Loknayak Research Center

Ph.D Cell

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Yavatmal

- "The beginning is the most important part of the work." –Plato

With reference to above Quote l feel very exciting to present e.book on ICT for the research scholar of **Sant Gadge Baba Amravati University Amravati**. This e.book will surely help them to complete their Ph.D course work and learn new aspects of the changing technogical world.

Dr. Durgesh Kunte
Principal
L.B.Aney Mahila Mahavidyalaya
Yavatmal

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Ph. D. COURSEWORK
Syllabus for Module-2 : ICT (Information and Communication Technology) Skills
(Syllabus for the faculties of Science and Technology, Commerce and Management, Humanities, Inter-disciplinary Studies
Teaching scheme Examination Scheme
Term Work: 04 Hrs/week Term Work: 50 Marks
Credits : 02

Course objectives:

- To learn and acquire the skills using ICT tools..
- To learn the basics of Information Technology.
- To learn and acquire the word processing skills.
- To learn and acquire the spreadsheet processing skills.
- To learn and acquire the presentation skills using ICT tools.
- To learn and acquire the internet searching using ICT tools.

Unit I :INTRODUCTION
IT (Information Technology),ICT (Information and Communication Technology)
CT (Computer Technology) Characteristics of a Computer, Limitations of a Computer Different Types of Computers, Different Types of Personal Computers (PCs) . Main parts of a Computer system : Processing Devices, Memory Devices, Input Devices, Output Devices, Storage Devices. Categories of Software, Application Software. Computer Network: Basic hardware and terminology in networks, Classifications of Computer Networks, The Internet, The Intranet and Extranet.

Unit II :INTRODUCTION TO OPERATING SYSTEM & WORD PROCESSING SOFTWARE
(Latest Versions of the Operating System/ Word Processing Software are Recommended)
Installing Windows, Basic Operations in Windows, Interface, Introduction to Windows File System, Storing and Managing Data, Windows User Accounts, The System Settings. Adjusting the
Computers Settings. Introduction to MS Office. Word Processing with MS-Word : basic operations- Editing, Proofing, and Formatting text, paragraphs and pages, Printing the documents.
Working with tables, images. Mail merge. Working with Charts, Equations, Symbols.

Unit III : INTRODUCTION TO SPREADSHEET SOFTWARE
(Latest Version of the Spreadsheet Software is Recommended)
Introduction to MS Excel and its User Interface. Working with workbooks, work sheets. Data Entry
techniques. Defining data set as a Table. Setting, Previewing, and Printing under MS-Excel. Performing Calculations on Data. Working with Excel Formulas, Functions and Charts. Sorting/ Filtering data.

Unit IV : INTRODUCTION TO PRESENTATION SOFTWARE
(Latest Version of the Presentation Software is Recommended)
Working with MS PowerPoint. Presentation Basics. Adding more components to the slides, Formatting Presentations, backgrounds and layout. Applying Themes. Using Slide Master. Working
with Graphics, Images and Clips. Working with Multimedia. Inserting Sound and Narration. Delivering Presentations. Animating Objects. Adding Action effects. Live Presentation. Using Custom Shows. Saving/Protecting the Presentation. Printing the slides.

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E-commerce. E-learning. E-Government. E-entertainment. Top Ten Future Trends- The Internet by 2020

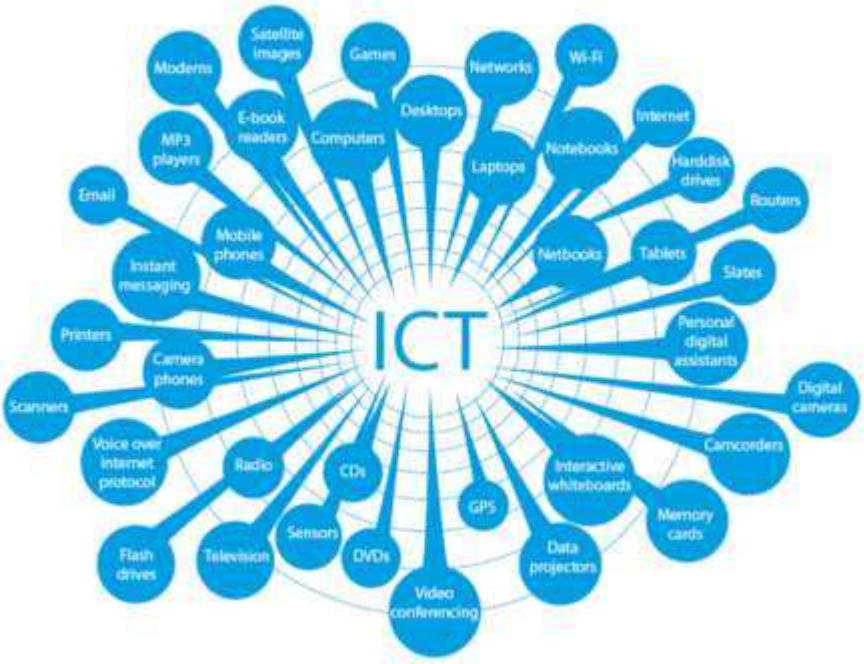
Unit I :INTRODUCTION

IT (Information Technology)

Information technology (IT) is the use of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data. Typically, IT is used in the context of business operations, as opposed to technology used for personal or entertainment purposes. The commercial use of IT encompasses both computer technology and telecommunications.

Information technology (IT) is the use of computer systems or devices to access information. Information technology is responsible for such a large portion of our workforce, business operations and personal access to information that it comprises much of our daily activities. Whether you are storing, retrieving, accessing or manipulating information, IT greatly impacts our everyday lives.

ICT (Information and Communication Technology)



Information and Communications Technology (ICT) is the convergence of computing, telecommunication and governance policies for how information should be accessed, secured, processed, transmitted and stored.

In some parts of the world, ICT is used as a synonym for information technology (IT), but the two terms can have slightly different meanings when used in different contexts. For example, in the United States the label IT is used when discussing technology in terms of business operations -- while the label ICT is used more often in the context of education and government.

ICT has become an umbrella term in many parts of the world as digital communication links replace analog links -- and the demand for professionals who have the knowledge and skills to manage the convergence of these links grows.

To that end, ICT employees can expect to work in positions where the focus of their job includes improving digital literacy, data literacy and using emerging technologies to optimize legacy

communication channels. This includes researching how emerging technologies such as augmented (AR) and virtual reality (VR) can support traditional technologies and communication theories.

Advertisement

Techopedia Explains Information and Communications Technology (ICT)

ICT includes traditional data center infrastructure components as well as an increasing number of content, software, hardware and support services delivered over the internet.

ICT Components

ICT components include:

- Hardware components that support the way information is created, transferred, stored and managed.
- Software as a Service (SaaS) and local client applications that support digital design, personal productivity and workflow management.
- Electronic components that support the exchange of digital information, including subscription service delivery mechanisms.
- Services that support IT asset management, data lifecycle management, customer experience management, digital employee experience management and data literacy.

ICT exclusions typically include computing-related office supplies such as printer toner -- as well as personal computing devices and peripherals such as game consoles and ear buds.

IT vs. ICT

In the United States, the term information technology (IT) is used more often in the context of business operations, while ICT is used more often in education and government content.

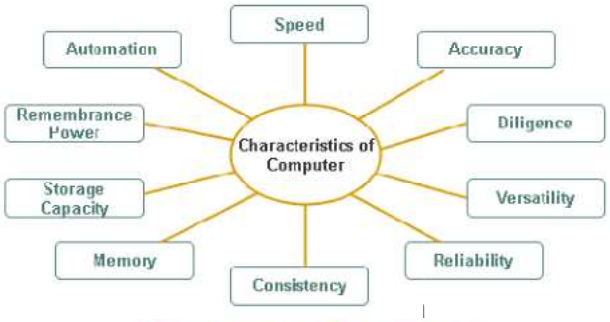
Now that telephone networks have merged with computer network systems and communication technologies have increasingly become digital, the need to differentiate between line-item budget entries for IT and communication technologies components is expected to fade away. Experts in the U.S. are divided as to whether government and education will eventually adopt the acronym IT or continue to use ICT.

ICT is already the preferred label in most other parts of the world because it includes what is arguably the most important purpose of technology – improving the way people and machines exchange information.

CT (Computer Technology)

Computer Technology means: (a) computer hardware, software, or both, that shall meet or exceed any specifications required by law, for each eligible household in which one (1) or more Students reside, and (b) any computer hardware, software, or both, required by Administrative Staff or Teachers.

it is a broad term that refers to **computer** software and hardware. Refers to inventions related to or associated with **computer**s and devices with a central processing unit, such as the hardware and software of **computer**s, the Internet and storage devices.



Characteristics of Computer

Characteristics of a Computer,

1. Speed: – As you know computer can work very fast. It takes only few seconds

for calculations that we take hours to complete. You will be surprised to know that computer can perform millions (1,000,000) of instructions and even more per second.
Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.

2. Accuracy: – The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is **7.**
determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.
3. Diligence: – A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

4. Versatility: – It means the capacity to perform completely different type of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.
5. Power of Remembering: – Computer has the power of storing any amount of information or data. Any information can be stored and recalled as long as you require it, for any numbers of years. It depends entirely upon you how much data you want to store in a computer and when to lose or retrieve these data.

6. No IQ: – Computer is a dumb machine and it cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. It is you to decide what you want to do and in what sequence. So a computer cannot take its own decision as you can.
7. No Feeling: – It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.
8. Storage: – The Computer has an in-built memory where it can store a large amount of data. You can also store data in secondary storage devices such as floppies, which can be kept outside your computer and can be carried to other computers.

Limitations of a Computer

The computer can easily beat humans in terms of speed, accuracy, and management of memory, but stills computer has many limitations.
Here, are some limitations:
1. Computer are programmed by Humans
Computers are programmed by human beings like An Artificial intelligence (AI) refers to the simulation of human intelligence in which the machines are programmed to think like humans and their actions. The computer only follows that instruction which is programmed by humans. If those instructions are not accurate then the working of the computer will not accurate.
This is the main limitation of an computer.
2. Emotionless
Computers are emotionless. They do not have any emotions and feelings. A computer cannot understand what humans are thinking and feeling. It's just a machine where it works when

humans give the instruction to them, and it can not compete the humans in relation but it can compete in term of speed, accuracy, etc. only.

3. NO INTELLIGENCE

A computer does not carry any tasks on his own and can't take any decision on it owns like humans, Computer will only work when humans gives the instructions or programs, it only depends on it.

We all know that computers are faster than humans in terms of speed, giving accurate results and more brilliant than humans but they cannot replace humans.

4. NO THINKING

Computers are not smart in any way and they cannot think themselves. The concept of AI means Artificial Intelligence shows that the computer actually thinks but still this concept work on the dependent on the sets of instruction and program which is done by human beings.

5. SELF CARE

A computer can not care for itself like a human and they have no sense to do it by own. For the computer, there has only one God named **"humans"**. Computer is nothing without humans and they are only dependent on humans for the purpose of instruction.

6. RETREIVAL OF MEMORY

Retrieval of memory means it remembered all the information which are stored in memory. Computers can retrieve data very fast but this technique is in linear. A normal human being's mind does not follow this rule because humans almost forgot data in their mind which are not useful. A human mind can think randomly which a computer machine can not.

In simple words, the computer does those tasks which humans normally cannot do. On the other hand, computers cannot do those tasks Which humans normally can do.

Different Types of Computers,

A computer is a device that transforms data into meaningful information. It processes the input according to the set of instructions provided to it by the user and gives the desired output. Computers are of various types and they can be categorized in two ways on the basis of size and on the basis of data handling capabilities.

So, on the basis of size, there are five types of computers:

1. Supercomputer
2. Mainframe computer
3. Minicomputer
4. Workstation
5. PC (Personal Computer)

And on the basis of data handling capabilities, there are three types of computer:

1. Analogue Computer
2. Digital Computer
3. Hybrid Computer

Now let us discuss each type of computer in detail:

1. Supercomputer:

When we talk about speed, then the first name that comes to mind when thinking of computers is supercomputers. They are the biggest and fastest computers(in terms of speed of processing data). Supercomputers are designed such that they can process a huge amount of data, like processing trillions of instructions or data just in a second. This is because of the thousands of

interconnected processors in supercomputers. It is basically used in scientific and engineering applications such as weather forecasting, scientific simulations, and nuclear energy research. It was first developed by Roger Cray in 1976.

Characteristics of supercomputers:

- Supercomputers are the computers which are the fastest and they are also very expensive.
- It can calculate up to ten trillion individual calculations per second, this is also the reason which makes it even more faster.
- It is used in the stock market or big organizations for managing the online currency world such as bitcoin etc.
- It is used in scientific research areas for analyzing data obtained from exploring the solar system, satellites, etc.

2. Mainframe computer:

Mainframe computers are designed in such a way that it can support hundreds or thousands of users at the same time. It also supports multiple programs simultaneously. So, they can execute different processes simultaneously. All these features make the mainframe computer ideal for big organizations like banking, telecom sectors, etc., which process a high volume of data in general.

Characteristics of mainframe computers:

- It is also an expensive or costly computer.
- It has high storage capacity and great performance.
- It can process a huge amount of data (like data involved in the banking sector) very quickly.
- It runs smoothly for a long time and has a long life.

3. Minicomputer:

Minicomputer is a medium size multiprocessing computer. In this type of computer, there are two or more processors, and it supports 4 to 200 users at one time. Minicomputers are used in places like institutes or departments for different work like billing, accounting, inventory management etc. It is smaller than a mainframe computer but larger in comparison to the microcomputer.

Characteristics of minicomputer:

- Its weight is low.
- Because of its low weight, it is easy to carry anywhere.
- less expensive than a mainframe computer.
- It is fast.

4. Workstation:

Workstation is designed for technical or scientific applications. It consists of a fast microprocessor, with a large amount of RAM and high speed graphic adapter. It is a single-user computer. It generally used to perform a specific task with great accuracy.

Characteristics of Workstation:

- It is expensive or high in cost.
- They are exclusively made for complex work purposes.
- It provides large storage capacity, with better graphics, and a more powerful CPU when compared to a PC.
- It is also used to handle animation, data analysis, CAD, audio and video creation, and editing.

5. PC (Personal Computer):

It is also known as a microcomputer. It is basically a general-purpose computer and designed for individual use. It consists of a microprocessor as a central processing unit(CPU), memory, input unit, and output unit. This kind of computer is suitable for personal work such as making an assignment, watching a movie, or at office for office work, etc. For example, Laptops and desktop computers.

Characteristics of PC (Personal Computer):

- In this limited number of software can be used.
- It is smallest in size.
- It is designed for personal use.
- It is easy to use.

6. Analogue Computer:

It is particularly designed to process analogue data. Continuous data that changes continuously and cannot have discrete values is called analogue data. So, an analogue computer is used where we don't need exact values or need approximate values such as speed, temperature, pressure etc. It can directly accept the data from the measuring device without first converting it into numbers and codes. It measures the continuous changes in physical quantity. It gives output as a reading on a dial or scale. For example speedometer, mercury thermometer, etc.

7. Digital Computer:

Digital computers are designed in such a way that it can easily perform calculations and logical operations at high speed. It takes raw data as an input and processes it with programs stored in its memory to produce the final output. It only understands the binary input 0 and 1, so the raw input data is converted to 0 and 1 by the computer and then it is processed by the computer to produce the result or final output. All modern computers, like laptops, desktops including smartphones are digital computers.

8. Hybrid Computer:

As the name suggests hybrid, which means made by combining two different things. Similarly, the hybrid computer is a combination of both analog and digital computers. Hybrid computers are fast like an analog computer and have memory, and accuracy like a digital computer. So, it has the ability to process both continuous and discrete data. For working when it accepts analog signals as input then it converts them into digital form before processing the input data. So, it is widely used in specialized applications where both analog and digital data is required to be processed. A processor which is used in petrol pumps that converts the measurements of fuel flow into quantity and price is an example of a hybrid computer.

Different Types of Personal Computers (PCs)

Personal computer - categories of computers

Personal computers are the most common used computers among general people. We can not think a day without using computers. The future technology is mostly dependent on computer. Perhaps, you may have used several personal computers in your life. In this article, I will tell you about different types of personal computers and their categories according to their use.

Two main categories of computers are **personal computer** and organizational computer. Computers have also several types according to personal use or organizational use. Most computers are usually used by only one person at a time which is called personal computer or PC.

These types of computers are often shared by several people but only **one user** can work with it at any given instant. We will describe here about only personal computer. To know about **organizational computer** click **here**.

Six main types of personal computer

Generally we use different types of computer for different purpose. We can divided them according to single used and organizational used. Here are the six main types of personal computers we used today.

1. *Desktop Computers*
2. *Workstations*
3. *Notebook computers or laptops*
4. *Tablet computers*
5. *Handheld computers*
6. *Smartphones*

These are all example of **personal computers** which refers to any computer system that is designed for used by a single user only. But you have to consider that these can also be shared which I have mentioned earlier.

PCs are also called **microcomputers** because they are the smallest computer created for people to use. For this, the term personal computer or PC is most often used to describe **desktop computer**.

Although this types of computers are used by individuals, they can also be connected together to create **networks** for working together with different personal computers.

In fact, networking has become one of the most important jobs of personal computers. But nowadays, any handheld computers can also be connected to the networks.

Desktop Computer

The most common type of **personal computer** is the desktop computer. It is a PC that is designed to sit on a desk or a table. These are the system you see around you in schools, colleges, universities, homes and offices.

Today's **desktop computers** are more powerful than that of a few years ago. Personal computers are used for various types of tasks.

It is being used by everyone from preschoolers to nuclear physicists as well as desktop computers are indispensable for learning, working as well as playing.

Workstation

A **workstation** is a specialized personal computer. It is single user which has more power and features than a standard PC. These machines are popular among scientists, engineers, and animators who need a greater speed power to perform sophisticated tasks.

Workstations often has large, high resolution monitors and accelerated graphics handling capabilities which makes them suitable for advanced architectural or engineering design, modeling, animation video editing etc.

Notebook computer or Laptop

Notebook computers are another types of personal computer which is getting more popularity day by day. It is very small in size and can easily fit inside a brief case.

They are also called **laptop computers** because people frequently set these devices on their lap. Notebook computer can be operated by both alternating current and direct current by battery. It's weight is less than 8 pounds. During use, the computer's lid is raised to reveal a thin monitor and a keyboard. When not in use, the device folds up for easy storage.
It is a fully functional **microcomputer** or personal computer. People who need the power of a full size desktop computer wherever they go outside, use notebook.
Some **notebook computers** are designed to be plugged into a docking station, which includes a large monitor, a full size keyboard and mouse or other devices.
Docking stations also provide **additional ports** that enable the note book computer to be connected to different devices or a network in the same manner as a desktop personal computer.

Tablet computer
Tablet computer is the newest development in portable, full- featured personal computer. Tablet PCs offer all the functionality of a notebook computer.
They are lighter and can accept input from a special pen called a **stylus** or a digital pen. Stylus is used to tap or write directly on the screen.
Some tablet PCs also have a built-in **microphones** and special software that accepts input from the user's **voice**. Some have a fold-out keyboard, so they can be transformed into a standard notebook computer.
Tablet PCs run specialized versions of standard programs and can be connected to a network as a personal computer. Some models also can be connected to a keyboard and a full-size monitor.

Handheld computer
Handheld computers are another types of personal computer which are small enough to fit in your hand. The **Personal Digital Assistant (PDA)** is the popular types of handheld computers. PDA is used for special applications such as taking notes, displaying telephone numbers and addresses, and keeping track of dates or agendas. Many PDAs can be connected to larger computers to exchange data.
Many PDAs let the user access the internet through a **wireless connection** as a personal computer. Several models offer features such as cellular telephones, cameras, music players, and GPS.
Smartphone
Smartphones which are the most uses personal computers now a days. There are hardly a person who has not a smartphone. These are very small and can easily portable to your pocket. Smartphone is the smallest types of PC now a days. Almost everyone have a smartphone today by which a man can connect to the internet.
One can get the features like web and email access, special software such as personal organizers, or special hardware such as digital cameras or music players. It has made our life easy because we can easily take it with us and use whenever need.

Main parts of a Computer system:

Processing Devices,

It is an essential device that every computer user must know about computer devices and storage devices with their purpose.
There are two main types of computer hardware devices, external hardware devices, and internal hardware devices.
External hardware is external hardware used outside of the computer, and internal hardware is internal hardware used within the computer.
The keyboard and mouse are input devices through which we give commands to the computer. Examples are opening any software and running it or creating any file with a given command. All of this process requires processing that is done by the computer.

- ***Processor/CPU:*** *Processor is an acronym for Central Processing Unit (CPU). The CPU is the computer's brain and is situated on the motherboard. We use the computer to calculate the trial of anything we do in the computer, which is known to the computer because the processing does anything we do in the computer. The computer receives the command from the program files when we choose an icon from the software and give it. Later, the computer opens the program and displays the output on the output device, such as the monitor.*
- ***GPU:*** *GPU (Graphics Processing Unit), known as Graphics card, is used for processing good videos and pictures, but it is not the main component of the computer since the computer uses onboard graphics connected to the motherboard and are what control the standard graphics. A person who plays video games and creates high-quality videos with that device is likely to need a GPU to process the heavy graphics in the game and the high-quality videos, so they need a GPU to do it.*
- ***Video Card:*** *A video card is similar to a graphic card, but it has a lower processing power than a graphic card; video cards are built directly into computers' motherboards; so it's like a small part of the GPU that works slowly.*
- ***Motherboard:*** *This is an essential device of the computer; with the help of this device, all other devices are connected to the laptop or desktop computer.*
- ***Sound Card:*** *With the help of this card, we can play any sound saved in our device. The computer is able to save all types of sound binary code language for decode this; there is a sound card available in laptop, mobile, speaker.*

Input Devices,

The electromagnetic devices that accept data or a set of instructions from the outside world and then translate that data into machine-readable and understandable form are known as input devices. Computer input devices serve as an interface between the outside world and the computer for proper communication. When the users enter data using various input devices, the data can be saved in computer memory for further processing and preparation. Using the output devices, the intended and calculated results can be acquired when the processing and handling

are completed. An input device transmits data to a computer and allows you to communicate with it and control it.

Different Input Devices

1. Keyboard: For entering data into a computer, the keyboard is the most common and commonly used input device. It contains various keys for entering letters, numbers, characters. Although there are some additional keys for completing various activities, the keyboard layout is identical to that of a standard typewriter. It is generally available in two different sizes: 84 keys or 101/102 keys and for Windows and the Internet, it is also available with 104 keys or 108 keys. It is connected to a computer system with the help of a USB or a Bluetooth device.

The keys on the keyboard are:

- **Numeric Keys:** These keys are used to enter numeric data and move the cursor. It is typically made up of 17 keys.
- **Keyboard Shortcuts:** These keys include the letter keys (A-Z) and the number keys (09).
- **Control Keys:** The pointer and the screen are controlled by these keys. It comes with four directional arrow keys. Control keys include Home, End, Insert, Alternate(Alt), Delete, Control(Ctrl), and Escape.
- **Special Keys:** Enter, Shift, Caps Lock, NumLk, Tab, and Print Screen are some of the special function keys on the keyboard.
- **Function Keys:** The 12 keys from F1 to F12 are on the topmost row of the keyboard.

Type of keyboard:

Generally, the keyboard is of three types:

- QWERTY Keyboard
- AZERTY Keyboard
- DVORAK Keyboard

Characteristics of Keyboard :

- The keyboard has various functions keys for a different purpose
- Instead of using the mouse, we can utilize the arrow keys on the keyboard to do the same purpose as the mouse.
- The main keyboard, cursor keys, numeric keypad, and function keys are the four primary components of a keyboard.
- Keyboards are more affordable.

2. Mouse: The mouse is the most used pointing device. While clicking and dragging, the mouse moves a little cursor across the screen. If you let off of the mouse, the cursor will come to a halt. You must move the mouse for the computer to move; it will not move on its own. As a result, it's a device that accepts input. Or we can say that a mouse is an input device that allows you to control the coordinates and movement of the on-screen cursor/pointer by moving the mouse on a flat surface. The left mouse button can be used to pick or move items, while the right mouse button displays additional menus when clicked. It was invented in 1963 by Douglas C. Engelbart.

Types of mouse:

Generally, the mouse is of four types:

- Trackball Mouse
- Mechanical Mouse
- Optical Mouse

- Wireless Mouse

Characteristics of the mouse:

- A mouse is used to move the cursor on the screen in the desired direction.
- A mouse allows users to choose files, folders, or multiple files or text or, all at once.
- Hover over any object with the mouse pointer.
- A mouse can be used to open a file, folder, etc. You must first move your pointer to a file, folder, and then double-click on it to open or execute.

3. Joystick: A pointing device used to move the cursor around the screen is the joystick. Both the bottom and top ends of the stick have a spherical ball affixed to them. A socket contains the lower spherical ball. You can adjust the joystick in all directions. Trackballs became quite popular in laptops and PCs since they fit neatly inside the case and take up less room when in use. They are more precise and long-lasting than a mouse, which is why they are still utilized. It is invented by C.B.Mirick.

Characteristics of Joystick:

- It's utilized to regulate the cursor's position across a display screen.
- It's utilized in computer games to move the characters and symbols around.
- It commonly features one or more push buttons, the condition of which can be controlled by the computer as well.

4. Light Pen: A light pen is a pointing device that has the appearance of a pen. It can be used to draw on the monitor screen or to pick a menu item. In a small tube, a photocell and an optical system are housed. The photocell sensor element determines the screen location and sends a signal to the CPU when the tip of a light pen is moved across a monitor screen while the pen button is pressed.

Characteristics of the light pen:

- When drawing graphics, a light pen comes in very handy.
- Objects on the display screen are selected with a light pen.

5. Scanner: A scanner is a type of input device that works in the same way as a photocopier. It's used when there's data on paper that needs to be transferred to the computer's hard disc for further processing. The scanner collects images from the source and translates them to a digital version that can be saved on the hard disks. These graphics can be changed before they are printed.

Types of Scanner:

Generally, the scanner is of five types:

- Flatbed Scanner
- Handheld Scanner
- Sheetfed Scanner
- Drum Scanner
- Photo Scanner

Characteristics of Scanner:

- You can scan film negatives via a scanner if there is a transparent media adaptor.
- A scanner may also scan low-quality or non-standard-weight paper.
- The scanners are adaptable, allowing you to scan a wide range of items regardless of their size. You can scan small items as well as large documents if you can locate them.

6. OCR: OCR stands for "Optical Character Recognition" in its full form. OCR is a computer reading technique that reads numbers, characters, and symbols. OCR is a technique for recognizing text in documents that have been scanned into digital form. Optical character recognition (OCR) refers to a device that reads printed text. Character by character, OCR scans the text, converts it to a machine-readable code, and saves it into the memory of the system. OCR also functions as a scanner, scanning documents, photos, images, and handwritten text and storing the information in memory, which may then be compared to previously stored data.

Characteristics of OCR:

- The technology offers a complete solution for form processing and document capture.
- It has capabilities for defining shapes, scanning, image pre-processing, and identification.

7. Barcode Reader: A bar code reader is a device that reads bar-coded data (data that is represented by light and dark lines). To label things, number books, and so on, bar-coded data is often utilized. It could be a standalone scanner or a component of one. A barcode reader is a device that reads barcodes and extracts data from them. The code bar is used to read the bar code printed on any goods. By impacting light beams on barcode lines, a barcode reader identifies existing data in barcodes.

Characteristics of Barcode Reader:

- When a card is inserted, auto-start barcode scanners begin scanning immediately.
- Reading indicators give the user confirms that the card has been swiped correctly.
- It's simple to use, simply hold your phone up to the code and scan it.

8. Web Camera: A webcam is an input device since it records a video image of the scene in front of it. It can either be incorporated inside the computer (for example, a laptop) or connected via USB. A webcam is a small digital video camera that is connected to a computer. Because it can capture pictures and record video, it's also known as a web camera.

Characteristics of Web Camera:

- Webcams are used to allow individuals to see one other while chatting online. This is formally referred to as 'teleconferencing'.
- Because webcams can take a picture only if movement is detected in the scene in front of them, they are commonly utilized in burglar alarms and other security systems.
- Hundreds of webcams can be found all around the world, each pointing to a fascinating scene such as the exterior view of a facility in the Arctic or Niagara Falls. The webcam is connected to a computer that regularly sends an image to an internet server. After that, people connect to the server to view the most recent image.

9. Graphic Tablet: A graphics tablet, also known as a digitizing tablet, is a computer input device that allows users to draw drawings and graphics by hand, much like they would with a pencil and paper. A graphics tablet is a flat surface on which the user can "draw" a picture with the help of an attached stylus, which is a pen-like drawing device.

Characteristics of a Graphics Tablet:

- The graphics tablet is a pressure-sensitive tablet that is controlled by a pen.
- Drawing, writing, inserting, etc. can be done with the pen.
- It provides more precision and the ability to monitor (than a touchscreen).

10. Digital Camera: Digital camera is a device that takes photographs as input. Images are saved on memory cards as data. It comes with an LCD display that allows users to view and review photographs. A digital camera contains photosensors that record the light that enters into the camera lens. So, when the light strikes the photosensors, they return the electric current and this electric current is used to create images.

Characteristics of Digital Camera:

- Users can immediately examine images and movies on the LCD screen.
- All the photos can be stored in the storage device.
- Users can select and choose the images they want to develop.
- Easily portable & takes less space.

Output Devices,

Any peripheral that accepts data from a computer and prints, projects, or reproduces it is known as an output device. The output may be audio, video, hard copy – printed paper, etc. Output devices convert the computer data to human understandable form.

We give input to the computer using input devices and the computer performs operations on the data and displays the output to the user using the output device.

Output Devices

The various output devices are:

1. Monitor

A computer's principal output device is a monitor, often known as a Visual Display Unit (VDU). It displays the processed data like text, images, videos, audios, etc. It makes images by arranging microscopic dots in a rectangular pattern, known as pixels. The sharpness of an image is determined by the number of pixels. There are two types of monitor viewing screens:

(1) Cathode-Ray Tube (CRT): This type of monitor is based on a cathode ray tube. In which the cathode ray tube generates a beam of electrons with the help of electron guns they strike on the inner surface of phosphorescent of the screen to generate images. The CRT monitor holds millions of phosphorus dotes in three different colors, i.e., red, blue, and green. These dots glow when the beam struck on them and create an image. The main parts of the CRT monitor are the electron gun, fluorescent screen, glass envelope, deflection plate assembly, and base.

Characteristics of Monitor:

- Resolution pixels: Pixels are the smallest element of any image
- Size: The size of the monitor – The diagonal measurement of a desktop screen is typically 14 to 25 inches.
- Refresh Rate: Total number of times per second that an image on a display is repainted or refreshed.

(2) Display on a Flat Panel Monitor with a Cathode-Ray Tube (CRT): A flat-panel display is a type of video display with less volume, weight, and power consumption than a CRT. They can be put on the wrist or hang on the wall. Calculators, video games, monitors, laptop computers, and graphical displays all use flat-panel displays.

(3) Plasma Monitor: It is also a flat panel display but it is based on plasma display technology. In a plasma monitor, a small cell is present in between two glass surfaces and these cells contain a solution of noble gases and mercury. So when the electricity supply on the gas present in the cell converts into plasma and produces UV light that creates an image. It is much better than an

LCD monitor. The resolution of this monitor is also high up to 1920 x 1920. It has a good contrast ratio, high refresh rate, etc.

2. Printer

Printers are information output devices that allow you to print data on paper. Or in other words, it is an output device that creates a hard copy of the processed data or information. Printers are divided into two categories:

(1) Impact Printer: In impact printers, characters are printed on the ribbon, which is then smashed on the paper. Or we can say that such type of printer uses a print head or hammer to print the data on the paper. Here to print the paper the hammer or print head strikes an ink ribbon against the paper and the character starts printing. Some of the types of impact printers are:

- Dot matrix printer
- Daisy wheel printer
- Line printer
- Chain printer

Impact printers have the following characteristics:

- Extremely low consumable costs.
- Fairly noisy
- It's perfect for large-scale printing because of its inexpensive cost.
- Physical contact with the paper is required to form an image.

(2) Non-Impact Printers: Non-impact printers print characters without the use of a ribbon. These printers are often known as Page Printers because they print a full page at a time. Some of the types of non-impact printers are:

- Laser printer
- Inkjet printer

Non-impact printers have the following characteristics:

- Quicker
- They don't produce much noise.
- Superior quality
- Supports a wide range of fonts and character sizes

3. Plotter

A plotter is a device that prints high-quality graphics in a variety of color formats. It works in a similar way to a printer, although it has more advanced features. It is used to print large maps, architectural drawings, large-format printing, and create pictures, 3D postcards, advertising signs, charts, and various designs of the internal structure of building machines, as well as create pictures, 3D postcards, advertising signs, charts, and various designs of the internal structure of building machines.

Characteristics of Plotter:

- Large size prints can be taken via plotters
- It is slow & expensive.

4. Projector

A projector is a device that allows users to project their output onto a large area, such as a screen or a wall. It can be used to project the output of a computer and other devices onto a screen. It magnifies texts, photos, and movies using light and lenses. As a result, it's an excellent output device for giving presentations or teaching big groups of people.

Characteristics of Projector:

- They are lightweight, and one person can easily take them out of the box, connect them, and hang an image on the wall.
- Projectors can be the most cost-effective option for large-screen video in your home.
- A small projector mounted on a back shelf or bookcase, or mounted on the ceiling, takes up no area on the floor. It is barely visible when it is not in use.

5. Speakers

Speakers are connected to computers to allow sound to be output. For the working of speakers, sound cards are required. From simple two-speaker output devices to surround-sound multi-channel sets, speakers come in a variety of shapes and sizes. They take audio input from the computer's sound card and output sound waves as audio output.

Characteristics of Speakers:

- Speakers are available in a wide range of qualities and prices.
- Small, plastic computer speakers with low sound quality are often included with computer systems.

6. Headphones

To hear the sound, use earbuds with your PC, laptop, or smartphone. It enables you to hear the sound without causing any inconvenience to others. To translate electronic signals into sounds without causing inconvenience to others. They can be wired or wireless and can be connected to computers, laptops, mobile phones, etc. They are connected with the devices via Bluetooth.

Characteristics of Headphones:

- Stereo phones and headsets are other names for them.
- Earphones or earbuds are the names for the in-ear variants.
- The term headset denotes a combination of headphones and a microphone used for two-way communication, such as using a telephone.

7. Sound Card

Sound cards are computer output devices that are inserted into the computer. A sound card, either external or internal, is required to produce sound on any computer (built-in). An external sound card enables for better overall sound generation and is required for wide and clear sound recording, as well as sound without noise and interference.

Characteristics of Sound Card:

- To listen speakers or headphones, to play games, watch movies, listen to music, or use audio and video conferencing, we use an internal sound card.
- Frequency is a sound card parameter that represents the number of signals the card processes per unit of time. The frequency is expressed in hertz. The frequency of most sound cards is 96 or 192 kHz.
- Synthesizers and a variety of electronic musical instruments, such as drums and keyboards, can be connected to your computer using a sound card with standard Musical Instrument Digital Interface (MIDI) connections.

8. Video Card

An extension card via which a computer can transfer graphical data to a video display device like a TV, projector, or monitor. It processes photos and video, as well as other functions that the

CPU generally does. As they have a good processing capability and video RAM, Gamers utilize video cards.

Characteristics of Video Card:

- Heat sinks are required for video cards with high performance as they generate a lot of heat.
- Also known as graphics card & require software installation in addition to the hardware.
- When working with huge files, video cards supply a significant quantity of video-only memory that frees up CPU resources, allowing the system to run more effectively.

9. Speech synthesizer

A speech synthesizer is a computerized device that takes in data, interprets it, and generates audible words. It might be a computer card, a box connected by a cable, or software that works with the computer's sound card.

Characteristics of speech synthesizer:

- Any text, predetermined input can be translated into audible speech.
- For people who are unable to talk or have impaired vision, it can provide digital verbal communication.
- It takes in data, interprets it, and generates sound output.

10. GPS

The Global Positioning System (GPS) is a radio-based satellite navigation system that uses radio signals to pinpoint a specific position. The sender sends a radio signal to satellites, which collect data such as time, location, speed, and other variables and deliver it to the reception computer for analysis. Because this processed data can be evaluated to obtain information, it is considered as an output device.

Characteristics of GPS:

- GPS satellites constantly communicate their position and time.
- Solar storms, high storm cover, and other factors impair GPS equipment.
- The Global Positioning System (GPS) is based on the mathematical idea of 'trilateration.'
- The GPS works independently of telephonic or internet reception & does not need the user to send any data, however, to improve accuracy both technologies can be used.

Storage Devices.

A storage unit is a part of the computer system which is employed to store the information and instructions to be processed. A storage device is an integral part of the computer hardware which stores information/data to process the result of any computational work. Without a storage device, a computer would not be able to run or even boot up. Or in other words, we can say that a storage device is hardware that is used for storing, porting, or extracting data files. It can also store information/data both temporarily and permanently. Computer storage is of two types:

- **Primary Storage Devices:** It is also known as internal memory and main memory. This is a section of the CPU that holds program instructions, input data, and intermediate results. It is generally smaller in size. RAM (Random Access Memory) and ROM (Read Only Memory) are examples of primary storage.

- **Secondary Storage Devices:** Secondary storage is a memory that is stored external to the computer. It is mainly used for the permanent and long-term storage of programs and data. Hard Disk, CD, DVD, Pen/Flash drive, SSD, etc, are examples of secondary storage.

Storage Devices

Now we will discuss different types of storage devices available in the market. These storage devices have their own specification and use. Some of the commonly used storage devices are:

1. Primary storage devices

(i) RAM: It stands for Random Access Memory. It is used to store information that is used immediately or we can say that it is a temporary memory. Computers bring the software installed on a hard disk to RAM to process it and to be used by the user. Once, the computer is turned off, the data is deleted. With the help of RAM, computers can perform multiple tasks like loading applications, browsing the web, editing a spreadsheet, experiencing the newest game, etc. It allows you to modify quickly among these tasks, remembering where you're in one task once you switch to a different task. It is also used to load and run applications, like your spreadsheet program, answer commands, like all edits you made within the spreadsheet, or toggle between multiple programs, like once you left the spreadsheet to see the email. Memory is nearly always being actively employed by your computer. It ranges from 1GB – 32GB/64GB depending upon the specifications. There are different types of RAM, although they all serve the same purpose, the most common ones are :

- **SRAM:** It stands for Static Random Access Memory. It consists of circuits that retain stored information as long as the power is supply is on. It is also known as volatile memory. It is used to build Cache memory. The access time of SRAM is lower and it is much faster as compared to DRAM but in terms of cost, it is costly as compared to DRAM.
- **DRAM:** It stands for Dynamic Random Access Memory. It is used to stores binary bits in the form of electrical charges that are applied to capacitors. The access time of DRAM is slower as compare to SRAM but it is cheaper than SRAM and has a high packaging density.
- **SDRAM:** It stands for Synchronous Dynamic Random Access Memory. It is faster than DRAM. It is widely used in computers and others. After SDRAM was introduced, the upgraded version of double data rate RAM, i.e., DDR1, DDR2, DDR3, and DDR4 was entered into the market and widely used in home/office desktops and laptops.

(ii) ROM: It stands for Read-Only Memory. The data written or stored in these devices are non-volatile, i.e, once the data is stored in the memory cannot be modified or deleted. The memory from which will only read but cannot write it. This type of memory is non-volatile. The information is stored permanently during manufacture only once. ROM stores instructions that are used to start a computer. This operation is referred to as bootstrap. It is also used in other electronic items like washers and microwaves. ROM chips can only store few megabytes (MB) of data, which ranges between 4 and 8 MB per ROM chip. There are two types of ROM:

- **PROM:** PROM is Programmable Read-Only Memory. These are ROMs that can be programmed. A special PROM programmer is employed to enter the program on the PROM. Once the chip has been programmed, information on the PROM can't be altered. PROM is non-volatile, that is data is not lost when power is switched off.

- **EPROM:** Another sort of memory is that the Erasable Programmable Read-Only Memory. It is possible to erase the info which has been previously stored on an EPROM and write new data onto the chip.

2. Magnetic Storage Devices

(i) Floppy Disk: It is also known as a floppy diskette. It is generally used on a personal computer to store data externally. A Floppy disk is made up of a plastic cartridge and secures with a protective case. Nowadays floppy disk is replaced by new and effective storage devices like USB, etc.

(ii) Hard Disk: It is a storage device (HDD) that stores and retrieves data using magnetic storage. It is a non-volatile storage device that can be modified or deleted n number of times without any problem. Most of the computers and laptops have HDDs as their secondary storage device. It is actually a set of stacked disks, just like phonograph records. In every hard disk, the data is recorded electromagnetically in the concentric circles or we can say track present on the hard disk, and with the help of a head just like a phonograph arm(but fixed in a position) to read the information present on the track. The read-write speed of HDDs is not so fast but decent. It ranges from a few GBs to a few and more TB.

(iii) Magnetic Card: It is a card in which data is stored by modifying or rearranging the magnetism of tiny iron-based magnetic particles present on the band of the card. It is also known as a swipe card. It is used like a passcode(to enter into house or hotel room), credit card, identity card, etc.

(iv) Tape Cassette: It is also known as a music cassette. It is a rectangular flat container in which the data is stored in an analog magnetic tape. It is generally used to store audio recordings.

(v) SuperDisk: It is also called LS-240 and LS-120. It is introduced by Imation corporation and it is popular with OEM computers. It can store data up to 240 MB.

3. Flash memory Devices

It is a cheaper and portable storage device. It is the most commonly used device to store data because is more reliable and efficient as compare to other storage devices. Some of the commonly used flash memory devices are:

(i) Pen Drive: It is also known as a USB flash drive that includes flash memory with an integrated USB interface. We can directly connect these devices to our computers and laptops and read/write data into them in a much faster and efficient way. These devices are very portable. It ranges from 1GB to 256GB generally.

(ii) SSD: It stands for Solid State Drive, a mass storage device like HDDs. It is more durable because it does not contain optical disks inside like hard disks. It needs less power as compared to hard disks, is lightweight, and has 10x faster read and write speed as compared to hard disks. But, these are costly as well. While SSDs serve an equivalent function as hard drives, their internal components are much different. Unlike hard drives, SSDs don't have any moving parts and thus they're called solid-state drives. Instead of storing data on magnetic platters, SSDs store data using non-volatile storage. Since SSDs haven't any moving parts, they do not need to "spin up". It ranges from 150GB to a few and more TB.

(iii) SD Card: It is known as a Secure Digital Card. It is generally used with electronic devices like phones, digital cameras, etc. to store larger data. It is portable and the size of the SD card is also small so that it can easily fit into electronic devices. It is available in different sizes like 2GB, 4GB, 8GB, etc.

(iv) Memory Card: It is generally used in digital cameras. printers, game consoles, etc. It is also used to store large amounts of data and is available in different sizes. To run a memory card on a computer you require a separate memory card reader.
(v) Multimedia Card: It is also known as MMC. It is an integrated circuit that is generally used in-car radios, digital cameras, etc. It is an external device to store data/information.

4. Optical Storage Devices

Optical Storage Devices is also a secondary storage device. It is a removable storage device. Following are some optical storage devices:
(i) CD: It is known as Compact Disc. It contains tracks and sectors on its surface to store data. It is made up of polycarbonate plastic and is circular in shape. CD can store data up to 700MB. It is of two types:

- **CD-R:** It stands for Compact Disc read-only. In this type of CD, once the data is written can not be erased. It is read-only.
- **CD-RW:** It stands for Compact Disc read Write. In this type of CD, you can easily write or erase data multiple times.

(ii) DVD: It is known as Digital Versatile Disc. DVDs are circular flat optical discs used to store data. It comes in two different sizes one is 4.7GB single-layer discs and another one is 8.5GB double-layer discs. DVDs look like CDs but the storage capacity of DVDs is more than as compared to CDs. It is of two types:

- **DVD-R:** It stands for Digital Versatile Disc read-only. In this type of DVD, once the data is written can not be erased. It is read-only. It is generally used to write movies, etc.
- **DVD-RW:** It stands for Digital Versatile Disc read Write. In this type of DVD, you can easily write or erase data multiple times.

(iii) Blu-ray Disc: It is just like CD and DVD but the storage capacity of blu ray is up to 25GB. To run a Blu-ray disc you need a separate Blu-ray reader. This Blu-ray technology is used to read a disc from a blue-violet laser due to which the information is stored in greater density with a longer wavelength.

5. Cloud and Virtual Storage

Nowadays, secondary memory has been upgraded to virtual or cloud storage devices. We can store our files and other stuff in the cloud and the data is stored for as long as we pay for the cloud storage. There are many companies that provide cloud services largely Google, Amazon, Microsoft, etc. We can pay the rent for the amount of space we need and we get multiple benefits out of it. Though it is actually being stored in a physical device located in the data centers of the service provider, the user doesn't interact with the physical device and its maintenance. For example, Amazon Web Services offers AWS S3 as a type of storage where users can store data virtually instead of being stored in physical hard drive devices. These sorts of innovations represent the frontier of where storage media goes.

Categories of Software,

History of software

The term *software* was not used until the late 1950s. During this time, although different types of programming software were being created, they were typically not commercially available. Consequently, users -- mostly scientists and large enterprises -- often had to write their own software.

The following is a brief timeline of the history of software:

- **June 21, 1948.** Tom Kilburn, a computer scientist, writes the world's first piece of software for the Manchester Baby computer at the University of Manchester in England.
- **Early 1950s.** General Motors creates the first OS, for the IBM 701 Electronic Data Processing Machine. It is called General Motors Operating System, or GM OS.
- **1958.** Statistician John Tukey coins the word *software* in an article about computer programming.
- **Late 1960s.** Floppy disks are introduced and are used in the 1980s and 1990s to distribute software.
- **Nov. 3, 1971.** AT&T releases the first edition of the Unix OS.
- **1977.** Apple releases the Apple II and consumer software takes off.
- **1979.** VisiCorp releases VisiCalc for the Apple II, the first spreadsheet software for personal computers.
- **1981.** Microsoft releases MS-DOS, the OS on which many of the early IBM computers ran. IBM begins selling software, and commercial software becomes available to the average consumer.
- **1980s.** Hard drives become standard on PCs, and manufacturers start bundling software in computers.
- **1983.** The free software movement is launched with Richard Stallman's GNU (GNU is not Unix) Linux project to create a Unix-like OS with source code that can be freely copied, modified and distributed.
- **1984.** Mac OS is released to run Apple's Macintosh line.
- **Mid-1980s.** Key software applications, including AutoDesk AutoCAD, Microsoft Word and Microsoft Excel, are released.
- **1985.** Microsoft Windows 1.0 is released.
- **1989.** CD-ROMs become standard and hold much more data than floppy disks. Large software programs can be distributed quickly, easily and relatively inexpensively.
- **1991.** The Linux kernel, the basis for the open source Linux OS, is released.
- **1997.** DVDs are introduced and able to hold more data than CDs, making it possible to put bundles of programs, such as the Microsoft Office Suite, onto one disk.
- **1999.** Salesforce.com uses cloud computing to pioneer software delivery over the internet.
- **2000.** The term software as a service (SaaS) comes into vogue.
- **2007.** IPhone is launched and mobile applications begin to take hold.
- **2010 to the present.** DVDs are becoming obsolete as users buy and download software from the internet and the cloud. Vendors move to subscription-based models and SaaS has become common.

Different Types of Software

Typically, there are two major classifications of software, namely System Software and Application Software.

1. System Software

A system software aids the user and the hardware to function and interact with each other. Basically, it is a software to manage computer hardware behavior so as to provide basic functionalities that are required by the user. In simple words, we can say that system software is an intermediator or a middle layer between the user and the hardware. These computer software

sanction a platform or environment for the other software to work in. This is the reason why system software is very important in managing the entire computer system. When you first turn on the computer, it is the system software that gets initialized and gets loaded in the memory of the system. The system software runs in the background and is not used by the end-users. This is the reason why system software is also known as 'low-level software'.

Some common system software examples are:

- Operating System: It is the most prominent example of System Software. It is a collection of software that handles resources and provides general services for the other applications that run over them. Although each Operating System is different, most of them provide a Graphical User Interface through which a user can manage the files and folders and perform other tasks. Every device, whether a desktop, laptop or mobile phone requires an operating system to provide the basic functionality to it. As an OS essentially determines how a user interacts with the system, therefore many users prefer to use one specific OS for their device. There are various types of operating system such as real-time, embedded, distributed, multiuser, single-user, internet, mobile, and many more. It is important to consider the hardware specifications before choosing an operating system. Some examples of Operating systems given below:
-
    - Android
    - CentOS
    - iOS
    - Linux
    - Mac OS
    - MS Windows
    - Ubuntu
    - Unix
- Device Drivers: It is a type of software that controls particular hardware which is attached to the system. Hardware devices that need a driver to connect to a system include displays, sound cards, printers, mice and hard disks. Further, there are two types of device drivers: Kernel Device Drivers and User Device Driver. Some examples of device drivers are:
-
    - BIOS Driver
    - Display Drivers
    - Motherboard Drivers
    - Printer Drivers
    - ROM Drivers
    - Sound card Driver
    - USB Drivers
    - USB Drivers
    - VGA Drivers
    - VGA Drivers
    - Virtual Device Drivers
- Firmware: Firmware is the permanent software that is embedded into a read-only memory. It is a set of instructions permanently stored on a hardware device. It provides

essential information regarding how the device interacts with other hardware. Firmware can be considered as 'semi-permanent' as it remains permanent unless it is updated using a firmware updater. Some examples of firmware are:

- BIOS
- Computer Peripherals
- Consumer Applications
- Embedded Systems
- UEFI

- Programming Language Translators: These are mediator programs on which software programs rely to translate high-level language code to simpler machine-level code. Besides simplifying the code, the translators also do the following :
  - Assign data storage
  - Enlist source code as well as program details
  - Offer diagnostic reports
  - Rectify system errors during the runtime
  - Examples of Programming Language Translators are Interpreter, Compiler and Assemblers.
- Utility: Utility software is designed to aid in analyzing, optimizing, configuring and maintaining a computer system. It supports the computer infrastructure. This software focuses on how an OS functions and then accordingly it decides its trajectory to smoothen the functioning of the system. Softwares like antiviruses, disk cleanup & management tools, compression tools, defragmenters, etc are all utility tools. Some examples of utility tools are:
  - Avast Antivirus
  - Directory Opus
  - McAfee Antivirus
  - Piriform CCleaner
  - Razer Cortex
  - Windows File Explorer
  - WinRAR
  - WinZip

2. Application Software

Application Software, also known as end-user programs or productivity programs are software that helps the user in completing tasks such as doing online research, jotting down notes, setting an alarm, designing graphics, keeping an account log, doing calculations or even playing games. They lie above the system software. Unlike system software, they are used by the end-user and are specific in their functionality or tasks and do the job that they are designed to do. For example, a browser is an application designed specifically for browsing the internet or MS Powerpoint is an application used specifically for making presentations. Application Software or simply apps can also be referred to as non-essential software as their requirement is highly subjective and their absence does not affect the functioning of the system. All the apps that we see on our mobile phones are also examples of Application Software. There is certain software that is exclusively made for app development like Meteor and Flutter. These are examples of Application software too.

There are various types of application software:

- Word Processors: These applications for documentation. Along with that it also helps I storing, formatting and printing of these documents. Some examples of word processors are:
  - Abiword
  - Apple iWork- Pages
  - Corel WordPerfect
  - Google Docs
  - MS Word
- Database Software: This software is used to create and manage a database. It is also known as the Database Management System or DBMS. They help with the organization of data. Some examples of DBMS are:
  - Clipper
  - dBase
  - FileMaker
  - FoxPro
  - MS Access
  - MySQL
- Multimedia Software: It is the software that is able to play, create or record images, audio or video files. They are used for video editing, animation, graphics, and image editing, Some examples of Multimedia Software are:
  - Adobe Photoshop
  - Inkscape
  - Media Monkey
  - Picasa
  - VLC Media Player
  - Windows Media Player
  - Windows Movie Maker
- Education and Reference Software: These types of software are specifically designed to facilitate learning on a particular subject. There are various kinds of tutorial software that fall under this category. They are also termed as academic software. Some examples are:
  - Delta Drawing
  - GCompris
  - Jumpstart titles
  - KidPix
  - MindPlay
  - Tux Paint
- Graphics Software: As the name suggests, Graphics Software has been devised to work with graphics as it helps the user to edit or make changes in visual data or images. It comprises of picture editors and illustration software. Some examples are:
  - Adobe Photoshop
  - Autodesk Maya

- Blender
- Carrara
- CorelDRAW
- GIMP
- Modo
- PaintShop Pro

- Web Browsers: These applications are used to browse the internet. They help the user in locating and retrieving data across the web. Some examples of web browsers are:

- Google Chrome
- Internet Explorer
- Microsoft Edge
- Mozilla Firefox
- Opera
- Safari
- UC Browser

Other than these, all the software that serves a specific purpose fall under the category of Application Software.

Computer Network: Basic hardware and terminology in networks,

Open system:

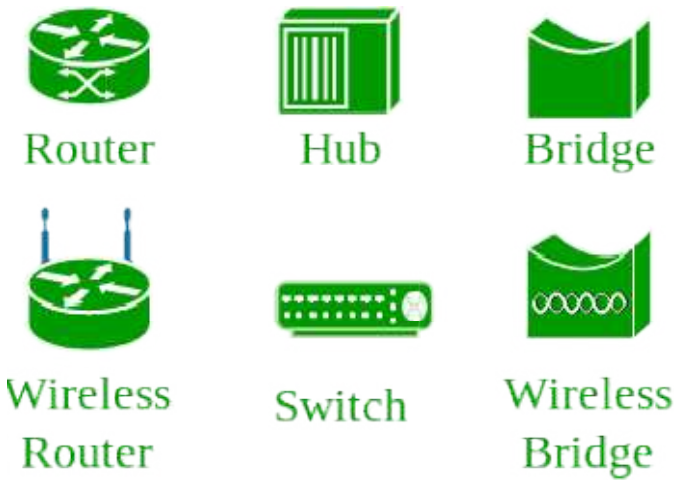
A system which is connected to the network and is ready for communication.

Closed system:

A system which is not connected to the network and can't be communicated with.

Computer Network:

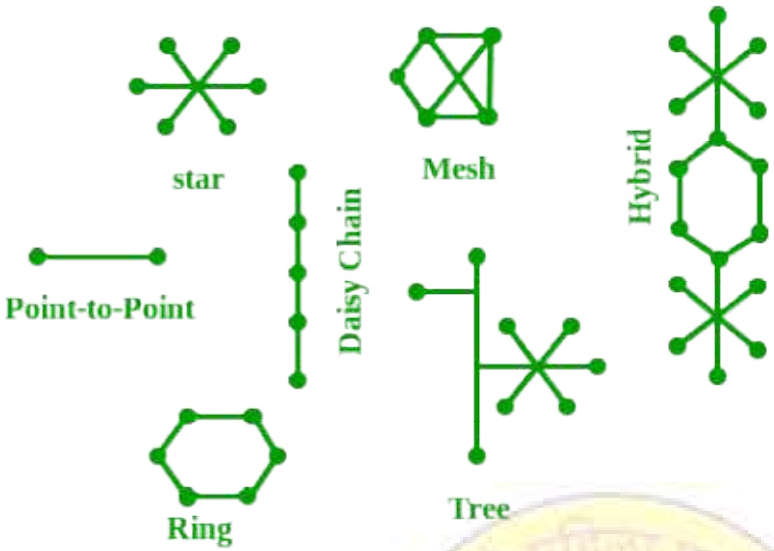
An interconnection of multiple devices, also known as hosts, that are connected using multiple paths for the purpose of sending/receiving data or media. Computer networks can also include multiple devices/mediums which help in the communication between two different devices; these are known as **Network devices** and include things such as routers, switches, hubs, and bridges.



Network Topology:

The layout arrangement of the different devices in a network. Common examples include: Bus,

Star, Mesh, Ring, and Daisy chain.



OSI:

OSI stands for **Open Systems Interconnection**. It is a reference model that specifies standards for communications protocols and also the functionalities of each layer.

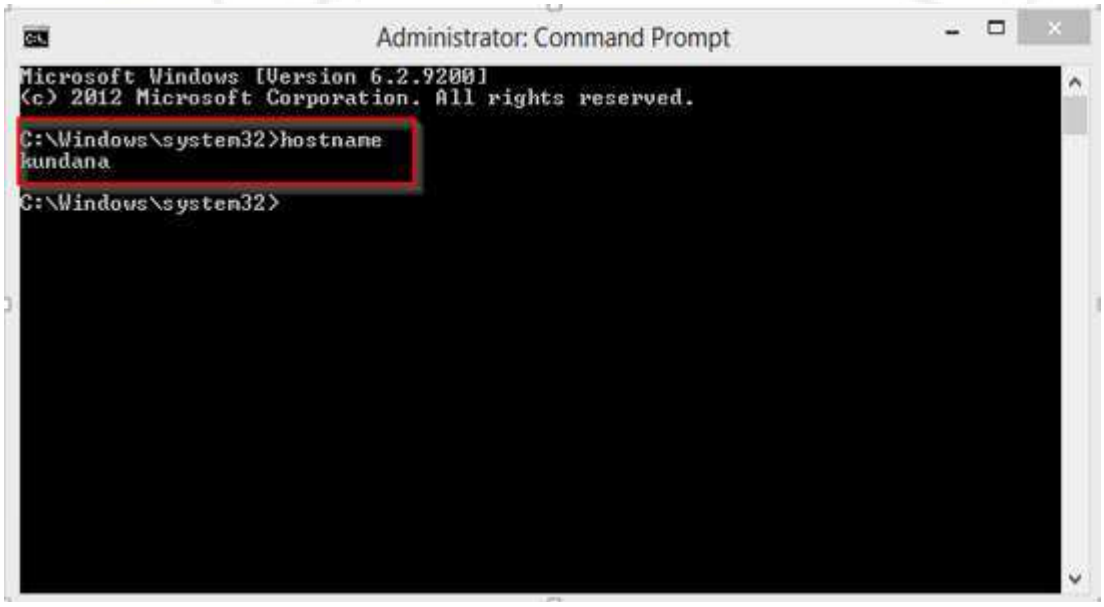
Protocol:

A protocol is the set of rules or algorithms which define the way how two entities can communicate across the network and there exists different protocol defined at each layer of the OSI model. Few of such protocols are TCP, IP, UDP, ARP, DHCP, FTP and so on.

UNIQUE IDENTIFIERS OF NETWORK

Host name:

Each device in the network is associated with a unique device name known as Hostname. Type "hostname" in the command prompt(Administrator Mode) and press 'Enter', this displays the hostname of your machine.



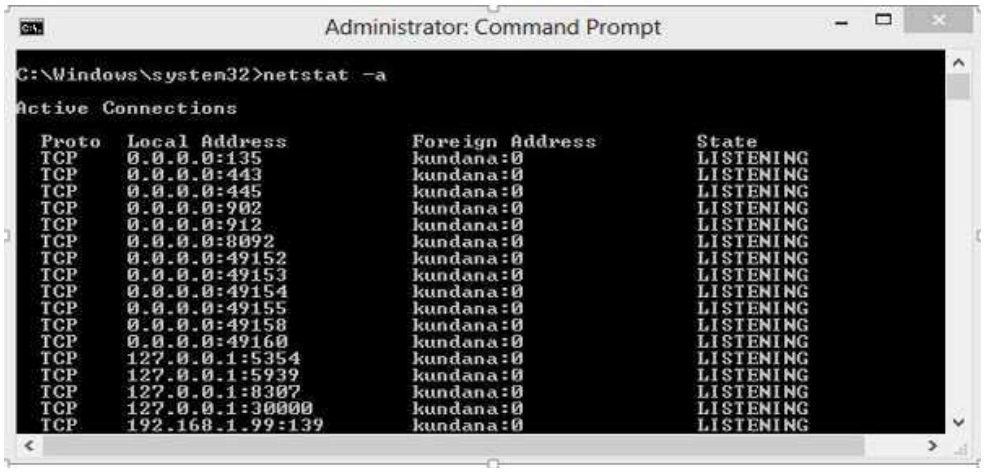
IP Address (Internet Protocol address):
Also known as the Logical Address, the IP Address is the network address of the system across the network.
To identify each device in the world-wide-web, the Internet Assigned Numbers Authority (IANA) assigns an IPV4 (Version 4) address as a unique identifier to each device on the Internet.
The length of an IPv4 address is 32-bits, hence, we have 2^{32} IP addresses available. The length of an IPv6 address is 128-bits.
Type "ipconfig" in the command prompt and press 'Enter', this gives us the IP address of the device.

MAC Address (Media Access Control address):
Also known as physical address, the MAC Address is the unique identifier of each host and is associated with its NIC (Network Interface Card).
A MAC address is assigned to the NIC at the time of manufacturing.
The length of the MAC address is : 12-nibble/ 6 bytes/ 48 bits
Type "ipconfig/all" in the command prompt and press 'Enter', this gives us the MAC address.

Port:
A port can be referred to as a logical channel through which data can be sent/received to an application. Any host may have multiple applications running, and each of these applications is identified using the port number on which they are running.
A port number is a 16-bit integer, hence, we have 2^{16} ports available which are categorized as shown below:

Port Types	Range
Well known Ports	0 – 1023
Registered Ports	1024 – 49151
Ephemeral Ports	49152 – 65535

Number of ports: 65,536
Range: 0 – 65535



*Type "**netstat -a**" in the command prompt and press 'Enter', this lists all the ports being used.*

Socket:
The unique combination of IP address and Port number together are termed as Socket.

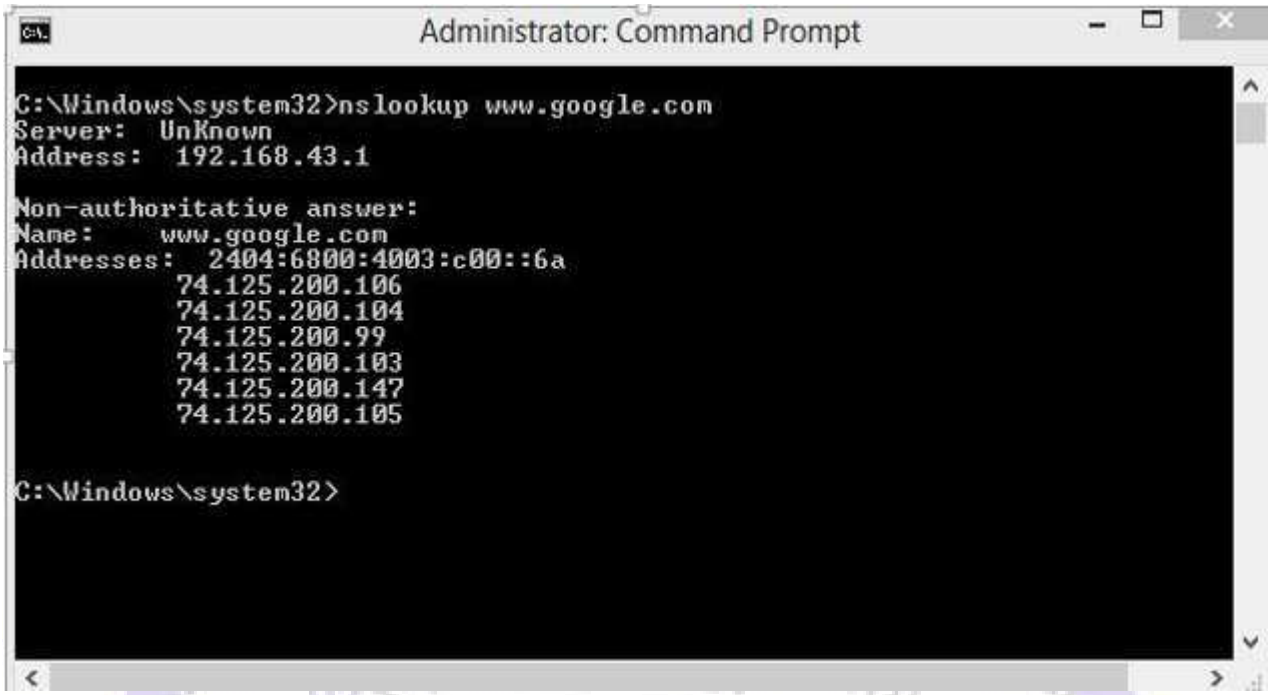
Other related concepts

DNS Server:

DNS stands for **Domain Name system**.

DNS is basically a server which translates web addresses or URLs (ex: www.google.com) into their corresponding IP addresses. We don't have to remember all the IP addresses of each and every website.

The command '**nslookup**' gives you the IP address of the domain you are looking for. This also provides the information of our DNS Server.



ARP:

ARP stands for **Address Resolution Protocol**.

It is used to convert an IP address to its corresponding physical address(i.e., MAC Address).

ARP is used by the Data Link Layer to identify the MAC address of the Receiver's machine.

RARP:

RARP stands for **Reverse Address Resolution Protocol**.

As the name suggests, it provides the IP address of the device given a physical address as input.

But RARP has become obsolete since the time DHCP has come into the picture.

Classifications of Computer Networks,

1. PERSONAL AREA NETWORK (PAN)

This is the smallest and most basic network that you'll find. It's meant to cover a very small area (typically a single room or building). A PAN is most commonly used for one individual and to connect just a handful of devices such as a computer, smart phone, and printer. Probably the most well-known PAN technology is Bluetooth connection. So, next time you connect your phone to your car to play music, you can thank your Personal Area Network!

2. LOCAL AREA NETWORK (LAN)

This is an extremely common and well-known type of network. Just as the name suggests, a LAN connects a group of computers or devices together across a local area. This type of network can be utilized to connect devices throughout one building or even 2-3 buildings depending on the proximity to each other. Whether your office location utilizes wired or wireless connection, it's almost surely using a LAN connection. This brings us to the next type of network…

3. WIRELESS LOCAL AREA NETWORK (WLAN)

A WLAN is simply a LAN that does not rely on cables to connect to the network. So, when you're using WiFi, you're using a WLAN. WLANs are typically used in the same scenario as LANs, it just depends on whether you'd prefer an on premises or remote cloud solution (wires or wireless).

4. METROPOLITAN AREA NETWORK (MAN)

Larger than a LAN but smaller than a WAN, a MAN incorporates elements of both types of networks. It connects multiple LANs together and spans an entire geographical area such as a city or town (or sometimes a campus). Ownership and management can be handled by a single person, but it's more likely done by a larger company or organization.

5. WIDE AREA NETWORK (WAN)

Like LANs, you very well may recognize the term "WAN." WANs do the same thing as LANs but across a larger area while connecting more devices. Even when miles apart, a WAN can connect devices together remotely. In fact, the most basic example of a WAN is the Internet which connects computers and devices worldwide. Since it's much larger, this type of network is typically maintained by multiple administrators and ownership is distributed across various organizations.

6. STORAGE AREA NETWORK (SAN)

A SAN is another type of LAN that's designed to handle large data transfers and storage. This purpose of this network is to move larger, more complex storage resources away from the network into a separate, high-performance atmosphere. Doing this not only allows for easy retrieval and storage of the data but it also frees up space and improves overall performance of the original network.

7. VIRTUAL PRIVATE NETWORK (VPN)

The point of a VPN is to increase security and privacy while accessing a network. The VPN acts as a middleman between you and the network by encrypting your data and hiding your identity. This is a great option for sending and receiving sensitive information, however, using a VPN is ideal anytime you connect to the Internet. Anytime you're on a public network, you run the risk of being targeted by a hacker, so using a VPN is you best bet at ensuring your cybersecurity.

At Sierra Experts, we provide various networking services from planning and design to implementing and monitoring. After all, at the core of any successful business is a computer network that's running at peak performance. Even if you think you have a high-functioning, reliable network, it couldn't hurt to have us check it out. We provide services such as network mapping and penetration testing which can help provide insight on how your network is functioning and what can be improved.

The Internet,

The Intranet and Extranet.

S.NO	Intranet	Extranet
1.	Intranet is a tool for sharing information throughout the organization.	Whereas Extranet is a tool for sharing information between the internal members and external members.
2.	Intranet is owned by a single organization.	While Extranet is owned by either a single or a many organization.
3.	In intranet, security is implemented through a firewall.	Whereas in this, security is implemented through a firewall in order to separate the extranet and the internet.
4.	Intranet is managed by an organization.	Whereas Extranet is managed by many organizations.
5.	Intranet has a limited number of connected devices.	Whereas in the extranet, connected devices are comparable with the intranet.
6.	Intranet is a private network type for an organization.	While it is also a private network in which public network is used in order to share the information to the suppliers and customers.
7.	Intranet is used in order to get employee information, telephone directory etc.	While It is used to check status, access data, send mail, place order etc.
8.	Intranet is the limited and compromised version of Extranet.	While Extranet is the limited and compromised version of Internet.
9.	A particular organization is the regulating authority for intranet.	While it is regulated by multiple organizations.
10.	It is accessible to only the members of organization.	It is accessible to members of organization as well as external members with logins.
11.	It's restricted area is upto an organization.	It's restricted area is upto an organization and some of its stakeholders.
12.	It is derived from Internet.	It is derived from Intranet.
13.	Example: WIPRO using internal network for its business operations.	Example: DELL and Intel using network for business related operations.

Unit II :INTRODUCTION TO OPERATING SYSTEM & WORD PROCESSING SOFTWARE
(Latest Versions of the Operating System/ Word Processing Software are Recommended)

Installing Windows,
Each version of Microsoft Windows is installed on a computer using similar steps. While there are steps in the installation process that differ between versions of Windows, the following general steps and guidelines help you install Windows on your computer.

Note
If you're replacing the hard drive in your computer, you need to reinstall Windows again.

If you're replacing the motherboard in your computer, you may need to purchase a new licensed copy of Windows and install it. Microsoft has designed current versions of Windows to be tied to the motherboard in the computer when Windows is installed. So if you change the motherboard, the existing license, or product key, may no longer be valid.

Tip
If you want to **upgrade to a newer version of Windows** on your computer, the steps on this page help you with the upgrade process. The Windows installation process should recognize if you have an older version of Windows already installed on the computer and ask if you want to upgrade or perform a fresh install. The upgrade process installs the newer Windows operating system files over the old ones and preserve your files.
The steps below are for all recent versions of Windows, including Windows 98, Windows ME, Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10, and Windows 11. These steps even work for earlier versions (e.g., Windows 95) as long as you use the disc version. The floppy diskette version is similar, but it requires additional steps.

Note
The install guidelines for Windows for a server have additional steps based on the type of server and version of Windows.

Check hardware compatibility
Before installing or upgrading Windows on your computer, check the hardware in the computer to make sure it's compatible with that version of Windows. Microsoft provides a Windows Compatible Products List for checking if the hardware in your computer is compatible with the chosen version of Windows.
If one or more pieces of hardware is not compatible with the chosen Windows version, we recommend replacing that hardware with compatible hardware or purchasing a new computer. Having compatible hardware in your computer helps ensure the Windows install or upgrade process is successful.

Genuine Windows CD, DVD, or USB thumb drive
First, you need a genuine copy of the Microsoft Windows operating system installation CD, DVD, or USB thumb drive. A genuine Windows product key is included with the installation disc, which is required to activate Windows after installation. If you have

an OEM (original equipment manufacturer) computer, the Windows product key is often on the back or side of the computer.
If you have an OEM computer (e.g., Acer, Dell, HP, etc.), the computer will not have a genuine Windows CD, DVD, or USB thumb drive. Instead, you would reinstall Windows and the software using a hidden partition or a set of restore discs. The steps mentioned on this page would still work, but you'd need a copy of Windows. You can borrow a friend's Windows disc, as long as it's the same version of Windows that came with the computer and have a product key.

Note
With early versions of Windows, you cannot download a copy of Windows to install on a computer. You must purchase a physical copy of Windows. If you are installing Windows 10, you can download the Windows 10 Media Creation Tool to create a bootable disc or USB thumb drive. For Windows 11, you can download the Windows 11 Installation Assistant.

Warning
Microsoft has Windows 10 and 11 available for download only from their website. Any other site that claims to have copies of other versions of Windows should not be trusted. These copies of Windows are pirated software and could contain anything, including spyware or malware.

Installing or upgrading Windows
To start the Windows install or upgrade process, you need to configure your computer to boot from a CD or DVD before booting to the hard drive. Changing the boot process forces the computer to look for the Windows installation disc before booting from the hard drive.

1. Open the CMOS setup.
- How to enter and exit the BIOS or CMOS setup.
2. Change the computer's boot order. Set the CD, DVD, or disc drive as the first boot device if you are trying to boot from a disc. Or, set the first boot device to your USB drive if you're trying to boot from a USB thumb drive. If the drive is not shown, keep the disc is inserted and reboot the computer. With the disc in the drive, BIOS should recognize and include it in the list.
3. Save the settings change and exit BIOS.

Once you have updated the boot order, you can begin the Windows installation process.

4. Place the Windows disc in the CD/DVD drive or USB thumb drive into the back of the computer.
5. Turn on or restart the computer. As the computer starts up, it should detect the installation disc or drive and show a message similar to *Press any key to boot from CD*. Press any key on the keyboard to have the computer boot from the Windows disc or drive.
6. After the Windows install begins, there are several prompts that you need to answer. Select either **Yes** or the appropriate option to install Windows.

Install Note
Make sure you select the *Full Install* option and not the *Repair* or *Upgrade* option.

Upgrade Note
If you are upgrading to a newer version of Windows, select the *Upgrade* option instead of the *Full Install* option.

7. When asked which partition to install Windows onto, select the main partition, usually the C: drive or one labeled "Unallocated partition". If upgrading Windows, select the existing installation of Windows on the hard drive.
8. You may be asked if you want to erase all contents on the hard drive, then install Windows. We recommend you choose this option, as it also formats the hard drive to allow the Windows operating system to be installed.

Tip
You can use the erase all contents option to uninstall an existing version of Windows on the hard drive, then install Windows again.

9. The computer may need to restart several times during the Windows install process. The restarts are normal and if prompted to restart, select the **Yes** option.
10. When the install process is nearly complete, the Windows configuration option screens are shown. On these screens, you may be asked to select the time zone you live in, your preferred language, and the account's name you use to access Windows. Select the appropriate options and enter the appropriate information on each configuration screen.

The Windows install process is completed when the computer prompts you to log in or when it loads into Windows.

Final Windows and computer configuration
After Windows is installed on the computer, you need to install the drivers and related software for the hardware in the computer. You can use the installation discs that came with the hardware or download the drivers from the hardware manufacturer's website.

- How to install and update a computer driver.

Tip
If you cannot download drivers because your network card is not working after installing Windows, you can download the drivers on another computer. Then, copy them to a USB thumb drive, and move them over to your computer.

Basic Operations in Windows,
Important Windows Operations
To use Windows efficiently, you must master a few simple operations, such as pointing and clicking, dragging and dropping, and right-clicking. You perform all these operations with your mouse.
Pointing and Clicking
The most common mouse operation is *pointing and clicking*. Simply move your computer's mouse or touchpad so that the cursor is pointing to the object you want to select, and then click the left mouse button once. Pointing and clicking is an effective way to select menu items, directories, and files.
Double-Clicking
To launch a program or open a file folder, single-clicking isn't enough. Instead, you need to *double-click* an item to activate an operation. This involves pointing at something onscreen

with the cursor and then clicking the left mouse button twice in rapid succession. For example, to open program groups or launch individual programs, simply double-click a specific icon.

Right-Clicking

Here's one of the secret keys to efficient Windows operation. When you select an item and then click the *right* mouse button, you'll often see a pop-up menu. This menu, when available, contains commands that directly relate to the selected object. So for example, if you right-click a file icon, you'll see commands related to that file—copy, move, delete, and so forth.

Right-clicking is also key to Windows 7's new Jump List feature on the taskbar. Right-click any taskbar icon, and you'll see a Jump List that contains recently opened documents and essential application operations. It's kind of an extension of the traditional right-click pop-up menu and is very useful.

Refer to your individual programs to see whether and how they use the right mouse button.

Dragging and Dropping

Dragging is a variation of clicking. To drag an object, point at it with the cursor and then press and hold down the left mouse button. Move the mouse without releasing the mouse button and drag the object to a new location. When you're finished moving the object, release the mouse button to drop it onto the new location.

You can use dragging and dropping to move files from one folder to another or to delete files by dragging them onto the Recycle Bin icon.

Hovering

When you position the cursor over an item without clicking your mouse, you're *hovering* over that item. Many operations require you to hover your cursor and then perform some other action.

Moving and Resizing Windows

Every software program you launch is displayed in a separate onscreen window. When you open more than one program, you get more than one window—and your desktop can quickly become cluttered.

TIP

The cursor changes shape—to a double-ended arrow—when it's positioned over the edge of a window.

There are many ways to deal with desktop clutter. One way is to move a window to a new position. You do this by positioning your cursor over a blank area at the top of the window frame and then clicking and holding down the left button on your mouse. As long as this button is depressed, you can use your mouse to drag the window around the screen. When you release the mouse button, the window stays where you put it.

With Windows 7, you can quickly move a window to the left or right side of the desktop by using a new featured dubbed *Aero Snap*. Just drag the window to the left side of the screen to dock it there and resize it to the left half of the desktop; drag the window to the right side of the screen to dock it on that side.

You also can change the size of most windows. You do this by positioning the cursor over the edge of the window—any edge. If you position the cursor on either side of the window, you can resize the width. If you position the cursor on the top or bottom edge, you can resize the height. Finally, if you position the cursor on a corner, you can resize the width and height at the same time.

After the cursor is positioned over the window's edge, press and hold down the left mouse button; then drag the window border to its new size. Release the mouse button to lock in the newly sized window.

Peeking at the Desktop

Want to quickly see what's beneath all the open windows on the desktop? Have a gadget you want to look at?

Then you'll appreciate Windows 7's new *Aero Peek* feature. With Aero Peek you can, well, peek at the desktop beneath all that window clutter.

You activate Aero Peek from the little transparent rectangular button at the far right of the Windows taskbar. Hover the cursor over the Aero Peek button and every open window becomes transparent, as shown in Figure 3.2. This lets you see everything that's on the desktop below.

Figure 3.2 Aero Peek in action—a great way to view gadgets, shortcut icons, and your Windows desktop wallpaper.

Maximizing, Minimizing, and Closing Windows

Another way to manage a window in Windows is to make it display full-screen. You do this by maximizing the window. All you have to do is click the Maximize button at the upper-right corner of the window, as shown in Figure 3.3.

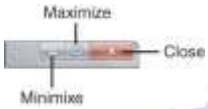


Figure 3.3 Use the Minimize, Maximize, and Close buttons to manage your desktop windows.

If the window is already maximized, the Maximize button changes to a Restore Down button. When you click the Restore Down button, the window resumes its previous (premaximized) dimensions.

TIP

Aero Snap provides another way to maximize a window. Use your mouse to drag the window to the top of the desktop, and it will automatically maximize.

If you would rather hide the window so that it doesn't clutter your desktop, click the Minimize button. This shoves the window off the desktop, onto the taskbar. The program in the window is still running, however—it's just not on the desktop. To restore a minimized window, all you have to do is click the window's icon on the Windows taskbar (at the bottom of the screen).

If what you really want to do is close the window (and close any program running within the window), just click the window's Close button.

CAUTION

If you try to close a window that contains a document you haven't saved, you'll be prompted to save the changes to the document. Because you probably don't want to lose any of your work, click Yes to save the document and then close the program.

Scrolling Through a Window

Many windows contain more information than can be displayed at once. When you have a long document or web page, only the first part of the document or page is displayed in the window.

To view the rest of the document or page, you have to scroll down through the window, using the various parts of the scrollbar (shown in Figure 3.4).

Figure 3.4 Use the scrollbar to scroll through long pages.

There are several ways to scroll through a window. To scroll up or down a line at a time, click the up or down arrow on the window's scrollbar. To move to a specific place in a long document, use your mouse to grab the scroll box (between the up and down arrows) and drag it to a new position. You can also click the scrollbar between the scroll box and the end arrow, which scrolls you one screen at a time.

If your mouse has a scroll wheel, you can use it to scroll through a long document. Just roll the wheel back or forward to scroll down or up through a window. Likewise, some notebook touchpads let you drag your finger up or down to scroll through a window.

Using Menus

Many windows in Windows use a set of pull-down *menus* to store all the commands and operations you can perform. The menus are aligned across the top of the window, just below the title bar, in what is called a *menu bar*.

You open (or pull down) a menu by clicking the menu's name. The full menu then appears just below the menu bar, as shown in Figure 3.5. You activate a command or select a menu item by clicking it with your mouse.

Figure 3.5 Navigating Windows' menu system.

Some menu items have a little black arrow to the right of the label. This indicates that additional choices are available, displayed on a *submenu*. Click the menu item or the arrow to display the submenu.

TIP

If an item in a menu, toolbar, or dialog box is dimmed (or grayed), that means it isn't available for the current task.

Other *menu items* have three little dots (called an ellipsis) to the right of the label. This indicates that additional choices are available, displayed in a dialog box. Click the menu item to display the dialog box.

The nice thing is, after you get the hang of this menu thing in one program, the menus should be similar in all the other programs you use. For example, most of the Microsoft Office 2007 programs have an Office button that, when clicked, displays a pull-down menu of common file-oriented operations; older programs have a File menu that contains similar operations. Although

each program has menus and menu items specific to its own needs, these common menus make it easy to get up and running when you install new software programs on your system.

Using Toolbars and Ribbons

Some Windows programs put the most frequently used operations on one or more *toolbars*, typically located just below the menu bar. (Figure 3.6 shows a typical Windows toolbar.) A toolbar looks like a row of buttons, each with a small picture (called an *icon*) and maybe a bit of text. You activate the associated command or operation by clicking the button with your mouse.

Figure 3.6 A typical Windows toolbar.

TIP

If the toolbar is too long to display fully on your screen, you'll see a right arrow at the far-right side of the toolbar. Click this arrow to display the buttons that aren't currently visible.

Other programs substitute a *ribbon* for the toolbar. For example, most of the Microsoft Office 2007 programs have a ribbon that contains buttons for the most-used operations. As you can see in Figure 3.7, each ribbon has different tabs, each containing a unique collection of buttons. Click the tab to see the ribbon buttons for that particular type of operation.

Figure 3.7 A new-style ribbon, with tabs for different types of operations.

TIP

If you're not sure which button does what on a toolbar or ribbon, you can hover the cursor over the button to display a ToolTip. A *ToolTip* is a small text box that displays the button's label or other useful information.

Using Dialog Boxes, Tabs, and Buttons

When Windows or an application requires a complex set of inputs, you are often presented with a *dialog box.* A dialog box is similar to a form in which you can input various parameters and make various choices—and then register those inputs and choices when you click OK. (Figure 3.8 shows the Save As dialog box, found in most Windows applications.)

Figure 3.8 Use dialog boxes to control various aspects of your Windows applications.

Windows has several types of dialog boxes, each one customized to the task at hand. However, most dialog boxes share a set of common features, which include the following:

- **Buttons—**Most buttons either register your inputs or open an auxiliary dialog box. The most common buttons are OK (to register your inputs and close the dialog box), Cancel (to close the dialog box without registering your inputs), and Apply (to register your inputs without closing the dialog box). Click a button once to activate it.

NOTE

The operations presented in this chapter are described as how they look and act by default in a typical Windows 7 installation. If you're using someone else's PC, things might not look or act exactly like this. It's normal for two different PCs to look and act a little differently because you

can customize so many options for your own personal tastes—as you'll learn in Chapter 4, "Personalizing Windows."

- **Tabs—**These allow a single dialog box to display multiple "pages" of information. Think of each tab, arranged across the top of the dialog box, as a "thumbtab" to the individual page in the dialog box below it. Click the top of a tab to change to that particular page of information.
- **Text boxes—**These are empty boxes where you type in a response. Position your cursor over the empty input box, click your left mouse button, and begin typing.
- **Lists—**These are lists of available choices; lists can either scroll or drop down from what looks like an input box. Select an item from the list with your mouse; you can select multiple items in some lists by holding down the Ctrl key while clicking with your mouse.
- **Check boxes—**These are boxes that let you select (or deselect) various standalone options.
- **Sliders—**These are sliding bars that let you select increments between two extremes, similar to a sliding volume control on an audio system.

Storing and Managing Data,

- IT storage management, also called data storage management, involves tracking and streamlining the central component of big data that collects and retains digital information using computers and other devices. Data storage management refers to the process of managing data more effectively. It requires a proper understanding of storage devices and the availability of various types of data.

Digital information may include protocols, documents, user preferences, address books, and more. Common types of data storage are object storage, file storage, software-defined storage, and block storage. Each of these storage types is used for different purposes.

- **What are the different data storage types?**

Cloud storage: Cloud storage enables organizations to store data in the cloud, making it more easily accessible to authorized users through the internet. Some of the commonly used cloud storage includes Google, Microsoft, and more.

Software-defined storage: Software-defined storage is an approach used to manage data through abstraction. It works by abstracting data from the physical storage organized for network use. It also works well with containers and microservices that include unstructured data.

File storage: File storage is one of the most common data storage approaches used by organizations. It stores data in a hierarchical format as a single piece of information. This helps users access data using unique identifiers or paths such as names, locations, and URLs.

Block storage: Block storage divides the storage into independent blocks. Each block has its own unique identity that ensures data security and provides the freedom to place small pieces of information conveniently for faster retrieval. Blocks are comparatively faster and ideal for rich media databases. They can also provide users with complete configuration autonomy.

Object storage: In object storage, the data or files are broken into pieces of information known as objects. Each object is a self-contained repository with a unique identifier. This helps users locate and access information even on a distributed system.

- **How does data storage management work?**

Data storage management involves the monitoring of software and hardware assets, such as storage arrays, physical servers, and cloud storage services. Data storage management can involve resolving performance issues like potential bottlenecks and analyzing real-time storage capacity to help improve the end-user experience. With this information, admins can reallocate storage resources to fulfill business storage needs.

Data storage management can also include traffic analysis, process automation, memory management, network virtualization, replication, and storage provisioning. Using reliable data storage management software, organizations can more easily configure and track storage and report related storage activities.

- **What are the functions of data storage management?**

Common functionalities of data storage management include:

  - **Performance and reliability:** The objective of data storage management is to manage data to have it readily available for business operations. Easy and quick access to data increases the performance, efficiency, and productivity of employees and improves the end-user experience. To streamline the process, teams can use media and automatic tiering to optimize different storage tiers.
  - **Security and data protection:** While using cloud storage, it's important to understand the importance of data protection. Protect business-critical data using data backup solutions, encryption for both in-transit and stored data, multifactor authentication to restrict unauthorized access, and more.
  - **Control and compliance:** Leverage various levels of tiering or automatic tiering to store the most valuable data assets. This helps manage and store data and helps organizations demonstrate compliance with regulations.

- **How do storage management tools help with data storage?**

Storage management tools can help you more easily allocate resources as needed. The tools can also:

  - Help you maintain data in a hierarchy, so it's more easily accessible for teams
  - Give administrators in-depth visibility into application layers to understand storage assets and their performance
  - Send alerts to relevant teams to notify them about the exhausted storage to help in delivering a seamless end-user experience
  - Provide key metrics and reports to help admins accommodate with data storage as needed

- **What is data management software?**

Data management software is designed to help organizations monitor current data storage capacity through a centralized dashboard, so you can more easily optimize data storage policies, manage the health of the storage environment, and address key aspects of the data management process.

Additionally, data monitoring tools can provide crucial insights into the health of storage devices, capacity risk, and hotspot detection to ensure the right measures are taken.

Windows User Accounts, The System Settings. Adjusting the Computers Settings.

These accounts can be customized and separated from one another, creating unique personal environments on one computer.

Whether you're planning to share a device with friends or family, or simply want to create more than one account for yourself, follow our guide.

Manage User Accounts in Windows 10

In summary, to manage a user account in Windows 10, do the following:

1. In the Settings **window**, click **Accounts**, and then click Family & other **users**.
2. Click the **account** you want to modify, to display your options. Then click Change **account** type. Click to view a larger image. Any **account** can be an Administrator **account**.
3. In the **Account** type list, click Administrator. Then click OK.

Let's discuss these in detail

It's important to note that there are two types of user accounts: administrator and standard user. Each computer needs at least one administrator account in order to install new applications, apply updates, and manage system settings.

In this guide, we'll show you how to change your account to an administrator if needed.

In Windows 10 terminology, a local user refers to an account created without a Microsoft account. This means that you won't be able to use the same account on a different device and lose some cloud functionality. However, you can still customize and manage your account on your computer locally.

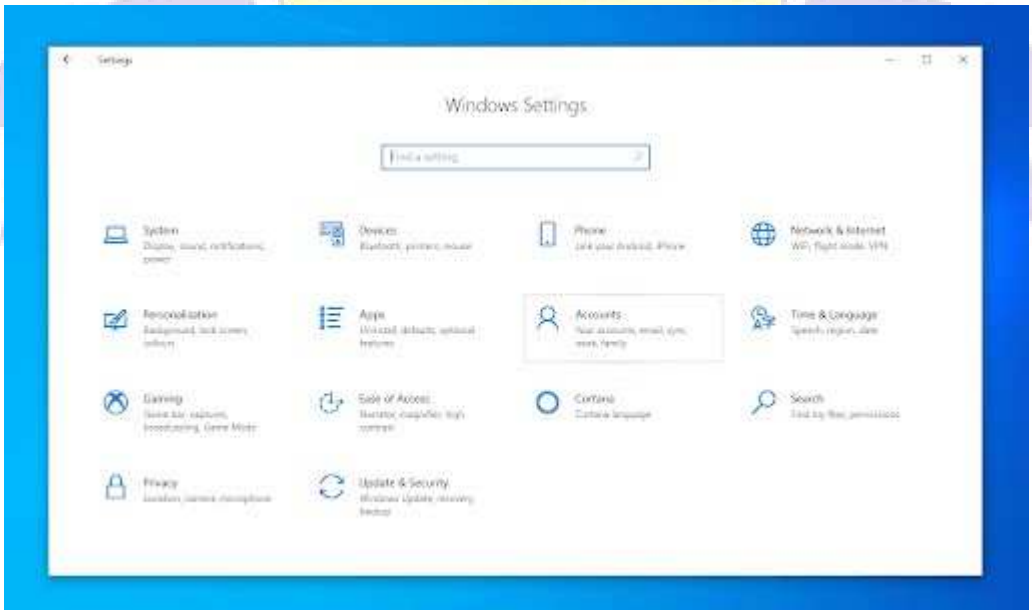
How to manger user accounts in Windows 10.

How to create a new local user in Windows 10

Creating a new user account is easy using Windows 10's Settings application. You may also create a Microsoft account to be able to transfer accounts and files between computers.

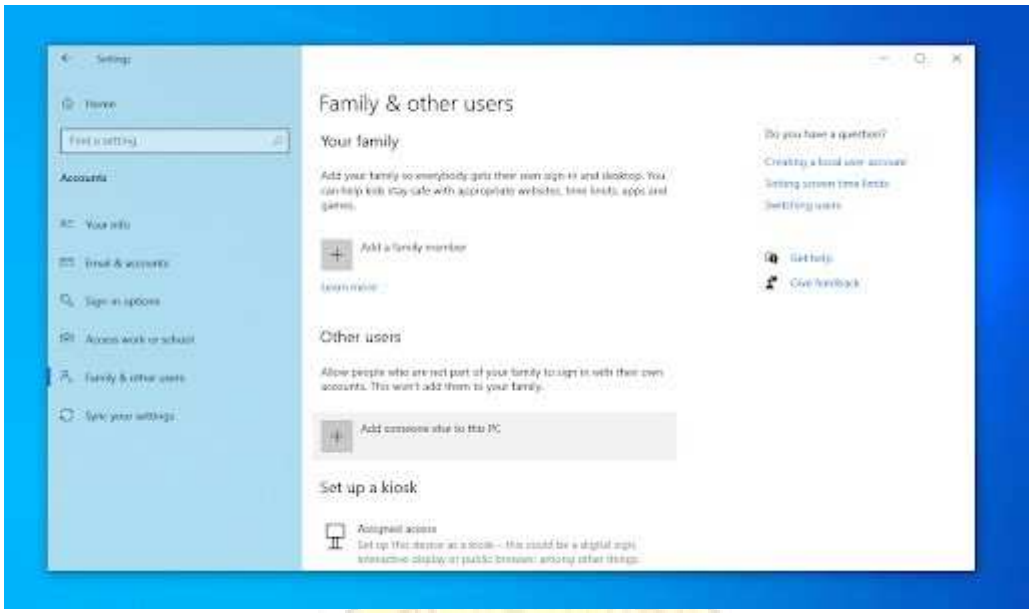
1. Click on the **Start** menu in your taskbar. This icon has the Windows 10 logo on it. If you're not familiar with the Windows 10 interface, we recommend reading the *Get Started with Windows 10* article on our website.
2. Select the **Settings** icon, indicated by a gear. Alternatively, you can use the **Windows** + **I** keyboard shortcut to reach this application quicker.

3. Click on the **Accounts** tile.

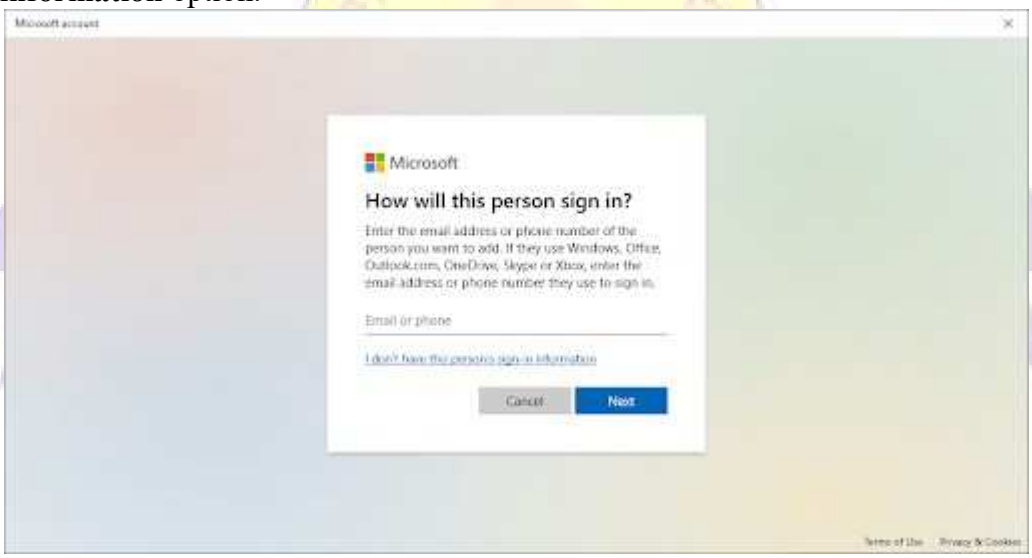


4. Switch to the **Family & other users** category using the panel on the left side of the screen. You should see a list of all the current users on your computer.

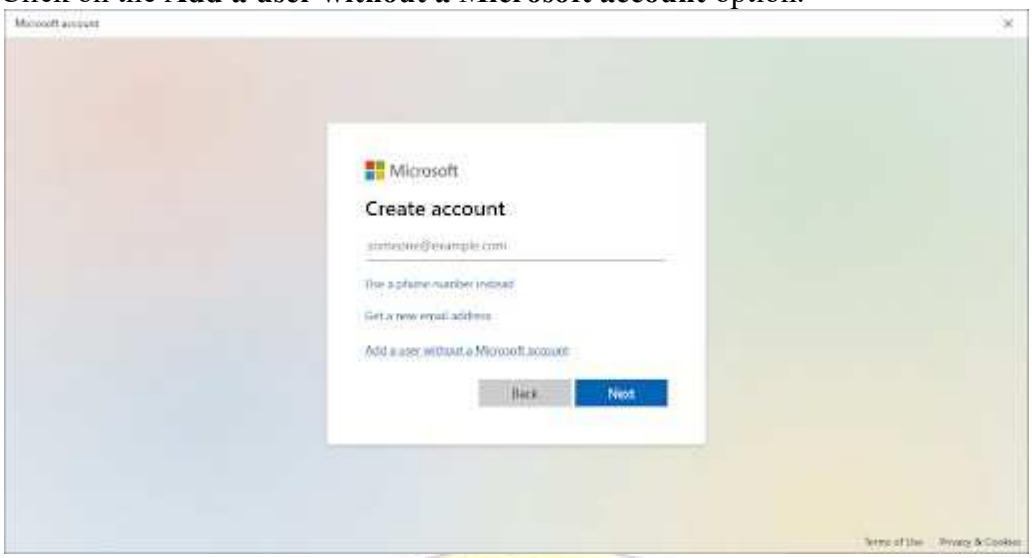
5. Click on the **Add someone else to the PC** button.



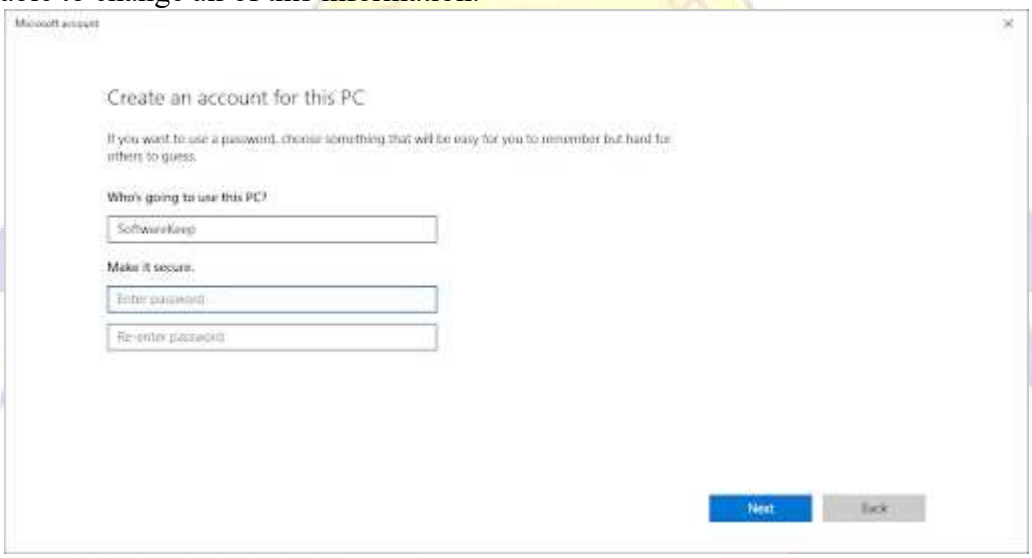
6. To add a new local user, select the **I don't have this person's sign-in information** option.



7. Click on the **Add a user without a Microsoft account** option.



8. Enter the desired **username**. If needed, you can also include a **password** and a **password hint**. This will give extra privacy to the user of the account. In the future, you're always able to change all of this information.



9. Click **Next** to finalize the new account.

How to customize a local user on Windows 10

Each user account on your computer can change username, picture, and password at any time. The guide below will show you how to customize your local user on a Windows 10 device.

1. Click on the **Start** menu in your taskbar.

2. You'll see your current user picture on the left side of the panel. Click on it and select **Change account settings** from the context menu.

3. Here, you can modify your profile picture or take a new one using your camera, and manage your local account.
4. If you have a Microsoft account connected, click on the **Manage my Microsoft account** link to be able to modify settings such as password and security.

You can always come back to this menu and make changes whenever needed.

How to make a local user an administrator in Windows 10

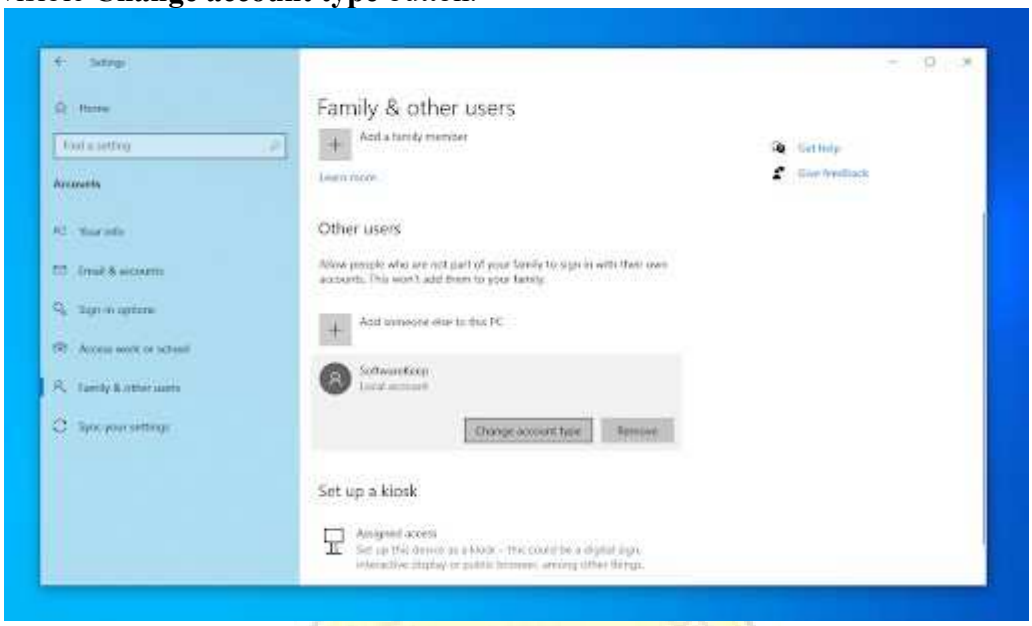
When you create a new account on Windows 10, it'll automatically be assigned as a standard account without administrative permissions. This means that most accounts on a device won't be able to install new applications and change system settings without reaching out to an administrator.

If you want to change an existing account into an administrator account with full access, follow the guide below.

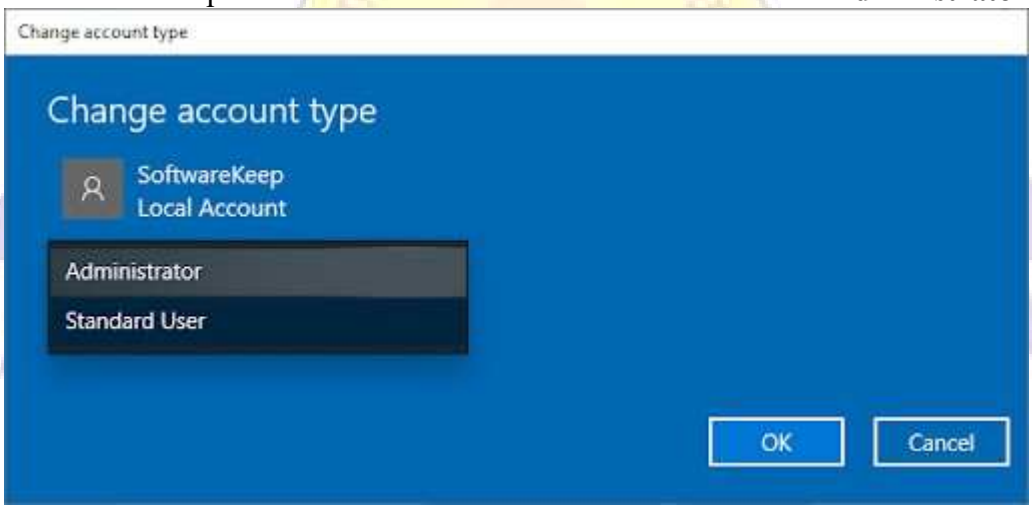
1. Click on the **Start** menu in your taskbar.
2. Select the **Settings** icon, indicated by a gear. Alternatively, you can use the **Windows** + **I** keyboard shortcut to reach this application quicker.

3. Click on the **Accounts** tile.
4. Switch to the **Family & other users** category using the panel on the left side of the screen. You should see a list of all the current users on your computer.

5. Select the account you want to modify by clicking on it once. Click on the now visible **Change account type** button.



6. Click on the drop-down menu and switch from Standard User to **Administrator**.



7. Click the **OK** button. The account now has full access and administrative permissions on your device.

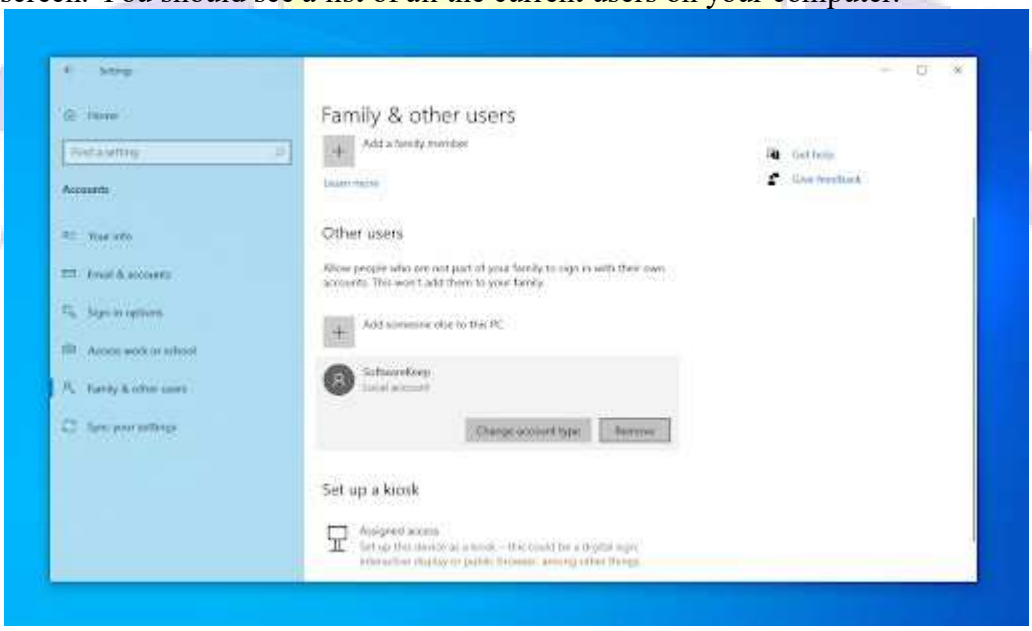
How to remove a local user in Windows 10

If an account is no longer needed, you can easily remove it using the guide below. Make sure that you save all files stored on the account before permanently deleting it from the device, as this action is not reversible.

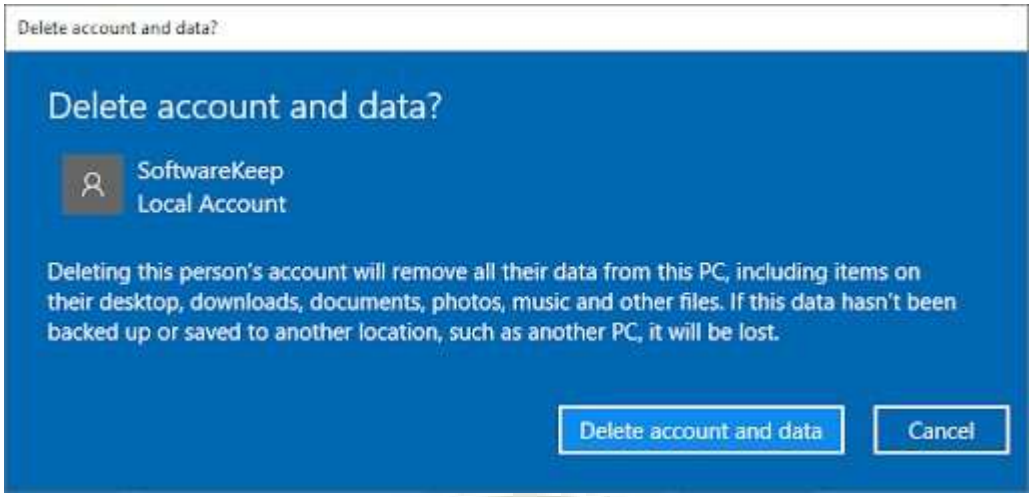
When you're ready to remove a local user, follow this guide.

1. Click on the **Start** menu in your taskbar.

2. Select the **Settings** icon, indicated by a gear. Alternatively, you can use the **Windows** + **I** keyboard shortcut to reach this application quicker.
3. Click on the **Accounts** tile.
4. Switch to the **Family & other users** category using the panel on the left side of the screen. You should see a list of all the current users on your computer.



5. Select the account you want to delete by clicking on it once. Click on the now visible **Remove** button.



6. Make sure to read the warning before clicking the **Delete account and data** button. Wait for Windows 10 to process your request and remove the local user.

Final thoughts

We hope that this guide was able to show you everything you need to know about managing user accounts in Windows 10. If you ever need further assistance, our customer service is happy to guide you through any issues you might have.

Do you want to learn more about the Windows 10 operating system? We recommend proceeding with our **Set Up Security in Windows 10** article or backtrack to our main Windows 10 tutorials page to find your next lesson.

If you're looking for more guides or want to read more tech-related articles, consider subscribing to our newsletter. We regularly publish tutorials, news articles, and guides to help you.

Introduction to MS Office. Word Processing with MS-Word : basic operations- Editing, Proofing, and Formatting text, paragraphs and pages, Printing the documents. Working with tables, images. Mail merge. Working with Charts, Equations, Symbols.

MS Office helps simplify basic office tasks and improve work productivity. Each application is designed to address specific tasks, such as word processing, data management, making presentations and organizing emails.
Microsoft has developed multiple versions of Office that can be supported by different operating systems, including Windows, Linux, and macOS.Microsoft Office is also offered in 35 different languages.
Microsoft Office Common Applications

The most common Office applications are Word, Excel, PowerPoint, and Outlook. Other apps include Publisher, Access and OneNote.
Here's a brief explanation of each of the different apps and what you can use them for:

- Microsoft Word: is a word processor that lets users make and edit text documents, such as reports, letters, and résumés and run spell-checks on writing
- Microsoft Excel: is an electronic spreadsheet program that helps you store, organize and manipulate data by creating simple to complex spreadsheets
- Microsoft PowerPoint: allows you to visually display information, using anything from basic slideshows to professional multimedia presentations
- Microsoft Outlook: is a personal information manager mainly used for emails, but that can also be used to store calendars and contact information, manage tasks as well as organize meetings
- Microsoft Publisher: is a graphic design app that gives users creating material for marketing or publications more options in the layout and design of their documents
- Microsoft Access: is a database management system that allows you to link and use data from other sources, manipulate the data you've gathered in different ways, as well as create simple business applications
- Microsoft OneNote: is a digital alternative to a paper notebook that allows you to create, organize and share your notes easily

Developed by Microsoft, MS Word is amongst the most popular and widely used programs of Microsoft Office suite. It is used to make professional-quality write-ups, editing and formatting the existing documents, creating graphical documents that comprise images, and more.

Some of the features of MS Word are as follows:

Home: Basic elements that include under this option are font size, font style, font colour, bullets, line spacing, alignment, etc.

Insert: In your MS Word document, you can include graphs, shapes, images, charts, tables, footer, page number, header, etc. that are available under Insert option.

Design: Under the Design tab, you get a list of templates or designs in which you want your document to be created to improve your document's appearance.

Page Layout: You get options like columns, lines, margins, orientation, spacing, identification, etc. under the Page Layout option.

References: References tab is one of the most useful features that can be used by people who are writing books or creating a thesis. Under this option, you get options such as bibliography, table of contents, caption, citation, footnote, etc.

Review: Under this tab, options line grammar, Thesaurus, spell check, language, translation, word count, comments, etc. are included.

1. **What is Thesaurus in MS Word?**
   The Thesaurus is a software tool used in the MS Word that helps you find synonyms and antonyms for the selected word.

2. **Where is the AutoCorrect option in MS Word?**
   In your MS Word doc, go to **File > Options > Proofing** and click on **AutoCorrect Options**. On the AutoCorrect tab, tick mark the box saying **Replace text as you type**.

3. **What is the use of the AutoCorrect feature?**
   AutoCorrect feature can be used to correct typos, misspelled words, and sentence casing errors. Also, it automatically inserts symbols and other text wherever required.

4. **What is the difference between MS Word and MS Excel?**
   A processing document, MS Word is widely used for writing content, essays, editing and formatting write-ups, preparing graphical documents with images, etc. Whereas, MS Excel is a spreadsheet software where you can save your in a tabular form in numerical and alphabetical values.

5. **What are 20 MS Word shortcut keys?**
   Listed down are a few shortcut keys of MS Word:
   - Ctrl + A: Select all contents of the page
   - Ctrl + B: Bold highlighted selection
   - Ctrl + C: Copy selected text
   - Ctrl + X: Cut selected text
   - Ctrl + N: Open new/blank document
   - Ctrl + P: Open the print window
   - Ctrl + I: Italicise highlighted selection
   - Ctrl + U: Underline highlighted selection
   - Ctrl + V: Paste
   - Ctrl + Y: Redo the last action performed
   - Ctrl + Z: Undo last action
   - Ctrl + G: Find and replace options
   - F1: Open help
   - F7: Spell check selected text and/or document
   - F12: Save as
   - Ctrl + S: Save
   - Ctrl + W: Close document
   - Alt + Shift + D: Insert the current date
   - Alt + Shift + T: Insert the current time
   - Ctrl + Backspace: Delete word to the left of the cursor

6. **What are 10 features of Microsoft Word?**
    - Changing case
    - Create a custom tab
    - Quick parts
    - Add placeholder text
    - Edit wrap points when wrapping text
    - Convert a list to a table
    - Convert a bulleted list to SmartArt
    - Quick selection methods
    - Touch/ mouse mode in Word 2013
    - Remove background on an image

Unit III : INTRODUCTION TO SPREADSHEET SOFTWARE
(Latest Version of the Spreadsheet Software is Recommended)

Introduction to MS Excel and its User Interface.

Introducing Excel

What is Excel?

Microsoft Excel is a desktop spreadsheet application, widely used by individuals and corporations to perform tasks ranging from basic calculations to building large, complex financial models.

A standard Excel workbook contains one or more sheets. The most common type of sheet is called a worksheet. Each worksheet contains cells that are arranged in a grid system of rows and columns. Cells can contain a wide range of information (numbers, text, dates, etc.) that is either entered directly into the cell or is calculated based on the formulas within them.

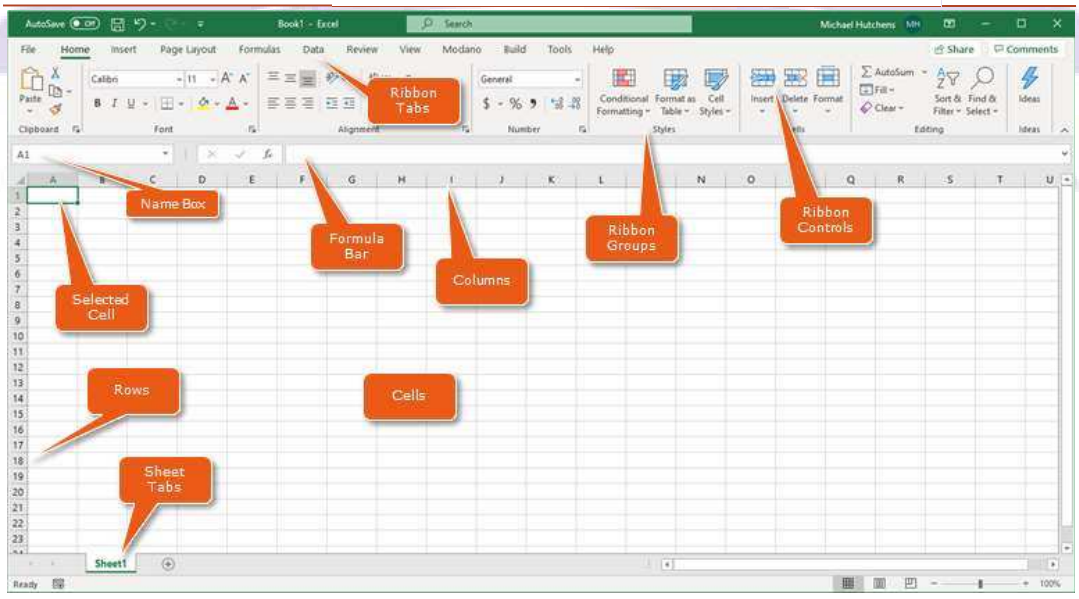
It is this infrastructure that has resulted in Excel becoming the world's most universal calculation and analysis tool.

Excel Interface

The Excel interface revolves around the *ribbon*, which is the strip of controls across the top section of the application window. The ribbon is comprised of tabs, which contain groups of controls, and this terminology is used to identify the location of tools. For example, bold font is applied to the selected range via the Home tab, Font group, Bold button.

The following image shows the Excel 2016 application window with the Home tab active and an open workbook containing one empty worksheet:

Excel Interface



File Formats

Introducing File Formats

An Excel workbook can be saved in several different formats, each with a unique file extension, e.g. .xlsx, .xlsm.

To save a new workbook into a particular format, or convert an existing workbook into a different format, select the File tab in the top left corner and select the desired format from the

Save As menu. Alternatively, use the keyboard shortcut Alt+F+A to activate the Save As dialog box, then choose the desired file format from the Save As Type drop down box.

Comparing File Formats

Each Excel file format has different levels of functionality and compatibility with different versions of Excel. This should be considered when choosing a file format.

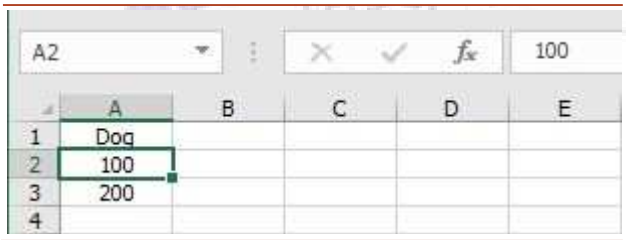
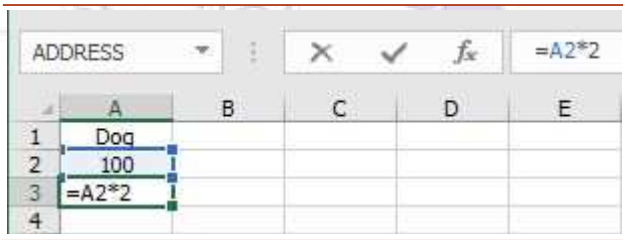
The following table compares the most commonly used Excel file formats:

File Format	Extension	Compatibility	Functionality
Excel Workbook	.xlsx	Excel 2007 +	Standard file format with macros disabled.
Excel Macro-Enabled workbook	.xlsm	Excel 2007 +	Standard file format with macros enabled.
Excel Binary Workbook	.xlsb	Excel 2007 +	Compressed file format with macros enabled.
Excel 97-2003 Workbook	.xls	Excel 97 +	Standard Excel 97 -2003 file format with macros enabled.
CSV (Comma delimited)	.csv	Excel 97 +	Stores tabular data in plain-text form, separated by a comma.

It is important to note that saving a macro-enabled file (e.g. .xlsm, .xlsb) as a macro-disabled file (e.g. .xlsx) will result in all macros being removed from the new file.

Editing Cell Content

Each cell in a worksheet may contain a constant or a formula. Constants are sometimes referred to as 'hard-codes' or 'inputs', although the correct and least misleading terminology is 'constants'. An example of both constant and formula cell content is provided below, with the formula bar showing the content of each cell:

Constant	Formula
	

Cell content can always be entered and edited in the formula bar by typing or editing the content and pressing Enter. This is sometimes referred to as 'inputting' data, although the correct and least misleading terminology is 'entering' data.

In the formula example in cell A3 above, the reference to cell A2 can be created by first typing '=' and then either typing 'A2' or clicking the mouse on cell A2.

The right-hand example also shows Formula Edit Mode. Excel enters Formula Edit Mode during the data entry process, and assists with the entry of formulas by temporarily overlaying precedent ranges with colored boxes (as shown for cell A2 in this instance). To enter Formula Edit Mode, select the cell to edit and either start typing or press the F2 key.

Cut, Copy & Paste

Content within ranges can be moved and copied using Excel's cut, copy and paste commands.

Copy & Pasting

If a range is copied and pasted to another range, a duplicate of the source range is created within the destination range. All references to cells within the source and destination ranges are retained.

Cut & Pasting

If a range is cut and pasted to another range, the source range is moved to the destination range and the content within the destination range is deleted. All references to cells within the source range will move to their corresponding cells within the destination range, but any prior references to cells within the original destination range are invalided. Model users should therefore take great care when using the cut and paste command.

The following table provides a list of commonly-used cut, copy and paste command keyboard shortcuts:

Keyboard Shortcut	Command
Ctrl+C	Copies the selected range/object.
Ctrl+X	Cuts the selected range/object.
Ctrl+V	Pastes any cut or copied content.
Ctrl+Z	Uses the Undo command to reverse the last command.
Ctrl+Y	Repeats the last command or action.
Ctrl+R	Copies the contents of the left-most cell of the selected range into the cells to the right.
Ctrl+D	Copies the contents of the top-most cell of the selected range into the cells below.

Cut Copy Mode

When a range is cut or copied the selection will have a flashing border to indicate that the selected range has been cut or copied. This state is called 'Cut Copy Mode', and is shown below in Excel 2016:

Cut Copy Mode

	A	B	C	D	E	F	G	H
1								
2		100	105	110	115	120		
3		110	115	120	125	130		
4		120	125	130	135	140		
5		130	135	140	145	150		
6								
7								
8								
9								
10								
11								

Cut Copy Mode can be cancelled by pressing the Escape key.

Working with workbooks, work sheets. Data Entry techniques. Defining data set as a Table. Setting, Previewing, and Printing under MS-Excel. Performing Calculations on Data. Working with Excel Formulas, Functions and Charts. Sorting/ Filtering data.

One of the major uses of Excel is to create different types of charts for a given data set. Excel provides us with a lot of modification options to perform on these charts to make them more insightful.

In this article, we are going to see the most common "Formatting" performed on charts using a suitable example shown below.

Example: Consider the performance of a batsman in a T20 match. The data set contains the runs scored by the batsman in various matches.

Matches	Runs Scored
M-1	50
M-2	42
M-3	37
M-4	65
M-5	33
M-6	99

Now we will insert a bar chart using the above table. To insert a bar chart :

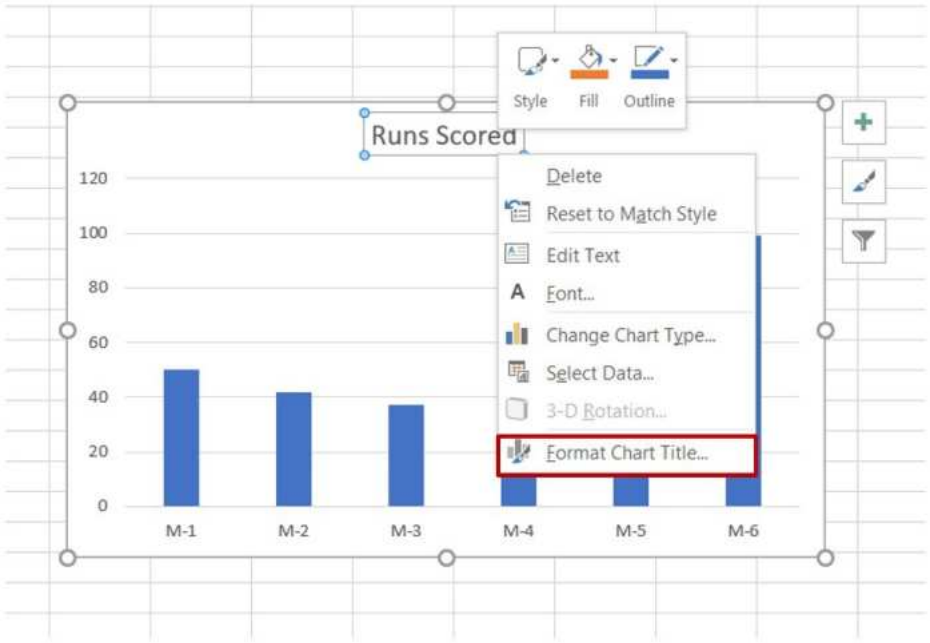
Select dataset -> Click on Insert -> Chart Sets Pop Down -> 2-D column

The key steps to format anything on the chart is :

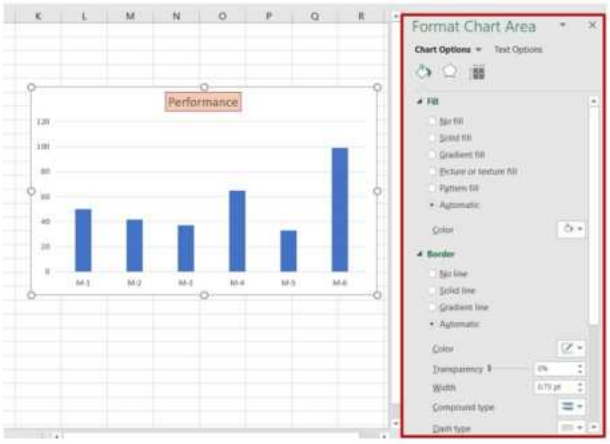
- Select the part of the chart which needs to be formatted.
- Right-click on it and select **"Format".** The format window will open.

1. Formatting the Chart Title :

Select the Title -> Right Click on it -> Format Chart Title

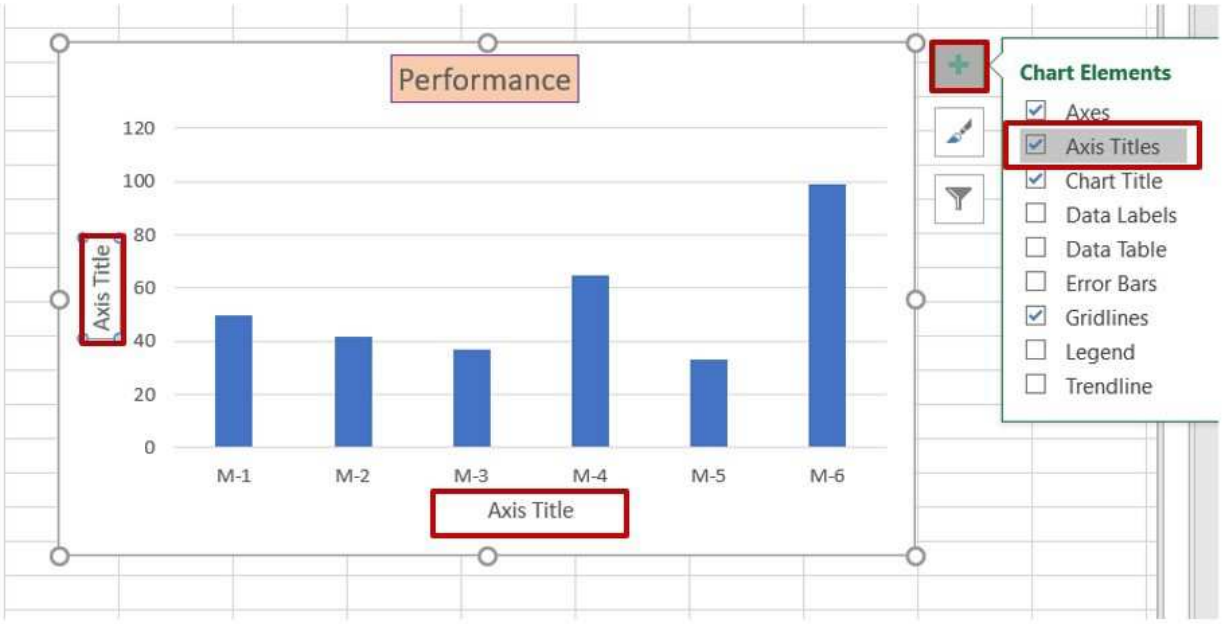


In the Format Chart Title window, you can change the **Font color, add Borders** surrounding the title and various other modifications can be done. You can also rename the title by simply selecting and retyping a new name.

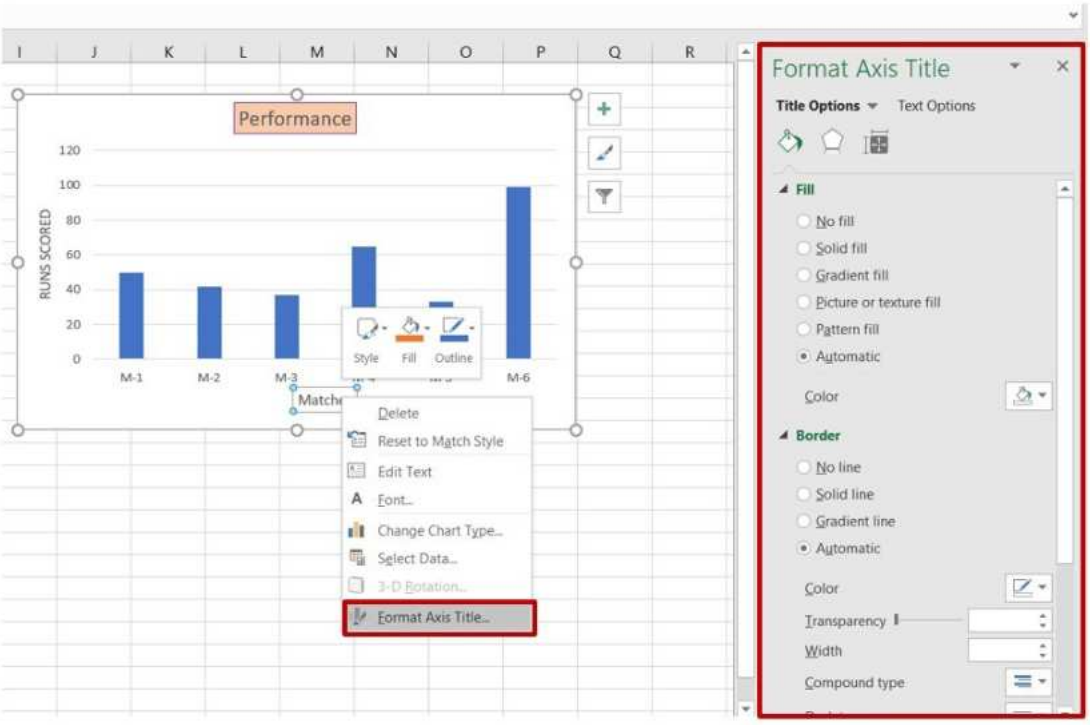


2. Formatting Axis Titles:

You can add the axis title by using the **"+"** button in the top right corner of the chart.



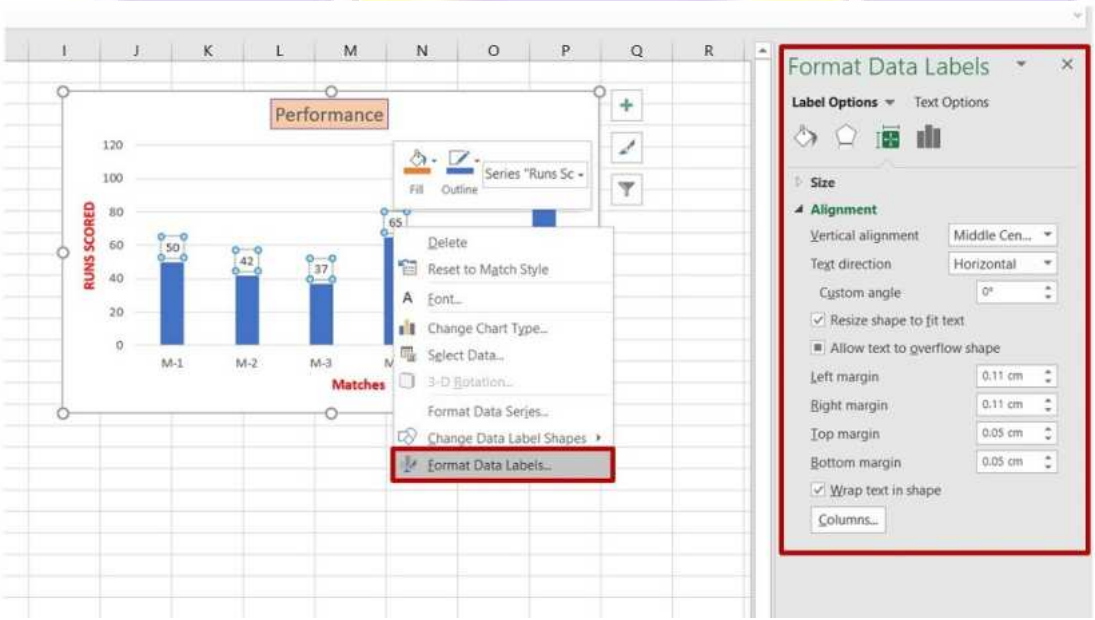
Now, rename the X-axis and Y-axis by selecting them. You can edit the appearance of the axis title by right-clicking on it and selecting **"Format Axis Title".**



3. Formatting Data labels:

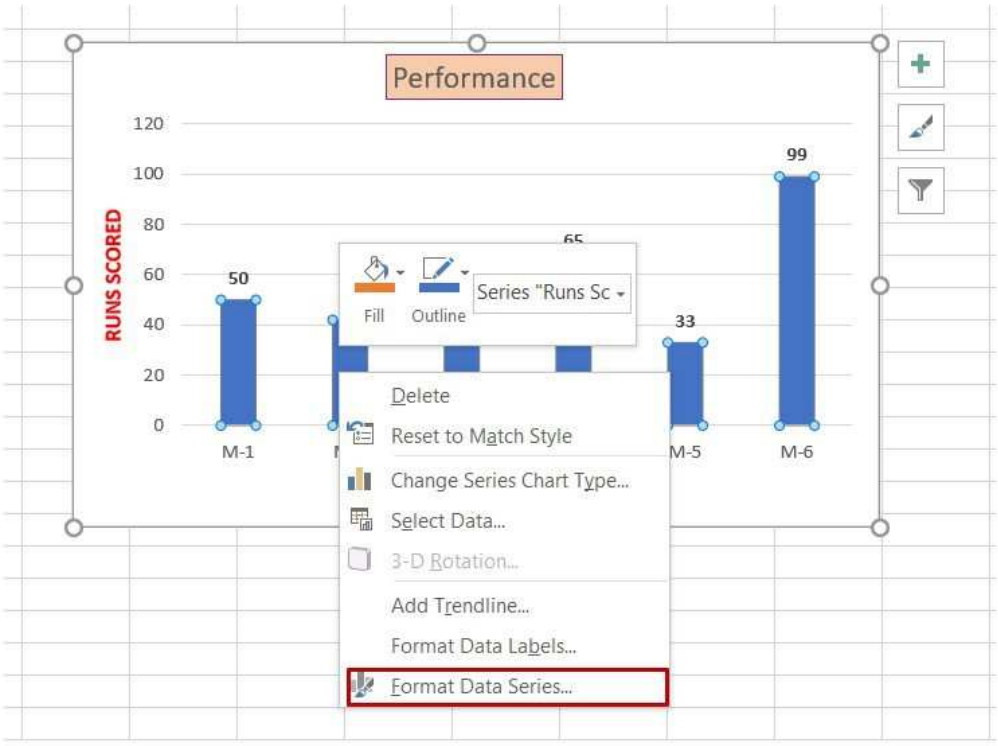
You can add Data Labels by using the **"+"** button on the top right corner of the chart.

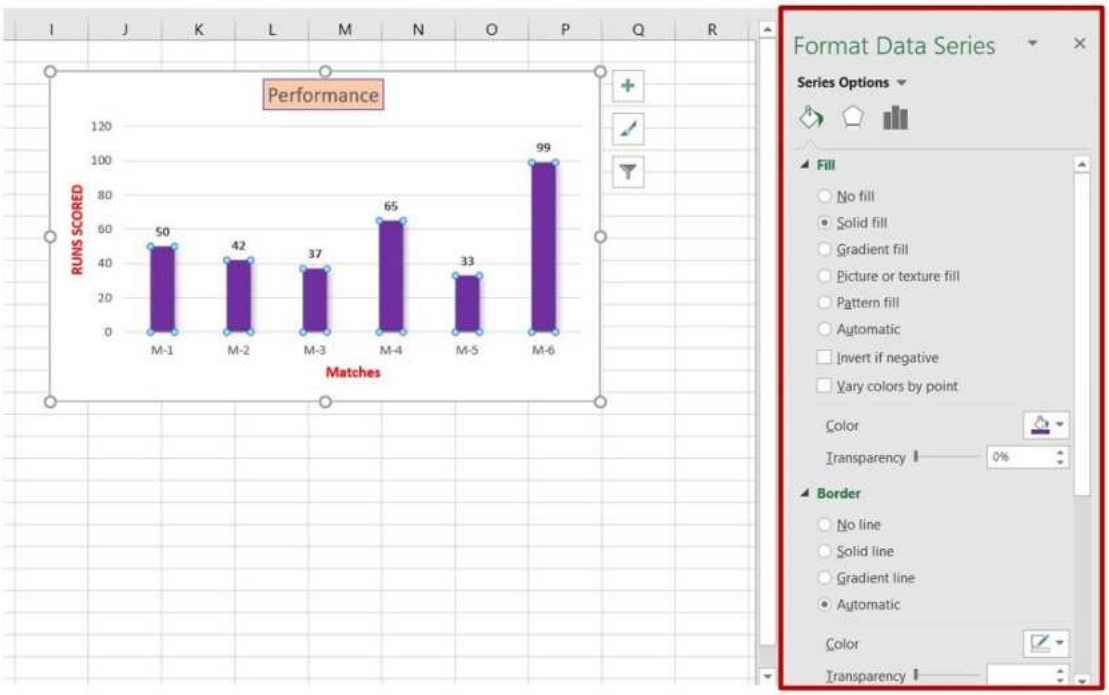
Now open the Format Data Labels Window and can change the Font color, size, alignment, and many other options.



4. Formatting Data Series:

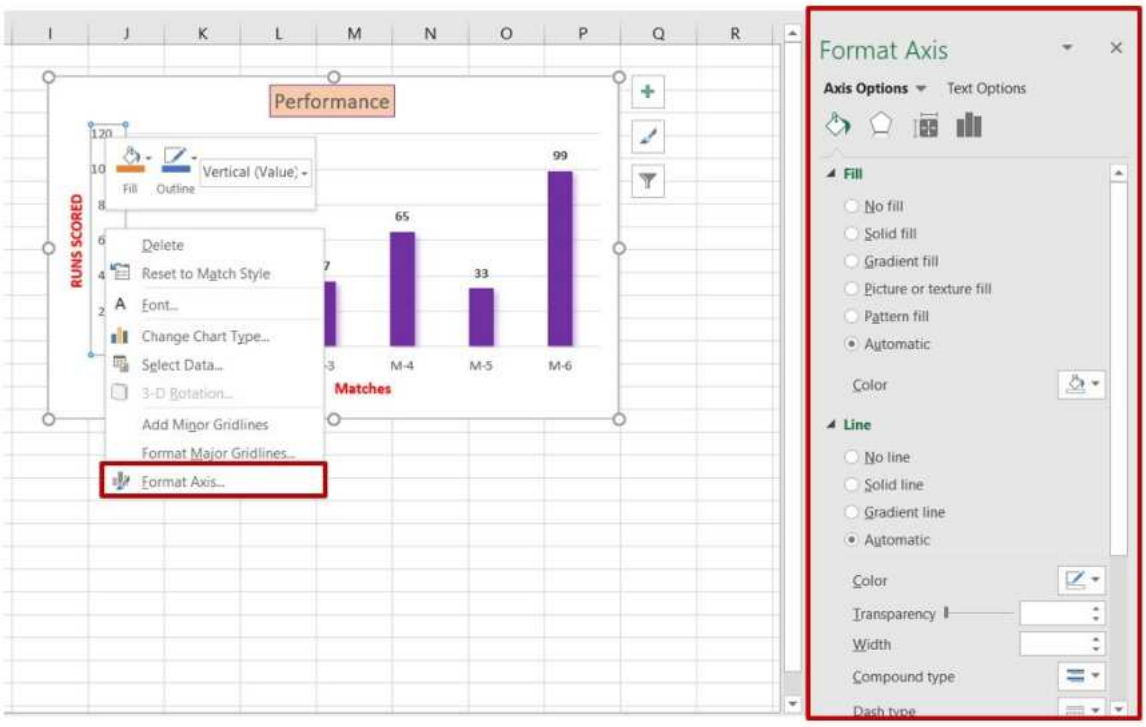
You can change the color of the bar charts by selecting them and then open the **"Format Data Series"** window. By default, on left-clicking once on any of the bars all the data sets bar will be selected. If you want to select only one of these bars, **left-click twice** on the bar which is to be formatted.

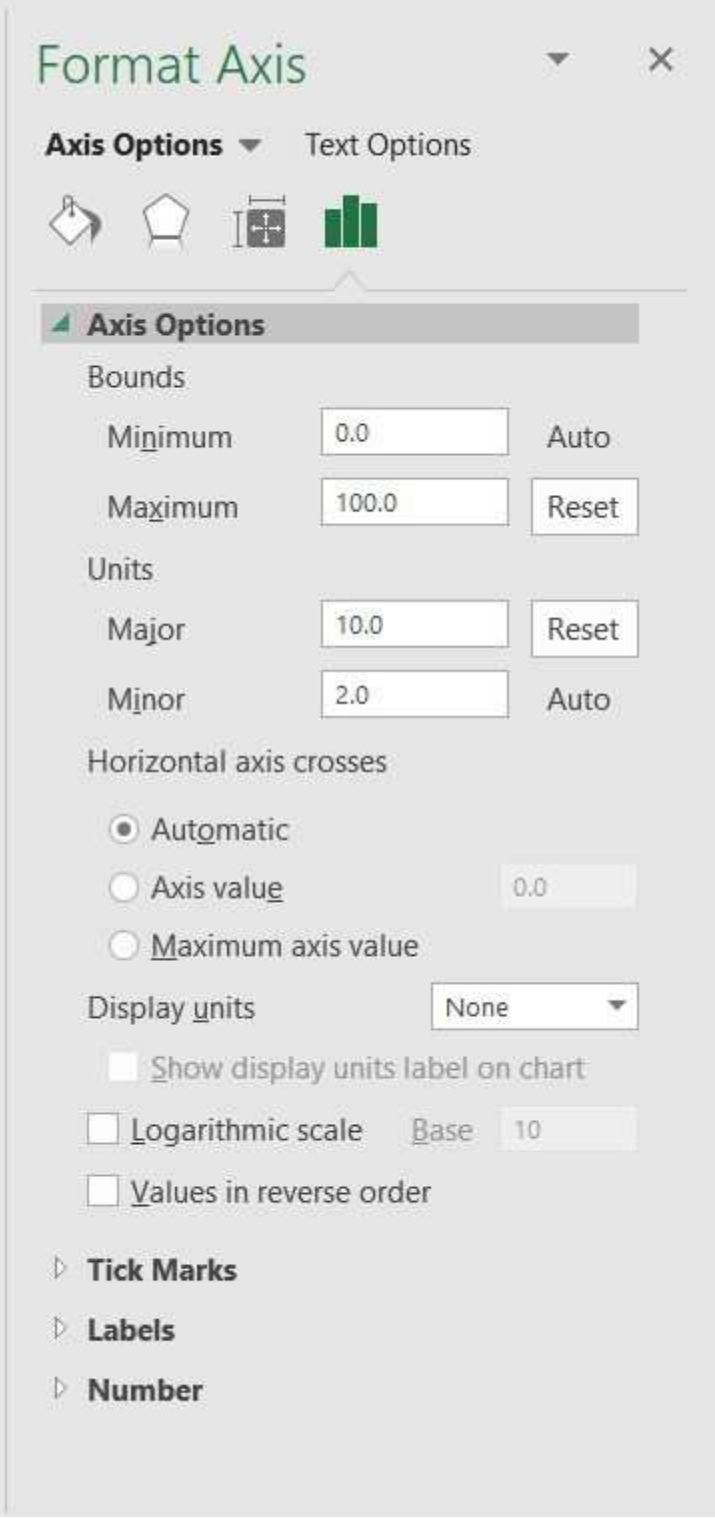




5. Formatting Axis:

This is the most important formatting mostly used by us to change the scale of the axes according to our requirements.

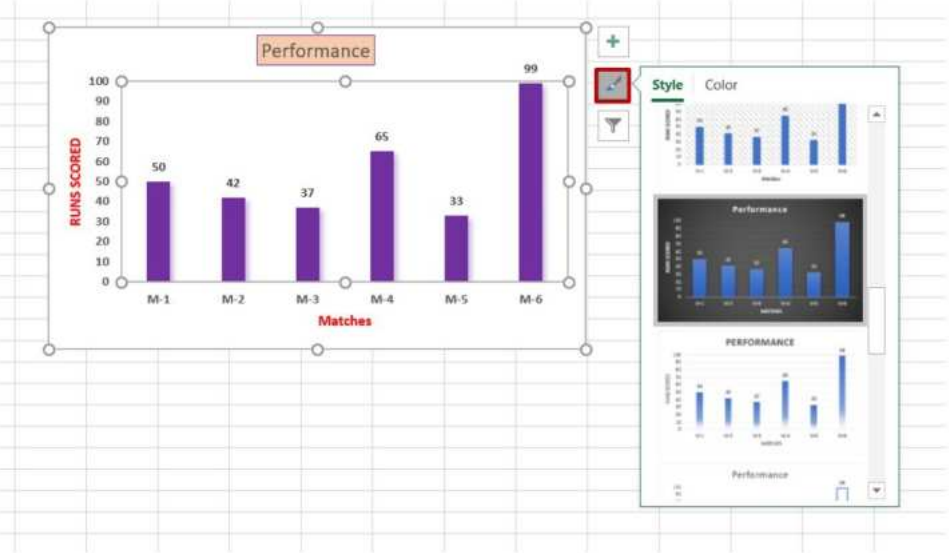




Bound is used to provide the minimum value from which axis to chart and also the maxim value of the axis. The **Major** unit is used to provide the intervals in the axis.

6. Formatting Chart Style:

Excel provides us with dynamic chart styles. Select the **"Paint brush icon"** in the top right corner of the chart and select your desired style.

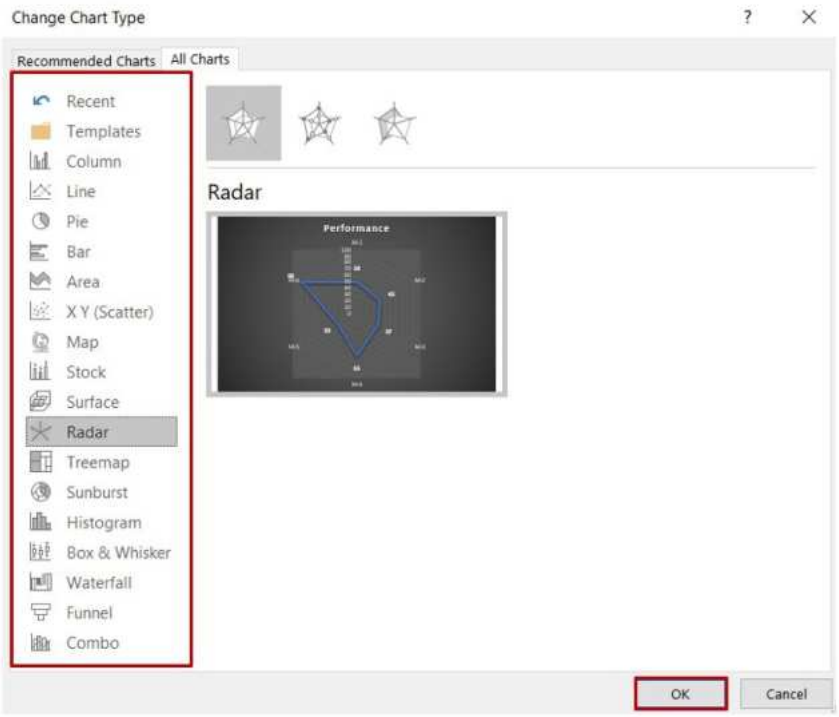


7. Formatting Chart Type:

Excel provides us with a lot of different charts along with bar charts. To change the chart type :

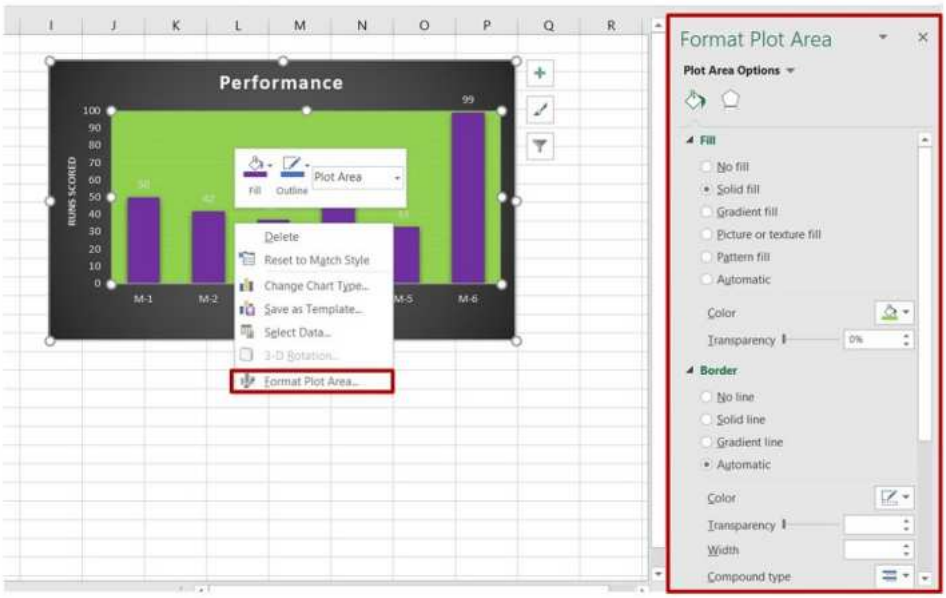
Right Click on the Chart -> Select Change Chart Type

Now from the **Chart Type** window select the desired chart type from the list of options as shown below :



8. Formatting Plot Area:

You can also add a background color to your chart. Select the **"Format Plot Area"** after right-clicking.



These are some of the most frequent formatting done on Excel charts. Excel provides us with dynamic options to format a chart and it can be explored with some self-research easily.

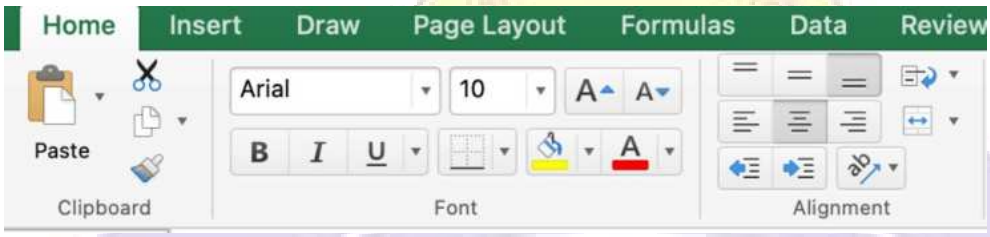
In Excel, the whole entered data in the sheet uses the same formatting by default which can make the data look monotonous, dull, and difficult to read. Excel provides a pool of tools called formatting tools which customize the data in such a way that it only affects the appearance of the data and not the content.

How to apply formatting in Excel?

Following are the steps to apply the formatting:

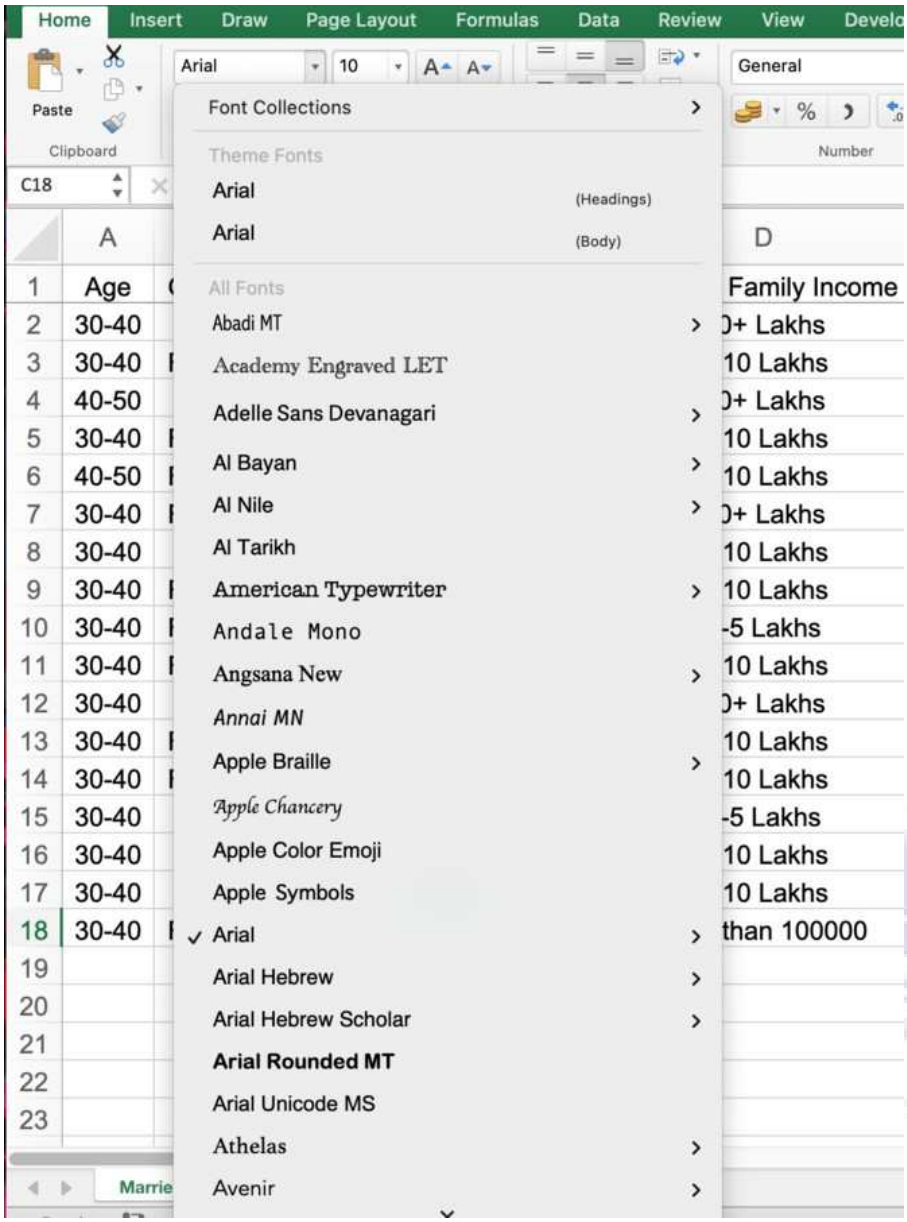
1. Select the range of cells on which formatting needs to be done.
2. Select the suitable formatting tool from the toolbox(ribbon).
3. Formatting can be observed on the sheet.

Formatting tools that work on the text and cell appearance can be found in Home Tab [Font Group] in the ribbon.

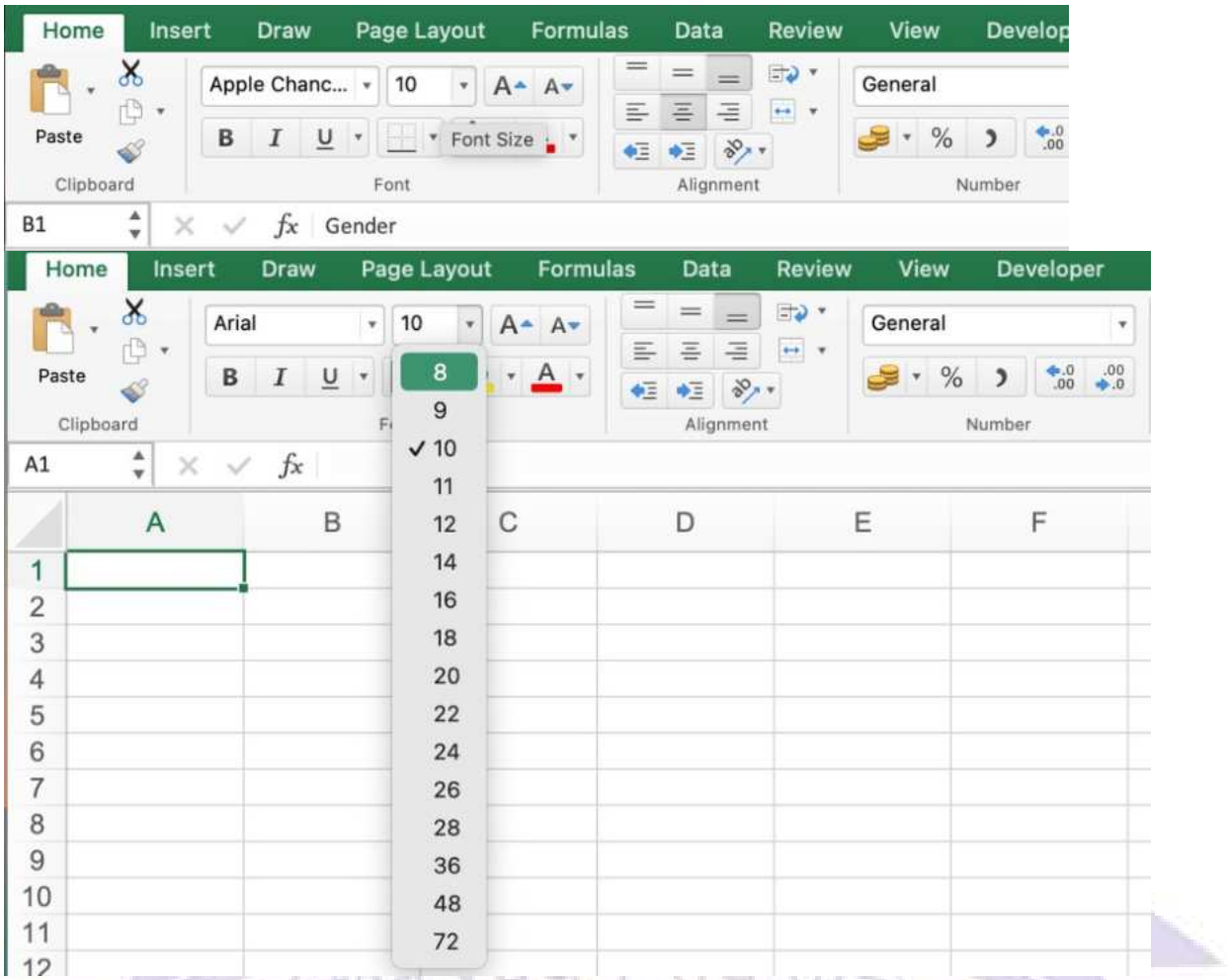


Let's discuss some formatting tools in this article.

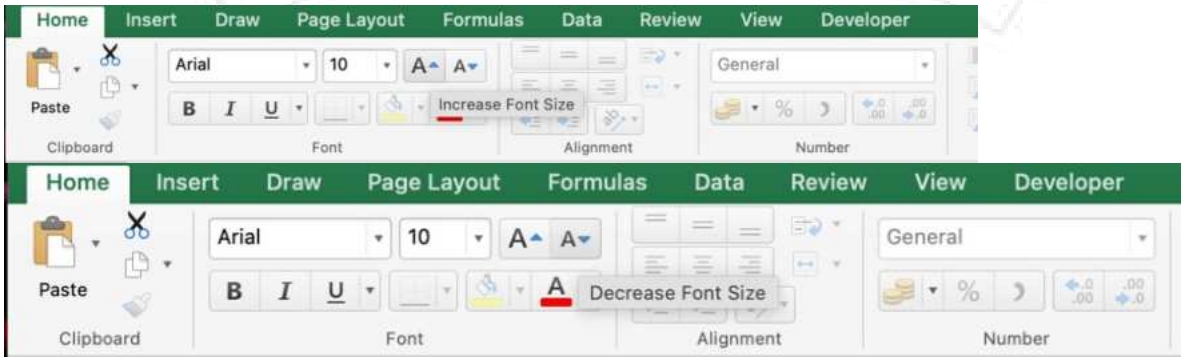
- **Font:** It changes the writing style of the data.



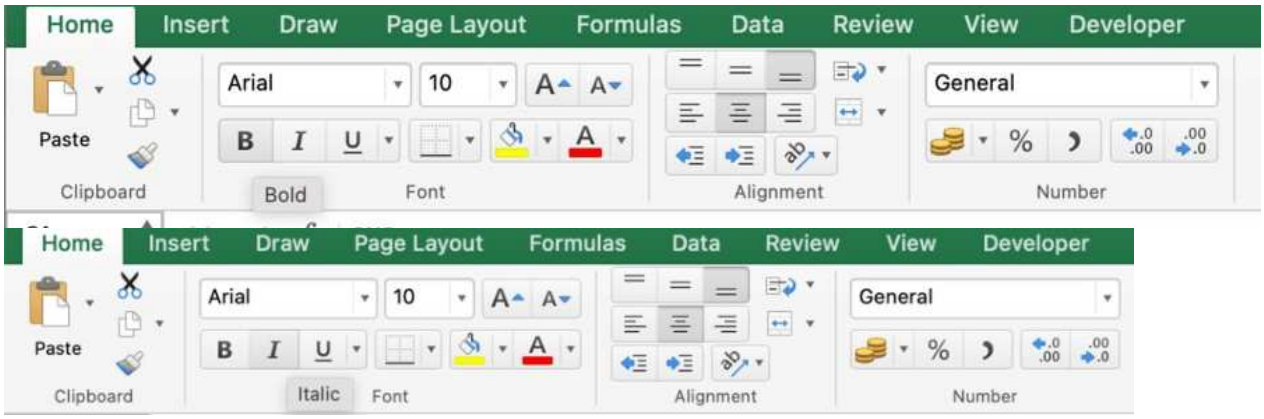
- **Font Size:** It changes the size of the data, can make it appear big or short.



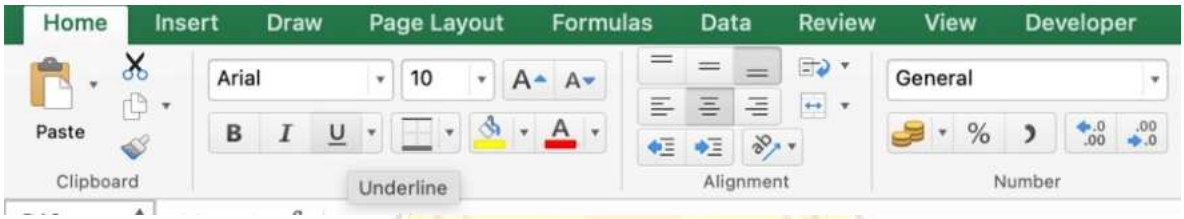
- **Increase/Decrease Font Size:** It does the same work as by Font Size i.e adjusts the size of the font accordingly. However, it gets handy as in only one click, the size is getting changed.



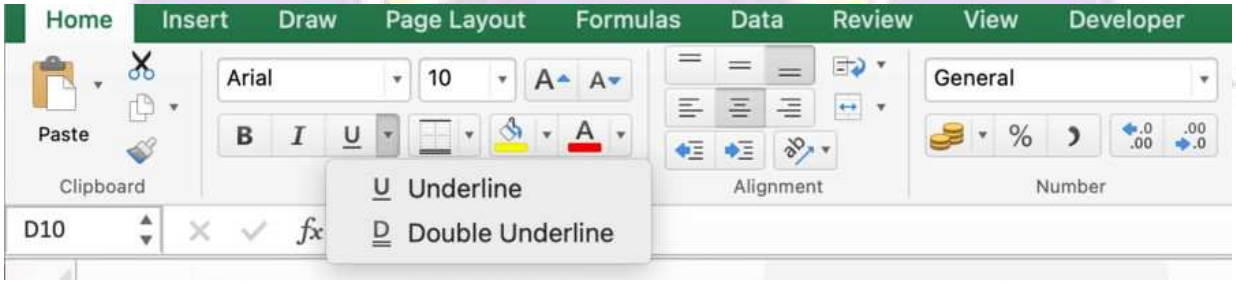
- **Bold and Italic:** Bold thickens the letter and makes it appear darker than before while Italic, italicize the letters. Both are useful when some data needs to be differentiated from the rest.



- **Underline:** This feature marks a line at the foot of the data.

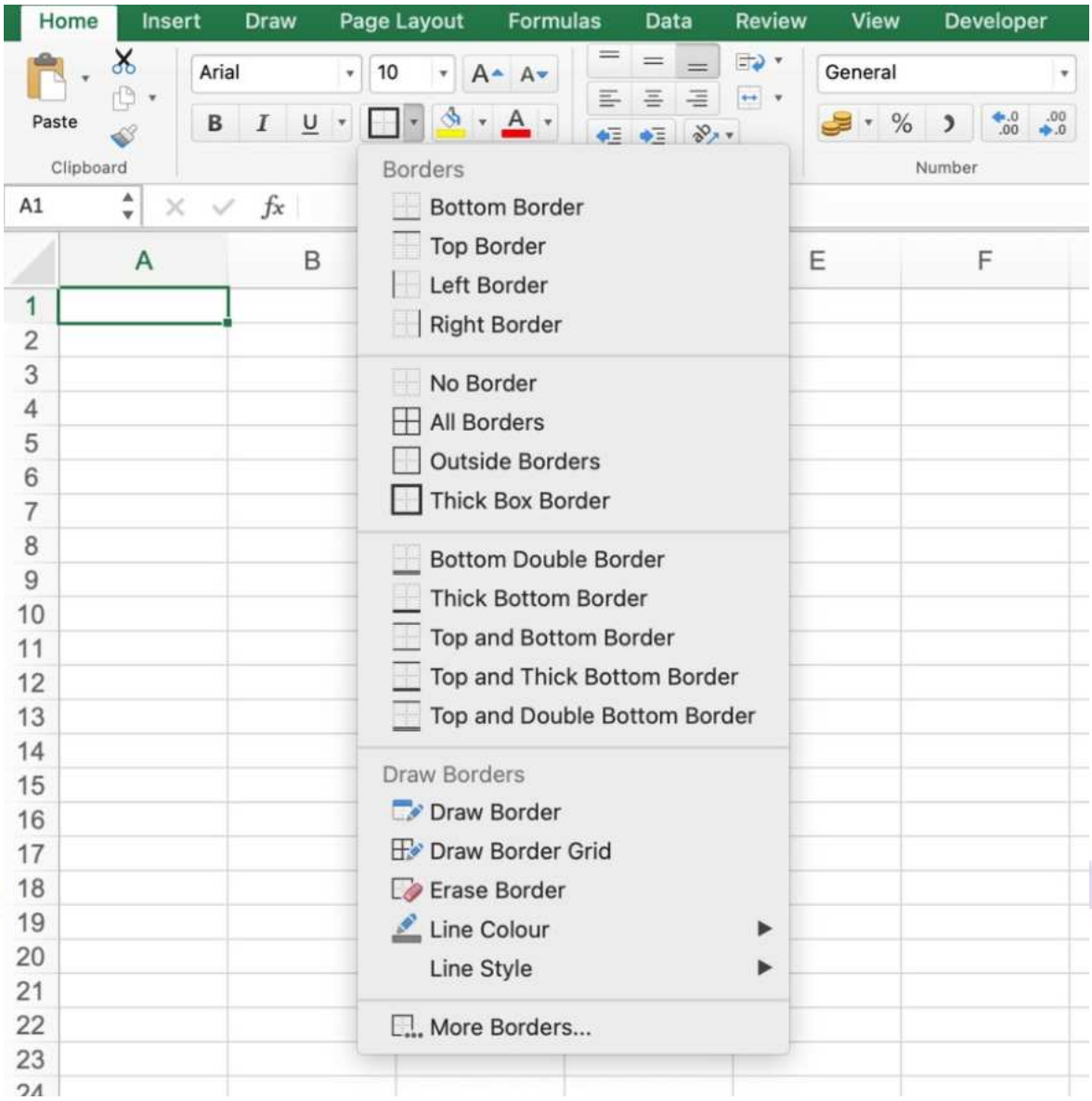


There is a drop-down button on the right of the underline tool, which has two options: Underline and Double Underline. Underline is the same as the Underline tool and Double Underline marks two lines below the text selected.

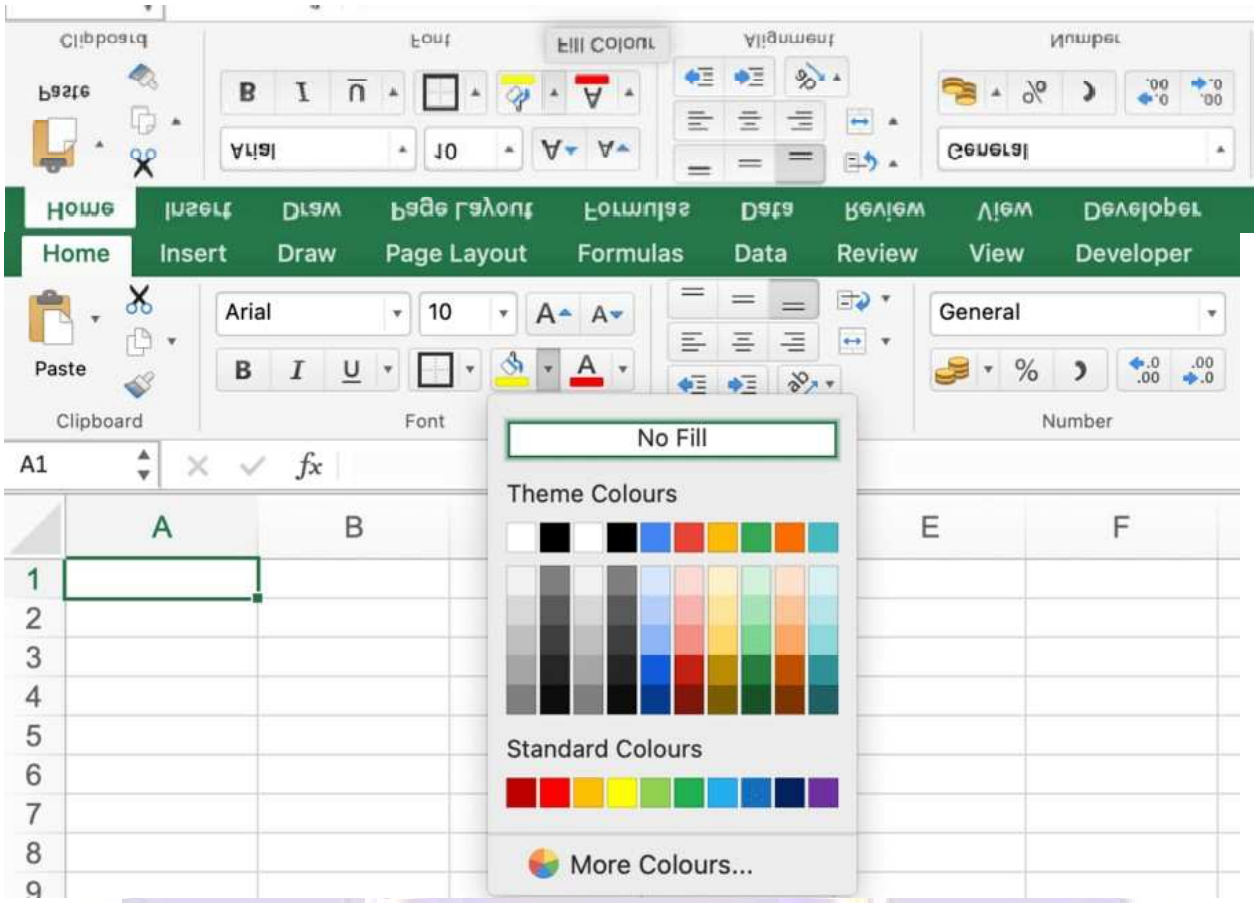


- **Top and Double Bottom Border:** This feature creates the border as per selection from the drop-down button around the selected cells. This is majorly used to differentiate some cells from the drop-down and create tables in large sheets.

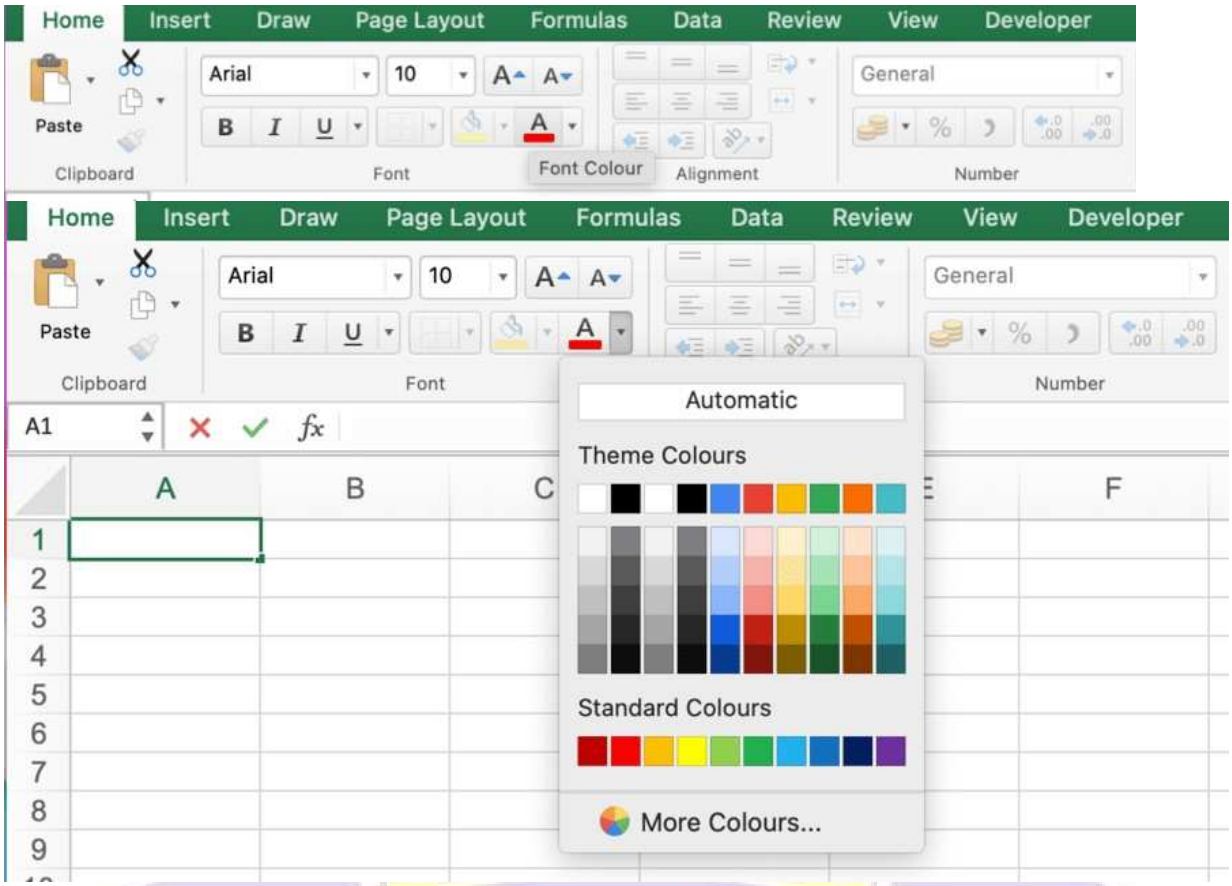
The drop-down in the right of the tool has many options in which we can create the borders around the cells.



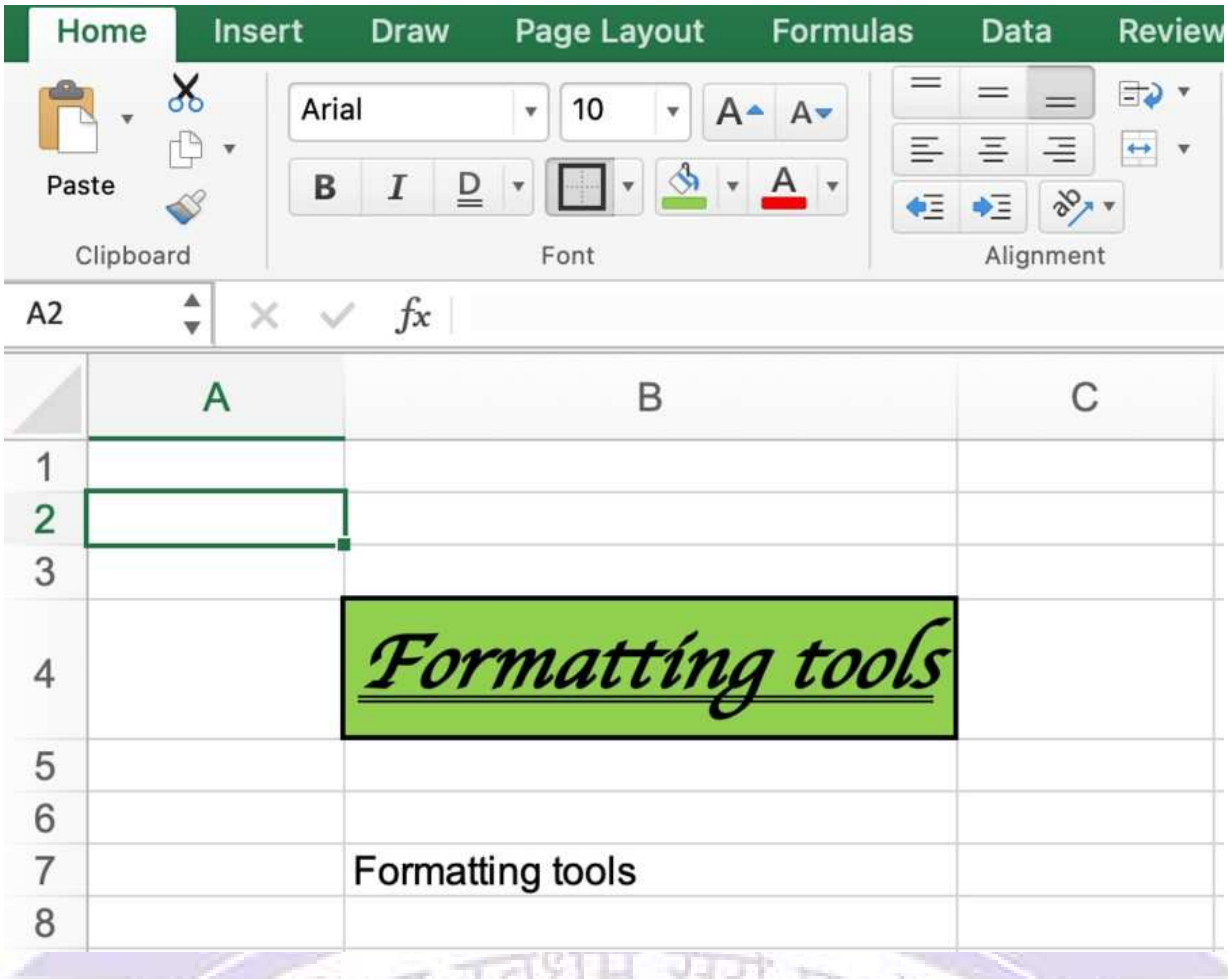
- **Fill Colour:** As the name suggests, it fills the colour in the cell making it distinct from the rest. Excel offers a pool of colours from which the choice can be made.



- **Font Colour:** It changes the colour of the font and makes it appear better. Correct colour choices can be made from a plethora of options available.



The differences can be observed between using the formatting tools and by default:



Cell B4 is formatted. It has a different font style, size, double underline, Bold and Italic font, different colours, and a thick box border around it whereas cell B7 has default settings.

More formatting tools are available in Excel that can be explored.

Unit IV : INTRODUCTION TO PRESENTATION SOFTWARE
(Latest Version of the Presentation Software is Recommended)
Working with MS PowerPoint. Presentation Basics. Adding more components to the slides, Formatting Presentations, backgrounds and layout. Applying Themes. Using Slide Master. Working
with Graphics, Images and Clips. Working with Multimedia. Inserting Sound and Narration. Delivering Presentations. Animating Objects. Adding Action effects. Live Presentation. Using Custom Shows. Saving/Protecting the Presentation. Printing the slides.

Introduction

PowerPoint is a **presentation program** that allows you to create dynamic slide presentations. These presentations can include animation, narration, images, videos, and much more. In this lesson, you'll learn your way around the PowerPoint environment, including the **Ribbon**, **Quick Access Toolbar**, and **Backstage view**.

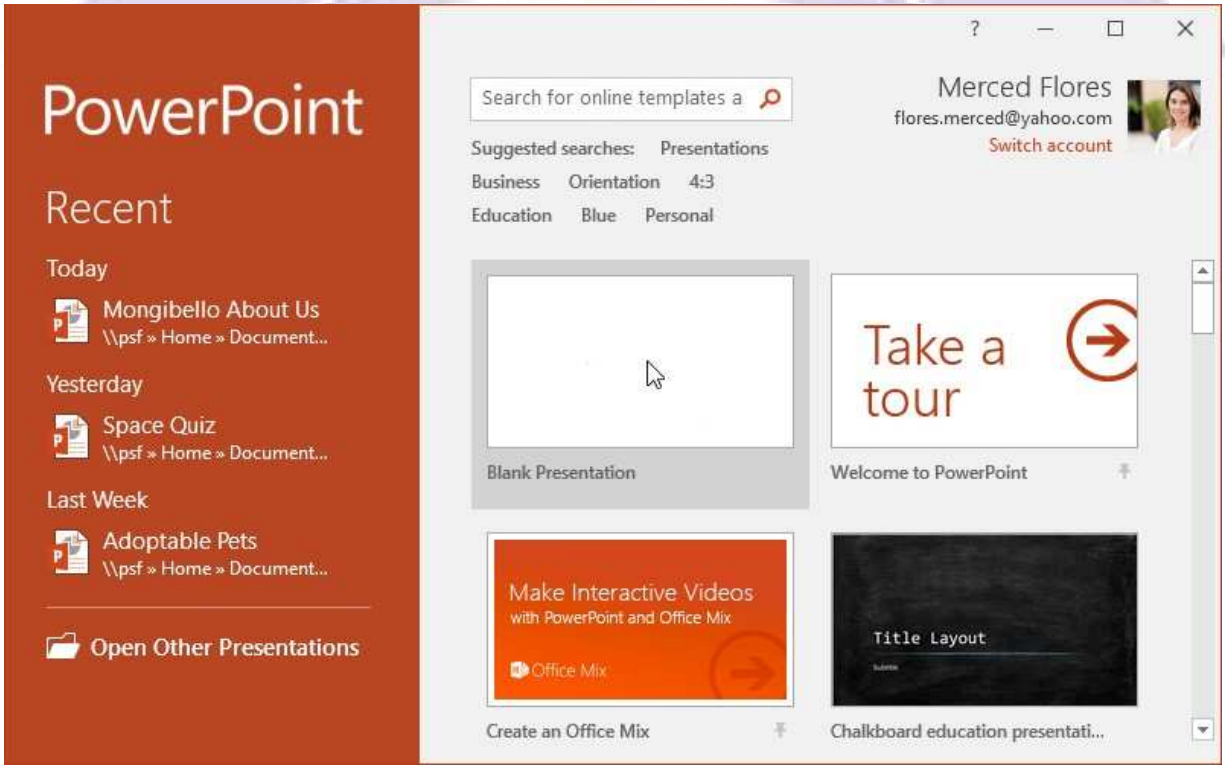
Watch the video below to learn more about getting started with PowerPoint.

Getting to know PowerPoint

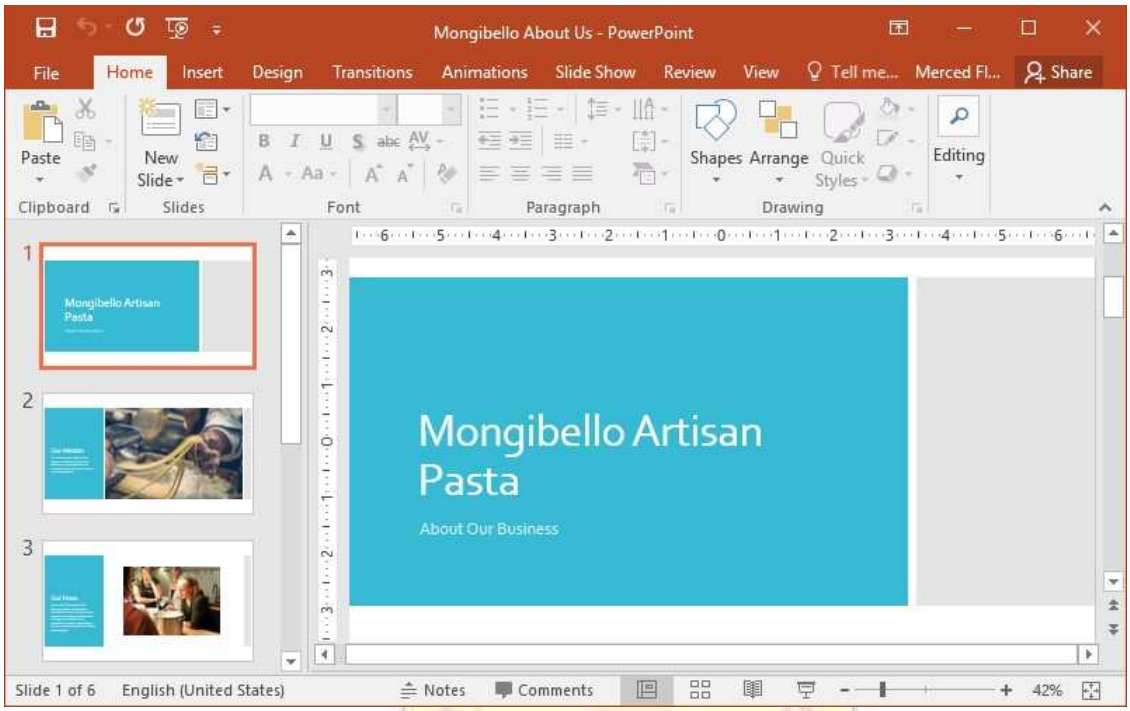
PowerPoint 2016 is similar to PowerPoint 2013 and PowerPoint 2010. If you've previously used these versions, PowerPoint 2016 should feel familiar. But if you are new to PowerPoint or have more experience with older versions, you should first take some time to become familiar with the **PowerPoint 2016 interface**.

The PowerPoint interface

When you open PowerPoint for the first time, the **Start Screen** will appear. From here, you'll be able to create a **new presentation**, choose a **template**, and access your **recently edited presentations**. From the **Start Screen**, locate and select **Blank Presentation** to access the PowerPoint interface.



Click the buttons in the interactive below to become familiar with the PowerPoint interface.

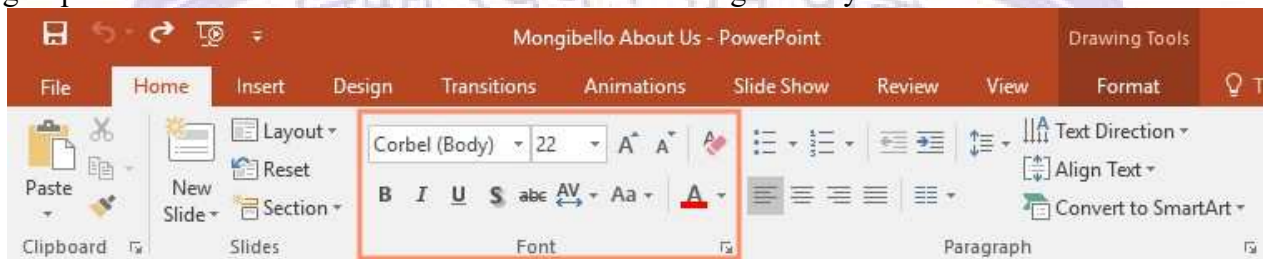


Working with the PowerPoint environment

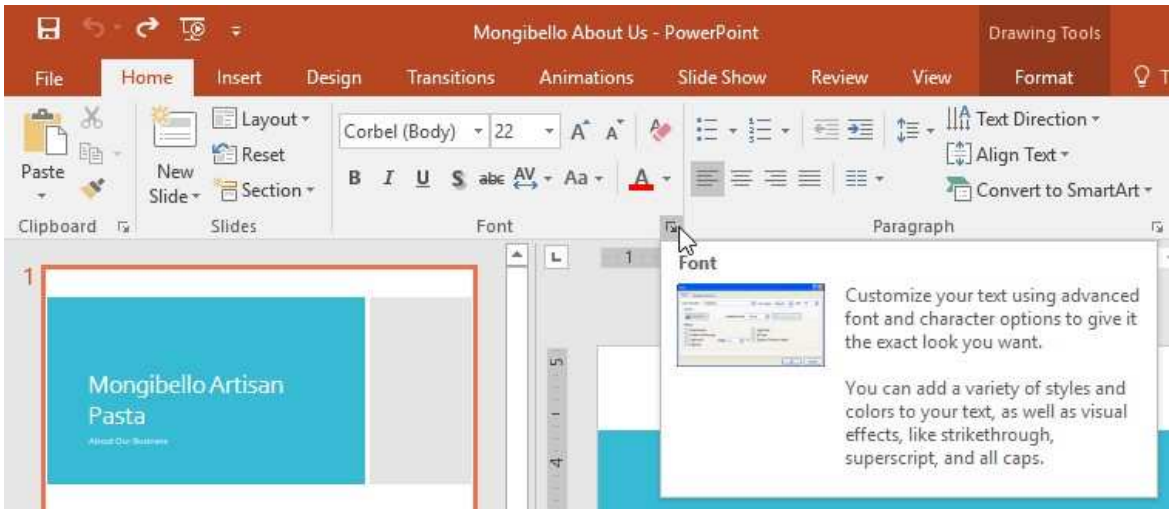
The **Ribbon** and **Quick Access Toolbar** are where you will find the commands to perform common tasks in PowerPoint. **Backstage view** gives you various options for saving, opening a file, printing, and sharing your document.

The Ribbon

PowerPoint uses a **tabbed Ribbon system** instead of traditional menus. **The Ribbon** contains **multiple tabs**, each with several **groups of commands**. For example, the Font group on the Home tab contains commands for formatting text in your document.

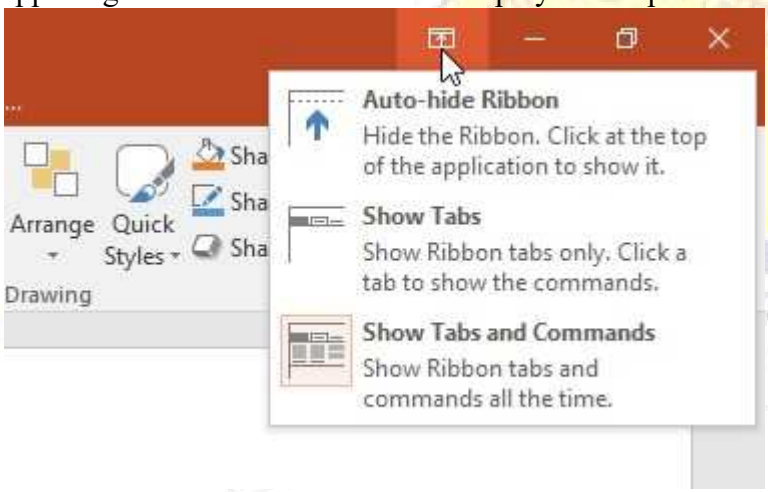


Some groups also have a **small arrow** in the bottom-right corner that you can click for even more options.



Showing and hiding the Ribbon

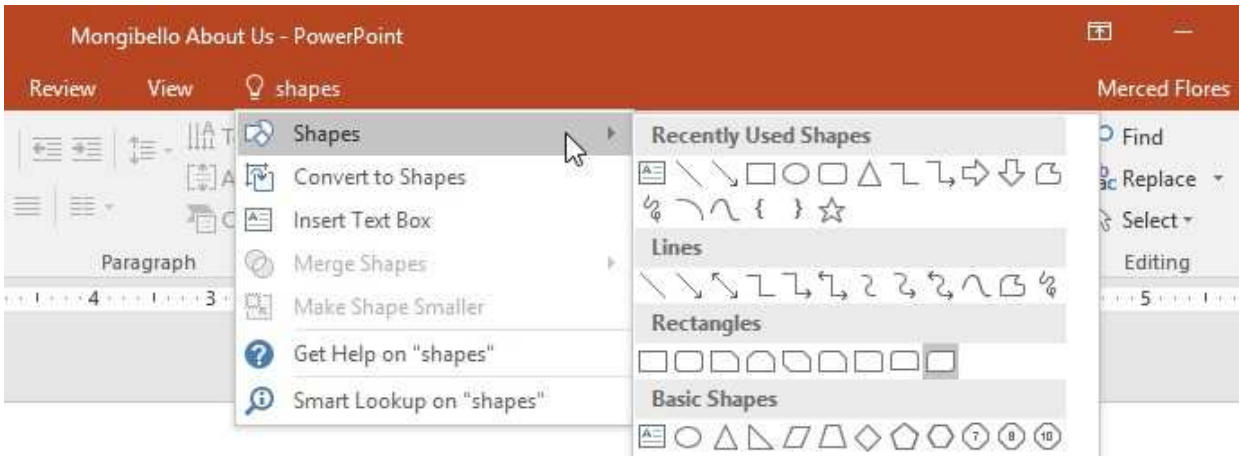
The Ribbon is designed to respond to your current task, but you can choose to **minimize** it if you find that it takes up too much screen space. Click the **Ribbon Display Options** arrow in the upper-right corner of the Ribbon to display the drop-down menu.



- **Auto-hide Ribbon:** Auto-hide displays your workbook in full-screen mode and completely hides the Ribbon. To **show the Ribbon**, click the **Expand Ribbon** command at the top of screen.
- **Show Tabs:** This option hides all command groups when they're not in use, but **tabs** will remain visible. To **show the Ribbon**, simply click a tab.
- **Show Tabs and Commands:** This option maximizes the Ribbon. All of the tabs and commands will be visible. This option is selected by default when you open PowerPoint for the first time.

Using the Tell me feature

If you're having trouble finding command you want, the **Tell Me** feature can help. It works just like a regular search bar: Type what you're looking for, and a list of options will appear. You can then use the command directly from the menu without having to find it on the Ribbon.

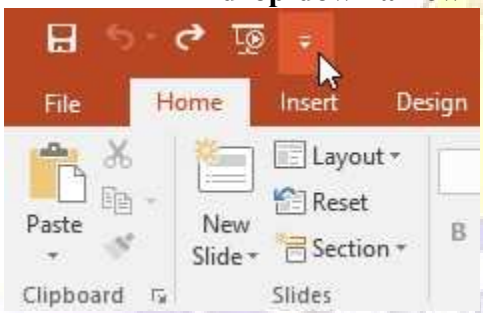


The Quick Access Toolbar

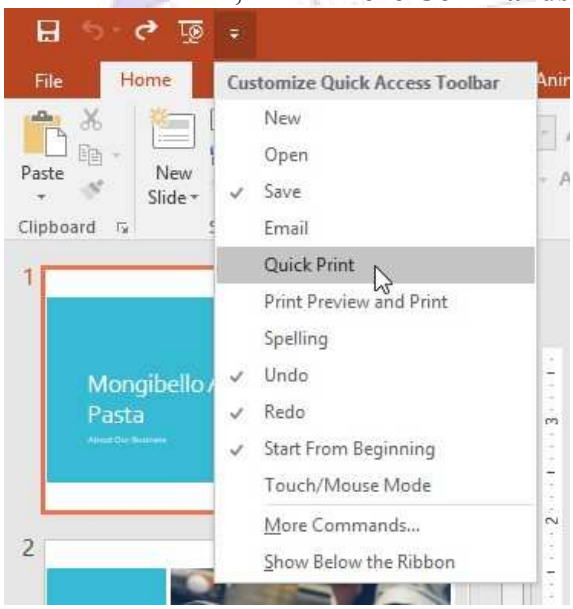
Located just above the Ribbon, the **Quick Access Toolbar** lets you access common commands no matter which tab is selected. By default, it includes the **Save**, **Undo**, **Redo**, and **Start From Beginning** commands. You can add other commands depending on your preference.

To add commands to the Quick Access Toolbar:

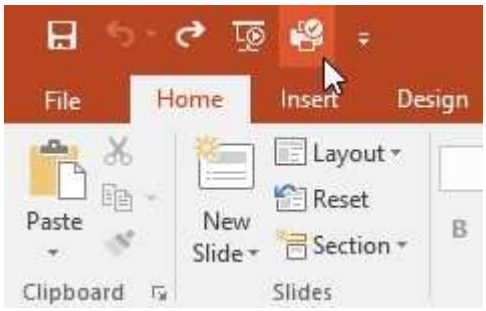
1. Click the **drop-down arrow** to the right of the **Quick Access Toolbar**.



2. Select the **command** you want to add from the drop-down menu. To choose from more commands, select **More Commands**.

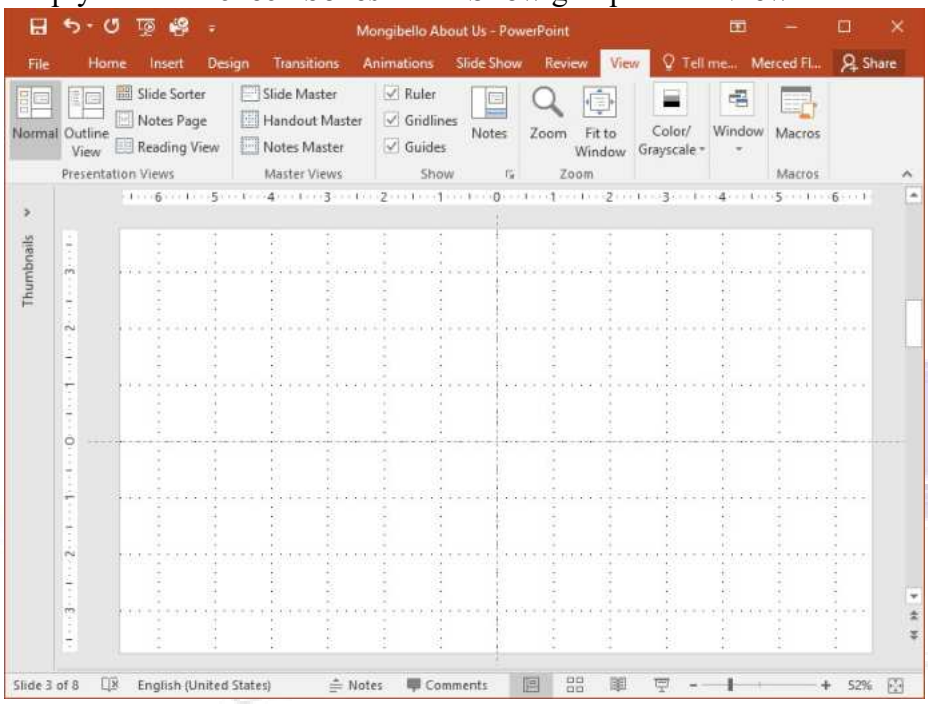


3. The command will be added to the Quick Access Toolbar.



The Ruler, guides, and gridlines

PowerPoint includes several tools to help organize and arrange content on your slides, including the **Ruler**, **guides**, and **gridlines**. These tools make it easier to **align objects** on your slides. Simply click the **check boxes** in the **Show** group on the **View** tab to show and hide these tools.



Zoom and other view options

PowerPoint has a variety of viewing options that change how your presentation is displayed. You can choose to view your presentation in **Normal** view, **Slide Sorter** view, **Reading** view, or **Slide Show** view. You can also **zoom in and out** to make your presentation easier to read.

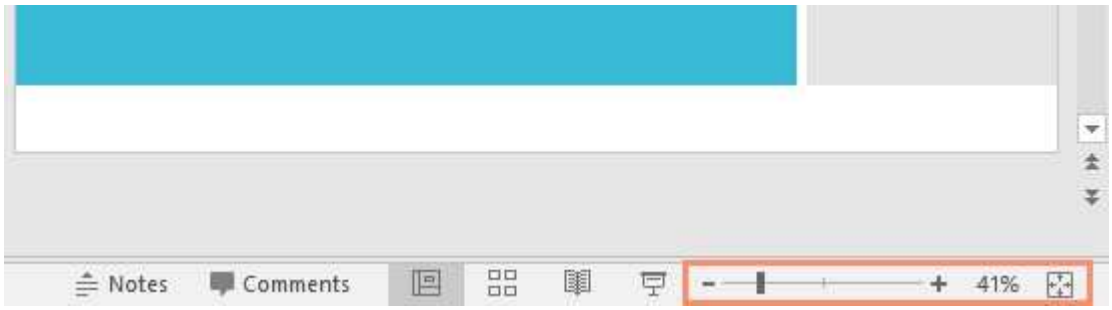
Switching slide views

Switching between different slide views is easy. Just locate and select the desired **slide view command** in the bottom-right corner of the PowerPoint window.

To learn more about slide views, see our **Managing Slides** lesson.

Zooming in and out

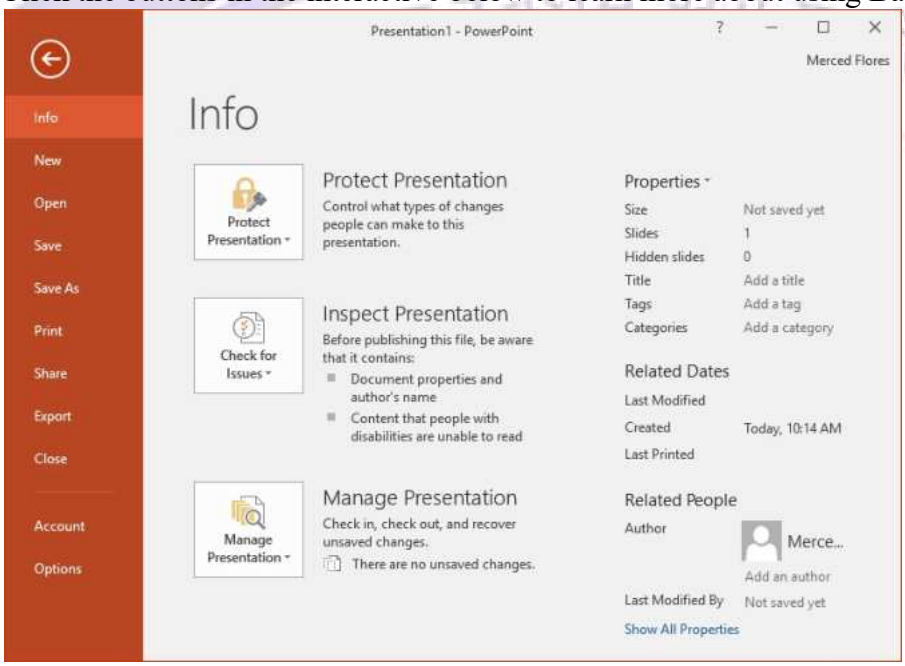
To zoom in or out, click and drag the **zoom control slider** in the bottom-right corner of the PowerPoint window. You can also select the + or **- commands** to zoom in or out by smaller increments. The number next to the slider displays the current **zoom percentage**, also called the **zoom level**.



Backstage view

Backstage view gives you various options for saving, opening, printing, and sharing your presentations. To access Backstage view, click the **File** tab on the **Ribbon**.

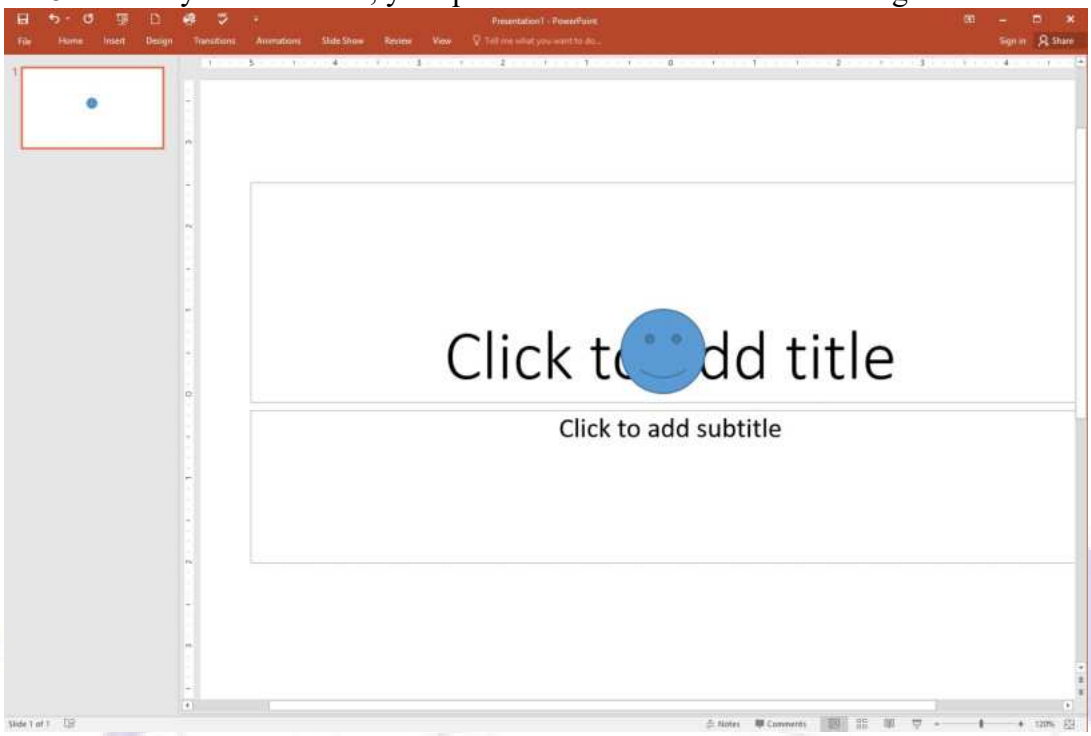
Click the buttons in the interactive below to learn more about using Backstage view.



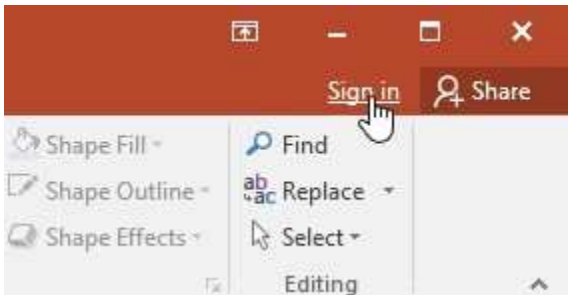
You can review our lesson on **Understanding OneDrive** to learn more about using OneDrive.

Challenge!

1. Open **PowerPoint 2016**, and create a **blank presentation**.
2. Change the **Ribbon Display Options** to **Show Tabs**.
3. Click the drop-down arrow next to the **Quick Access Toolbar** and add **New**, **Quick Print**, and **Spelling.**
4. In the **Tell me bar**, type **Shape** and press **Enter**.
5. Choose a shape from the menu, and double-click somewhere on your slide.
6. Show the **Ruler** if it is not already visible.
7. **Zoom** the presentation to 120%.
8. When you're finished, your presentation should look something like this:



9. Change the **Ribbon Display Options** back to **Show Tabs and Commands**.



Unit V : INTRODUCTION TO THE INTERNET

The Internet: an introduction, Meaning and benefits of the Internet? The history of the Internet, Differences between Internet and World Wide Web. Connecting to the Internet. Web Browsers. User Interfaces of Web Browsers. Browser Customization. Search Engines. E-mail: Basic Concepts and terminologies. Using emails. Security and risk in Internet.

E-commerce. E-learning. E-Government. E-entertainment. Top Ten Future Trends- The Internet by 2020.

Introduction to Internet

Computers and their structures are tough to approach, and it is made even extra tough while you want to recognize phrases associated with the difficulty this is already utilized in regular English, Network, and the net will appear to be absolutely wonderful from one some other, however, they may seem like identical.

A **network** is a group of 1 or extra computer systems (Multiple gadgets, additionally called hosts), which are related through a couple of channels for the motive of sending and receiving records or media in a shared environment. The community also can consist of serval gadgets/mediums that resource communique among or extra machines; those gadgets are called Network devices and consist of routers, switches, hubs, and bridges, amongst others.

Internet is a group of computer systems related from all around the world. The Internet protocol suite is a framework defined through the Internet standards. Methods are divided right into a layered set of protocols on this architecture. The Internet gives a huge variety of statistics and communique offerings, which includes forums, databases, email, and hypertext. It is made of the neighborhood to global personal, public networks connected through plenty of digital, wireless, and networking technologies.

The Internet is a worldwide connectivity of hundreds of thousands of computers of various types that belong to multiple networks.

Working of the internet: The internet is a global computer network that connects various devices and sends a lot of information and media. It uses an Internet Protocol (IP) and Transport Control Protocol (TCP)-based packet routing network. TCP and IP work together to ensure that data transmission across the internet is consistent and dependable, regardless of the device or location. Data is delivered across the internet in the form of messages and packets. A message is a piece of data delivered over the internet, but before it is sent, it is broken down into smaller pieces known as packets.

IP is a set of rules that control how data is transmitted from one computer to another via the internet. The IP system receives further instructions on how the data should be transferred using a numerical address (IP Address). The TCP is used with IP to ensure that data is transferred in a secure and reliable manner. This ensures that no packets are lost, that packets are reassembled in the correct order, and that there is no delay that degrades data quality.

History of Internet

The ARPANET (later renamed the internet) established a successful link between the University of California Los Angeles and the Stanford Research Institute on October 29, 1969. Libraries automate and network catalogs outside of ARPANET in the late 1960s.

TCP/IP (Transmission Control Protocol and Internet Protocol) is established in the 1970s, allowing internet technology to mature. The development of these protocols aided in the standardization of how data was sent and received via the internet. NSFNET, the 56 Kbps backbone of the internet, was financed by the National Science Foundation in 1986. Because government monies were being used to administer and maintain it, there were commercial restrictions in place at the time.

In the year 1991, a user-friendly internet interface was developed. Delphi was the first national commercial online service to offer internet connectivity in July 1992. Later in May 1995, All restrictions on commercial usage of the internet are lifted. As a result, the internet has been able to diversify and grow swiftly. Wi-Fi was first introduced in 1997. The year is 1998, and Windows 98 is released. Smartphone use is widespread in 2007. The 4G network is launched in 2009. The internet is used by 3 billion people nowadays. By 2030, there are expected to be 7.5 billion internet users and 500 billion devices linked to the internet.

Uses of the Internet:

- **E-mail:** E-mail is an electronic message sent across a network from one computer user to one or more recipients. It refers to the internet services in which messages are sent from and received by servers.
- **Web Chat:** Web chat is an application that allows you to send and receive messages in real-time with others. By using Internet chat software, the user can log on to specific websites and talk with a variety of other users online. Chat software is interactive software that allows users to enter comments in one window and receive responses from others who are using the same software in another window.
- **World Wide Web:** The World Wide Web is the Internet's most popular information exchange service. It provides users with access to a large number of documents that are linked together using hypertext or hyperlinks.
- **E-commerce:** E-commerce refers to electronic business transactions made over the Internet. It encompasses a wide range of product and service-related online business activities.
- **Internet telephony:** The technique that converts analog speech impulses into digital signals and routes them through packet-switched networks of the internet is known as internet telephony.
- **Video conferencing:** The term "video conferencing" refers to the use of voice and images to communicate amongst users.

Web Client

The client (or user) side of the Internet. The Web browser on the user's computer or mobile device is referred to as a Web client. It could also apply to browser extensions and helper software that improve the browser's ability to support specific site services.

Web browser

A web browser is a software program software that searches for, retrieves, and presentations material which includes Web pages, photos, videos, and different files. The browser sends a request to the Webserver, which then transmits the statistics returned to the browser, which presentations the findings at the laptop. Mozilla Firefox, Microsoft Edge, Google Chrome, and others are examples of internet browsers.

Webpage

An internet web page (additionally called a web page) is a report that may be regarded in an internet browser at the World Wide Web. HTML (HyperText Markup Language) and CSS (Cascaded Style Sheet) are used to generate the primary shape of an internet web page. An internet web page is generally a segment of an internet site that carries statistics in plenty of formats, which includes textual content inside the shape of paragraphs, lists, tables, and so on.

The home web page is the beginning or first web page of an internet site. It gives trendy statistics and connections to all the internet pages which are associated. Every internet web page has its personal deal with. This may be visible withinside the deal with the bar. As a result, if we need to get admission to a selected internet web page, the deal needs to be placed inside the browser's deal with bar.

Website

An internet site, in trendy, is a group of statistics approximately statistics prepared into many internet pages. An internet site is probably made for a sure motive, subject matter, or to provide a service. An internet site (abbreviated as "website" or "site") is a group of online pages connected collectively through links and saved on an internet server. By clicking on links, a tourist can pass from one web page to the next. An internet site's pages also are connected below one area call and proportion a not unusual place subject matter and template.

Search Engine

Search engines are websites that search on the internet on behalf of users and show a listing of results. More than actually written may be discovered on seek engines. You can be capable of looking for different online content material which includes photographs, video content material, books, and news, in addition to gadgets and offerings, relying on the seek engine you are the use of.

To make use of the Internet, you do not always want to recognize the deal with an internet site. It is crucial to recognize the way to do a look for statistics. Using a seek engine is one of the only methods to seek. A seek engine can help you in finding what you are looking for. You also can appearance up net maps and instructions to help you to plot your adventure from one factor to some other. Example: Google, Bing, DuckDuckGo, yahoo, etc.

Differentiation between Network and Internet

The number one distinction between a network and the internet is that a network is made of computer systems that are bodily related and may be used as a personal laptop at the same time as additionally

sharing records. The Internet, on the alternative hand, might be an era that connects those small and massive networks and creates a brand new in-intensity community.

Advantages of the Internet:

- It is the best source of a wide range of information. There is no better place to conduct research than the internet.
- Online gaming, talking, browsing, music, movies, dramas, and TV series are quickly becoming the most popular ways to pass the time.
- Because there are hundreds of thousands of newsgroups and services that keep you updated with every tick of the clock, the Internet is a source of the most recent news.
- Because of virtual shops where you may buy anything you want and need without leaving your house, internet shopping is becoming increasingly popular. Recently, virtual shops have been making a lot of money.

Disadvantages of the Internet:

- Spending too much time on the internet is hazardous for the young generation's health and leads to obesity.
- Children who use the internet develop an addiction, which is quite dangerous.
- It is now quite easy to decipher someone's chat or email messages thanks to the hacking community.
- With the emergence of online businesses, virtual stores, and credit card usage, purchasing goods without going to the store has never been easier.

ntroduction

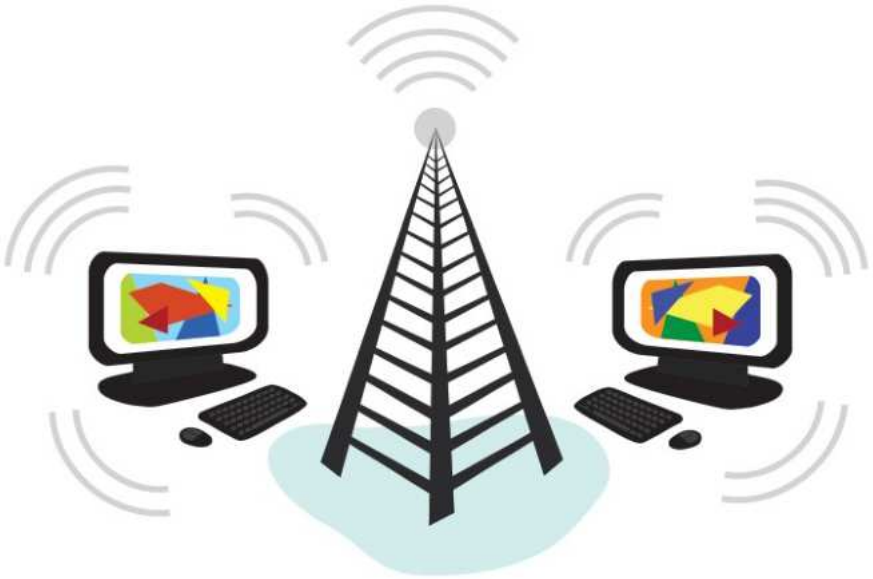
The **Internet** is an increasingly important part of everyday life for people around the world. But if you've never used the Internet before, all of this new information might feel a bit confusing at first.

Throughout this tutorial, we'll try to answer some basic questions you may have about the Internet and how it's used. When you're done, you'll have a good understanding of **how the Internet works**, how to **connect to the Internet**, and **how to browse the Web**.

What is the Internet?

The Internet is a **global network** of billions of computers and other electronic devices. With the Internet, it's possible to access almost any information, communicate with anyone else in the world, and do much more.

You can do all of this by connecting a computer to the Internet, which is also called **going online.** When someone says a computer is online, it's just another way of saying it's connected to the Internet.



What is the Web?

The **World Wide Web**—usually called the **Web** for short—is a collection of different **websites** you can access through the Internet. A **website** is made up of related text, images, and other resources. Websites can resemble other forms of media—like newspaper articles or television programs—or they can be interactive in a way that's unique to computers.

The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site like us!

Once you are connected to the Internet, you can access and view websites using a type of application called a **web browser**. Just keep in mind that the web browser itself is not the Internet; it only displays websites that are stored on the Internet.

How does the Internet work?

At this point you may be wondering, **how does the Internet work?** The exact answer is pretty complicated and would take a while to explain. Instead, let's look at some of the most important things you should know.

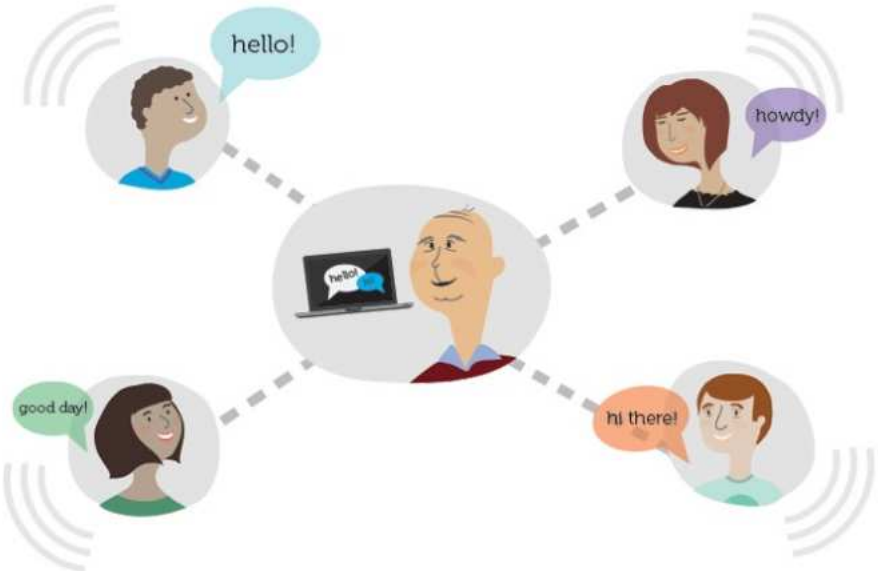
It's important to realize that the Internet is a global network of **physical cables**, which can include copper telephone wires, TV cables, and fiber optic cables. Even wireless connections like Wi-Fi and 3G/4G rely on these physical cables to access the Internet.

When you visit a website, your computer sends a request over these wires to a **server**. A server is where websites are stored, and it works a lot like your computer's hard drive. Once the request arrives, the server retrieves the website and sends the correct data back to your computer. What's amazing is that this all happens in just a few seconds!

Watch the video below from Tata Communications to learn more about how the Internet functions.

Other things you can do on the Internet

One of the best features of the Internet is the ability to communicate almost instantly with anyone in the world. **Email** is one of the oldest and most universal ways to communicate and share information on the Internet, and billions of people use it. **Social media** allows people to connect in a variety of ways and build communities online.



There are many other things you can do on the Internet. There are thousands of ways to keep up with news or **shop for anything** online. You can pay your bills, **manage your bank accounts**, meet new people, **watch TV**, or learn new skills. You can learn or do almost anything online.

Lesson 2: What Can You Do Online?

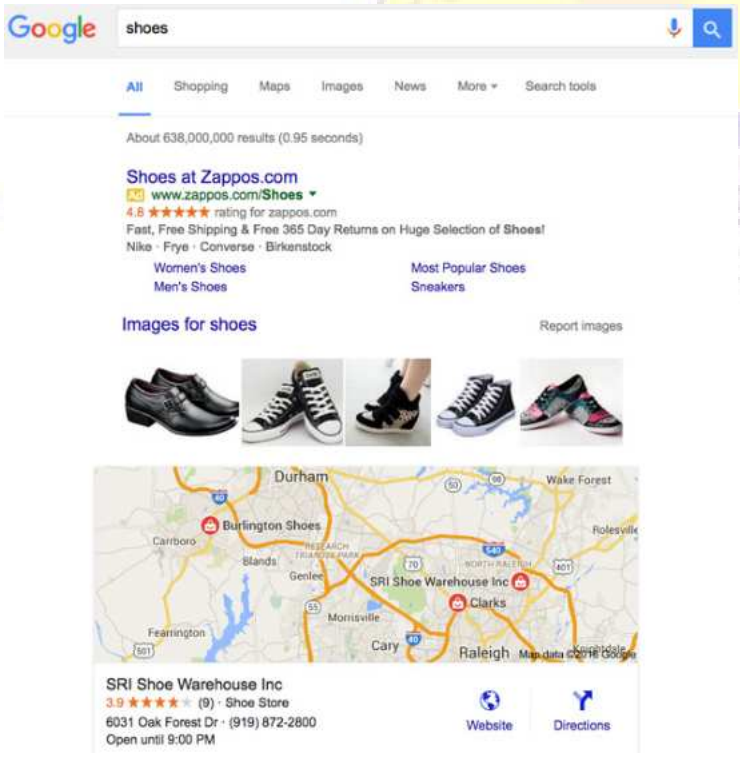
Introduction

There's almost no limit to what you can do online. The Internet makes it possible to quickly find information, communicate with people around the world, manage your finances, shop from home, listen to music, watch videos, and much, much more. Let's take a look at some of the ways the Internet is most commonly used today.

Finding information online

With billions of websites online today, there is **a lot** of information on the Internet. **Search engines** make this information easier to find. All you have to do is type one or more **keywords**, and the search engine will look for **relevant websites**.

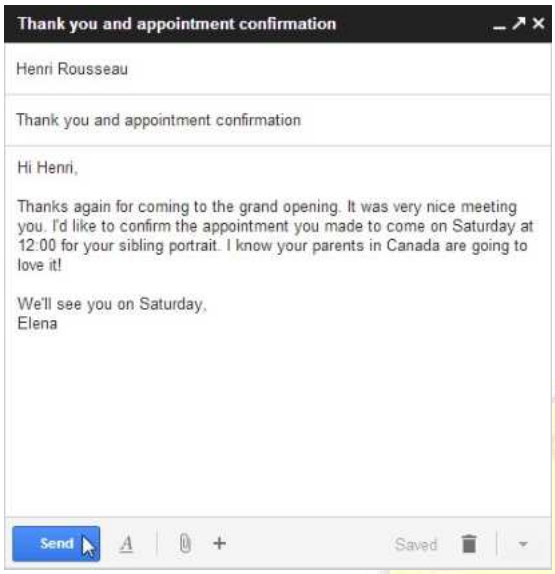
For example, let's say you're looking for a new pair of shoes. You could use a search engine to learn about different types of shoes, get directions to a nearby shoe store, or even find out where to buy them online!



There are many different search engines you can use, but some of the most popular include **Google**, **Yahoo!**, and **Bing**.

Email

Short for electronic mail, **email** is a way to **send and receive messages** across the Internet. Almost everyone who uses the Internet has their own email account, usually called an **email address**. This is because you'll need an email address to do just about anything online, from online banking to creating a Facebook account.



Social networking

Social networking websites are another way to **connect and share** with your family and friends online. Rather than sharing with just a few people over email, social networks make it easier to **connect** and **share** with many people at the same time. **Facebook** is the world's largest social networking site, with **more than 1 billion users** worldwide.

Chat and instant messaging

Chat and **instant messaging (IM)** are short messages sent and read **in real time**, allowing you to converse more quickly and easily than email. These are generally used when both (or all) people are online, so your message can be read immediately. By comparison, **emails** won't be seen until recipients check their inboxes.

Examples of instant messaging applications include **Yahoo Messenger** and **Google Hangouts**. Some sites, like **Gmail** and **Facebook**, even allow you to chat within your web browser.

Online media

There are many sites that allow you to **watch videos** and **listen to music**. For example, you can watch millions of videos on **YouTube** or listen to Internet radio on **Pandora**. Other services, like **Netflix** and **Hulu**, allow you to watch movies and TV shows. And if have a **set-top streaming box**, you can even watch them directly on your television instead of a computer screen.

Everyday tasks

You can also use the Internet to complete many **everyday tasks** and **errands**. For example, you can manage your bank account, pay your bills, and shop for just about anything. The main advantage here is **convenience**. Rather than going from place to place, you can do all of these tasks at home!

And a whole lot more!

Remember, these are just a few of the things you'll be able to do online. Keep working through this tutorial to learn more about connecting to the Internet and using the Web!

Lesson 3: Connecting to the Internet

How do I connect to the Internet?

Once you've set up your computer, you may want to purchase **home Internet access** so you can send and receive email, browse the Web, stream videos, and more. You may even want to set up a **home wireless network**, commonly known as **Wi-Fi**, so you can connect multiple devices to the Internet at the same time.

Watch the video below to learn about connecting to the Internet.

Looking for the old version of this video? You can still view it **here**.

Types of Internet service

The type of Internet service you choose will largely depend on which **Internet service providers** (ISPs) serve your area, along with the types of service they offer. Here are some common types of Internet service.

- **Dial-up**: This is generally the slowest type of Internet connection, and you should probably avoid it unless it is the only service available in your area. Dial-up Internet uses your **phone line**, so unless you have multiple phone lines you will not be able to use your landline and the Internet at the same time.
- **DSL**: DSL service uses a **broadband connection**, which makes it much faster than dial-up. DSL connects to the Internet **via a phone line** but does not require you to have a landline at home. And unlike dial-up, you'll be able to use the Internet and your phone line at the same time.

- **Cable**: Cable service connects to the Internet **via cable TV**, although you do not necessarily need to have cable TV in order to get it. It uses a broadband connection and can be faster than both dial-up and DSL service; however, it is only available where cable TV is available.
- **Satellite**: A satellite connection uses broadband but does not require cable or phone lines; it connects to the Internet **through satellites orbiting the Earth**. As a result, it can be used almost anywhere in the world, but the connection may be affected by weather patterns. Satellite connections are also usually slower than DSL or cable.
- **3G and 4G**: 3G and 4G service is most commonly used with mobile phones, and it connects **wirelessly** through your ISP's network. However, these types of connections aren't always as fast as DSL or cable. They will also **limit the amount of data** you can use each month, which isn't the case with most broadband plans.

Choosing an Internet service provider

Now that you know about the different types of Internet service, you can do some research to find out what ISPs are available in your area. If you're having trouble getting started, we recommend talking to friends, family members, and neighbors about the ISPs they use. This will usually give you a good idea of the types of Internet service available in your area.

Most ISPs offer several tiers of service with different Internet speeds, usually measured in **Mbps** (short for **megabits per second**). If you mainly want to use the Internet for **email** and **social networking**, a slower connection (around 2 to 5 Mbps) might be all you need. However, if you want to **download music** or **stream videos**, you'll want a faster connection (at least 5 Mbps or higher).

You'll also want to **consider the cost** of the service, including installation charges and monthly fees. Generally speaking, the faster the connection, the more expensive it will be per month.

Although **dial-up** has traditionally been the **least expensive** option, many ISPs have raised dial-up prices to be the **same as broadband**. This is intended to encourage people to switch to broadband. We do not recommend dial-up Internet unless it's your only option.

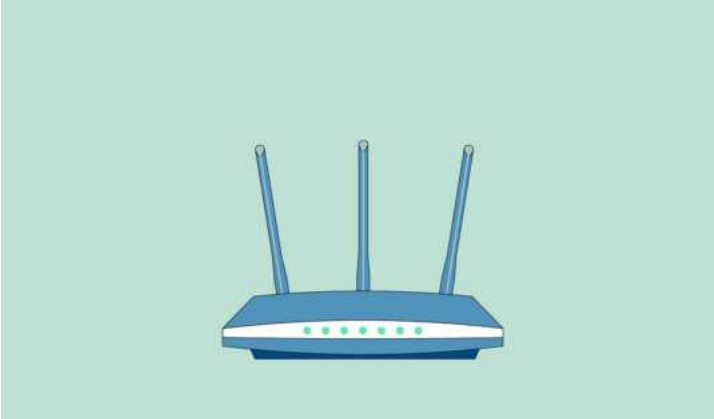
Hardware needed

Modem

Once you have your computer, you really don't need much additional hardware to connect to the Internet. The primary piece of hardware you need is a **modem**.

The type of Internet access you choose will determine the type of modem you need. **Dial-up** access uses a **telephone modem**, **DSL** service uses a **DSL modem**, **cable** access uses a **cable modem**, and **satellite** service uses a **satellite adapter**. Your ISP may give you a modem—often for a fee—when you sign a contract, which helps ensure that you have the **right type** of modem. However, if you would prefer to shop for a **better** or **less expensive** modem, you can choose to buy one separately.

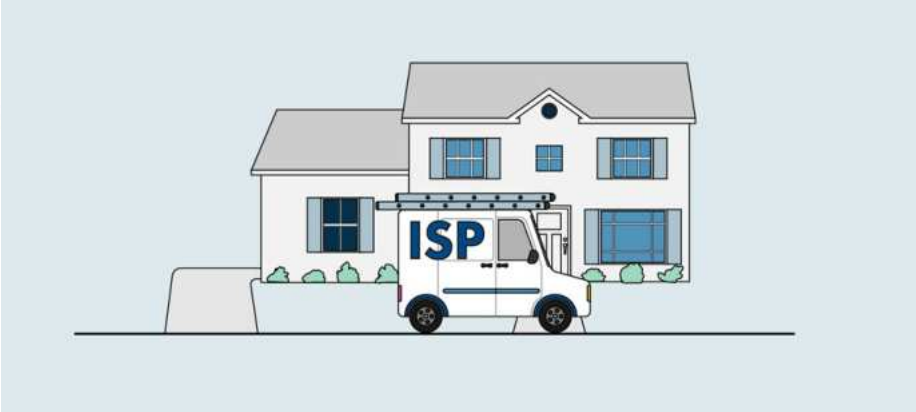
Router



A **router** is a hardware device that allows you to connect **several computers** and **other devices** to a single Internet connection, which is known as a **home network**. Many routers are **wireless**, which allows you to create a **home wireless network**, commonly known as a **Wi-Fi network**.

You **don't necessarily need to buy a router** to connect to the Internet. It's possible to connect your computer directly to your modem using an Ethernet cable. Also, many modems include a **built-in router**, so you have the option of creating a Wi-Fi network without buying extra hardware.

Setting up your Internet connection



Once you've chosen an ISP, most providers will **send a technician to your house** to turn on the connection. If not, you should be able to use the instructions provided by your ISP—or included with the modem—to set up your Internet connection.

After you have everything set up, you can open your **web browser** and begin using the Internet. If you have any problems with your Internet connection, you can call your ISP's **technical support** number.

Home networking

If you have multiple computers at home and want to use all of them to access the Internet, you may want to create a **home network**, also known as a **Wi-Fi network**. In a home network, all of your devices connect to your **router**, which is connected to the **modem**. This means everyone in your family can use the Internet **at the same time**.

Your ISP technician may be able to set up a home Wi-Fi network when installing your Internet service. If not, you can review our lesson on **How to Set Up a Wi-Fi Network** to learn more.

If you want to connect a computer that does not have built-in Wi-Fi connectivity, you can purchase a **Wi-Fi adapter** that plugs into your computer's USB port.

Lesson 4: Understanding the Cloud

What is the cloud?

You may have heard people using terms like **the cloud**, **cloud computing**, or **cloud storage**. But what exactly is the cloud?

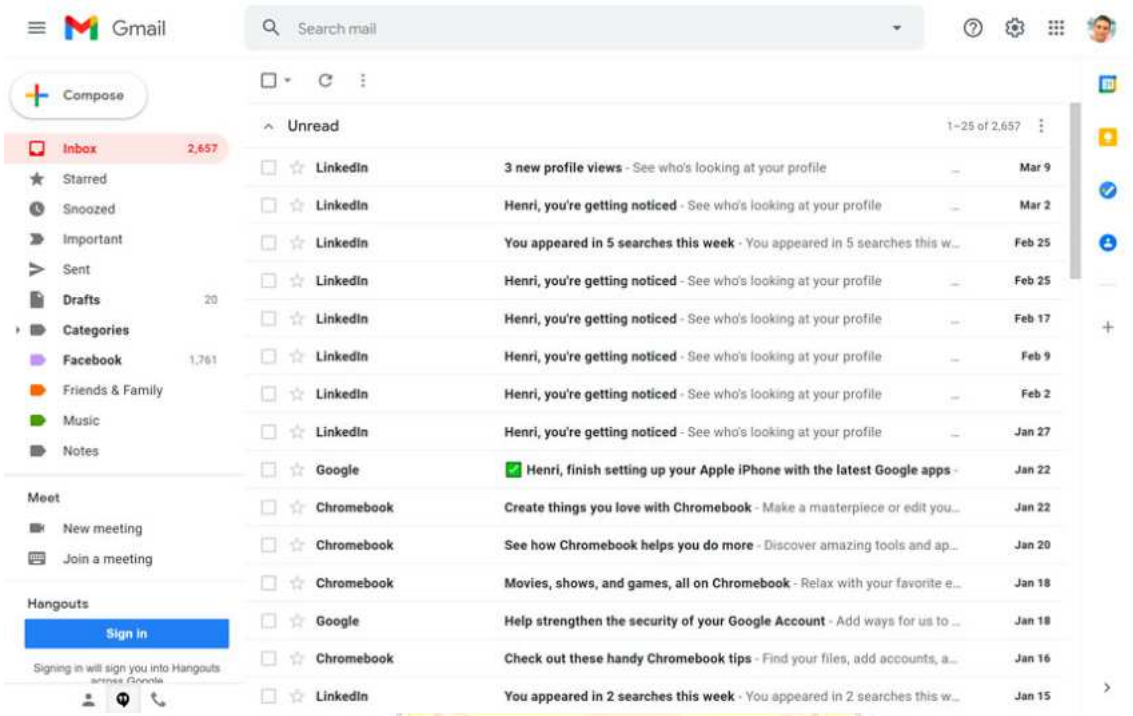
Simply put, the cloud is **the Internet**—more specifically, it's all of the things you can **access remotely** over the Internet. When something is **in the cloud**, it means it's stored on **Internet servers** instead of your computer's hard drive.

Watch the video below to learn more about the cloud.

Looking for the old version of this video? You can still view it **here**.

Why use the cloud?

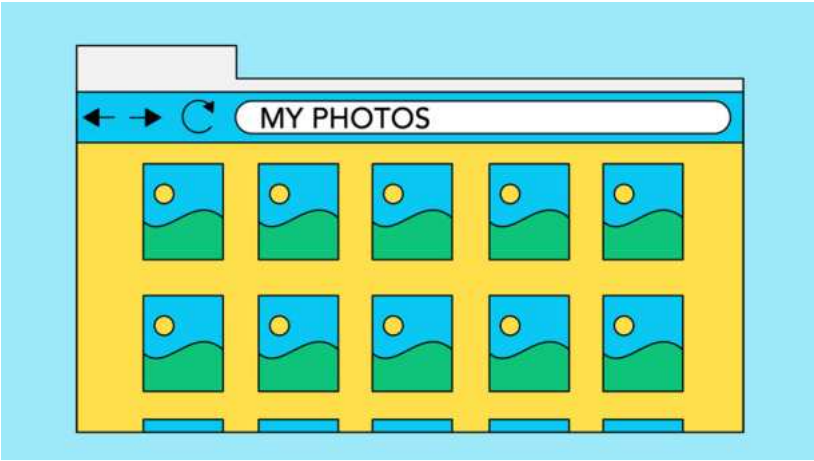
Some of the main reasons to use the cloud are **convenience** and **reliability**. For example, if you've ever used a **web-based email service**, such as **Gmail** or **Yahoo! Mail**, you've already used the cloud. All of the emails in a web-based service are stored on servers rather than on your computer's hard drive. This means you can access your email from any computer with an Internet connection. It also means you'll be able to recover your emails if something happens to your computer.



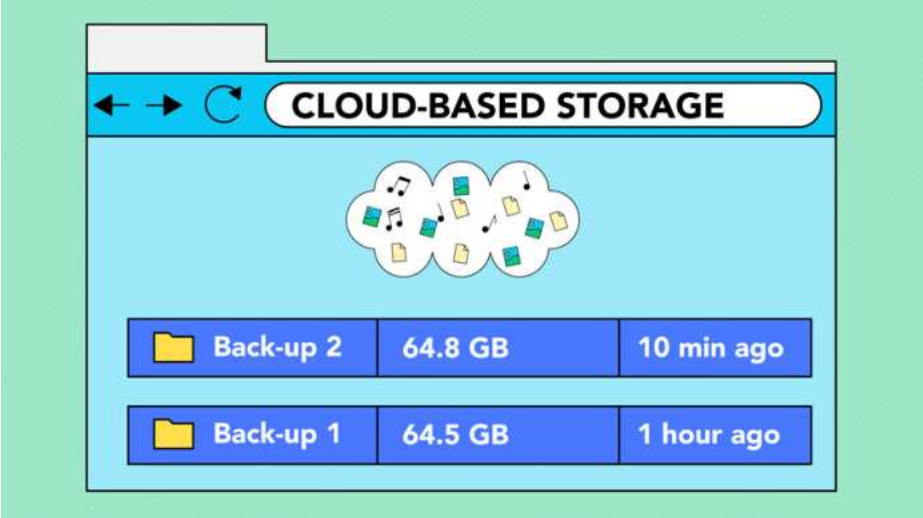
Let's look at some of the most common reasons to use the cloud.

- **File storage**: You can store all types of information in the cloud, including files and email. This means you can access these things from **any computer** or **mobile device** with an Internet connection, not just your home computer. **Dropbox** and **Google Drive** are some of the most popular cloud-based storage services.

- **File sharing**: The cloud makes it easy to **share files** with several people at the same time. For example, you could upload several photos to a cloud-based photo service like **Flickr** or **iCloud Photos**, then quickly share them with friends and family.



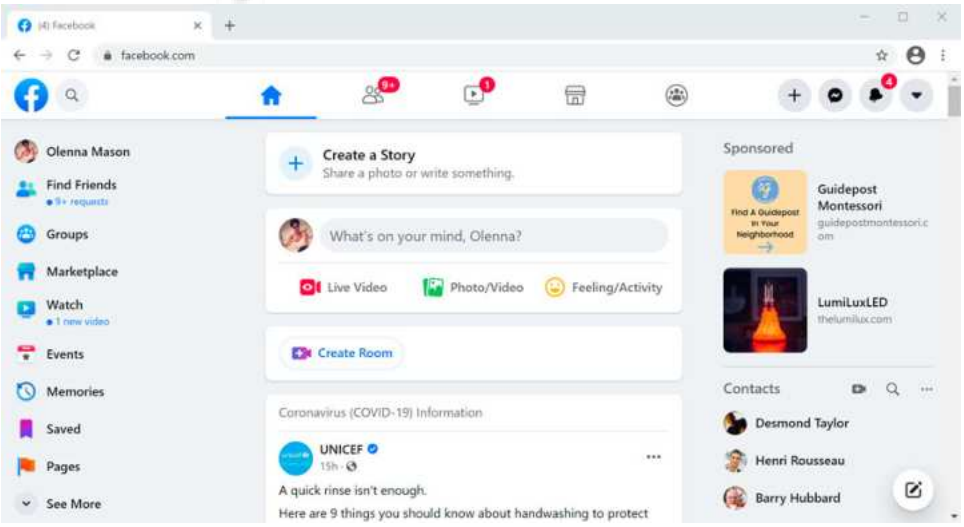
- **Backing up data**: You can also use the cloud to protect your files. There are apps such as **Carbonite** that **automatically back up your data** to the cloud. This way, if your computer ever is lost, stolen, or damaged, you'll still be able to recover these files from the cloud.



What is a web app?

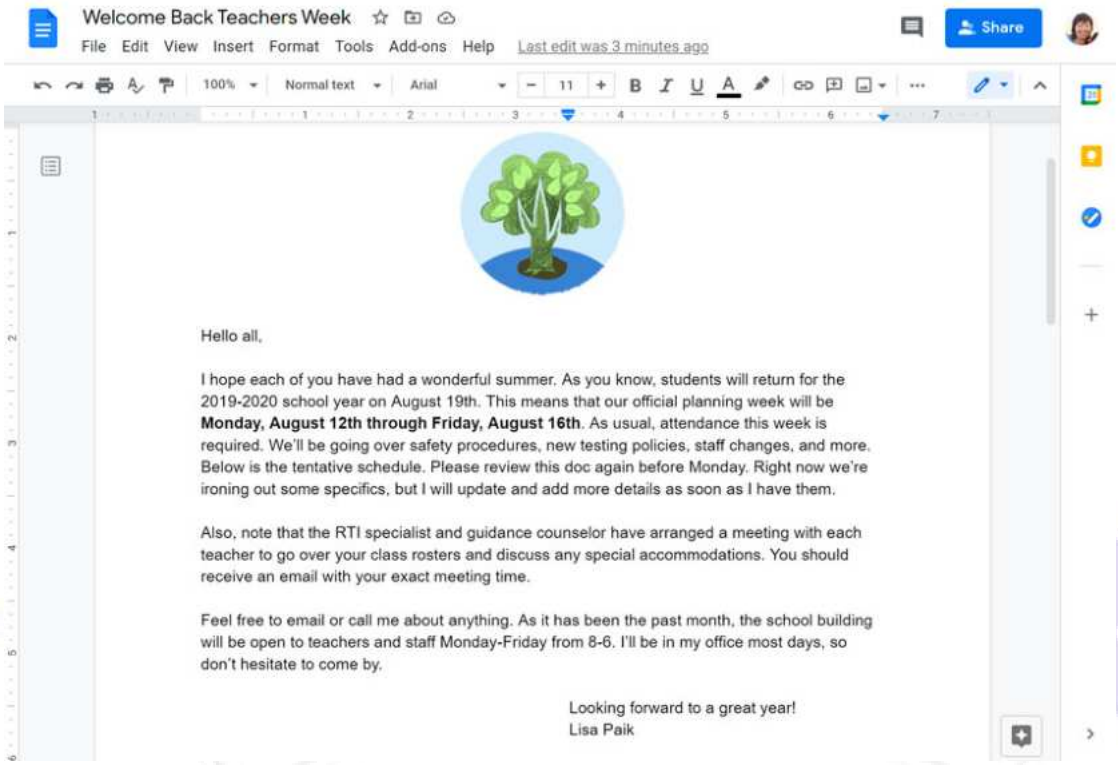
Previously, we talked about how **desktop applications** allow you to perform tasks on your computer. But there are also **web applications**—or **web apps**—that run **in the cloud** and do not need to be installed on your computer. Many of the most popular sites on the Internet are actually web apps. You may have even used a web app without realizing it! Let's take a look at some popular web apps.

- **Facebook:** Facebook lets you create an online **profile** and interact with your **friends**. Profiles and conversations can be updated at any time, so Facebook uses web app technologies to **keep the information up to date**.



- **Pixlr**: Pixlr is an **image editing application** that runs in your web browser. Much like **Adobe Photoshop**, it includes many advanced features, like color correction and sharpening tools.

- **Google Docs:** Google Docs is an **office suite** that runs in your browser. Much like **Microsoft Office**, you can use it to create **documents**, **spreadsheets**, **presentations**, and more. And because the files are stored **in the cloud**, it's easy to **share** them with others.



Lesson 5: Using a Web Browser

Using a web browser

A **web browser** is a type of software that allows you to find and view websites on the Internet. Even if you didn't know it, you're using a web browser right now to read this page! There are many different web browsers, but some of the most common ones include **Google Chrome**, **Safari**, and **Mozilla Firefox**.

No matter which web browser you use, you'll want to learn the basics of browsing the Web. In this lesson, we'll talk about **navigating** to different websites, **using tabbed browsing**, creating **bookmarks**, and more.

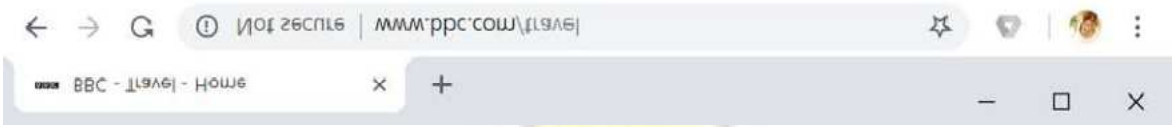
Watch the video below to learn the basics of using a web browser.

We'll be using the **Google Chrome web browser** throughout this lesson, but you can use any browser you want. Keep in mind that your browser may look and act a bit differently, but all web browsers work in basically the same way.

URLs and the address bar

Each website has a unique address, called a **URL** (short for **Uniform Resource Locator**). It's like a street address that tells your browser where to go on the Internet. When you type a URL into the browser's **address bar** and press **Enter** on your keyboard, the browser will load the page associated with that URL.

In the example below, we've typed **www.bbc.com/travel** into the address bar.



Links

Whenever you see a word or phrase on a website that's **blue** or **underlined in blue**, it's probably a **hyperlink**, or **link** for short. You might already know how links work, even if you've never thought about them much before. For example, try clicking the link below.

Hey, I'm a link! Click me!

Links are used to **navigate the Web**. When you click a link, it will usually take you to a different webpage. You may also notice that your cursor changes into a **hand icon** whenever you hover over a link.

If you see this icon, it means you've found a link. You'll find other types of links this way too. For example, many websites actually use **images** as links, so you can just **click the image** to navigate to another page.

Review our lesson on **Understanding Hyperlinks** to learn more.

Navigation buttons

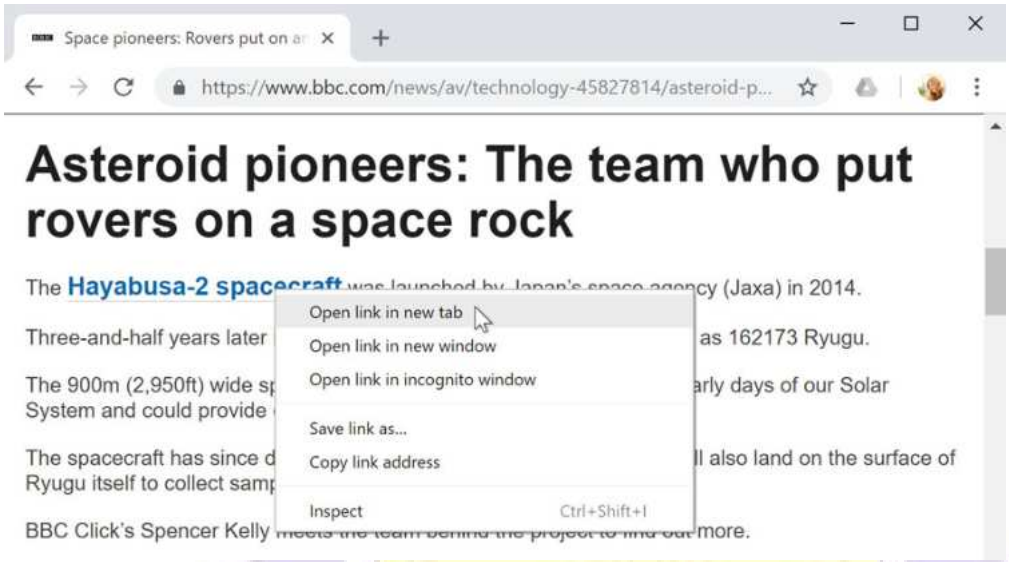
The **Back** and **Forward** buttons allow you to move through websites you've **recently viewed**. You can also click and hold either button to see your recent history.

The **Refresh** button will **reload** the current page. If a website stops working, try using the Refresh button.

Tabbed browsing

Many browsers allow you to open links in a new **tab**. You can open as many links as you want, and they'll stay in the **same browser window** instead of cluttering your screen with multiple windows.

To open a link in a new tab, **right-click** the link and select **Open link in new tab** (the exact wording may vary from browser to browser).



To **close** a tab, click the **X**.

To create a **new blank tab**, click the button to the right of any open tabs.

Bookmarks and history

If you find a website you want to view later, it can be hard to memorize the exact web address. **Bookmarks**, also known as **favorites**, are a great way to save and organize specific websites so you can revisit them again and again. Simply locate and select the **Star** icon to bookmark the current website.

Your browser will also keep a history of every site you visit. This is another good way to find a site you visited previously. To view your history, open your browser settings—usually by clicking the icon in the upper-right corner—and select **History**.

Downloading files

Links don't always go to another website. In some cases, they point to a **file** that can be **downloaded**, or saved, to your computer.

If you click a link to a file, it may download automatically, but sometimes it just **opens within your browser** instead of downloading. To prevent it from opening in the browser, you can **right-click** the link and select **Save link as** (different browsers may use slightly different wording, like **Save target as**).

Review our lesson on **Downloading and Uploading** to learn more.

Saving images

Sometimes you may want to save an image from a website to your computer. To do this, right-click the image and select **Save image as** (or **Save picture as**).

Plug-ins

Plug-ins are small applications that allow you to view certain types of content within your web browser. For example, **Adobe Flash** and **Microsoft Silverlight** are sometimes used to play videos, while **Adobe Reader** is used to view PDF files.

If you don't have the correct plug-in for a website, your browser will usually provide a link to download it. There may also be times when you need to **update** your plug-ins. Review our lesson on **Installing and Updating Plug-ins** to learn more.

Reference Books:
1. Shirish Chavan "Rapidex Computer Course", Unicorn Books.
2. Alexis Leon & Mathews Leon , " Fundamentals of Information Technology", Vikas Publishing.
3. Peter Norton “Introduction to Computers” , 6th International Edition (McGraw Hill)
4. Williams Sawyer, “Using Information Technology: A Practical Introduction to Computer & Communications” 6th International Edition (McGraw Hill).
5. Sarah E. Hutchinson and Stacey C. Sawyer, “Computers, Communications & information: A user's introduction”, MacGraw Hill.