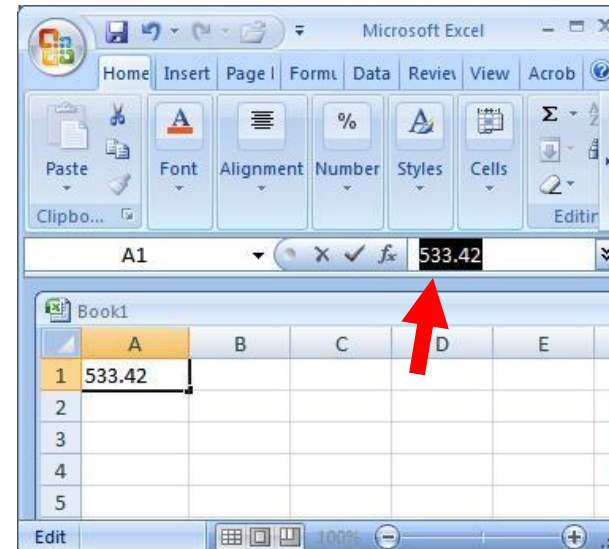
1. Type directly into the cell.

Click on a cell, and type in the data (numbers or text) and press Enter.



2. Type into the formula bar.

Click on a cell, and then click in the formula bar (the space next to the ***f_x***). Now type the data into the bar and press Enter.



Exercise 1

1- Open new Excel workbook

2- Enter the following information in Sheet1:

	A	B	C	D	E	F	G	H	I
1		Instructor 1	Instructor 2						
2		3.1	2.5						
3		2.7	3.9						
4		3.2	4.0						
5		2.9	2.4						
6		2.8	2.7						
7		3.0	2.8						
8		3.3	4.0						
9		2.8	2.6						
10		3.0	3.1						
11		3.2	3.0						
12									
13									
14									

Excel Functions




- Functions are Excel-defined formulas. They take data you select and enter, perform calculations on them, and return value(s).
- All functions have a common format – the equals sign followed by the function name followed by the input in parentheses.



Functions for Descriptive Statistics

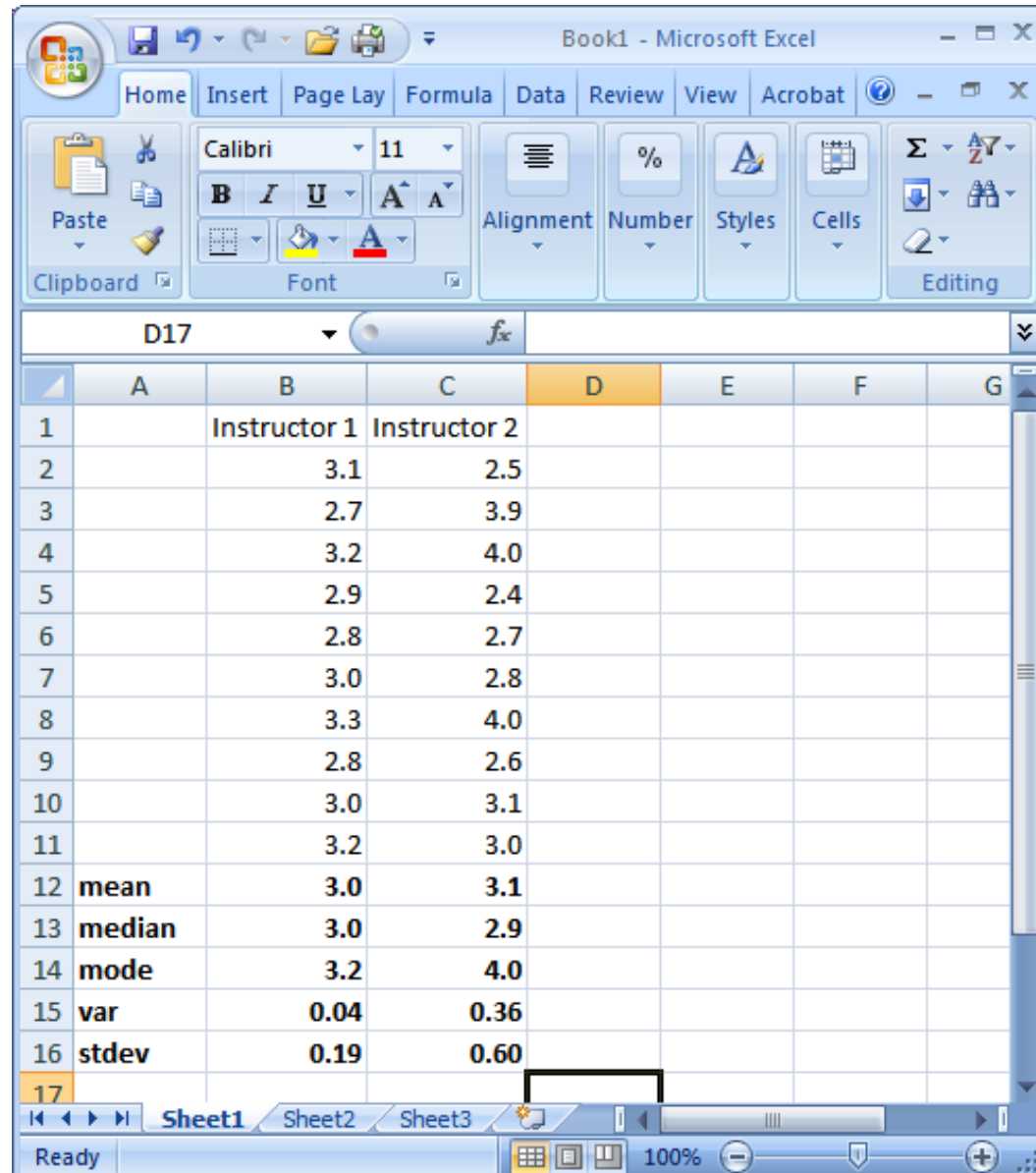
Below are several functions you will need to learn for this lab.

- =AVERAGE(first cell:last cell): calculates the mean
- =MEDIAN(first cell:last cell): calculates the median
- =MODE(first cell:last cell): calculates the mode
- =VAR(first cell:last cell): calculates the variance
- =STDEV(first cell:last cell): calculates the standard deviation
- You may directly write the functions for these statistics into cells or the formula bar, OR
- You may use the function wizard ( in the toolbar)

Exercise 2

Find the following functions for the created sheet in exercise 1:

- Mean
- Median
- Mode
- Var
- stdev



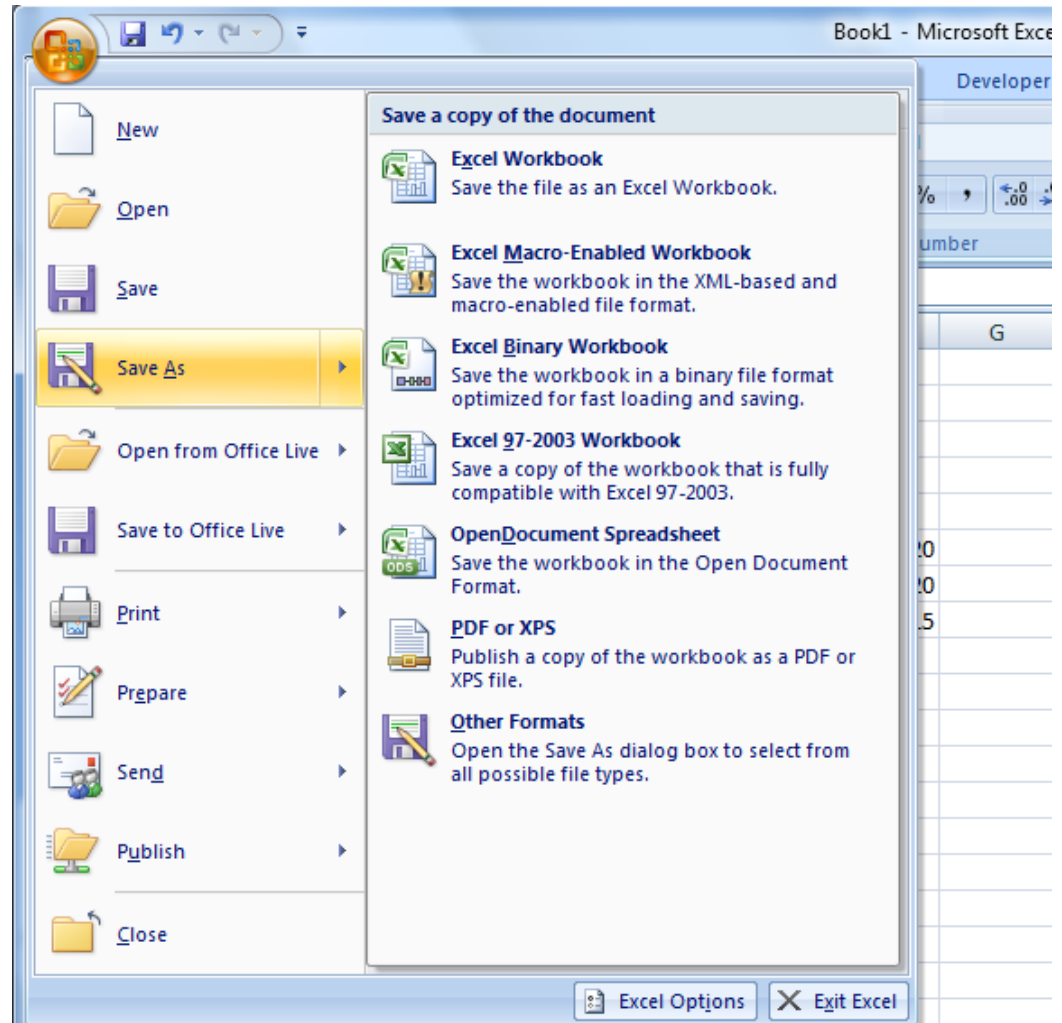
The screenshot shows a Microsoft Excel window titled 'Book1 - Microsoft Excel'. The 'Home' tab is selected in the ribbon. The active cell is D17. The data is organized as follows:

	A	B	C	D	E	F	G
1		Instructor 1	Instructor 2				
2		3.1	2.5				
3		2.7	3.9				
4		3.2	4.0				
5		2.9	2.4				
6		2.8	2.7				
7		3.0	2.8				
8		3.3	4.0				
9		2.8	2.6				
10		3.0	3.1				
11		3.2	3.0				
12	mean	3.0	3.1				
13	median	3.0	2.9				
14	mode	3.2	4.0				
15	var	0.04	0.36				
16	stdev	0.19	0.60				
17							

The statistical results in row 16 are: mean = 3.0, median = 3.0, mode = 3.2, var = 0.04, and stdev = 0.19 for Instructor 1; and mean = 3.1, median = 2.9, mode = 4.0, var = 0.36, and stdev = 0.60 for Instructor 2.

Save your work

To save a workbook, click the **Office button**, click **Save As** and choose how do you want to save.



Excel shortcut keys

- F2 -- Edit the selected cell.
- F5 -- Go to a specific cell.
- Alt + Shift + F1 -- Insert new worksheet.
- Shift + F3 -- Open the Excel formula window.
- Ctrl + A -- Select all contents of a worksheet.
- Ctrl + B -- Bold highlighted selection.
- Ctrl + I -- Italicize highlighted selection.
- Ctrl + C -- Copy selected text.
- Ctrl + V -- Paste
- Ctrl + F -- Open find and replace options.
- Ctrl + P -- Open print dialog box.
- Ctrl + S -- Save.
- Ctrl + Z -- Undo last action.
- Ctrl + F9 -- Minimize current window.
- Ctrl + W -- Close document.
- Ctrl + F10 -- Maximize currently selected window.
- Ctrl + F6 -- Switch between open workbooks/windows

Introduction to Internet Technology

1. Introduction

The Internet is a collection of computers around the world connected to each other via a high speed series of networks. The Internet becomes the main method in exchanging cultures and transferring knowledge between people.

All connected computers and networks exchange information and use various services. Hence, the Internet is not the World Wide Web (WWW or W3). The World Wide Web (or Web) is just one of the services that the Internet offers to its users although it is the most commonly used service.

The Internet is the global system of interconnected computer networks. The Internet carries an unlimited range of information resources and services, such as the inter-linked hypertext documents and applications of the Web, electronic mail, telephony, and file sharing.

2. The Web Concepts

The Web was developed to be a pool of human knowledge, and human culture, which would allow collaborators in remote sites to share their ideas and all aspects of a common project.

The Web consists of a vast assortment of files and documents that are stored on these computers and written in some form of Hyper Text Markup Language (HTML) that tells browsers how to display the information. The computers that store the files are called servers because they can serve requests from many users at the same time. Users access these HTML files and documents via applications called browsers. The main Web concepts are:

Web Page

The Web page is a space of information on the Internet that presents information about a particular person, business, or organization or cause.

- The Web consists of files, called Web pages (documents).
- It is containing links to resources (text, images, audios, videos, and other data), throughout the Internet

Web Site

Web site can be defined as a collection of web pages which are grouped together and usually connected together in various ways. Often called a "web site" or simply a "site." The web site usually presents information about a particular person, business, organization or cause.

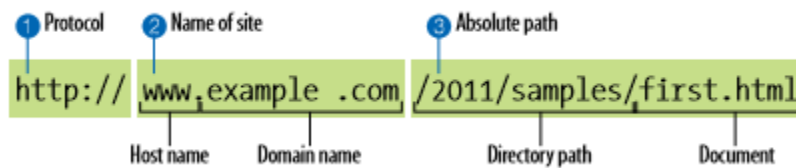
Generally there are two types of website styles, Static and Dynamic website:

- **A static Website** is one that has web pages stored on the server in the same form as the user will view them.
- **A dynamic Website** is one that does not have web pages stored on the server in the same form as the user will view them. Instead, the web page content changes automatically and/or frequently based on certain criteria. There are two meaning for dynamic website. The first is that the web page code is constructed dynamically, piece by piece. The second one is that the web page content displayed varies based on certain criteria. The criteria may be pre-defined rules or may be based on variable user input.

3. The Web Terms

Uniform Resource Locator (URL)

It is the complete address of World Wide Web page and consists of a three components that identifies where the web page is stored on the Internet. These parts are: the protocol, the site name, and the absolute path to the document or resource as shown in the following example



- protocol name (e.g., HTTP)
http:// The first thing the URL does is define the protocol that will be used for that particular transaction. The letters HTTP let the server know to use Hypertext Transfer Protocol, or get into “web mode.”
- domain name/ hostname (servers address that a user wants to connect with), for example, www.google.com. **www.example.com** The next portion of the URL identifies the website by its domain name. In this example, the domain name is `example.com`. The “`www.`” part at the beginning is the particular host name at that domain. For example, there might also be **`development.example.com`**, **`clients.example.com`**, and so on.
- File name is optional, implies the access to a file/directory into the principal webpage.

/2012/samples/first.html This is the absolute path through directories on the server to the requested HTML document, first.html. The words separated by slashes are the directory names, starting with the root directory of the host.

Example: <http://www.icci.org/studies/ips.html> .

1. Protocol: http.
2. Host computer name: www.
3. Second-level domain name: icci.
4. Top-level domain name: org.
5. Directory name: studies.
6. File name: ips.html.

Several Top-level domain are common:

com: commercial enterprise. شركات

edu: educational institution. للمؤسسات التعليمية

gov: government entity. للمؤسسات الحكومية

mil: military entity. للمواقع العسكرية

net: network access provider. للمواقع ذات النشاط الخاص

org: usually nonprofit organizations منظمة رسمية غير حكومية

biz: Businesses مواقع الاعمال التجارية

pro: Professionals, such as doctors and attorneys

Web hosting

After we create a website, it is necessary to store it in a place where it is always available for users. We use Web hosting services/companies for this purpose. They own web servers that have the ability to store content.

Search engine

Search engines allow us to search in the Internet for information, images and other types of files stored in various locations available throughout the network. Search engines work according to certain algorithms that show the user relevant, requested search results. At first, information from the various websites is collected and stored and then analyzed to organize and save them in the database for future use. When a user enters an inquiry into the search engine, the database is organized by an index and the user is presented with results that match best the entered search terms. Therefore, it is important to understand that by using the search engine one does not search the entire Internet but the search engine's database. Therefore, we might get different results each time we use different web engines.

4. Internet protocols

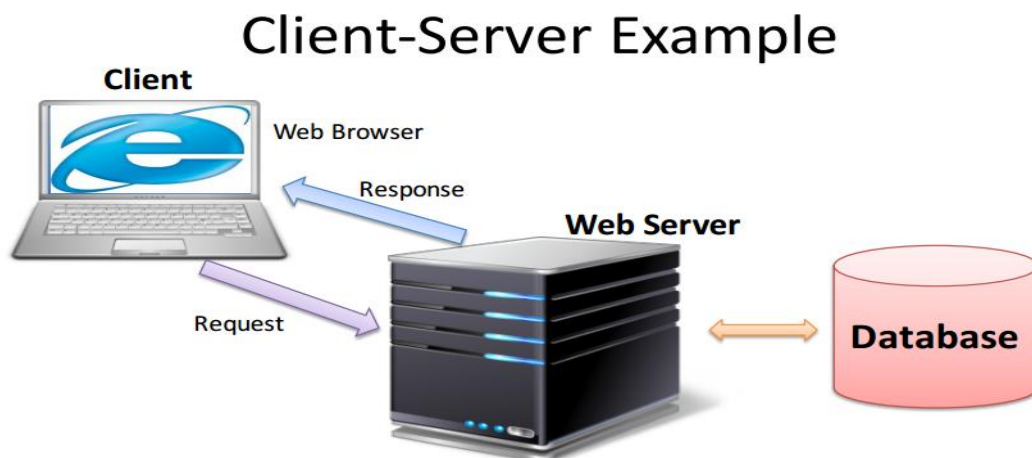
- **TCP/IP protocol:** TCP / IP: This protocol is the main protocol for Internet communication. It defines the rules that computers need to follow to communicate with other computers via a network.
- **HTTP (Hypertext Transfer protocol):** is a network protocol that ensures the exchange of almost all types of resources on the web. With resources, we mean files, pages, images, search results, etc. It is basically, the web browsers language to send requests to the server. There is also the HTTPS version, which is a secure and encrypted version for HTTP communications.

- **FTP(File Transfer Protocol):** is used to load (upload) or retrieve (download) files between the client and server communication, or between two computers on the Internet. In other words, this protocol is responsible for file transfer on the Internet.
- **Internet Service Provider (ISP):**Is an organization that provides individuals and other companies' access to the Internet and other related services such as e-mail.

Web Design: Client-Server Architecture

1. Client-Server Architecture

Computers on the Internet use client/server architecture. This means that the remote server machine provides files and services to the user local client machine.



1.1 Web Server

A Web Server is a computer purposed to runs special serving software. That software "serves" HTML pages and the files associated with those pages when requested by a client, usually a Web browser. The computer is secured so that only authorized people can access it to make changes to the data, so, If a person is on the same network as the Web Server, he or she may be able to save the data directly onto the Web Server computer (if authorized).

Server-side:

- JSP (Java Server Pages)
- ASP (Active Server Pages)
- ASP.NET (next generation of ASP)
- PHP
- Python

1.2 Client

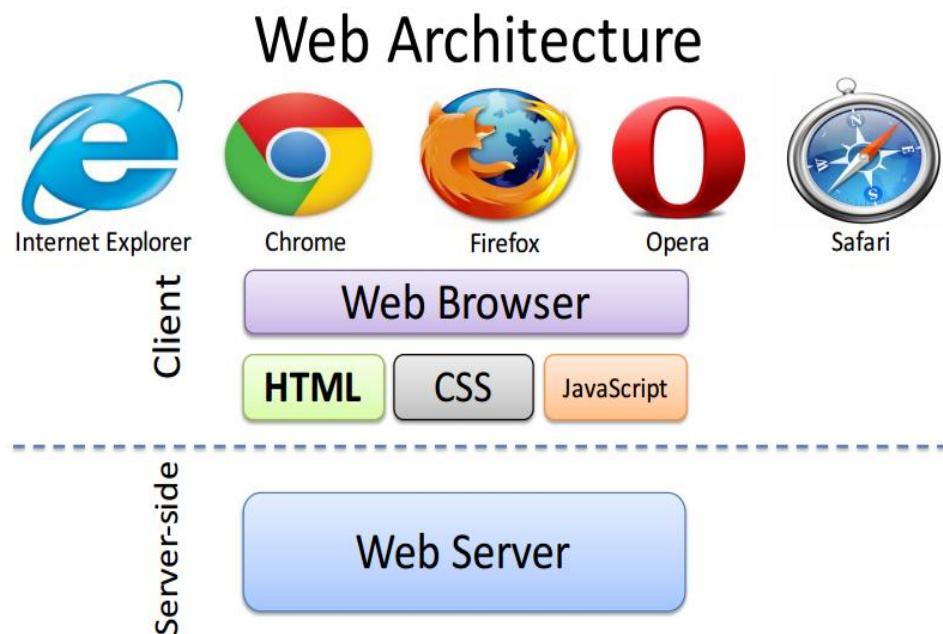
The Client (front end) or user side of the Web, it typically refers to the Web browser in the user's machine. It may also refer to plug-ins and helper applications that enhance the browser to support special services from the site. The term may imply the entire user machine or refer to a handheld device that provides Web access.

Client-side:

- HTML / XHTML (Extensible Hyper Text Markup Language)
- CSS (Cascading Style Sheets)
- JavaScript / VBScript (client-side scripting).

1.3 Web Browsers

Generally, a web browser is a software application or program for retrieving, displaying, and traversing information resources on the World Wide Web. An information resource is identified by a Uniform Resource Identifier (URI) and may be a web page, image, video, or other piece.

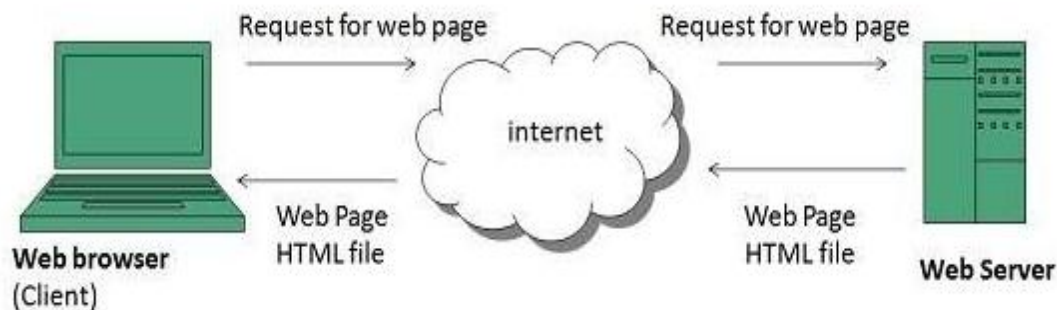


2. Web Operations

The Web works on client- server approach. Following steps explains how the web works:

1. User enters the URL (say, **<http://www.tutorialspoint.com>**) of the web page in the address bar of web browser.
2. Then browser requests the Domain Name Server for the IP address corresponding to www.tutorialspoint.com.

3. After receiving IP address, browser sends the request for web page to the web server using HTTP protocol which specifies the way the browser and web server communicates.
4. Then web server receives request using HTTP protocol and checks its search for the requested web page. If found it returns it back to the web browser and close the HTTP connection.
5. Now the web browser receives the web page, it interprets it and display the contents of web page in web browser's window.

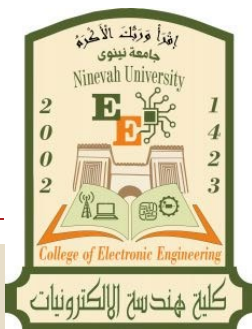


3. Site Structure

Every Web site was built in inherits structure and should have a consistent and simple organization called a site structure. A site is a collection of HTML files, documents and images contained in a single master folder (the root folder). Within this root folder you can save your documents and subfolders organized in a manner that makes sense to you, as well as to others in your department that may need to edit the information.

Therefore, it is recommended that the structure of Web site include:

1. A root folder that contains the Web site.



Computer Skills

Email Basics

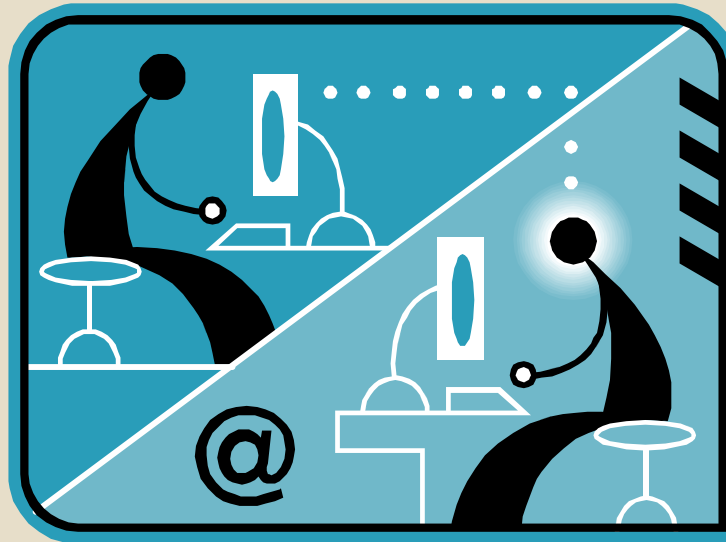
- **Systems and Control Engineering Department**
- **1st stage**
- **By: Mohammed Alsayed**



What is email?



- short for electronic mail
- send & receive messages over the internet



What you need



- a computer with internet access
- an email account with a service provider such as Yahoo, Gmail, Hotmail, etc
- note: Microsoft Outlook and Apple Mail, are NOT email providers (which is why you can't email from library computers without an account)

Choosing an email provider



- Most common are Hotmail (Microsoft), Gmail (Google), Yahoo Mail (Yahoo!)
- For this class, we'll be using Yahoo



Setting up your email account



- Parts of an email address: **dwalker@surfcity-hb.org**
 - user name : dwalker (you create your own) (each is unique)
 - @ symbol : unique to email addresses (Shift key + 2)
 - email provider's name: surfcity-hb (yours will be **yahoo**)
 - domain : .org (yours will be **.com**)

Password



- Something easy to remember, but difficult to guess
 - Do NOT use sensitive information, such as SSN, bank PIN, etc.
- Usually a combination of letters and numbers is best
- Verification questions in case you forget your password

Let's set up
our accounts!



The parts of an email



- To : enter the exact email address of your recipient (remember: name@provider.domain)
 - For multiple recipients, separate each address with a comma
- CC : carbon copy
- BCC : BLIND carbon copy – is anonymous
- Subject : the topic of your email – very important
- Body : the message of your email
- Attachments : the paperclip symbol - files or photos

Sending an email



- Communication can be tough with written correspondence. No body language or facial cues to help.
- Err on the side of too formal
 - Punctuation & spelling
 - Greeting & closing signature
- ATTACH a file from a flash drive
- Click on SEND to mail your letter
- Message will now appear in your SENT folder

Sending an email



- Once an email is sent, you cannot stop it or take it back
- Spell-check & proofread!
- Check your SENT box now.

DRAFT EMAILS & SAVING FOR LATER



- Drafts: When creating an e-mail the computer will automatically save your work periodically. If for any reason you should be interrupted (i.e. lapse in internet connection) you can retrieve your latest work what is called the DRAFT BOX.

Receiving email



- If you have any messages you should see them listed on the screen or in your Inbox
- At the top of each message is a header with information about the sender, date, and routing of each message.

From: dwalker@surfcity-hb.org (Danielle Walker)

To: you@yahoo.com

CC:

Subject: Email Basics class

Date: Mon, 3 May 2010 8:31 PST

Replying to an email



- Reply vs Reply All
- When you click on Reply, your message will automatically be sent to the person who sent you the email (FROM field in header.)
- When you click on Reply All, your message will automatically be sent to the person who sent you the email AND everyone in the TO and CC fields in the header.

Forwarding an email



- When you click on FORWARD, you may share the email you've received by sending it to others.
- You may add your own message before sending.

Opening attachments



- Usually photos or documents
- If you don't know the sender, do NOT open the attachment
- SAVE vs OPEN file dialog box

Deleting email & trash can









- Once you've read an email, you must decide if you want to save it or delete it.
- Click on delete to send the email to the TRASH CAN
- The message disappears from your list of messages but is not truly deleted yet, so if you make a mistake you can get the message back.
- Just look in the Trash folder. However, once you exit the program, the messages are usually deleted for good.

netiquette



- Common abbreviations
- Emoticons aka smilies

Emotion	Enter the keystrokes...	Result
Laughter	:-) or :) or :D	
Confused	:S	
Surprised	:o or :-O or :-0 or :^)	
Wink	;-) or ;)	
Sad	:(or :(
Angry	:@	

Privacy, viruses, & spam



- Privacy: CC vs BCC
- Viruses: Never open attachments from unknown senders.
- Safety: Never send personal financial information via email, even if it looks like a legitimate request from your bank or financial institution.
- Spam: unsolicited commercial email

Delete

Click on Report Spam

SPAM BOX on Yahoo

CHatting & texting



Texting Online

Is similar to texting using a cell phone but texts received can only be viewed once, then they are permanently deleted after being read. This is useful if you do not have a cell phone or will not be near your cell phone and need to communicate to another cell phone.

Chatting

This is real-time communication with no delay. Usually done with those you know online. Be selective who you chat with. As with spam and phishing, scams can occur with chatting as well.

Important – Sign Out!

