

Computer Applications

for Secondary Schools Vocational Stream

**Student's Book
Form One**



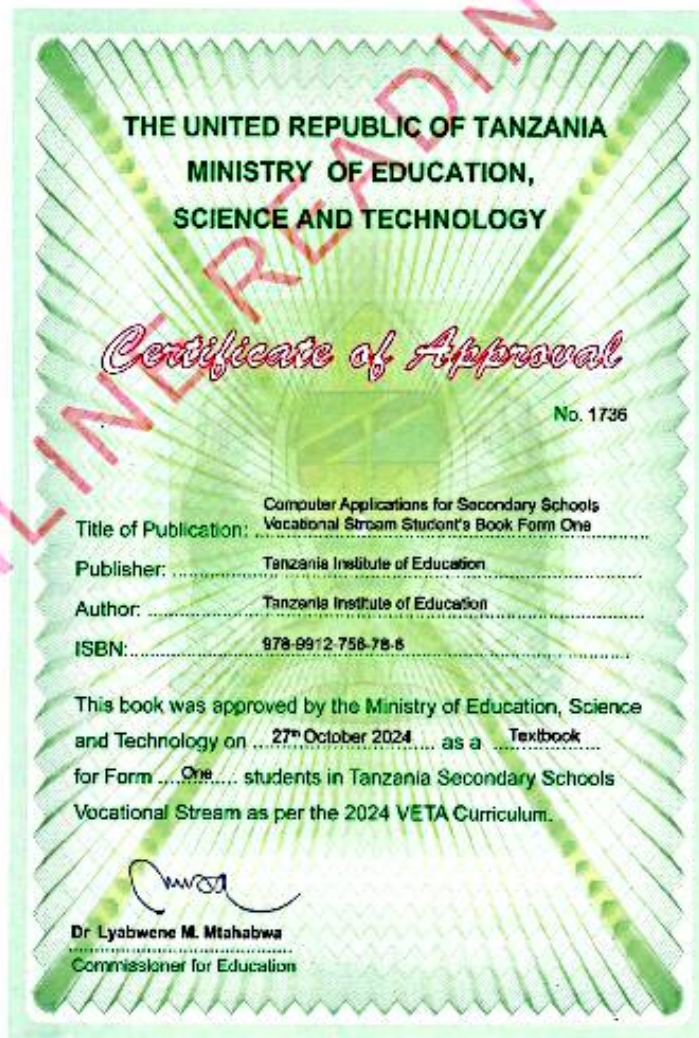
Tanzania Institute of Education



Computer Applications

Secondary Schools Vocational Stream

Student's Book Form One



Tanzania Institute of Education

© Tanzania Institute of Education 2024

Published 2024

ISBN: 978-9912-756-78-6

Tanzania Institute of Education,
Mikocheni Area,
132 Ali Hassan Mwinyi Road,
P.O. Box 35094,
14112 Dar es Salaam

Tel: +255 735 041 168/ 735 041 170

E-mail: director.general@tie.go.tz

Website: www.tie.go.tz

All rights reserved. No part of this textbook may be reproduced, stored in any retrieval system or transmitted in any form or by any means, whether electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the Tanzania Institute of Education.

Table of contents

Acronyms and Abbreviations.....	iv
Acknowledgements	v
Preface.....	vi
Module One Introduction to Computer.....	1
<i>Unit 1: Organizing a microcomputer and its peripherals</i>	<i>1</i>
<i>Element 1: Familiarizing yourself with a computer.....</i>	<i>1</i>
<i>Element 2: Connecting peripherals to a microcomputer.....</i>	<i>13</i>
<i>Element 3: Connecting a computer to the Internet.....</i>	<i>30</i>
<i>Revision exercise 1.....</i>	<i>40</i>
Module Two Office application.....	41
<i>Unit 1: Word Processing.....</i>	<i>41</i>
<i>Element 1: Introduction to word processing</i>	<i>41</i>
<i>Element 2: Working with Microsoft Word</i>	<i>43</i>
<i>Revision exercise 2.....</i>	<i>97</i>
<i>Bibliography.....</i>	<i>98</i>

Acronyms and Abbreviations

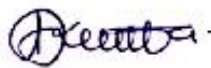
<i>ALU</i>	<i>Arithmetic and Logic Unit</i>
<i>CAD</i>	<i>Computer-Aided Design</i>
<i>CPU</i>	<i>Central Processing Unit</i>
<i>CU</i>	<i>Control Unit</i>
<i>DIT</i>	<i>Dar es Salaam Institute of Technology</i>
<i>GPU</i>	<i>Graphics Processing Unit</i>
<i>HDD</i>	<i>Hard Disk Drive</i>
<i>HDMI</i>	<i>High-Definition Multimedia Interface</i>
<i>IC</i>	<i>Integrated Circuit</i>
<i>IDE</i>	<i>Integrated Development Environment</i>
<i>MS</i>	<i>Microsoft</i>
<i>NIT</i>	<i>National Institute of Transport</i>
<i>PDF</i>	<i>Portable Document Format</i>
<i>SSD</i>	<i>Solid State Drive</i>
<i>TIE</i>	<i>Tanzania Institute of Education</i>
<i>UDSM</i>	<i>University of Dar es Salaam</i>
<i>USB</i>	<i>Universal Serial Bus</i>

Acknowledgements

The Tanzania Institute of Education (TIE) would like to acknowledge the contributions of all the organisations and individuals who participated in designing and developing this textbook. In particular, TIE wishes to thank the Dar es Salaam Institute of Technology (DIT), University of Dar es Salaam (UDSM), Ardhi University (ARU), University of Dodoma (UDOM), Sokoine University of Agriculture (SUA), The Nelson Mandela African Institution of Technology (NM-AIST), The State University of Zanzibar (SUZA), Dar es Salaam University College of Education (DUCE), Marian University College (MARUCO), school quality assurance offices and technical secondary schools. Besides, the following categories of individuals are acknowledged:

- Writers:** Eng. Asaph Sylvester Kagina, Mr Hussein Mwinyifaki (DIT) and Mr John Mwaipopo (Jordan University).
- Editors:** Mr Thobius Joseph (UDSM) and Mr Jemedy B. Lwimbo (UDSM-Language)
- Designer:** Mr Hamisi A. Kumbuka
- Illustrator:** Eng. Asaph Sylvester Kagina
- Coordinator:** Eng. Asaph Sylvester Kagina

TIE also appreciates the participation of technical secondary school teachers and students in the trial phase of the manuscript. Likewise, the Institute would like to thank the Ministry of Education, Science and Technology for facilitating the writing and printing of this textbook.



Dr Aneth A. Komba

Director General

Tanzania Institute of Education

Preface

This textbook, Computer Applications for Secondary Schools Vocational Stream, has been written specifically for form one students in the United Republic of Tanzania. It has been written in accordance with the 2023 Vocational Stream Curriculum for Ordinary Secondary Education as adopted from the 2024 Vocational Education and Training Authority Curriculum Mapping.

The book consists of two modules, namely Introduction to Computer and Office Applications. Each module contains illustrations, activities and exercises. You are encouraged to do all the activities and exercises, as well as other assignments that your teacher will provide. Doing so will enable you to develop the intended competencies.

Additional learning resources are available in the TIE e-Library at <https://ol.tie.go.tz> or ol.tie.go.tz



Tanzania Institute of Education

Module One

Introduction to computer

Introduction



The invention of computer has simplified many jobs in different sectors such as communication, education, health, and all other sectors. Today, most activities are simplified by different computer applications. This module has one unit which is organizing a microcomputer and its peripherals. The competencies developed will enable you to connect the peripherals of a microcomputer according to manual instructions, and connect a computer to wired and wireless Internet.

Unit 1: Organizing a microcomputer and its peripherals

This unit consists of three elements, namely, familiarizing yourself with a computer, connecting peripherals to a microcomputer, and connecting a computer to the Internet. The competencies developed will enable you to interact with computer systems and their peripherals.

Element 1: Familiarizing yourself with a computer

By the end of this element, you will be able to explain the concepts of computer applications, classify various types of computers, explain the characteristics of microcomputers and describe both computer hardware and software.

The concept of computer applications

Computer applications refer to software programs or sets of programs designed to help users perform specific tasks on a computer. These applications can range from simple programs such as Microsoft Word, Excel, Access and PowerPoint to complex systems such as AutoCAD, SOLIDWORKS, and ArchiCAD. They also include tools for data analysis, graphic design, programming, and more, addressing a wide variety of needs in both personal and professional contexts.

Categories of computer applications

Computer applications are grouped into many categories based on sectors and their use. However, basic categories include productivity software, database management systems and web applications.

Productivity software

Productivity software refers to a category of computer application programs designed to help users efficiently produce documents, presentations, databases, spreadsheets, and manage various other tasks. These programs are typically used in business, academic, and personal settings to enhance productivity by streamlining complex tasks, organizing information, and improving workflow. Such software applications include word processors, spreadsheets, and presentation software.

Database Management Systems (DBMS)

A DBMS is a software application that is used to create, manage, and interact with databases. It provides a systematic way to store, retrieve, modify, and organize data, ensuring data integrity, security, and accessibility. DBMS acts as an interface between the database and the users or applications that access the data, allowing for efficient management and control of the data.

Web applications

These are software programs that run on a web server and are accessed through a web browser over the Internet or over an intranet. Unlike traditional desktop applications that are installed directly on a computer's operating system, web applications do not require installation. They can be used on any device with a browser and Internet connection. Examples of such applications include

Google Docs, social media platforms and online learning platforms.

This book offers a comprehensive guide on how to use one computer and productivity software program known as Microsoft (MS) Word.

Importance of studying computer applications

The study of computer applications has great importance in today's rapidly changing technological world. The following are some advantages of studying computer applications.

Improving employability

Enhancing your skills and proficiency in computer applications will equip you with essential skills required in today's job market, fostering employability and career advancement.

Enhancing productivity

Having a good understanding of how to utilize various applications increases productivity and efficiency in completing tasks. This is beneficial in both academic and professional settings, including technical drawing, data analysis, mathematical calculations, report writing, and communication.

Facilitating communication

Computer applications enhance communication by providing access to emails, instant messaging, and collaborative tools, effectively bridging gaps between individuals and teams.

Promoting innovation

Familiarity with computer applications encourages creative problem-solving and innovation, allowing individuals to leverage technology in expressing their creativity and produce professional-quality works.

The relationship between Computer Applications and other related subjects

Computer applications play a crucial role in various fields of study by enhancing learning and comprehension. In Mathematics, they facilitate calculations, data visualization, and statistical analysis, which enhances comprehension of mathematical concepts. Moreover, in scientific disciplines, computer applications aid in simulations, data collection, and analysis, enabling students to effectively conduct experiments and research.

In the business sector, understanding computer applications is vital for financial analysis, project management, and marketing strategies, helping students understand real-world business scenarios. Also, graphic design and multimedia applications are essential in art subjects for helping students to create digital artworks and presentations. Moreover, the study of computer applications is integral to the IT education, providing foundational knowledge for software development, network management, and cybersecurity.

Introduction to Computer

A computer is an electronic device that can take in data, process it, and give the results. It is an intelligent helper that follows instructions to make your work easier. Computer data processing is done by following a set of instructions. Processed data produces information that can be output or stored for future use. This electronic device is capable of performing four elementary functions; as seen in Figure 1.1.

1. Receiving data (information) in a particular form; for example, voice from a microphone, text from a keyboard, or a picture from a camera.
2. Data processing is done in the processing unit part.
3. Producing output results, such as video or images on a monitor display.
4. Storing data in its memory, such as flash drive or hard disk drive.

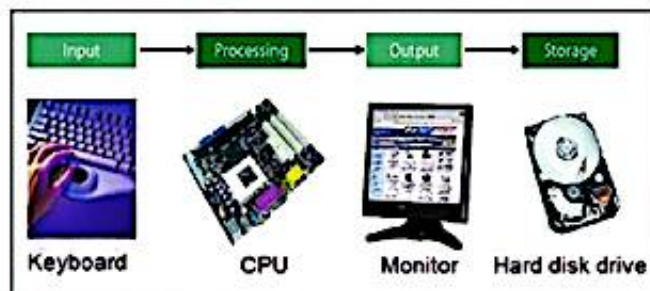


Figure 1.1: Example of the components used to perform computer functions

Classification of computers

Computers fall into several categories based on their architecture, the speed at which they execute commands or instructions, the peripherals they use, and the tasks they are designed to perform.

The different computer types are classified into three primary classifications, which are;

1. **Classification based on computer data processing type,**

which is focused on how the computers process data are:

- (a) Analog computers
- (b) Digital computers
- (c) Hybrid computers

2. **Classification based on computer size;**

grouping them according to their physical dimensions and processing capacity:

- (a) Microcomputers
- (b) Minicomputers
- (c) Mainframes
- (d) Supercomputers

3. **Classification based on computer purpose**

which categorizes them based on their intended use:

- (a) General-purpose computers

(b) Specialized computers

(c) Embedded computers

Microcomputers

A microcomputer is a computer designed to be used by a single person and it typically occupies a small space. A microcomputer is also called a Personal Computer (PC), which is why the PC term is widely used to represent this type of computer.

Figure 1.2 illustrates the different components constituting a microcomputer. Microcomputers come in various forms, as shown in Figure 1.3. We use these PCs daily for a range of tasks, such as word processing, Internet browsing, and basic gaming.

This makes them a versatile and cost-effective choice for individual users and small businesses.



Figure 1.2: Microcomputer



Figure 1.3: Different forms of microcomputers

Components of a computer

Regardless of the type or mode of classification, every computer has two main parts, which are the hardware and the software.

Computer hardware

Computer hardware refers to the physical parts of a computer that you can see and touch. It includes devices such as the keyboard, mouse, monitor, motherboard, ports, processor, temporary memory, Random Access Memory (RAM), and permanent memory (storage). Some hardware is located in the internal computer case, and others are located in the external computer case. As a result, computer hardware is often grouped into internal and external components.

The internal computer hardware includes components like the processor (CPU), temporary storage such as Random Access Memory (RAM), permanent storage such as Read Only Memory (ROM), and hard drive storage.

External computer hardware refers to the parts visible on the outside of the computer, such as the keyboard, ports, touchpad, mouse, and monitors.

Furthermore, computer hardware can be classified by function into four categories:

- (a) Input devices,
- (b) Output devices,
- (c) Processing devices and
- (d) Storage devices.

Figure 1.4 illustrates the connection flow of computer hardware devices.

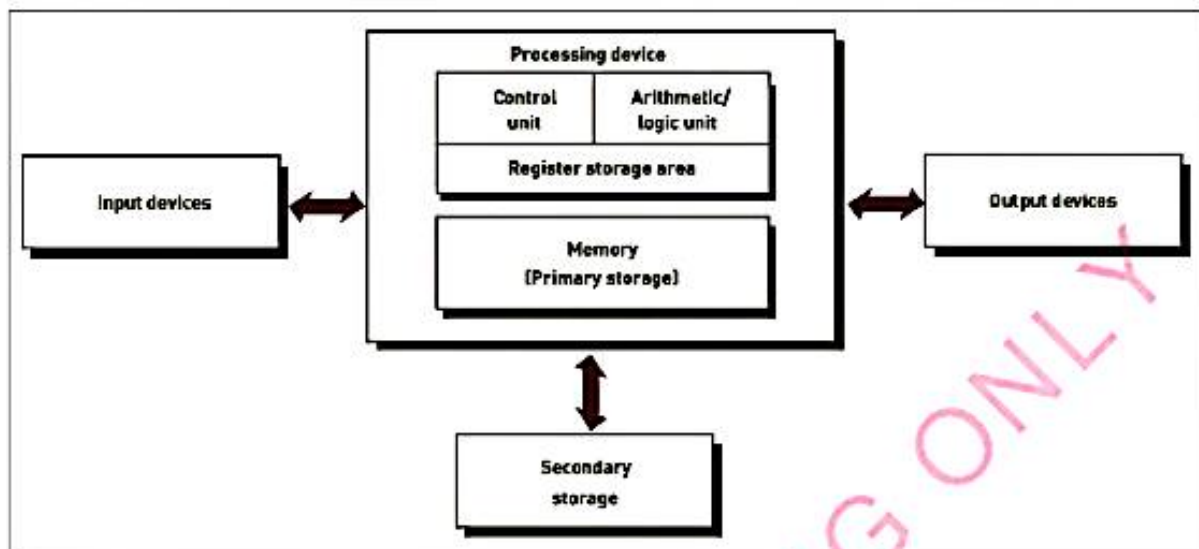


Figure 1.4: Computer hardware connections

Input devices

Computer input devices are physical devices that allow users to enter data, commands, and signals into a computer system.

They serve as the interface between the user and the computer, enabling the computer to receive information from the outside world for processing and manipulation. These devices provide a way for users to enter information and control computer operations, making them integral to the functionality and usability of any computer system.

Examples of input devices

Keyboards: These are input devices that are used to type text, and numbers and execute special commands. They include keys for letters, numbers, symbols,

and function keys for performing specific tasks. Refer to Figure 1.5 for an illustration.



Figure 1.5: Computer keyboard

A mouse: This is a pointing device that allows users to interact with graphical elements on the computer screen. Its primary functions include moving the cursor and clicking on items. While there are various advanced mice with specialized features - such as gaming mice.

The fundamental operation of a mouse remains consistent, as shown in Figure 1.6.

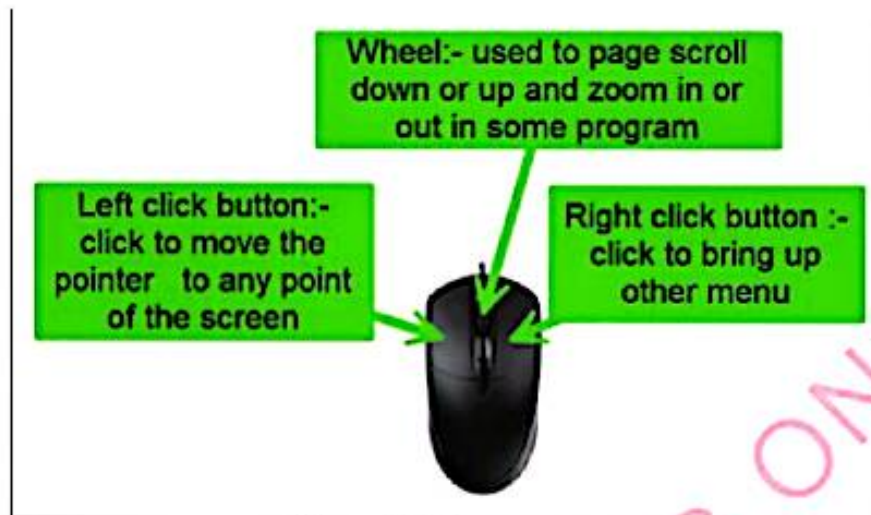


Figure 1.6: Computer mouse

Table 1.1 shows some of the input devices. Apart from those shown, other input devices include touchscreens, digital cameras, trackpads, joysticks, digital pens, barcode readers, magnetic stripe readers, and biometric device

Table 1. 1: Images of various computer input devices

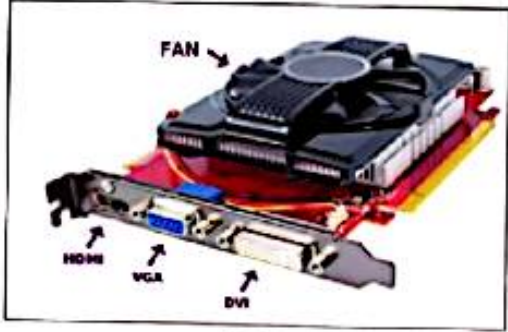
	
Webcam	Microphone
	
Touchpad	Gaming controller

Processing Devices

The processing devices refer to a group of computer hardware components responsible for executing computing tasks, such as data interpretation and

mathematical operations, by following given steps. Table 1.2 shows images of various processing devices.

Table 1.2: Some of the computer processing devices by image


CPU

GPU in graphics card

The following are the physical parts or components of the Central Processing Unit device (CPU), as shown in Figure 1.7

1. The Control Unit (CU)
2. The Arithmetic and Logic Unit (ALU)
3. The memory unit

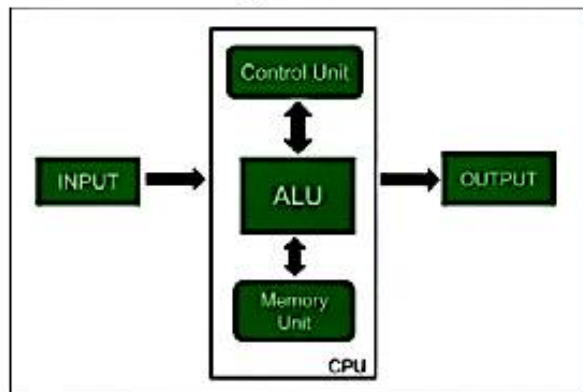


Figure 1. 7: Parts of Central Processing Unit parts

The Control Unit (CU): The main function of the CU is to manage and direct the flow of information across the CPU. It takes instructions from the memory unit, interprets them, and coordinates their execution. The CU sends the required instructions to various parts and circuits of the CPU.

The Arithmetic and Logic Unit (ALU): This unit is made of two parts: one is the arithmetic unit, and the other is the logic unit. The arithmetic unit performs arithmetic operations such as addition, subtraction, multiplication, and division. For example, when the CPU receives instructions from CU to perform a multiplication like (2×3) , the arithmetic unit solves this problem by executing $(2+2+2)$ which equals to 6.

The logic unit is responsible for performing logical operations, such as bitwise operations (e.g. shifting or

rotating bits), switching components on and off, making decisions based on conditions (e.g. yes/no or true/false), comparing values, and selecting objects. For example, if you set the repeat mode on a music player, the logic unit manages the repetition task.

Memory unit: The memory unit of the Central Processing Unit (CPU) refers to the part of a computer that temporarily stores data and instructions while the CPU processes them. It is like a workspace, holding information that the CPU needs to access and use quickly. The main memory used for this purpose is called the Random Access Memory (RAM).

Storage Devices

A storage device is any hardware used to store data in the computer. For example, the primary storage hardware like Random Access Memory (RAM) and Read-Only Memory (ROM) are vital for temporarily holding data and instructions while the computer is in operation. Storage is essential for saving files, running applications, and ensuring the proper functioning of the computer system. Storage devices come in various forms and are categorized as either primary (e.g. RAM and ROM), secondary storages (e.g., hard drives and solid-state drives) and tertiary storage each fulfilling specific roles.

Types of storage devices

Storage devices are categorized into three main types, namely:

1. Primary storage devices
2. Secondary storage devices
3. Tertiary storage devices

Primary storage devices: These are also referred to as main memory and are located on the system board. They store programs, data, and instructions that are in active use by the computer, enabling smooth multitasking and efficient operation of applications. They are essential for running applications and processing tasks in real time. These devices include the Read-Only Memory (ROM) and the Random Access Memory (RAM).

ROM is a type of computer memory that can only be read from and not written to. It contains data that cannot be changed or modified. In contrast, RAM, which can either be the Static Random-Access Memory (SRAM) or the Dynamic Access Memory (DRAM), can be read from and written to in any order. RAM is typically used to store working data and machine code. ROM and RAM are illustrated in Figure 1.8.



Figure 1.8: Primary storage devices (ROM and RAM)

Secondary storage devices: This group memory is used for the long-term storage of software, including files, applications, and the operating system. Unlike RAM, the data remains stored even when the computer is powered off. Common secondary storage devices include Hard Disk Drives (HDDs) and Solid-State Drives (SSDs), as shown in Figure 1.9.



Figure 1.9: Secondary storage devices

Tertiary storage devices: This is another type of memories, also known as auxiliary memory, which can be easily attached and removed from the computer. Examples of such devices include Compact Discs (CDs), Digital Versatile Disks (DVDs), flash memory drives, and external Hard Disk Drives (HDDs).

Output Devices

Output devices refer to devices that allow a computer to produce information for the user or other systems to access and utilize. These devices convert data from the computer into information that you can use, such as displaying pictures on the monitor, playing music through speakers, and printing documents with a printer. Explained next are some common types of computer output devices:

Monitors (Display Screens): These devices are responsible for displaying

visual outputs, such as texts, images, videos, cursors, icons, and buttons. They allow users to see what the computer is processing, making them essential for interacting with the system.

The monitors are grouped based on the technology used to manufacture them. The types of monitors are Liquid Crystal Display (LCD) monitors, Light Emitting Diode (LED) monitors, Organic Light Emitting Diode (OLED) monitors, Plasma monitors, and Cathode Ray Tube (CRT) monitors (older technology). Figure 1.10 shows an image of a computer monitor.

Even though monitors may appear similar, the technology used in their manufacture determines the amount of electricity they consume, their prices, and the quality of the image displayed.



Figure 1.10: Computer monitor

Printers: These are output devices that when connected to the computer and given a command, produces a hard copy of the specified material.

Speakers: These are devices that outputs music, voice, or alarms from files stored in the computer. The files must be of audio or video type to send information to the speaker. Some computers have built-in speakers, while others require external speakers to be connected via peripheral ports.

Headphones/Earphones: These are compact speakers designed to be worn on/in the ears for personal listening.

Projectors: These produce visual outputs from a computer onto a larger surface, such as a wall or screen. These devices are commonly used in presentations, classrooms, and movie screenings to display information to larger audiences. Table 1.3 shows some computer output devices.

Table 1.3: Some of the computer output devices

 Printer	 Speaker
 Projector	 Headphone

Activity 1.1

Identification of the computer hardware

Requirements:

1. A computer
2. A projector
3. A flip board

Procedure:

Under your teacher's supervision in your computer lab or computer room, identify the following;

1. Computer output devices,
2. Computer input devices, and
3. Computer devices which can be both input and output devices.

Computer software

This component of a computer consists of instructions that tell the computer what to do and how to do it. Any computer device has a set of instructions (software) embedded in it to guide it when performing its tasks.

Software is defined as a set of instructions within computer devices that provide intelligence to that device; therefore, it is considered an intangible part of the computer. Examples of software include the camera app used to take pictures, the image viewer for viewing images, video player apps (e.g. VLC) for watching videos, and the music apps for listening to songs.

There are three main types of software, namely:

1. System software
2. Programming software
3. Application software

System software

System software is a type of software that manages and controls the hardware of a computer, making it possible for other software and users to interact effectively with the hardware. It serves as a bridge between the hardware and the user,

ensuring that all computer components work together smoothly. System software is essential for running and managing the computer itself, as shown in Figure 1.11. Figure 1.12 illustrates popular operating system software.

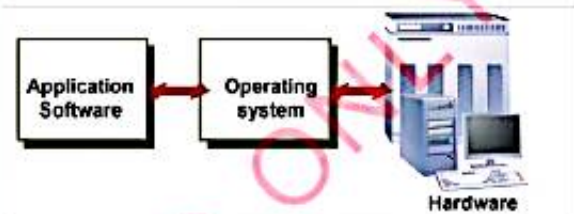


Figure 1.11: Relationship between application software operating system and hardware



Figure 1.12: Sample logos of operating system software

Programming Software

Programming software consists of a set of utility tools that aid software developers (programmers) in creating applications. Therefore, this type of software is used to build other software and is often referred to as an Integrated Development Environment (IDE) because it integrates multiple utility tools into a single platform.

Application software

Application software is designed to perform specific tasks for users. After the OS is launched, you will use application software to accomplish various tasks.

For example, a DJ may use Visual DJ software to play music, an office secretary may use Microsoft Office to write documents, photo studios may use photo editing programs like Adobe Photoshop to edit pictures, an accountant may use Microsoft Excel for accounting works, and you might use a web browser as Google Chrome or Microsoft Edge to search for materials on the Internet.

In addition, even this book you are reading was created using Microsoft Word processing software. Figure 1.13 shows various application software icons.



Figure 1.13: Icons for various application software

Activity 1. 2

Switching a desktop computer on and off

Requirement:

A desktop computer

Procedure

1. Switch on the computer

- (a) Switch the main power supply switch ON.
- (b) Press the ON button on the case of the computer system unit (the button is like or similar to that on Figure 1.14).



Figure 1.14: Switch on button

- (c) Switch the monitor ON.
- (d) Wait for the Operating System (OS) to load.

- (e) Insert credentials (user name and password), press OK, then wait for windows to show up.

2. Switching off the computer

- (a) Click the windows button as shown in Figure 1.15.

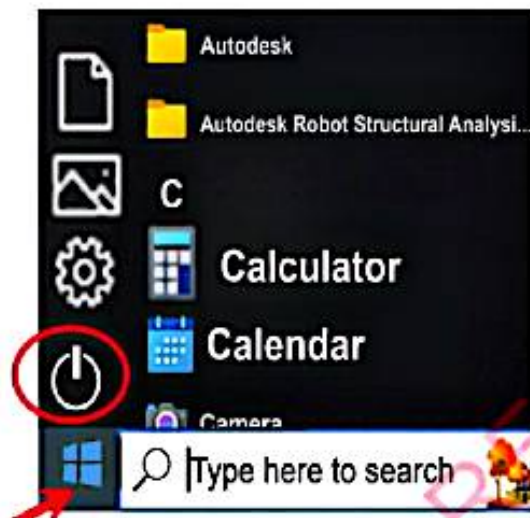


Figure 1.15: Operating System windows button

- (b) From the start menu, click the power option, then shutdown.
- (c) Switch off the monitor by pressing the power button of the monitor.
- (d) Switch OFF the main power supply.

If you follow these procedures, you will be able to switch the computer ON and OFF.

Exercise 1. 1

1. List 10 application software used in daily life and their functions.
2. Explain the relationship between application software, operating software, and

computer hardware.

3. List two application software that can play music on your computer.
4. List five economic sectors in which computers can be used to simplify their works.
5. Use a laptop or a desktop to start, restart and sleep the computer.

Element 2: Connecting peripherals to a microcomputer

By the end of this element, you will be able to identify computer connection ports and their functions, identify different computer peripherals and their functions, connect and test the computer peripherals on a microcomputer.

Connecting ports and their functions

The term “computer peripheral” refers to external hardware devices, which include input devices, output devices, or external storage devices that connect directly to a computer through ports, adding additional capabilities to the computer.

Common peripherals include a mouse, keyboard, monitor, printer, speaker, and flash drive. For example, you may connect an external hard drive (HDD) to a computer to increase its storage capacity.

A computer port is an interface or a connection point that links the computer to a peripheral device. It allows a cable from the peripheral to be plugged in, creating a pathway for data to flow between the device and the computer.

There are different types of ports on computers. In the past, ports were manufactured in order to perform one specific or a limited range of functions. However, with the evolution of computers, the number of ports has been minimized, many ports now support multiple functions.

An example of such ports is the Universal Serial Bus (USB) port, as shown in Figure 1.16. The ports are commonly referred to as “female” and “male” based on their connector type. The female port is called a “receptacle,” while the male port is known as a “connector” or “plug.” This naming helps to guide users during the connection process.

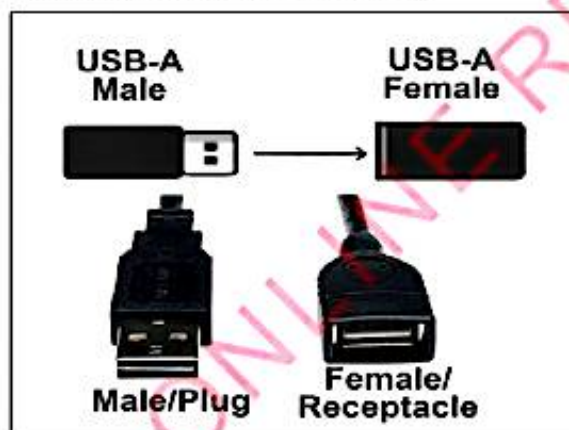


Figure 1.16: USB ports

Categories of computer ports

Computer ports can be categorized in two ways:

1. Based on their data transfer mechanism
2. Based on their function

Categorization based on data transfer mechanism

A serial port: This is a type of port that when connected to a peripheral through a

cable, will allow data to pass in a single stream, therefore transferring one bit of data at a time. A serial bus works like a line of people passing around a single message, one person at a time. For example, USB cables are considered serial ports, connecting devices like computers, cameras, and TVs, enabling the transfer of data and video signals back and forth.

Each piece of information is sent in sequence over the same wire, similar to how each person in the line passes the message along until it reaches its final destination.

A parallel port: This is a port which, when connected to a peripheral through a cable, will allow multiple data to pass on it at the same time because parallel cables are made of multiple wires.

Therefore, the parallel ports have multiple pins to connect such cables. The traditional parallel port was Centronics Model 101, shown in Figure 1.17. This port was primarily designed for printer connection, which is why it is also called Line Printer Terminal (LPT) port or simply a printer port. Its cable is commonly known as a printer cable.

Many modern ports have been made based on parallel port data transfer mechanisms, such as High-Definition Multimedia Interface (HDMI) ports due to the connection from serial and parallel ports. Figure 1.18 shows an illustration of serial and parallel data transmission.

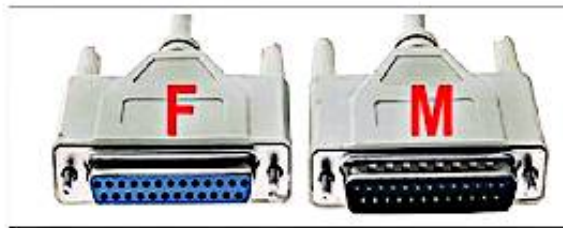


Figure 1.17: Parallel printer port or LPT port

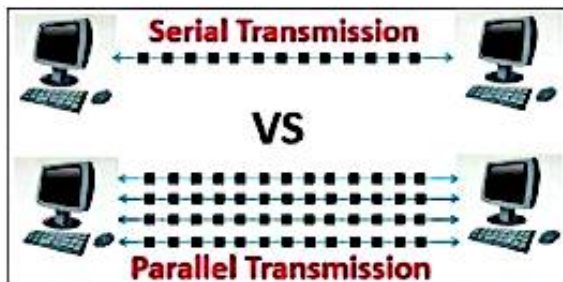


Figure 1.18: Serial and parallel data transmission mechanism

Categorization based on functions

In this approach, ports are grouped based on the specific services they provide to users. The following are common types of ports based on their function as shown in Figure 1.19:

1. Universal Serial Bus (USB) ports
2. Storage/ Disk ports
3. Audio ports
4. Video ports
5. Network ports
6. Power ports

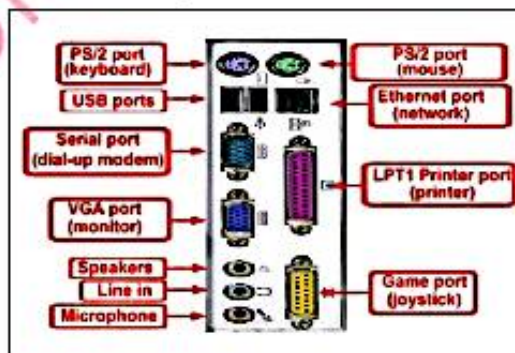


Figure 1.19: Computer case showing different ports

Universal Serial Bus (USB) port

The USB is now the most commonly used port in modern computers. It was developed to combine the functionalities of several ports into a single, versatile connection, which is why it is referred to as “universal”.

For example, instead of needing separate ports for connecting speakers (audio port), the monitor (DVI port), and printers (a printer port), you will need only a USB port to allow the connection of all these peripherals using a single interface.

The USB aims to;

- (i) Remove the need for multiple types of ports on the computer, allowing one universal port to handle all peripheral connections, whether for transferring data or charging power.
- (ii) Simplifying the connection process by enabling plug-and-play functionality, which requires no complex setup.
- (iii) Facilitating the sending of large amounts of data between computers and peripherals in a very short time (providing high-speed data transfer).
- (iv) To be hot-swappable, which means devices can be connected or disconnected via USB without turning off the computer.

Basic types of USB ports

A USB-A port: This is the most common type of USB port that you see in everyday devices. USB-A ports have been used across various USB standards, including USB 1.0, USB 2.0, and USB 3.0. Although the physical structure of the port remains the same across these versions, capabilities of transferring data (data transfer rate) are different.

The usage of the same structure allows backward compatibility, meaning that devices using three different USB standards can still work together. In Figure 1.20 (a), you can see examples of female USB-A ports, and in Figure 1.20 (b), the male USB-A plug. The colour coding helps differentiate between versions as follows:

- USB A 2.0 ports are always black, with white connectors for male ports.
- USB A 3.0 ports are color-coded blue to indicate higher data transfer speeds.

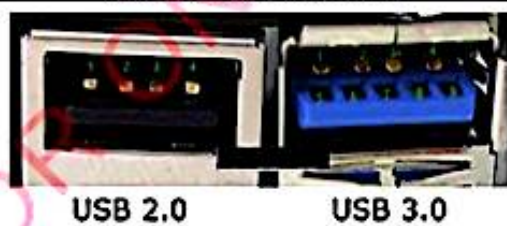


Figure 1.20 (a): USB type A 2.0 and 3.0 female port



Figure 1.20 (b): USB type A 2.0 and 3.0 male plug

A USB-B port: This port is commonly used to connect devices such as printers, scanners, and some external hard drives. The USB-B type connector has undergone different changes in design due to a series of development, resulting in different shapes and sizes, as illustrated in Figure 1.21



Figure 1.21: USB type B ports and plugs

A USB-C port: This is a modern and versatile USB port standard that has been widely adopted across many devices due to its compact size and high data transfer speeds. Unlike older USB connectors such as USB Type-A, Mini USB, Micro USB, or USB Type-B that only fit one way, the USB Type-C connector is reversible, meaning that it can be plugged in either way, as shown in Figure 1.22. This feature makes it more convenient to use, and you don't have to worry about which side is up.



Figure 1.22: USB-C plug

The USB technology has evolved over several generations, as shown in Figure 1.23. Each generation is characterized by improvements in data transfer speeds. As of 2024, USB technology can support data transfer speeds of up to 40 gigabits per second (Gbps) through USB 4 and Thunderbolt 4 technologies.



Figure 1.23: USB generations based on data transfer rate

USB connectors come in different shapes and sizes, which have evolved over time, as shown in Figure 1.24



Figure 1.24 Basic USB type

A thunderbolt port: Is a super-fast data transfer and multi-functional port that integrates with USB-C technology. Thunderbolt ports were the first USBs to allow computers to be connected to multiple peripheral devices, like an external hard drive or a monitor, using just one cable and port on a computer. The Thunderbolt port looks identical to a USB type-C port, as shown in Figure 1.25.

Imagine you have a laptop with only one port but want to connect a monitor and

a hard drive and charge your computer simultaneously. With thunderbolt, you can do all that with just one cable. It is fast, powerful, and can do many things simultaneously, making it very convenient for people to connect multiple devices to their computers see Figure 1.26.



Figure 1.25: Thunderbolt ports



Figure 1.26: Thunderbolt connection

Cross-connection of ports: The USB standard was originally invented to facilitate connections between serial port-to-serial and serial port-to-parallel port devices. An example of a serial-to-serial port connection is a USB Type-A to USB Type-C connection cable. An example of a serial-to-parallel connection is a USB Type-B to VGA or USB Type-B to a printer port.

These kinds of cable connections are normally called adaptors. Figure 1. 27 shows adaptors that convert USB to HDMI, VGA, and DVI.



Figure 1.27: USB to other ports adaptors

Activity 1.3

USB Connection procedures

Requirements:

1. A computer
2. USBs (Types A, B, and C)

Procedure

1. Check if the computer's USB female port and the USB cable's male plug are compatible as shown in Figure 1.28.



Figure 1.28: Heads of USB

NOTE:

- (a) Except for USB-C, other USB ports have a specific polarity, so check the polarity (i.e. ensure proper orientation when plugging them in).
- (b) USB 2.0 and 3.0 are backward compatible, meaning they can share the same port, but the transfer rate will depend on the type of port and cable used.

- (c) The USB-B and USB-C connectors each have distinct ports on the computer, with USB-C being more common in modern devices due to its reversible design and faster data transfer capabilities.

2. Connect the USB male port as per polarity by inserting it into the corresponding USB female port, using moderate force until it reaches its seat end as shown in Figure 1.29.



Figure 1.29: Connecting a USB male plug to a computer's USB female port

NOTE:

Do not use force to connect; check the head-to-head orientation before using much force.

USB testing procedure

USB is used for different purposes. Each purpose has its own testing procedure or connectivity indicator. The following are the common purposes and testing procedures.

PURPOSE	TESTING PROCEDURE
USB for storage hardware such as (flash disks, hard disks, and phones)	1. Plug in the USB as per procedure. 2. Open "This PC" in your computer and check the list of storage media to identify the name of the plugged  Figure 1.30: Marked red is the flash disk plugged into a computer
USB for input hardware such as keyboards, mice and charging	1. Plug in the USB as per procedure. 2. Test the hardware function such as moving the mouse or type anything using the connected keyboard. 3. For USB used for charging check charging status on the charging indicator icon as seen in Figure 1.31  Figure 1.31: Charging indicator
USB for printers, networks, projectors, and other connections	1. Plug in the USB as per procedure. 2. Configure the hardware as per hardware requirements.

High-Definition Multimedia Interface (HDMI) port

A HDMI port is a type of display technology mainly used to provide high-quality video and audio. It supports high-definition (HD) videos and very high-definition (VHD) audio resolutions. This port connects computers to Liquid Crystal Display (LCD) and Light Emitting Diode (LED) screens. HDMI has several versions that have evolved with the market and technology changes, such as HDMI Types A up through E. See Figure 1. 32 for reference.

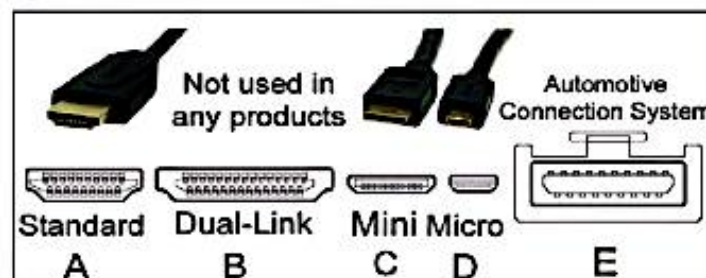


Figure 1.32: HDMI types

HDMI connection and testing

Requirements:

1. A computer
2. A HDMI cable
3. A TV set/ A projector

Procedure

1. Find the HDMI ports

Locate the HDMI female port on your PC (usually on the side or back) and the projector, then check if the cable's HDMI male plug and computer HDMI female port are compatible.

NOTE: The HDMI ports have a polarity, so check the polarity and type to plug in the correct port and in the right way, see Figure 1.33 showing the HDMI ports.



Figure 1.33: HDMI male plug and HDMI female ports

2. Connect the HDMI cable

Plug one end of the cable into your PC's HDMI port and the other end into the projector's HDMI port as seen in Figure 1.34

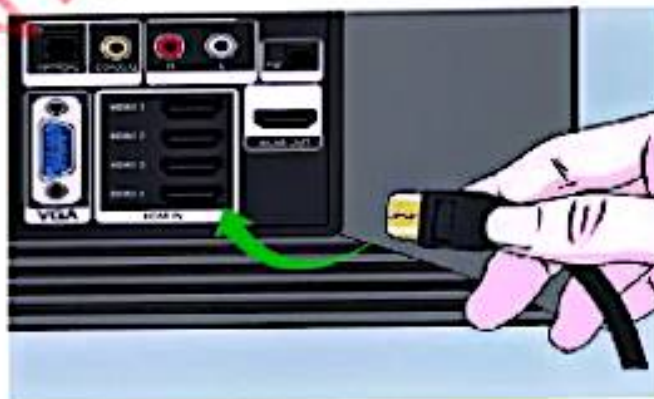


Figure 1.34: HDMI connection

3. Select the HDMI input

Use the projector's remote control or the control panel to select the HDMI input (if it doesn't automatically detect it). See Figure 1.35 as an example.

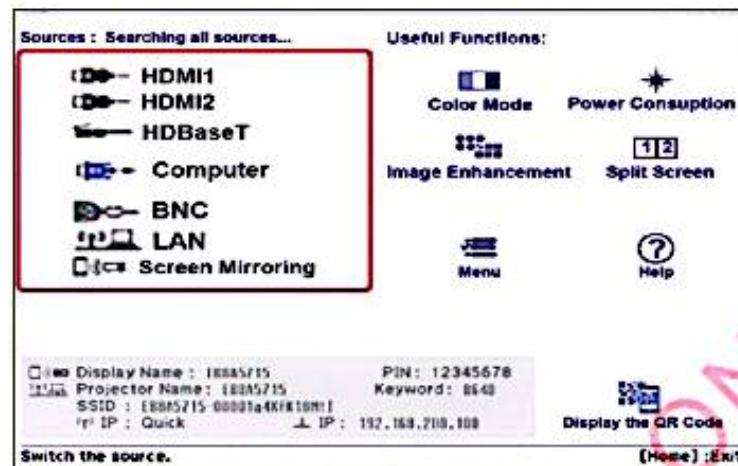


Figure 1.35: HDMI display options

4. Set up the display

Press (**Windows Key + P**) to open the display options on your PC.

Choose one of the following options as shown in Figure 1.36

- (a) *Duplicate*: Displays the same screen on both your PC and the projector.
- (b) *Extend*: Expands your desktop across both the PC and the projector.
- (c) *Second screen only*: Displays only on the projector.

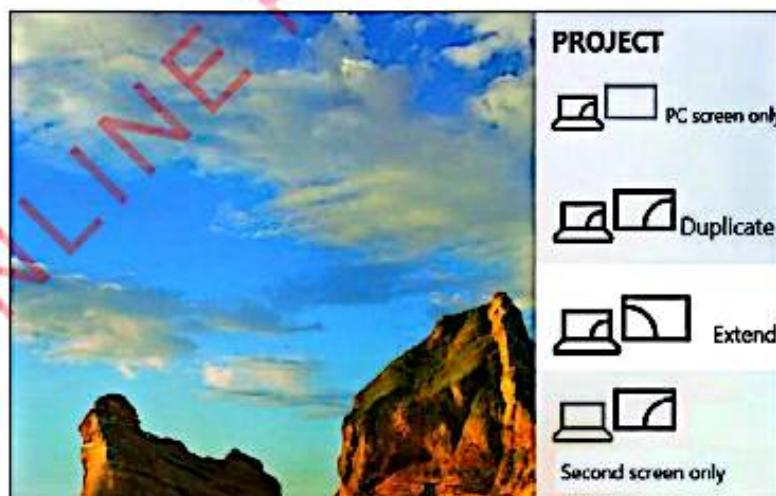


Figure 1.36: Projection display options

NOTE: Your PC should now be connected to the projector, displaying the screen as you selected. If needed, adjust the focus, zoom, or keystone settings on the projector to get a clear image.

Digital Visual Interface (DVI) port

A Digital Visual Interface (DVI) is a connector used to connect a computer to a monitor. The DVI is normally white, differentiating it from the VGA port, as shown in Figure 1.37.



Figure 1.37: DVI cable and a DVI port

Activity 1.5

Connecting a computer to a projector or a Television (TV) using a DVI cable

Requirements:

1. A microcomputer
2. A monitor or projector with DVI port or an adaptor with a DVI connector
3. A DVI cable

Steps

1. Locate the DVI ports on the computer

Find the DVI port on your computer. It is usually located on the back of the desktop or on the side or back of a laptop.

NOTE: The DVI port is a rectangular connector with multiple pins inside. See Figure 1.38



Figure 1.38: DVI female and male ports

2. Locate the DVI port on the projector or TV

Find the DVI input on your projector or TV. Some TVs or projectors may not have a DVI port; in that case, you may need a DVI-to-HDMI adapter or cable. This is as shown in Figure 1.39.



Figure 1.39: DVI to USB adaptor

3. Connect the DVI cable

Plug one end of the DVI cable into the DVI port on your computer.

Secure the Connection: If your DVI cable has screws on the side, gently tighten them to ensure a secure connection. Connect to a display device by plugging the other end of the DVI cable into the DVI input on your projector or TV.

4. Select the DVI input on the projector or TV

For a projector, use the remote control or the buttons on the projector to select the DVI input as the source. This may be labelled as "DVI" or "PC" depending on the device as

shown in Figure 1.40.

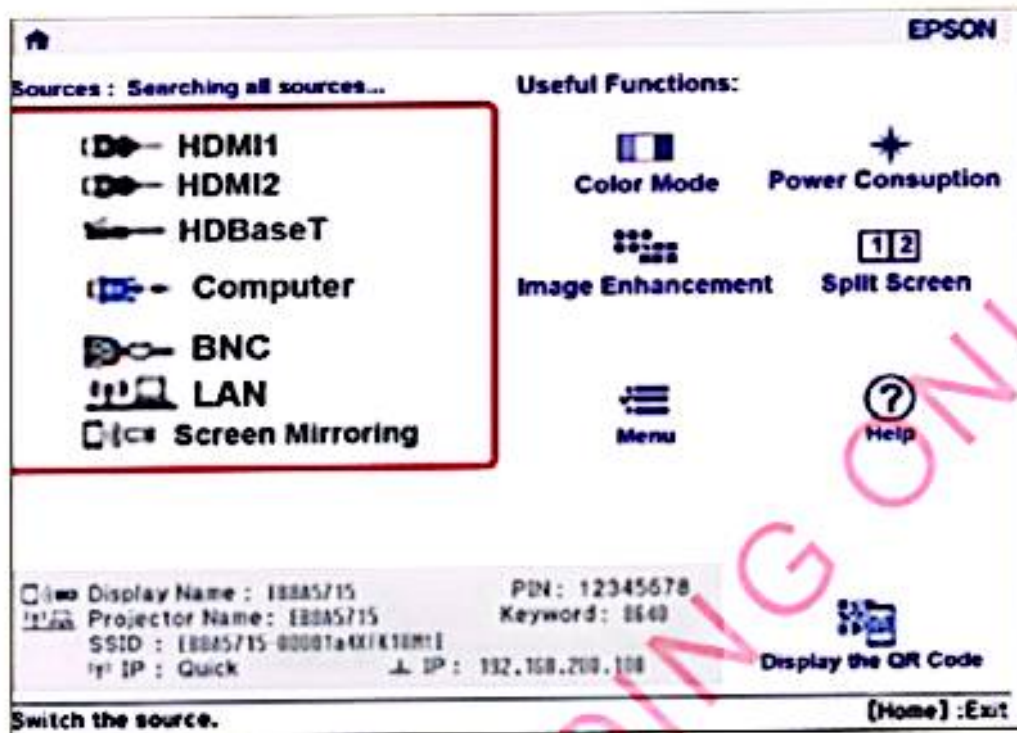


Figure 1.40: Projector input options window

5. Set up the display

Press (Windows Key + P) to open the display options on your PC, then choose one of the following options as shown in Figure 1.41.

- (a) **Duplicate:** Displays the same screen on both your PC and the projector.
- (b) **Extend:** Expands your desktop across both the PC and the projector.
- (c) **Second screen only:** Displays only on the projector.



Figure 1.41: Projection display options

6. Adjust display settings if necessary

Your PC should now be connected to the projector, displaying the screen as you selected. If needed, adjust the focus, zoom, or keystone settings on the projector to get a clear image.

7. Optionally, connect an audio cable

Typically, the DVI does not transmit audios. Connect an audio cable from your computer's headphone jack or audio output to the projector/TV's audio input, or use external speakers if you need sound.

8. Test the connection

Make sure the image appears correctly on the projector or TV. If there are any issues, recheck the connections and settings. Following these steps will allow you to connect your computer to a projector or TV using a DVI cable.

Video Graphics Array port

The Video Graphics Array (VGA) is an older port used to connect a computer to a monitor. It was widely used in the past and is still used for some old versions of computers. The VGA port sends video signals, making it suitable for older monitors like Cathode-Ray Tube (CRT) screens. However, it can result in lower image

quality compared to newer technologies on modern digital displays.

The VGA port is easily recognizable by its 15 pins arranged in three rows of five, and the connector is usually blue, which helps differentiate it from other connectors, as shown in Figure 1.42.

The VGA was the standard video connector for many years and is still found on some older computers, monitors, and projectors. However, it has mostly been replaced by newer digital connectors like HDMI, DisplayPort, and DVI, which offer better image quality. Modern equipment has phased out VGA ports in favour of digital connectors like HDMI, DVI, and USB for superior performance.



Figure 1.42: VGA port and its corresponding connector

Activity 1.6

Connection of a computer with VGA to a projector or TV

Requirements:

1. A microcomputer
2. A monitor or projector with VGA port or adaptor with VGA connector
3. A VGA cable

Procedures

1. **Locate the VGA ports**
 - (a) Find the VGA port on your

computer. It is usually a 15-pin port on the back of a desktop or the side/back of a laptop. See Figure 1.42 for reference.

- (b) Locate the VGA input on your projector or TV. It is typically the same 15-pin port as on your computer.

2. Connect the VGA cable

- (a) Plug one end of the VGA cable into the VGA port on your computer.
- (b) If your VGA cable has screws on the side, gently tighten them to secure the connection.
- (c) Plug the other end of the VGA cable into the VGA input on your projector or TV.
Again, tighten the screws to secure the connection if applicable.

3. Select the VGA input on the projector or TV

Use the remote control or buttons on the projector or TV to select the VGA input as the source. This input may be labelled as "VGA," "PC," or "RGB" depending on the device.

4. Set up the display on your computer

On your computer, press Windows Key + P to open the display options.

- (a) *Duplicate*: Show the same screen on both your computer and the projector/TV.
- (b) *Extended*: Use the projector/TV as an extended desktop.
- (c) *Second screen only*: Show the display only on the projector/TV.

5. Adjust display settings if necessary

- (a) *Resolution and aspect ratio*: You may need to adjust the resolution or aspect ratio on your computer to ensure the best picture quality on the projector or TV.
- (b) *Focus and positioning*: If using a projector, adjust the focus and positioning to ensure the image is clear and properly aligned.

6. Optionally, connect an audio cable

VGAs only transmits video, so if you need sound, you will need to connect an audio cable separately. Plug one end of the audio cable into your computer's headphone jack or audio output, and the other end into the projector/TV's audio input, or use external speakers.

7. Test the Connection

Check that the image appears

correctly on the projector or TV. If the display is not showing properly, recheck your connections and settings.

By following these steps, you will be able to successfully connect your computer to a projector or TV using a VGA cable.

After completing the activity, write down any challenge you have faced and how you have solved it.

The Ethernet port

An Ethernet port is used to connect a computer to a network or the Internet using an Ethernet cable. The shape of the cable and port is as shown in Figure 1.43.

Some computers come without a built-in Ethernet port, but a USB-to-Ethernet adaptor, as shown in Figure 1.44, can be used to connect the computer to an Ethernet network using a USB port.



Figure 1. 43: Ethernet cable and an Ethernet port



Figure 1.44: USB to Ethernet adaptor

Activity 1.7

Connecting and testing an Ethernet cable on a microcomputer

Requirements:

1. A microcomputer with an Ethernet port or with a USB port and USB to Ethernet adaptor
2. An Ethernet cable which is connected to a router for Internet access

Procedure

1. **Locate the Ethernet port**
Find the Ethernet port on your microcomputer. It is usually a small rectangular port, often labelled "LAN" or "Ethernet." See Figure 1. 43 for an example.
2. **Connect the Ethernet cable**
 - (a) Plug one end of the Ethernet cable into the Ethernet port on your microcomputer.
 - (b) Plug the other end of the Ethernet cable into the

Ethernet port on your router, modem, or network switch.

3. Check for a connection

Indicator lights: Look at the Ethernet port on the microcomputer. There may be small indicator lights (LEDs) next to the port, that should light up, indicating an active connection, as shown in Figure 1.45.



Figure 1.45: Ethernet connection indicator LED

Network icon: Once the computer is on, check the network icon in the system tray (bottom-right corner of the screen). It should indicate a wired connection (usually shown as a computer screen or a plug icon) refer to Figure 1.46.



Figure 1.46: Ethernet connection icon

4. Test the connection

Launch a web browser and visit a website to confirm the connection is working.

5. Troubleshoot if there is no connection

If you do not get a connection, try the following steps:

- Ensure both ends of the Ethernet cable are securely plugged in.
- Try using a different Ethernet cable or port on the router.
- Restart the router and the microcomputer.

These steps will allow you to connect and test an Ethernet cable on a microcomputer successfully.

An Ethernet cable is essential for stable and fast data transfers in homes and offices.

Audio Port

Audio ports are shown in Figure 1.48. There are typically three audio ports for connecting various devices, such as headphones, speakers, and microphones: The pink port is usually for microphone input, the light blue port for stereo line-in, and the green port for headphone output.

Activity 1.8

To connect and test an audio cable to a microcomputer

Requirements:

- A microcomputer with an audio port or with a USB port and an audio adaptor
 - A speaker or MIC to be connected
- Procedure**

- 1. Locate the audio ports**
Find the audio ports on your microcomputer. They are usually small roundish ports as seen in Figure 1.47

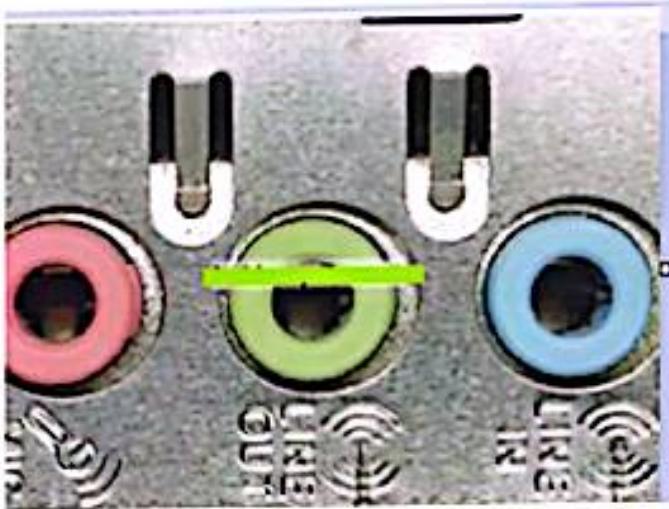


Figure 1.47: Audio ports

Line out (green port)

- (a) Function:** Sends audio signals to external speakers or headphones.
- (b) Typical Use:** Connecting stereo speakers or headphones.

Line in (blue port)

- (a) Function:** Receives audio signals from external audio devices.
- (b) Typical use:** Connecting devices such as CD players or other audio sources for recording or playback.

Microphone (pink port)

- (a) Function:** Accepts audio input from a microphone.
- (b) Typical use:** Connecting a standalone microphone for voice recording or

communication.

You can alternatively use a USB to audio port adaptor as shown in Figure 1.48



Figure 1.48: USB-to-Audio port adaptor

NOTE: The more recent audio ports, as shown in Figure 1.49, combine both microphone, speaker and recording functions into a single port. This allows simultaneous functioning of a microphone and speaker through one connection, similar to the functionality of the day-to-day earphones we are using, which have a built-in microphone.



Figure 1.49: Single multi-functional audio port

2. Connect the audio pin

- (a)** Plug one end of the audio pin into the audio port on your microcomputer.
- (b)** Plug the other end of the

audio pin into the speaker. If another end has the earphone or microphone, it means that the microphone or earphone is directly connected.

- (c) Select the function you need to use in a popup menu as shown in Figure 1.50.



Figure 1.50: Audio connection selection popup menu

3. Test the connection

Open an audio program and test the connection by playing the audio or recording the sound using a microphone.

The Power Connection Port

The power connection port is used to connect the adaptor/ power supply to the computer. It comes in different shapes and models based on the manufacturer and version of the computer, as shown in Figure 1.51. Currently, the USB Type-C connector has become a standard charging option.

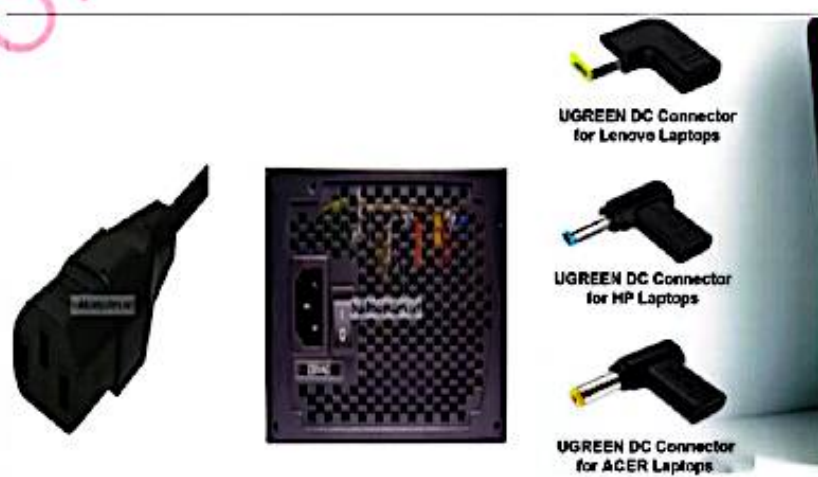


Figure 1.51: Different power connection heads (Female and Male)

Activity 1.9

Connecting a computer to a power supply

Requirements:

1. A power adaptor
2. A computer
3. A source of power compatible with power adaptor

Power connection procedure

1. Select the power supply pin which is compatible with the power supply port.
2. Connect the adaptor to the AC power supply as per the instruction manual.
3. Connect the power pin to the power port.
4. Check the battery charging status by using the power supply LED on the computer or at the bottom right corner of the computer monitor, as shown in Figure 1.52.



Figure 1.52: Power connection indicator

Exercise 1.3

1. List down six categories of computer ports based on their functions.
2. Connect a microphone to the computer, use the application for recording to record your favourite song and save it in your computer.
3. Use the USB flash drive to

transfer a document from one computer to another.

4. Connect the projector using both HDMI and VGA ports, then display the same content through each connection and identify the key differences in image quality between the two display methods.

Element 3: Connecting a computer to the Internet

By the end of this element, you will be able to identify computer networks, describe the Internet concept, connect computers to the Internet, and use a search engine to search for material from the Internet.

A Computer Network

A computer network is the connection of one computer with one or more computers or other devices to exchange information and share resources.

Types of computer networks

The following are the types of computer networks based on their size or geographical coverage area, ranging from small personal networks to global wide area networks.

1. **Personal Area Network (PAN):** An example is connecting to a Bluetooth network.
2. **Local Area Network (LAN):** An example is connecting your device, such as a phone, to a Wi-Fi network.
3. **The Metropolitan Area Network (MAN):** An example is a bank's

network connecting two branches within one region.

4. Wide Area Network (WAN):

An example is when connecting to the Internet, which spans across regions and countries.

The Internet

It is a global network of interconnected computers and servers that communicate with each other. It allows billions of devices worldwide to share and exchange information, enabling a wide range of services like emails, web browsing, file sharing, online gaming, social media, and more, as shown in Figure 1.53.

The Internet has become an essential tool in our daily lives, simplifying many activities. It allows us to communicate with people anywhere in the world and find a lot of information and resources. It also helps us connect with various government services, such as checking examination results, finding school placements, and applying for different services.

In short, the Internet makes the world feel like a small village, where events happening anywhere can be shared instantly or communicated live to the rest of the world. Since no single person or organization controls the Internet, it is a very flexible and powerful system.



Figure 1.53: Internet connection illustration

Connecting computers to the Internet

In your local area, you may have come across an Internet cafe, seen Internet cables, or used a phone that can connect to the Internet. All these describe different ways of accessing and using the Internet. Connecting to the Internet is similar to connecting to a power supply. You need cables to connect, and once connected, the power company supplies electricity to your meter. Once the power is at the meter supply point, you need to pay for it before or after use.

Similarly, Internet access works like a power grid. Different companies provide Internet access, connecting customers through wired or wireless systems. For example, an Internet cafe is connected to the Internet, and when your phone is using data (MBs) and has its Internet connection turned on, it is also connected to the Internet.

There are two methods for connecting computers to the Internet, namely; a wired connection and a wireless connection.

A wired connection

A wired connection is a method of accessing the Internet using physical cables to connect a computer to peripheral devices that provide the Internet interface, such as routers, modems, or Ethernet wall outlets.

This type of connection offers a stable, reliable, and often faster Internet connection compared to wireless options.

Activity 1. 10

To connect a computer to the Internet using the wired connection method
Requirements:

1. A computer with Ethernet port (The alternative is a USB to Ethernet adaptor)
2. An Ethernet cable
3. An Ethernet wall outlet/plate (Alternatives are network devices such as a hub, switch, or router)

Procedure

1. Locate the Ethernet port

Find the Ethernet port on your microcomputer. It's usually a small rectangular port, often labelled "LAN" or "Ethernet." See Figure 1. 43

2. Connect the Ethernet cable

- (a) Plug one end of the Ethernet cable (male port or connector) into your computer's Ethernet port (female port or connector).
- (b) Plug the other end of the Ethernet cable (male port or connector) into the Ethernet wall outlet port (female port or connector) or router, switch, or network switch.

3. Check for a connection

Indicator lights: Look at the Ethernet port on the microcomputer. There may be small indicator lights (LED) next to the port, that should light up, indicating an active connection. As shown in Figure 1.54



Figure 1.54: Ethernet connection indicator LED

Network icon: Once the computer is on, check the network icon in the system tray (bottom-right corner of the screen). It should indicate a wired connection (usually shown as a computer screen or a plug icon) see Figure 1.55.



Figure 1.55: The Ethernet connection icon

4. Test the connection

Launch a web browser and visit a website to confirm the connection is working. As shown in Figure 1.56



Figure 1.56: Chrome web browser

5. Troubleshoot if Necessary

No Connection? If you don't get a connection, try the following:

1. Ensure both ends of the Ethernet cable are securely plugged in.
2. Try a different Ethernet cable or port on the router.
3. Restart the router and microcomputer.

These steps will allow you to connect and test an Ethernet cable on a microcomputer.

Wireless Connection

A wireless connection is a method of accessing the Internet without physical cables. Instead, it uses radio waves or other wireless signals to connect devices like smartphones, laptops, and tablets to the Internet. A wireless connection is determined by the wireless technology it uses. Wi-Fi (wireless fidelity), Bluetooth, and mobile telephone networks are examples of wireless technologies.

Activity 1.11

Connecting a computer to the Internet using wireless connection methods

1. Go to your computer's settings by clicking on the start menu, as shown in Figure 1.57, and type settings. setting icon will pop up. Click on it to go to the setting as shown in Figure 1.57.
2. Click on the Network & Internet setting.
3. Click on Wi-Fi as shown in Figure 1.58.

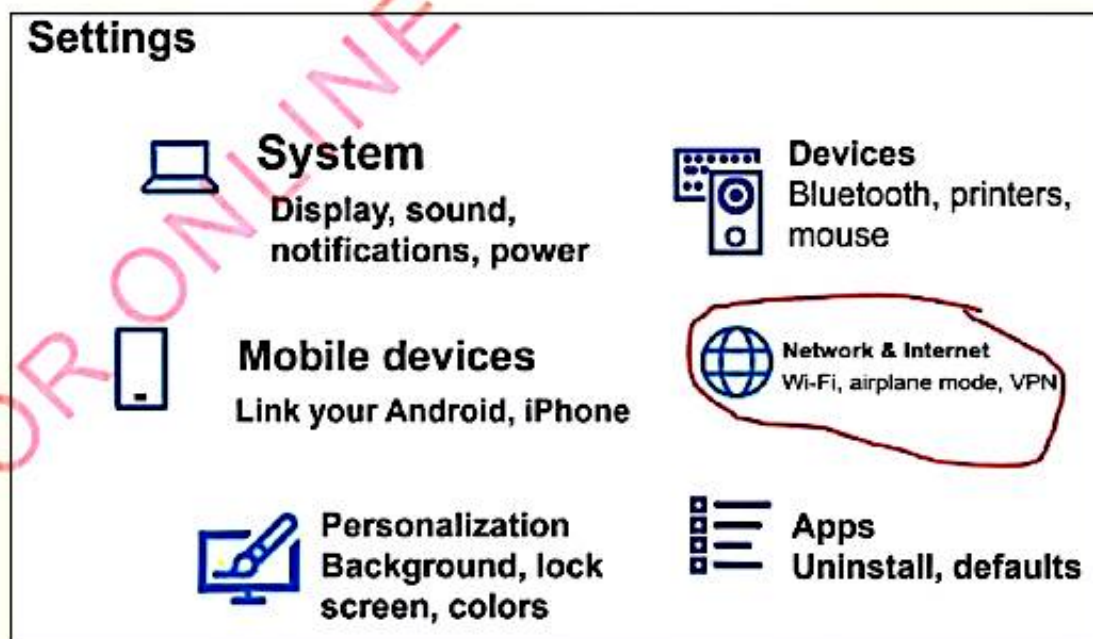


Figure 1.57: Window setting menu

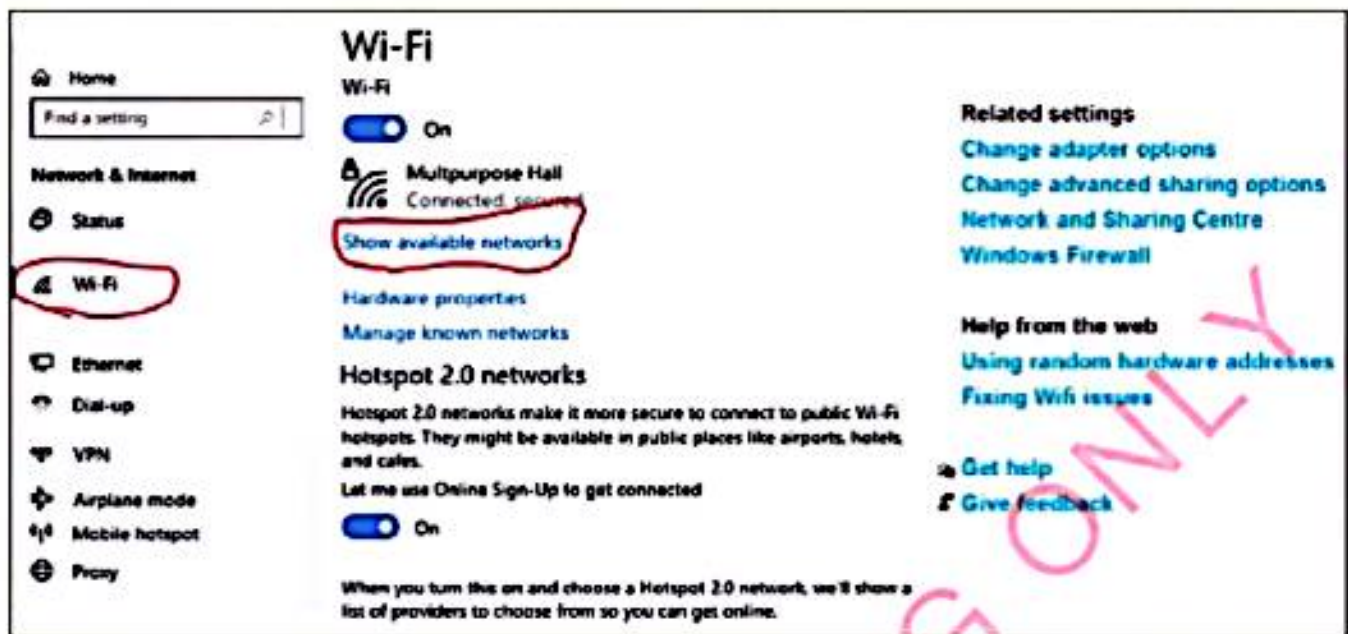


Figure 1.58: Network setting menu

- Click on show available network as shown in Figure 1.59. The available wireless will pop up, and select the Wi-Fi Hotspot for which you have the password.

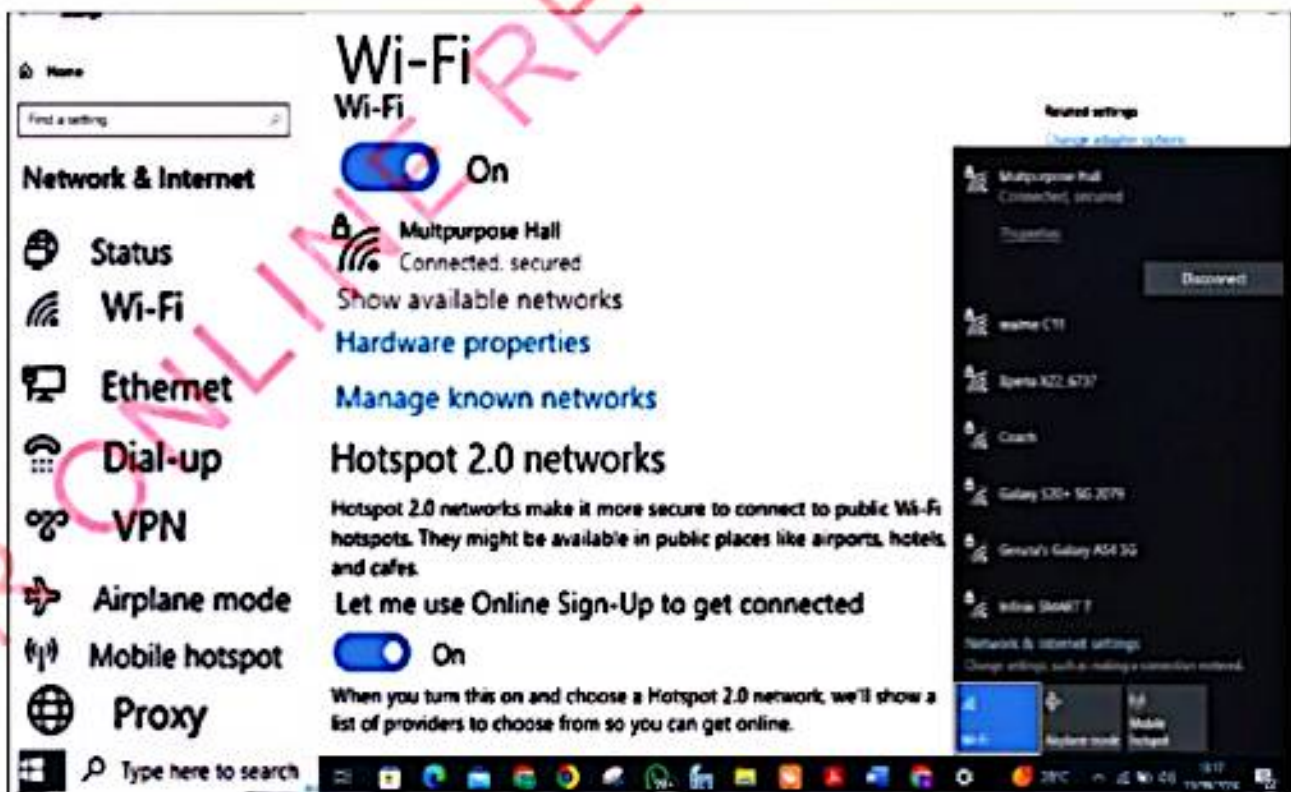


Figure 1.59: Available networks list

Alternatively; you can use the tool bar command at the bottom right corner of the computer to check for the Internet icon and click on it, as shown in Figure 1.60.



Figure 1.60: Available networks list

5. Click on the hotspot you want to connect to if it is secured with the password, make sure you have the password.
6. Insert the password and click to connect.
7. Test the connection by opening a web browser and search for the information.

For instance, you may search “Hello Tanzania” on the web browser.

From the above procedure, if you have encountered any challenges, discuss them with your teacher on how to solve them and try again.

Accessing content from the Internet

From previous activities, you can connect your device to the Internet and

enjoy accessing shared resources or content from other connected devices. In this section, you will learn how to access Internet content.

There are numerous applications of the Internet that allow you to access a wide range of content, as illustrated in Figure 1.61.

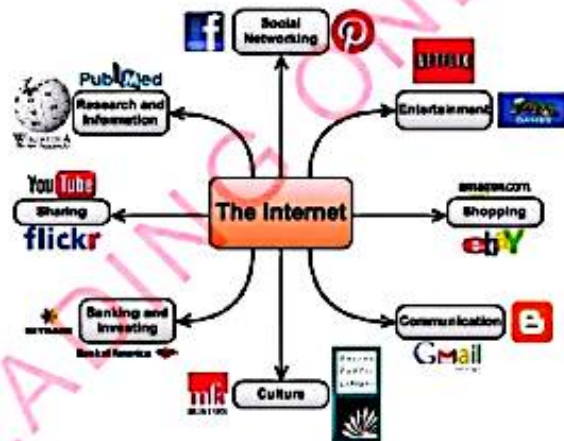


Figure 1.61: Various ways to use the Internet

World Wide Web and Web Browsers

The World Wide Web (WWW) in very simple terms, describes a network of connected documents and resources on the Internet that let people access and share information easily. To access content from the web, you use software applications commonly referred to as web browsers.

These include Microsoft Internet Explorer, Google Chrome, Mozilla Firefox, Microsoft Edge, and Apple Safari. In Figure 1.62, You can see the nine most commonly used web browsers. Moreover, looking closely at Figure 1.62, you will notice 42 more browsers! The browsers give you an interface to

access online content, which is collectively known as the World Wide Web.

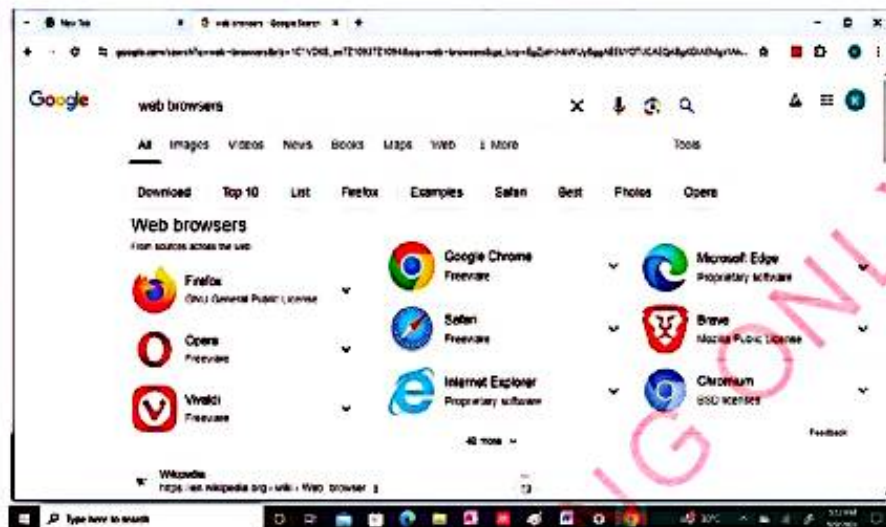


Figure 1.62: Some of the commonly used web browsers

Web resources are given unique addresses known as Uniform Resource Locators (URLs). A URL provides the exact location (server) where a particular resource - such as a text file, video, audio, photo, or printer is stored.

Once you open your browser, you type the URL into the address bar, and the browser will present the resource on your screen for content or give you access to a shared resource. Figure 1.63 shows a newly opened web browser where you can enter the URL in the address bar to interact with the resource you are seeking.



Figure 1.63: Google Chrome web browser interface (Google search engine is displayed)

Search engines

So far, you have familiarised yourself with the web browsers, you may, however, not know the exact address of the resource you wish to find. This is where search engines come to the rescue. A search engine is a web application that can search through millions of resources on the web and present the results to you. Google is the most famous search engine, but others include Yahoo!, Bing, DuckDuckGo, and Mamma.

For example, you might need to access online books from the Tanzania Institute of Education (TIE) website. The following activity guides you through accessing the Form II mathematics book.

Activity 1.12

Searching for and opening the online Form II Mathematics Book from TIE Requirement:

A computer with Internet access

Steps:

1. Get a computer device which is connected to the Internet and open a browser of your choice.
2. In the browser address bar, type "www.google.com" and press the "Enter" key.
3. You will be directed to the Google homepage. On this page, there will be a search box where you can type the name of the resource you wish to find. Type "TIE Form II Mathematics Book online" and then press "Enter".
4. A list of search results or "links" related to the book should appear, as shown below. A list of search results or "Links" related to the book should appear, as shown in Figure 1.64.



Figure 1.64: Using Google as a search engine

5. Point your mouse on the scroll bar, as shown by the red arrow in Figure 1.63, left-click and hold, then drag to navigate through the list of results. At the bottom of the list, you will see additional pages (numbered 1, 2, 3, ...) containing more links.
6. Click on the first link (highlighted in the red box) to open the online book. At this point, you will see the book, and you can proceed to browse through it by clicking on the "<" and ">" symbols, as shown in the Figure 1.65.

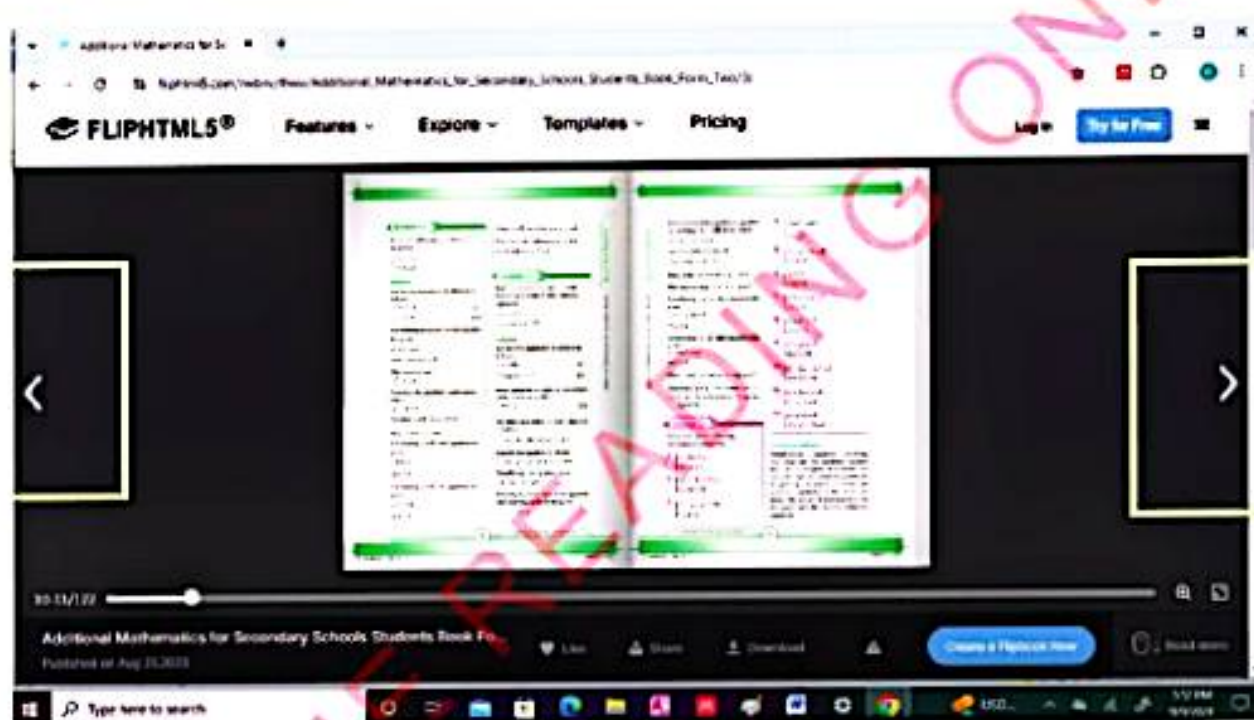


Figure 1. 65: *TIE online book view*

Exercise 1.4

1. Using a web browser of your choice and a search engine of your choice, find a video tutorial that shows how to connect a computer to a phone's hotspot network (accessing Wi-Fi using your phone), then write the procedure based on the video you have viewed.
2. Open the web browser of your choice, such as Google Chrome or Mozilla Firefox. Go to TIE website, and search for the "Computer Application Form One" book. When you locate it, open it and start reading the book from online. After successfully accessing the book, make sure to document the steps you followed.
3. Explain the key benefits of Internet in our daily life.
4. Open a web browser of your choice and search for, "Artificial Intelligence (AI)". From the material you obtained, find the proper AI tool and study how to use it and prepare a short report of those procedures.

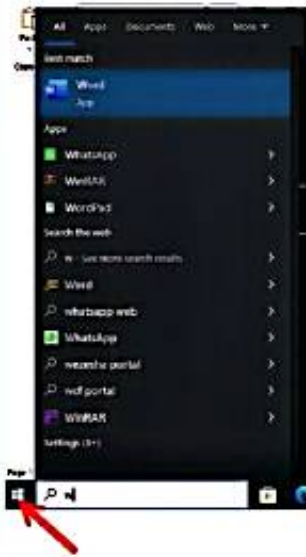
Revision exercise 1

1. In which part of the CPU can the calculation of $(2 \times 4/5)$ be executed?
2. List four computer output and input devices which are used in daily life and their functions.
3. The HDMI cable is better than the VGA and DVI, Why? Justify this statement by indicating the features of each port.
4. What is the function of "Windows+P" in setting the computer peripherals?
5. Connect the computer to the Internet using wireless connection and use a web browser of your choice to search the following, "A video of four stroke engine working principles". View different videos and summarise the working principles.
6. Explain the negative effects which can be caused by the Internet usage in daily life.
7. List four (4) advantages of wireless connection over wired Internet connection.
8. Search for and prepare a list of five websites which you can use to access official Tanzanian government information. From these websites, identify the key similarities between them.

Module Two

Office application

Introduction



In the past, documents were processed only manually and in hardcopies; either handwritten or typed using a typewriter. These methods were time-consuming, tedious, and offered limited editing options. In the modern days, documents can be created, formatted and edited digitally using computer applications such as word processing software. This module has one unit which is word processing. In this module, you will learn the concept of word processing, as well as editing and formatting a Microsoft Word document. The competencies developed will enable you to efficiently prepare documents in different Microsoft Word formats.

Unit 1: Word processing

This unit consists of two elements namely: Introduction to word processing, and Working with the Microsoft Word element. The competencies developed will enable you to prepare Microsoft Word documents in different formats.

Element 1: Introduction to word processing

By the end of this element, you will be able to explain the concept of word processing and the benefits of using word processing software.

The concept of word processing

Word processing refers to the creation,

editing, formatting, and printing of text documents using software known as word processor.

This software allows users to write, revise, and format text, making it suitable for various purposes such as creating reports, letters, essays, and other written content. The principal functioning of the word processor is as shown in Figure 2.1.

Key features of word processing software include:

1. **Text formatting:** Changing fonts, sizes, colours, and alignment.

2. **Paragraph formatting:** Adjusting line spacing, indentation, and justification
3. **Spell check:** Identifying and correcting spelling and grammatical errors
4. **Tables and lists:** Creating tables, bulleted lists, and numbered lists
5. **Inserting elements:** Adding images, charts, hyperlinks, footnotes, and other elements

There are various examples of word processing applications (as shown in Table 2.1), but Microsoft Word is one of the most widely used and adopted for business and personal purposes. Microsoft Word has been released in different versions, including MS Word 2003, MS Word 2007, MS Word 2010, MS Word 2013, MS Word 2016, MS Word 2021, and Microsoft Word 365. Microsoft has periodically updated these versions to add new features and capabilities.

Table 2.1: Examples of word processing application software

Name of the word processing application	Name of the company that owns the application
Microsoft Word	Microsoft
WordPerfect	Corel
Google Docs	Google
WordStar	MicroPro
Pages	Apple
Open Office Writer	Apache Software Foundation (previously known as Sun Microsystems)



Figure 2. 1: Basic functions in word processing

Importance of using a word processor

A word processor offers several key advantages including:

- (i) Allowing users to correct mistakes in a document easily,
- (ii) Enabling storage of documents for long-term use and future

reference,

- (iii) Facilitating the creation of high-quality documents by offering numerous formatting features such as borders, text layouts, bullet styles, lines and paragraph spacing, indentation, shading, bolding, underlining, and more,
- (iv) Automatically checking of spelling and grammar using built-in tools, improving the overall quality of the user's work, and
- v. Providing customizable templates, which save time by offering pre-designed formats for various types of documents such as resumes, reports, and letters.

Exercise 2.1

1. Collect two documents created using word processing software and copy their content by hand into two handwritten copies.
2. Write down six challenges associated with handwritten documents.
3. Using a library or Internet resources, collect two documents ; one prepared using a typewriter and another prepared using a word processor, compare the two documents and summarize, in your own words, the significance of a word processing program.
4. List six features of a word processing program that make it a useful tool in daily life.

Element 2: Working with Microsoft Word

By the end of this element, you will be able to create a new MS Word document, identify different parts of the MS Word window, and describe how to control MS Word documents using different commands. You will also learn how to save MS Word documents in different formats, edit and format them, as well as inserting tables and pictures.

***NOTE:** The instructions in this book are based on MS Word 2021. Microsoft has designed the interfaces and features of MS Word to be consistent across different versions, making it easy to work with other versions of the software. Additionally, the descriptions provided in this book are based on the Windows 10 operating system.*

Creating a new document in MS Word

When you start the MS Word application, it offers you a workspace with various templates to choose from as you begin the new document.

A **template** is a pre-designed document that provides a consistent structure and format, simplifying the formatting process. Templates are often used to create resumes, letters, and reports.

There are various ways to start the MS Word program on a computer. We shall practice four of them in Activities 2.1, 2.2, 2.3 and 2.4.

Activity 2.1**Starting MS Word by using the start menu****Steps**

1. Go to the start menu as shown in Figure 2.2 and click in the search box.
2. Type "word" and the list of programs will appear.

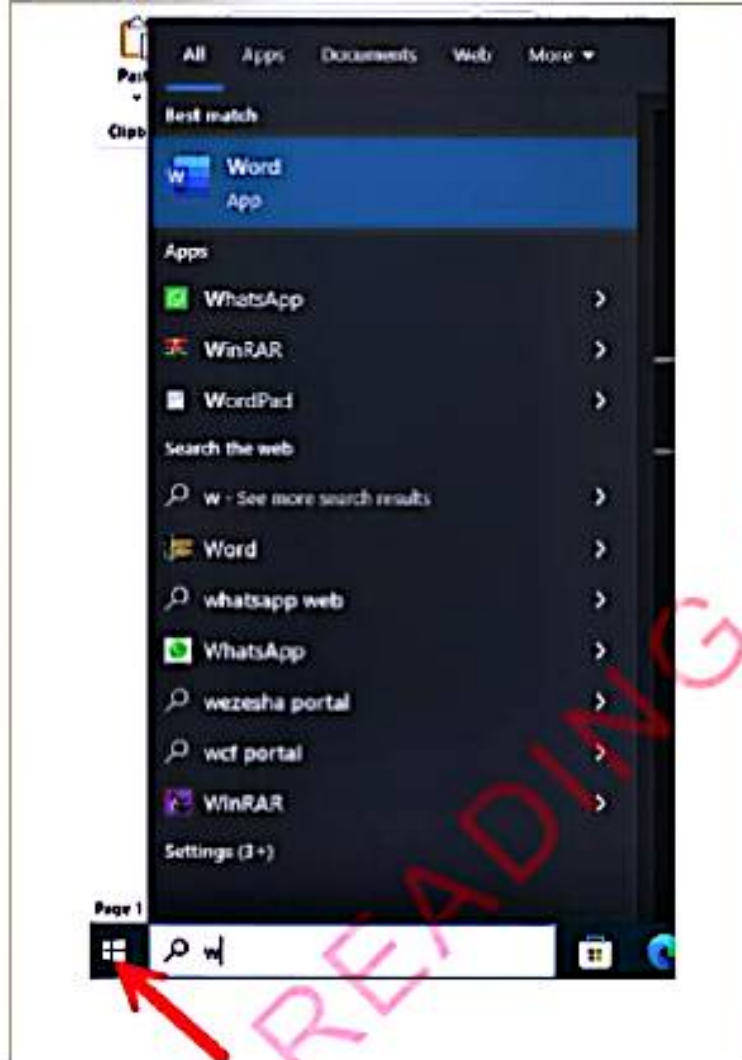


Figure 2. 2: Start menu

3. Click on the Word icon to start the MS Word application. By default, the program will open with the Home tab displayed on the welcome window, as shown in Figure 2.3.



Figure 2. 3: Microsoft word welcome window

4. Go to the "New" tab and select new template as seen in Figure 2.3. You can select the blank document or another template you prefer to open a

new document. If you select the blank document, the new blank document will be created as shown on Figure 2.4.

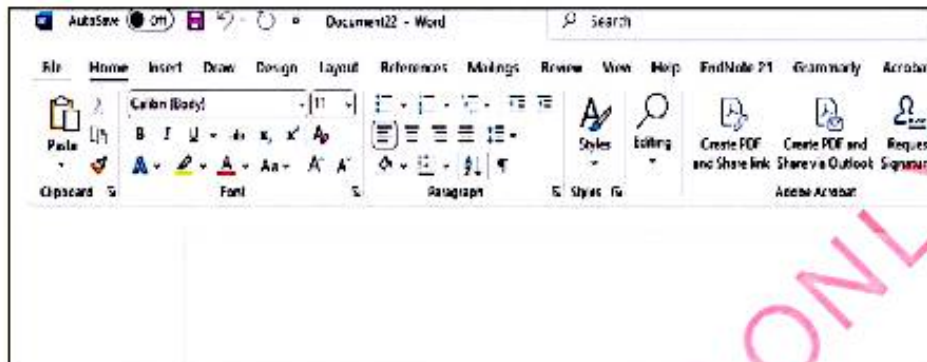


Figure 2.4: Blank word document

Activity 2.2

Starting MS Word by using the desktop shortcut

Procedure

1. Double-click the MS Word program icon on the desktop and the program will launch as shown in Figure 2.3.
2. Like in Activity 2.1, go to the "New" tab and select new template as seen in Figure 2.3. You can select a blank document or another or another preferred template to create a new document. Selecting a blank document will generate one as shown in Figure 2.4.

Activity 2.3

Starting MS Word by opening an existing word document

Procedure

1. Double-click any saved document.
2. The MS Word program will start and the document will open, allowing you to start a new MS Word file by using the "Create New File" command.
3. In the existing document, you can create a new file by using one of the following options:
 - (i) Click on File and select New
In the New menu, select New Template (see Figure 2.3 for a blank document) or another template you prefer. If you select blank document, a new blank document will be created as shown on Figure 2.4.
 - (ii) Click the shortcut Ctrl + N By using this option, a new blank template will be created.

Activity 2.4

Starting MS Word using windows' "Run" utility

Procedure

1. Press the Windows key and the R key simultaneously to open the "Run" dialog box, as shown in Figure 2.5.

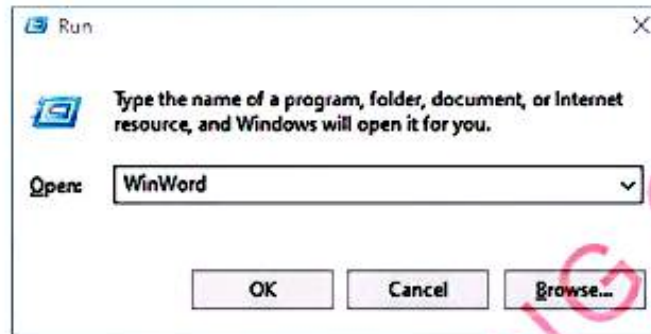


Figure 2.5: Run Dialog box

2. Type "WinWord" in the dialog box.
3. Click the OK button (or press Enter) to launch Microsoft Word.
4. In the new menu, select New Template (see Figure 2.3). You can select blank document or another template of your choice. If you select a blank document, a new blank document will be created as shown on Figure 2.4.

Parts of MS Word window

The MS Word window has three main sections; the ribbon, the document area, and the status bar. As shown in Figure 2.6, each section contains several components, including the title bar, menu bar, the ruler, the status bar, and the working area. Figure 2.7 illustrates different parts of the MS Word window.

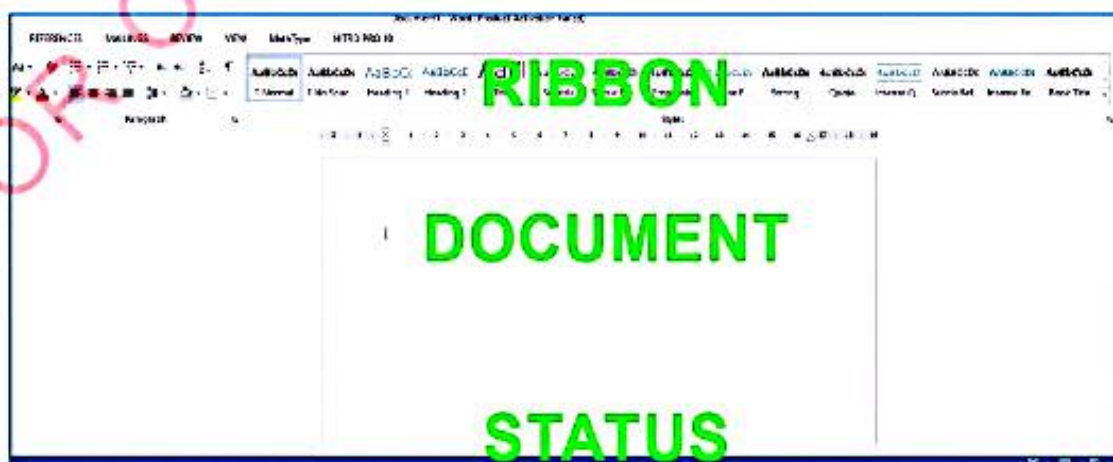


Figure 2.6: Main Sections of the Microsoft Word window

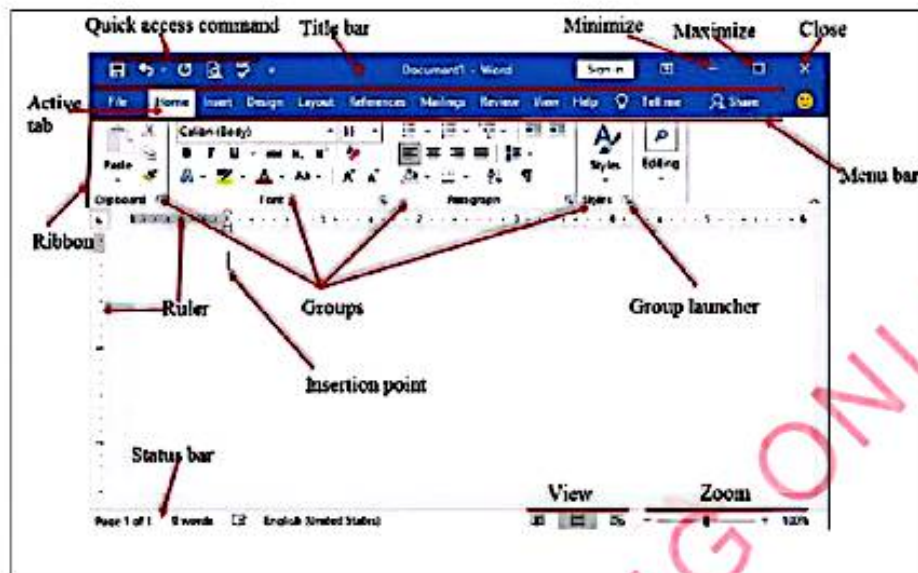


Figure 2.7: Parts of the Microsoft Word window

Title bar

The title bar displays name of the current document you are working on, as it appears in Figure 2.8.

NOTE: The appearance differs from one version of MS Word to another version.



Figure 2.8: Title bar and the quick access toolbar

When you open MS Word for the first time, and you opt to use New Blank document, the title bar will display a "Document1 – Word." Usually, a toolbar containing quick-access commands is also displayed.

Quick access toolbar

The Quick Access Toolbar displays the commonly used commands, allowing you to execute them with a single click instead of going through a series of steps. By default, the Quick Access Toolbar includes (from left to right) AutoSave, Save, Undo, and Redo as shown in Figure 2.9.

However, you can customize which commands appear on the Quick Toolbar by clicking the drop-down arrow located at the right end of the quick access toolbar. As shown in Figure 2.10.

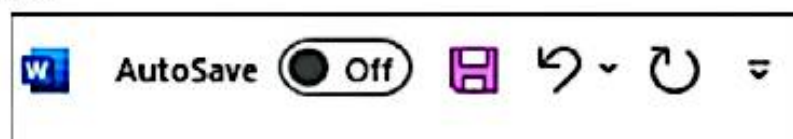


Figure 2.9: The Quick Access Toolbar

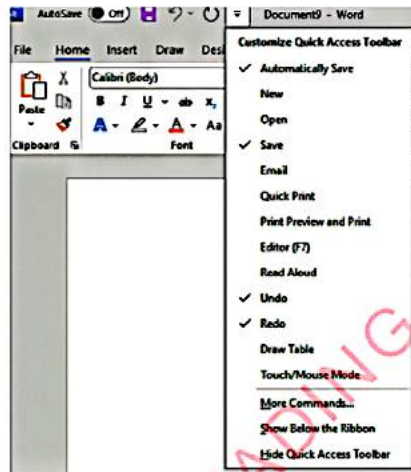
**Form One**

Figure 2. 10: A Quick Access Toolbar customization tab

Activity 2: 5**Customizing the Quick Access Toolbar****Procedure**

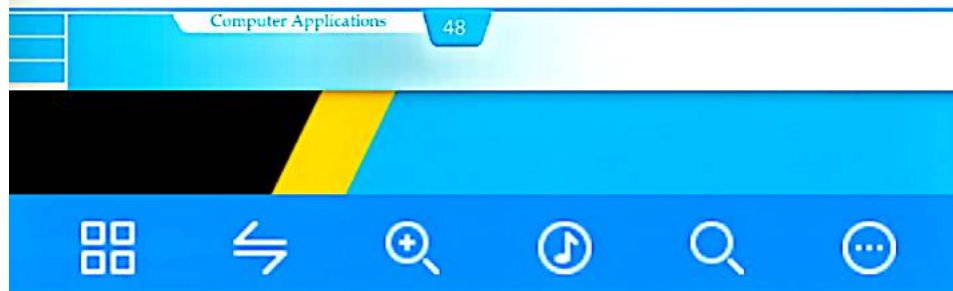
1. Click the drop-down arrow located at the right side of the Quick Access Toolbar, as shown in Figure 2.10.
2. Click on the command you want from the pop-up menu.
3. An icon for the selected command will appear on the Quick Access Toolbar, as indicated in Figure 2.11



Figure 2. 11: Added commands on the Quick Access Toolbar

The menu bar

The MS Word menu bar includes various tabs, such as File, Home, Insert, Design, Layout, References, Mailings, Review, View and other plug-in command tabs, as shown in Figure 2.12. Each tab has a ribbon that displays a list of commands organized into groups. For example, a ribbon for the Home tab contains command groups such as Clipboard, Font, and Paragraph as shown in figure 2.12.



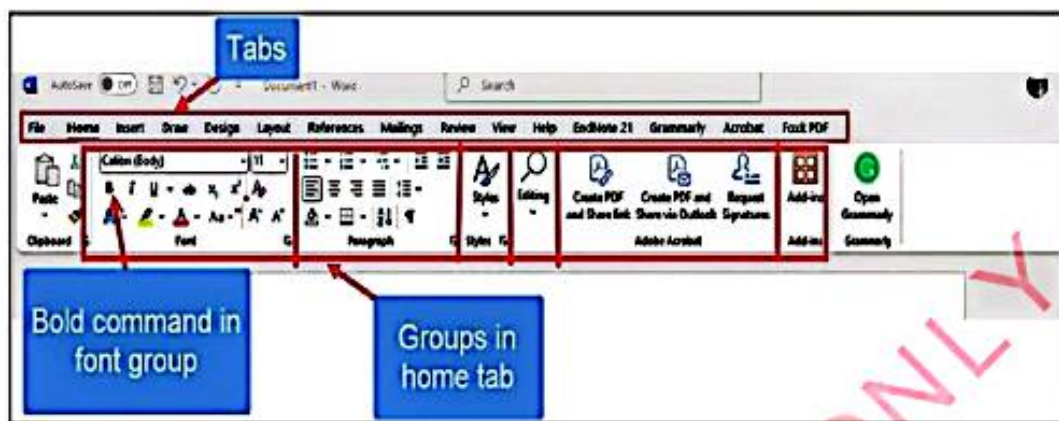


Figure 2. 12: Ribbon and the command groups

Tabs

Tabs appear at the top of the Ribbon and contain groups of related commands, as shown in Figure 2.13. These tabs include File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Help, and other plug-in software tabs. Each tab provides specific groups of related commands.

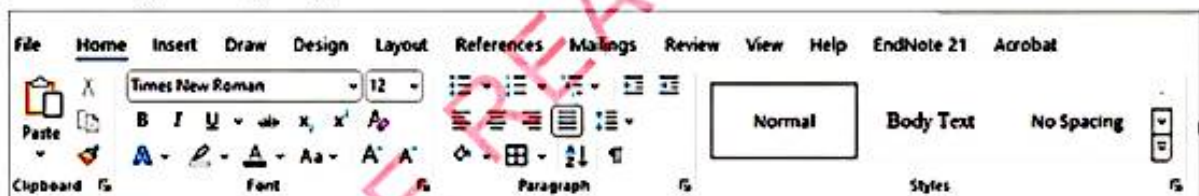


Figure 2. 13: MS word tabs

Terminologies in word processing

There are various terminologies used in word processing.

Font: A specific variation of a typeface, defined by its size, style, weight, and width. Fonts include various characteristics such as size, spacing and emphasis. Figure 2.14 shows an example of typeface and text font.

TYPEFACE	TEXT FONT
Calibri	Office application
Bookman Old Style	Office application
Times New Roman	Office application
ALGERIAN	OFFICE APPLICATION
Curly Mt	Office application

Figure 2. 14: Typeface and text font

Alignment: Refers to how a text is arranged between the margins in the document. The text can be left, right, centered, aligned or justified. See Figure 2.15

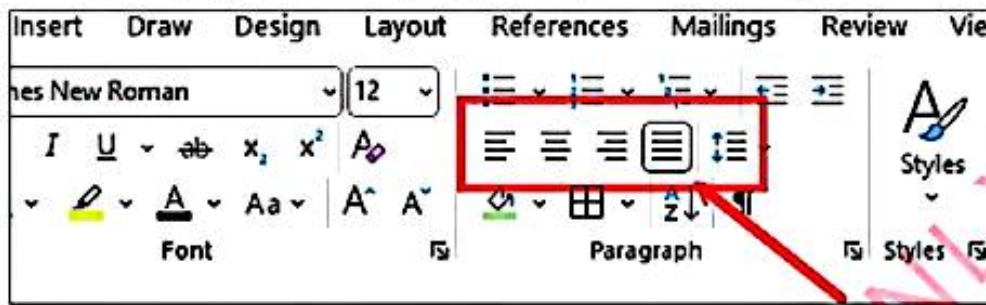


Figure 2.15: Alignment options

Margins: Margins refer to the blank spaces around the edges of a page. They can be adjusted to control where text begins and ends on the page (see Figure 2.16).

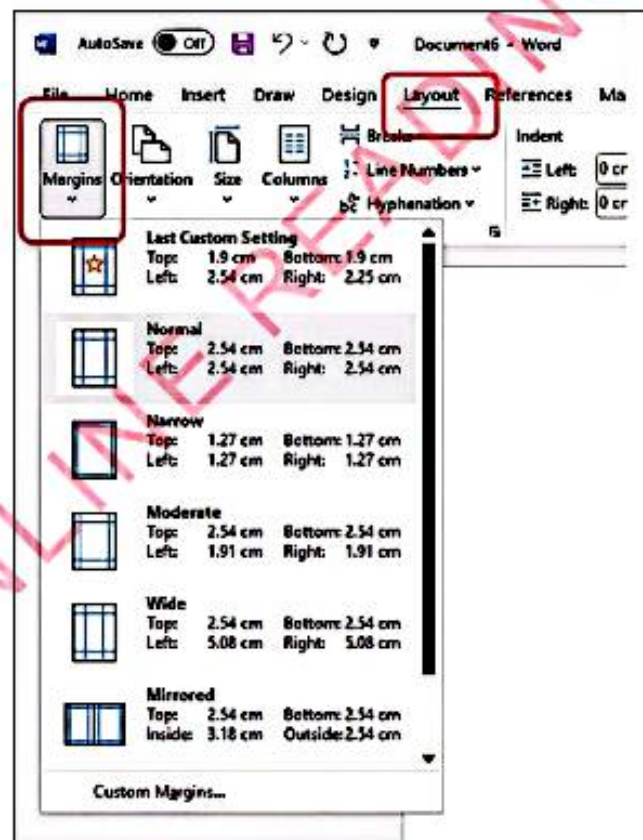


Figure 2.16: Margin setting menu

Header and Footer: A header is a section of a document that appears at the top of each page, and a footer appears at the bottom.

They can include page numbers, titles, or other repeated information. Headers and Footers are usually inserted using the Header and Footer commands, as shown in Figure 2.17.

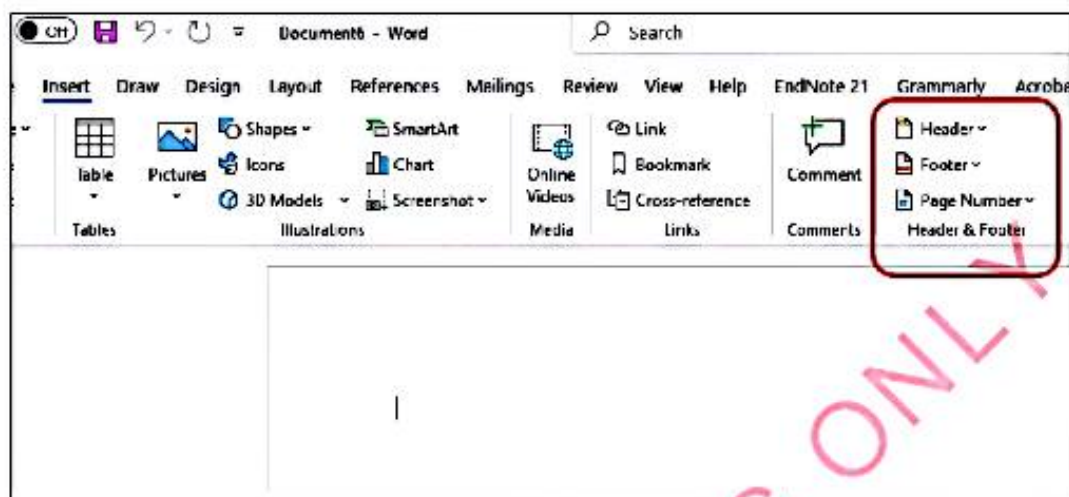


Figure 2.17: Insertion of headers and footers

Clipboard: The clipboard is a temporary holding area where the computer uses to store any item that has been copied or cut from the document (See Figure 2.18). When the text or another item is placed on the clipboard, it can then be pasted elsewhere in the document. Items remain on the clipboard until they are overwritten or deleted.

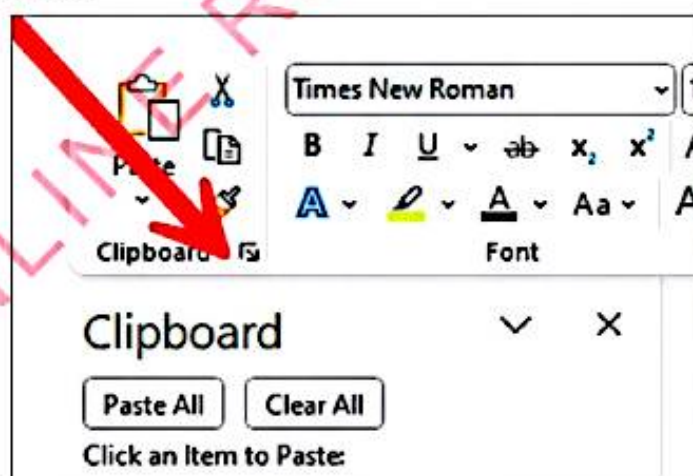


Figure 2.18: The clipboard menu

Copy: An action that places the selected text on the clipboard without removing it from its original location.

Cut: An action that removes the selected text from its current position and places it on the clipboard.

Editing: The process of making changes or corrections to a document. It includes altering the text, moving or copying items to different locations, and applying formatting options. There are various editing commands in MS Word, including:

Text input and editing: Allows users to type, edit, delete, and rearrange texts easily within a document.

Formatting options: Offers a range of formatting features such as bold, italics, underline, font type, size, colour, and paragraph alignment (left, right, centre, or justified).

Spell check and grammar check: Automatically detects and suggests corrections for spelling and grammatical errors.

Copy, cut, and paste: Enables users to duplicate or move text or objects within the document or between documents.

Find and replace: Helps users search for specific words or phrases in the document and replace them with alternative text.

Document saving and retrieval: Allows users to save their work in various file formats (e.g., .docx, .pdf, .txt), and retrieve saved files for future use.

Page layout and margins: Allows users to set page orientation (portrait or

landscape), adjust margins, and arrange the document layout for printing.

Tables, images, and graphics insertion: Enables users to insert tables, pictures, charts, and other graphical elements into the document.

Printing and print preview: Allows users to print documents, or preview how the document will look when printed.

Undo and redo: Features that let users reverse or reapply recent changes made to the document.

Header, footer, and page numbers: Enables users to add headers, footers, and automatic page numbering throughout the document.

Group names: Within each tab, commands are organized into groups based on their function, with the group names displayed near the bottom of the ribbon, as shown in Figure 2.19. For example, the Font group contains all the font-related tools and options. Clicking the small, boxed-in arrow icon at the bottom right-hand corner of each group, as shown in Figure 2.19, opens a dialog box with additional options for that group.

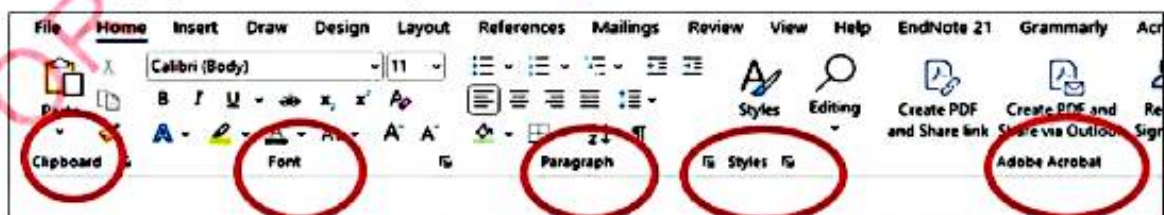


Figure 2. 19: Group names of the Home tab

Ribbon display options

If you want to change the ribbon display options, click the arrow at the bottom-right corner of the ribbon and select your desired option, as shown in Figure 2.20. The process for hiding and showing the ribbon may vary by version, but the fundamentals remain the same.

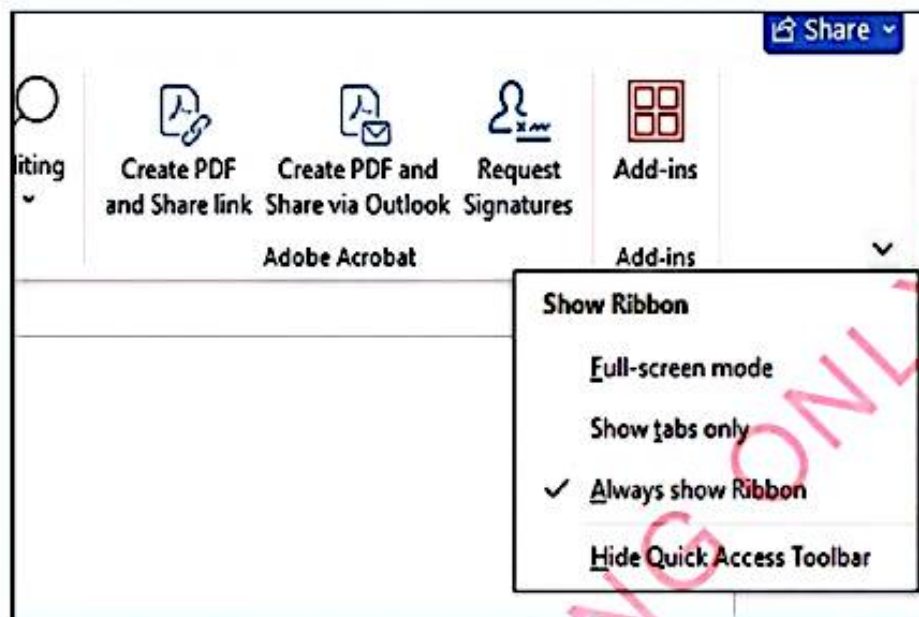


Figure 2.20: Ribbon display setting menu

Activity 2.6

Exploring different tabs

Procedure

1. Navigate each tab on the MS Word window to display a ribbon with different groups of commands.
2. Hover the cursor over each command, and a brief explanation about the command will pop up.
3. Read all instructions for each command.

The status bar

The status bar is at the bottom of the word window, as shown in Figure 2.21.

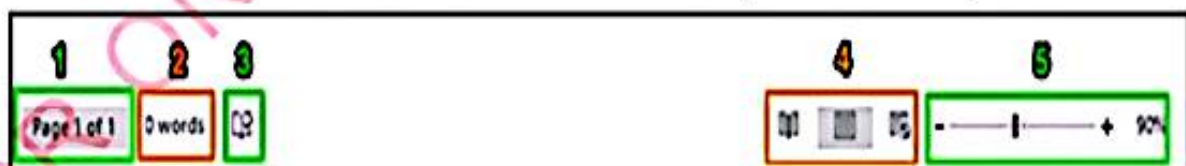


Figure 2. 21: Status bar showing page count

1. **Page count:** The page count shows the total number of pages in the document and indicates which page is currently visible in the window.
2. **Word count:** The word count displays the total number of words in the document.
3. **Spelling/grammar check:** A small checkmark on the book icon indicates that there are no spelling or grammar errors. If there are errors, the checkmark changes to an "X". Clicking the icon will then show options for correcting each mistake.

4. **View options:** From left to right, the view options include Read Mode (), Print Layout (), and Web Layout ().

By default, the document is in Print Layout. This setting changes how the document appears in the MS Word window but does not affect how it looks when shared with others, viewed on a different computer, or printed. The Read Mode formats your screen to make reading the document more comfortable. The Print Layout view shows how the document will look like when printed. The Web Layout view lets you see how your document appears in a web browser, such as Microsoft Edge, Mozilla Firefox, or Google Chrome.

5. **Zoom:** You can zoom in and out of the document by moving the slider left or right. This feature allows you to view the entire page at once or magnify a specific part of the document.

Activity 2.7

Changing the document view

You can change the document view to suit your needs by ;

- Click the View tab,
- click any view Mode in view tab
- Press the escape key on the keyboard to return to Print Layout mode.

You can practice using different view modes and observe how they affect your document's display.

The file tab

The File tab is located at the top left corner of all tabs. When active, it displays

a menu with options such as Info, New, Open, Save, Save As, Print, Share, Export, Close, Account, and Options, as shown in Figure 2.22.

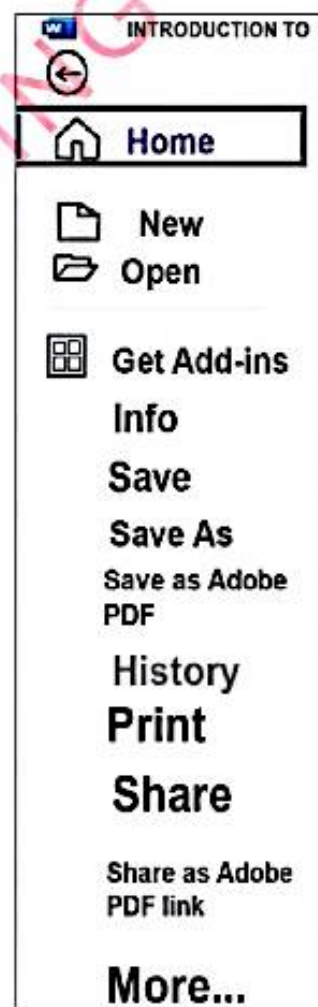


Figure 2. 22: File tab menu

The home tab

The Home tab displays groups of commands, including Clipboard, Font,

Paragraph, Style, and Editing, as shown in Figure 2.23

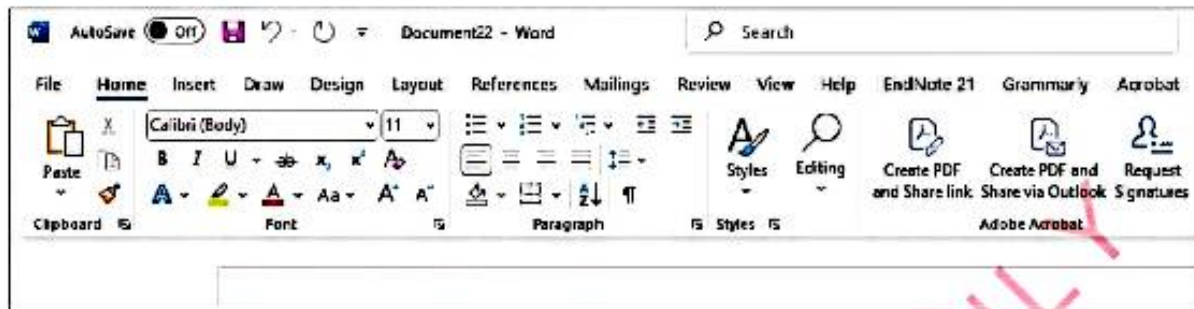


Figure 2. 23: Home tab commands

The insert tab

The insert tab includes groups of commands such as Pages, Tables, Illustrations, Add-ins, Media, Links, Comments, Header & Footer, Text, and Symbols, as shown in Figure 2.24.



Figure 2. 24: Insert tab commands

The design tab

The design tab displays document formatting and page background options, as shown in Figure 2.25.



Figure 2. 25: The design tab features

The layout tab

The layout tab provides options for page setup, paragraph setup, and word arrangement, as shown in Figure 2.26.

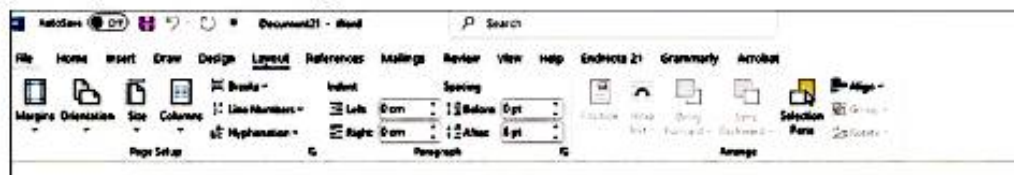


Figure 2. 26: Layout tab tools

The references tab

The references tab offers groups of commands, including table of contents, footnotes, citations & bibliography, captions, index, and table of authorities, as depicted in Figure 2.27.

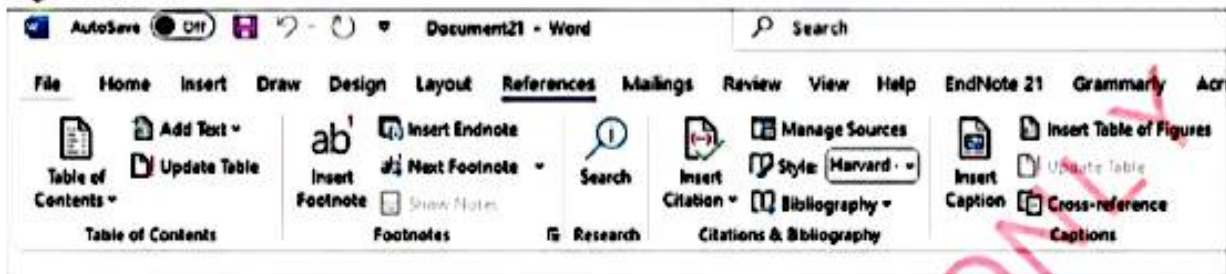


Figure 2. 27: Reference tab features

The mailings tab

The mailings tab includes command groups such as create, start mail merge, write & insert fields, preview results, and finish, as shown in Figure 2.28.

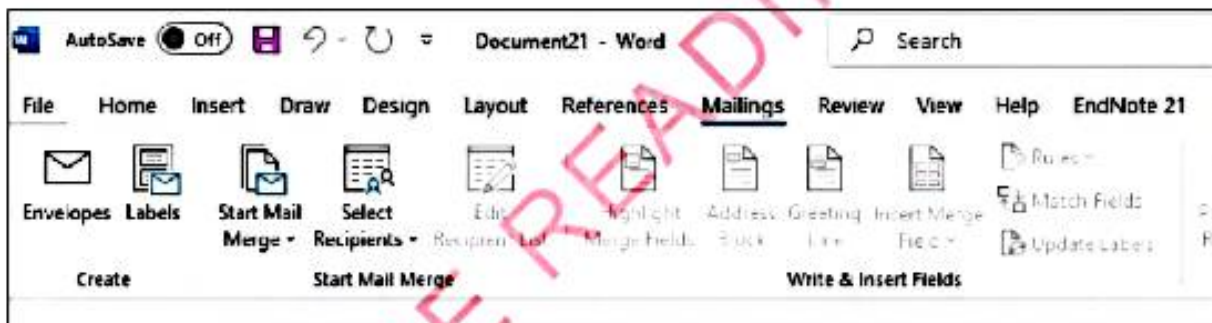


Figure 2. 28: The Mailing tab commands

The Review tab

The Review tab displays groups of commands like proofread, accessibility, language, comments, tracking, changes, compare, and protect document, as shown in Figure 2.29.

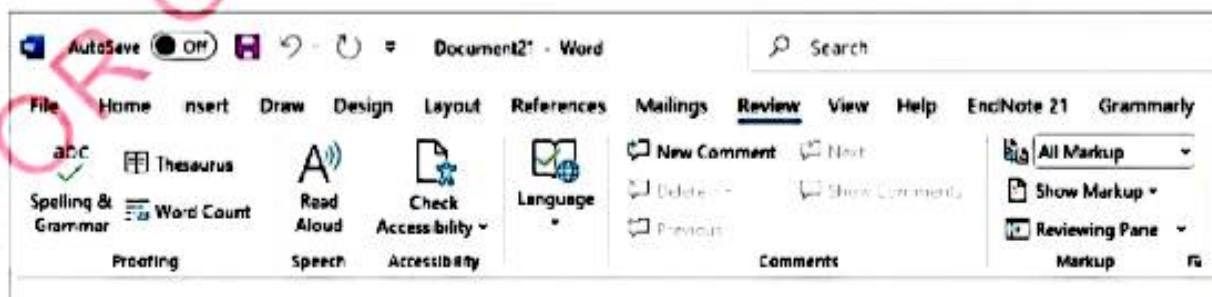


Figure 2. 29: The Review tab tools

The View tab

The View tab shows options for document view, including views, page movement, show, zoom, window, and macros, as shown in figure 2.30.



Figure 2. 30: View tab commands

The ruler

The ruler shows left and right margins, tab settings, and indentation, as shown in Figure 2.31. You can adjust margins, create indentation, and set tab stops using the ruler.



Figure 2. 31: Ruler

The working area

The working area resembles a blank page on which text can be written. The blinking vertical line in the working area, called an insertion point, marks where typed characters will appear on the page, as seen in Figure 2.32. As you type a character, the insertion point moves to indicate the position of the next typed character.

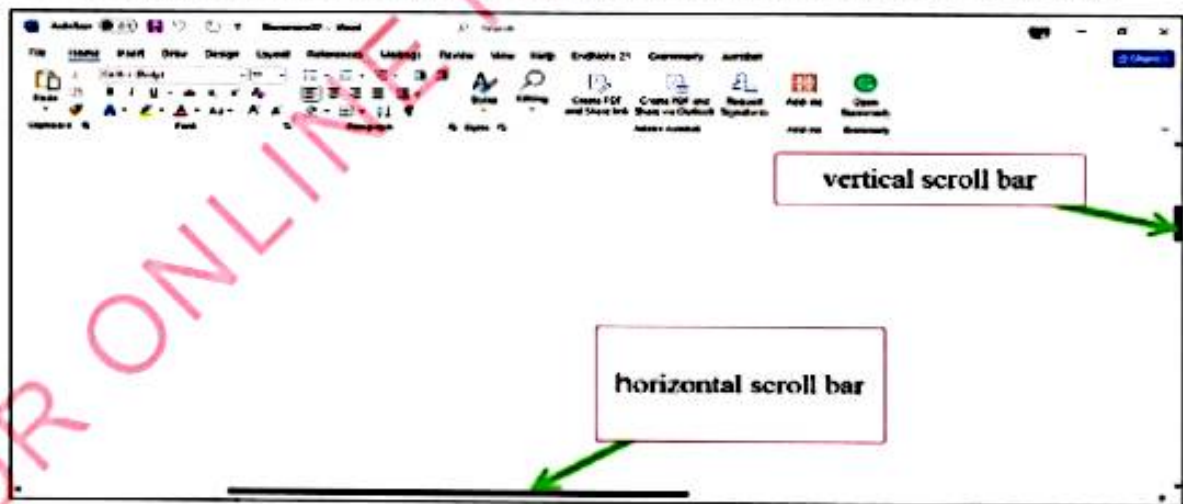


Figure 2. 32: Working area

The Working Area also contains vertical and horizontal scroll bars, which indicate the current relative location of an insertion point in the document. The scroll bars allow movements across the document (i.e. right, left, up and down), as shown in Figure 2.33.

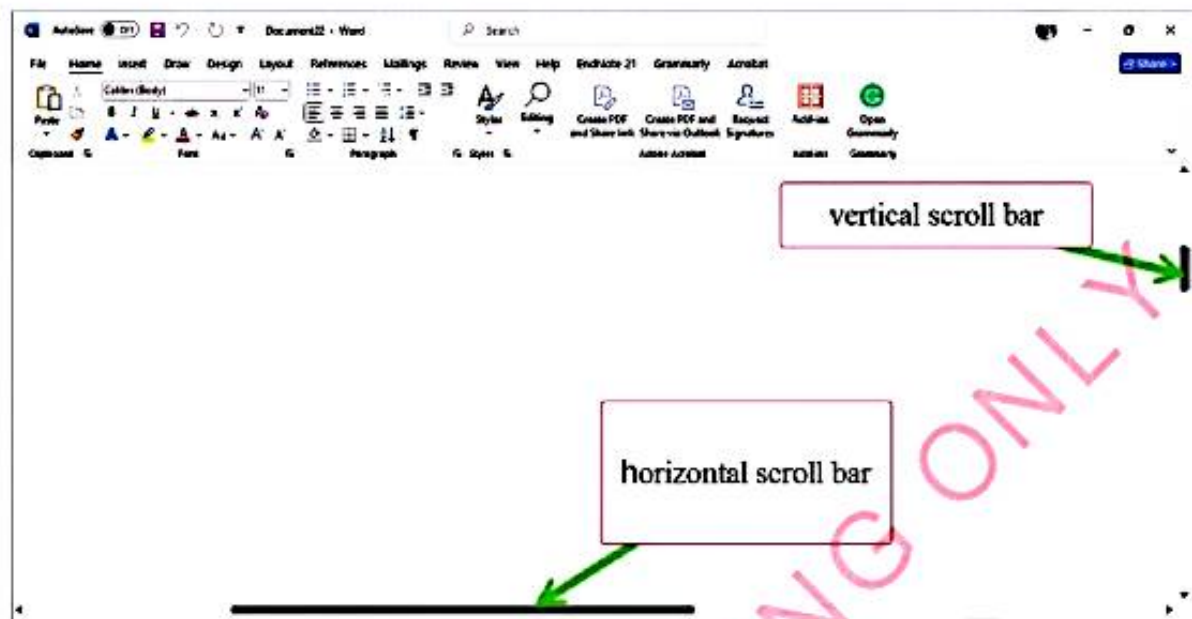


Figure 2. 33: Scroll bars

Inserting a text

When entering a text in an MS document, first position the insertion point where you want the text to appear, either to the left or right of an existing character. The text can be added to the document in various ways, including:

- (i) Typing with a keyboard
- (ii) Copying or cutting text from other documents and pasting it into the MS Word document.
- (iii) Scanning printed documents and using the Optical Character Recognition (OCR) software to convert the scanned content into text.
- (iv) Using voice recognition software to convert spoken words into text and vice versa.
- (v) Importing files such as tables, pictures, or databases from storage media or other sources. In this book, you will mainly use methods (i) and (ii) to

create an MS Word document. When starting a new document in MS Word, you will often want to start with a new blank document, as explained in the previous section.

Activity 2.8

Typing and navigating in the document

Procedure

1. Write a three-page document telling a story of your dreams in life and any other interests of your choice.
2. Navigate in your document using a keyboard.

The easiest way to move the insertion point by short distances is to use the arrow keys. You can also use additional keys to move the insertion point by longer distances as follows:

- (i) Press [Ctrl + Home] to move

- the insertion point to the beginning of the document.
- (ii) Press Down Arrow key [↓] to move the insertion point down one line.
 - (iii) Press Up Arrow key [↑] to move the insertion point up one line.
 - (iv) Press Right Arrow key [→] to move the insertion point one character to the right.
 - (v) Press Left Arrow key [←] to move the insertion point one character to the left.
 - (vi) Press [End] to move the insertion point to the end of the current line.
 - (vii) Press [Home] to move the insertion point to the beginning of the current line.
 - (viii) Press [Ctrl+] to move the insertion point to the next word.
 - (ix) Press [Ctrl+] to move the insertion point to the previous word.
 - (x) Press [Page Down] to move the insertion point down one screen.
 - (xi) Press [Page Up] to move the insertion point up one screen.
 - (xii) Press [Ctrl+Page Down] to move the insertion point to the top of the next page.
 - (xiii) Press [Ctrl+Page Up] to move the insertion point to the top of the previous page.
 - (xiv) Press [Ctrl+End] to move the insertion point to the end of the document.

Saving an MS word document for the first time

Saving a file is critical for editing, preserving, and sharing work. If an MS word closes or the computer shuts down unexpectedly while using MS Word, don't worry - by default, Word automatically saves work every 10 minutes using the AutoSave option and will reload the saved version upon reopening the program. However, it is still a good idea to manually save your work regularly.

Steps for Saving a file in MS word

1. To save a file, you can click the Save icon on the quick access toolbar, or click File>Save, as shown in Figure 2.34, or use the keyboard shortcut Ctrl+S.

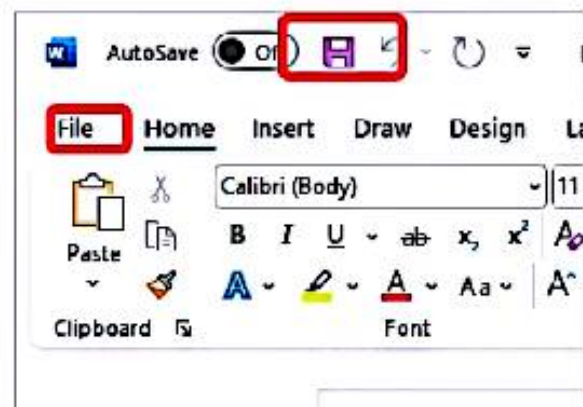


Figure 2. 34: Saving a file

Whichever method is used, if you are saving the document for the first time, the File menu will display options about where to save the file, as shown in Figure 2.35. You must choose where you want to save your file from the following locations:

- **OneDrive**—This is Microsoft's cloud storage

system for saving files online.

- **This PC**—This lets you save the file directly to your computer. By default, the file will be saved in the Documents folder whose file path is (This PC/Documents).
- **Add a Place**—If you save documents to a particular folder very frequently, you can add that folder as a Save As option here.
- **Browse**—To save in a different folder not listed above, click Browse. This will take you to a dialog box that lets you search your computer for the folder you want to store your document in.



Figure 2. 35: The File menu view

2. Once in the Save As dialog box as shown in Figure 2.36, choose the folder where you want to save the file. After selecting the folder, type the file name in the File name field.



Figure 2. 36: The Save As dialog box

3. Ensure that the document is saved as the correct file type as shown in Figure 2.37. There is a variety of options to choose from, but you will almost always select the Word Document (which is the default).
4. Click the "Save" button at the bottom-right corner next to the Cancel button



Figure 2. 37: Specification of the File Type

5. Saving changes while working on an MS word document
You should continue saving the document as you progress with work to avoid loss of content in case of issues like power failure. In this case, you may use a keyboard shortcut for Save which is Ctrl + S, Click the File menu and select Save command, or press the Save icon on the Quick Access Toolbar.

Save As

If you have already saved a file, you can create another copy of it with a different name, location, or file format. Click File > Save As, and the Save As dialog box (as shown in Figure 2.36) will appear. Proceed to save the document as explained in the save procedure.

Steps for Saving an MS word document as PDF

PDF (standing for Portable Document Format) is used for saving files in a way that prevents easy modification but still can be shared and printed. In most MS Word versions, you can convert an MS Word document into a PDF format by following these steps:

1. Open an existing MS Word document or create a new one.
2. Click the File tab at the top-left of the MS Word program window.
3. Click the Save As option from the menu.
4. In the Save As window, click browse to select a location on your computer where you want to save the file.
5. In the Save as type drop-down list, select the PDF option.

Saving an MS Word document to an external storage

To save a document to an external storage device, such as a flash drive, follow the steps shown in activity 2.9 to choose the flash drive as the save location and save the document.

Activity 2.9

Saving an MS Word document in a flash disk or any external storage device

Requirements:

A computer,

A flash disk

Steps

1. Open an existing MS Word document or create a new one.
2. Insert the flash disk in the computer as shown in Figure 2.38.



Figure 2. 38: *Inserting a flash disk*

3. Click File tab and the File menu options will appear.
4. Click Save As and the Save As window will appear.
5. Scroll on the left-hand side of the menu to find the "USB Drive" or removable disk, as shown in Figure 2.39
6. Click save.

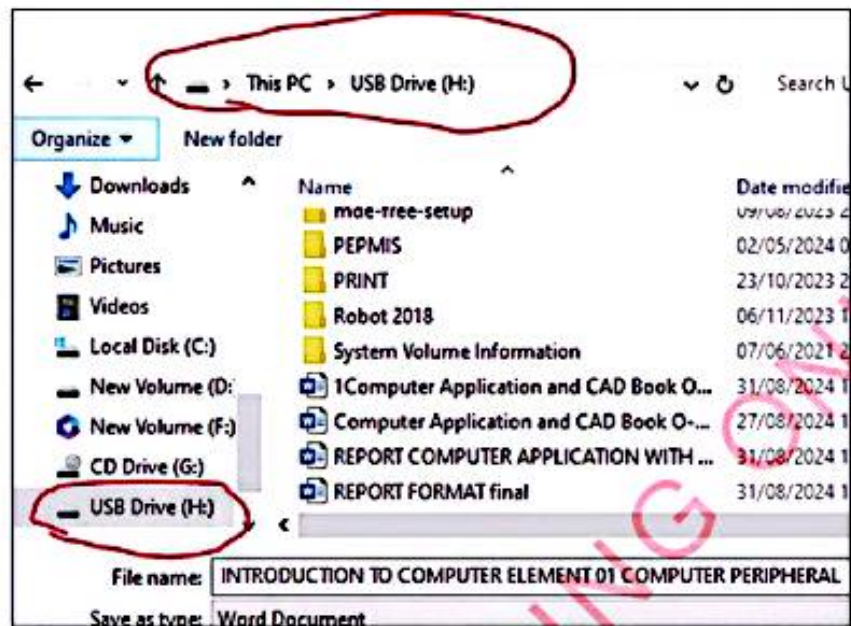


Figure 2. 39: Saving a file to an external flash drive

7. Type the name of the file, such as “INTRODUCTION TO COMPUTER” in the File Name (See Figure 2.40),
8. Click Save.

From the above activities save various word documents in different folders of your flash drive.

Activity 2.10

Opening an existing MS Word document

When a document is saved in a computer, it can be opened at any time when needed as the MS Word program allows its user to open an existing document.

Procedure

Opening a document stored in a computer

1. Click File tab,
2. Click Open. The open dialog box will appear, giving you the option to choose the file from the location where it is stored.
3. Choose the file and Click Open. The file will be opened.
4. Alternatively, you can use the shortcut for opening (Ctrl + O); this will display the open dialog box, which shows different commands and a thumbnail that displays the list of recently opened files as shown in Figure 2.40.
5. Click browse and navigate to “This PC” to locate the file you want to open

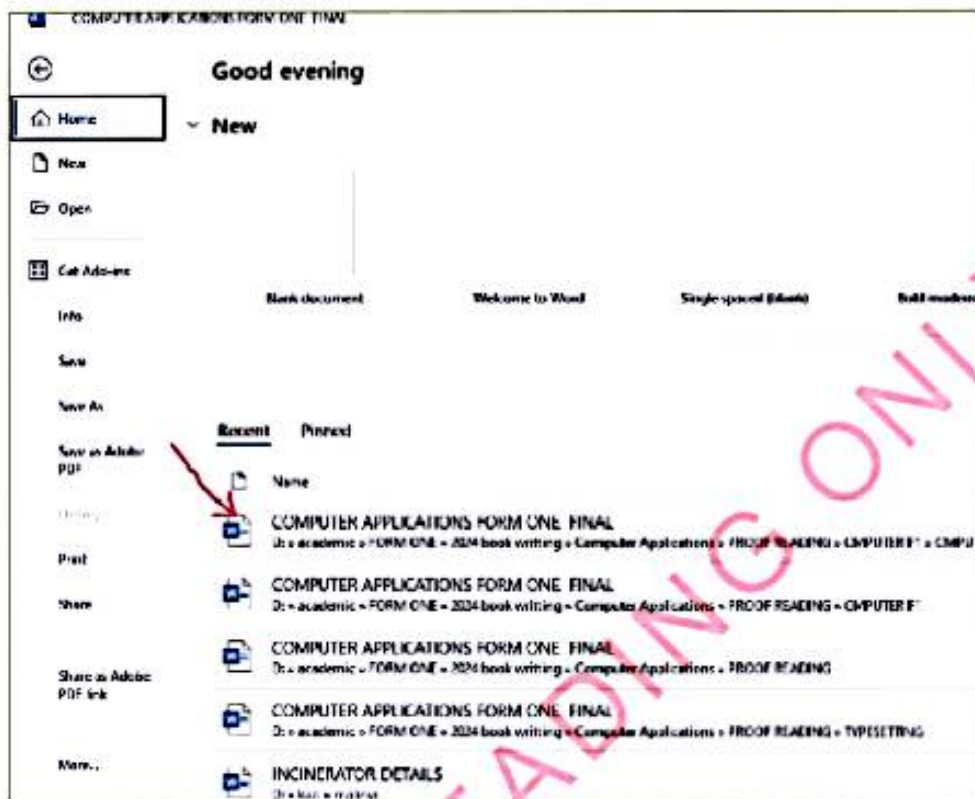


Figure 2.40: Open document window

NOTE: If the document you want to open is in the Recent Documents list, click on its File name or the thumbnail icon (see Figure 2.40) to open it. The document will be opened. See the example in Figure 2.41.

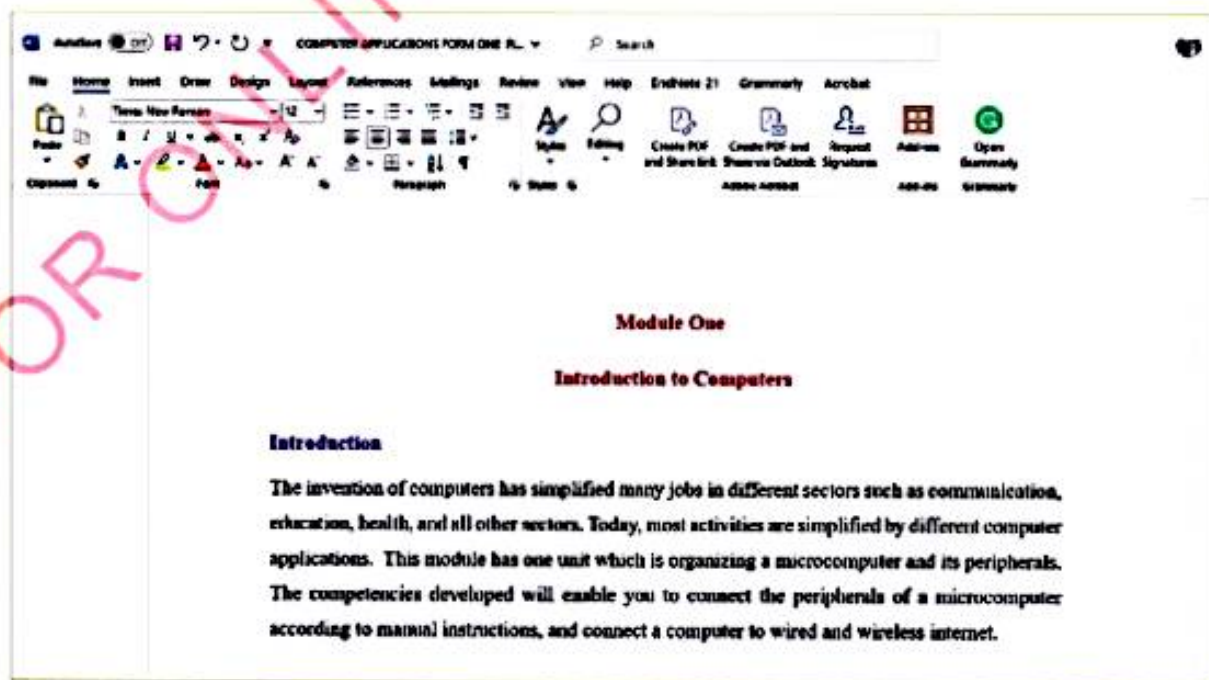


Figure 2.41: Opened MS word document

Exercise 2. 2

1. Create a Word document of three pages explaining the history of Tanzania.
2. Save the document in word document format, and, save the same document in a PDF format.
3. Save the files in both formats in a flash drive.
4. Explain why you should save your working document before closing it?

Editing and formatting a document

The word processor offers various tools for correcting mistakes, such as spelling and grammar errors in a document. It also gives room to decorate the document in a style that you desire using such features as font type, font size, page layout, and paragraph indentation. This section describes how to edit and format a Word document.

Editing an MS Word document

Editing is the process that involves correcting mistakes and errors, removing unwanted content, or adding missing content. After the document is created, you may find that the document contains mistakes, errors, un required or missing some content.

This creates a need for editing the text to incorporate such modifications. Editing tasks may involve adding, removing, or moving a text within the document. This section covers basic editing tasks, such as selecting, deleting, copying, moving text, and undoing or redoing changes. MS Word's formatting tools enable users to work more efficiently and make the documents more visually appealing and easy to read (see Figure 2.42 (a) and (b)).

To: All Employees From: Sierra Rowan, Store Manager Date: September 1, 2019 Subject: New Shelves Some of you may have noticed in recent weeks that the shelves in the home goods section are beginning to sag. We will be replacing those shelves with new, reinforced metal shelves starting next week. The shelves will be replaced 1:00–4:00 a.m., during our least busy hours. Several aisles will be off-limits to customers during that time as a safety precaution. The following aisles will be affected: Kitchen appliances, Kitchen & dining furniture, Kitchen storage, <u>Home</u> goods clearance. Please direct customers looking for items in the affected aisles to the Outdoor Furniture and Patio Accessories areas.

Figure 2. 42: (a) Document before editing

To: All Employees
 From: Sierra Rowan, Store Manager
 Date: September 1, 2019
 Subject: New Shelves

Some of you may have noticed in recent weeks that the shelves in the home goods section are beginning to sag. We will be replacing those shelves with new, reinforced metal shelves starting next week. The shelves will be replaced 1:00–4:00 a.m., during our least busy hours. Several aisles will be off-limits to customers during that time as a safety precaution.

The following aisles will be affected:

- Kitchen appliances
- Kitchen & dining furniture
- Kitchen storage
- Home goods clearance

Please direct customers looking for items in the affected aisles to the Outdoor Furniture and Patio Accessories areas.

Figure 2.42:(b) Document after editing

Selecting a text

Before making any changes or editing a text, you must first select the text that you want to edit. You can select the text using either the mouse or the keyboard. The selected text appears highlighted on the screen, as it is shown in Figure 2.43.

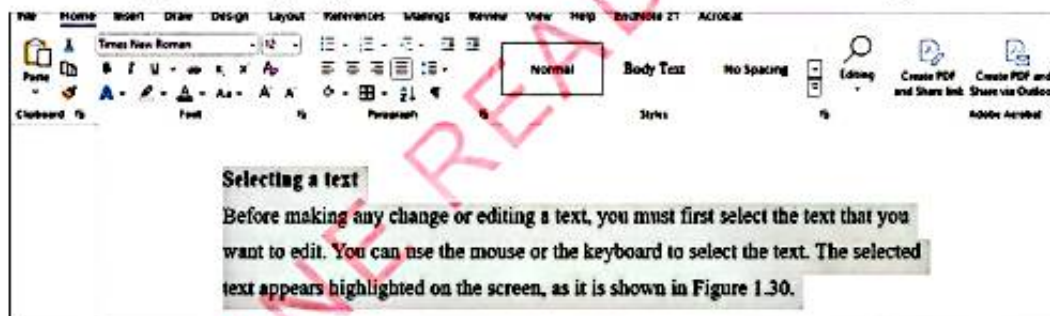


Figure 2.43: Text selection

Steps for selecting a text;

1. To select a word, double-click the word.
2. To select a sentence, hold the Ctrl key and click anywhere within the sentence.
3. To select a paragraph, triple-click anywhere within the paragraph.
4. To select the entire document, press Ctrl + A.
5. To select adjacent text, lines, or paragraphs, click and drag with the left mouse button over the text while holding the button, or

click at the beginning of the text, hold the Shift key, and click at the end.

6. To select non-adjacent text, lines, or paragraphs, make the first selection, then hold down the Ctrl key and make the additional selections.

NOTE: To deselect the text, click anywhere in the document.

Deleting a text in MS word document

If you wrongly inserted text or an object in an MS Word document,

you can remove them using the Backspace and Delete keys on the keyboard.

1. Backspace removes characters to the left of the insertion point. To delete a character, position the insertion point in front of the character, and press the backspace key.
2. Delete removes characters to the right of the insertion point. Place the insertion point at the beginning of the character, then press the delete key.

To delete a word, sentence, paragraph or block of text, select it and press Delete or Backspace.

Copying and moving a text

When editing a document, you may need to duplicate a text to another location or remove text from its original location to a new location. The Copy command duplicates the text, while the

Cut command moves the text. The icon for the two commands appears in the Clipboard group of the Home tab as in Figure 2.44.

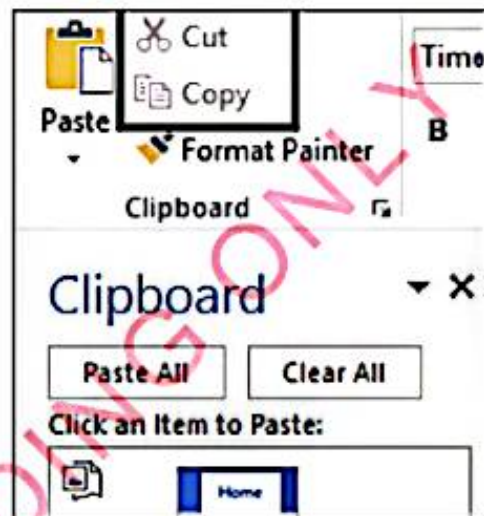


Figure 2. 44: Icons for copying and cutting commands

Copying a text

To copy a text, you must first select the text, then click the Copy icon in the Clipboard group on the Home tab, right-click and select the Copy command as shown in Figure 2.45, or simply press Ctrl + C as a keyboard shortcut.

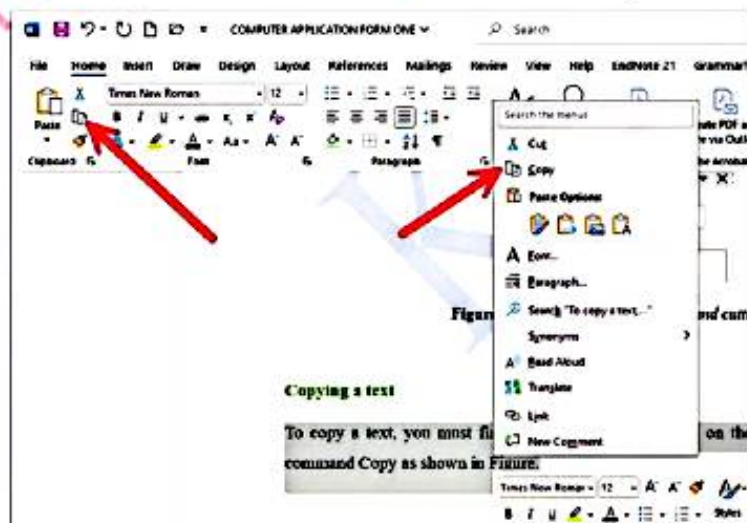


Figure 2.45: Copying text in the document

Alternatively, copying can also be done by selecting the text, holding the Control (Ctrl) key, dragging the text to the desired location, and releasing the mouse button to paste.

Cutting a text

Cut is one of the useful commands in a word processor. When editing a document, you may realise that some text needs to be moved from the current location to a new one. MS Word provides a solution to that through the Cut command.

Steps for Cutting a text;

1. Select the text you want to move,
2. Right-click on the selected text,
3. From the pop-up menu, select Cut, or click the Cut icon in the Clipboard group on the Home tab, or press the Ctrl + X key combination.
4. Move the insertion point to the new location where you want the text to appear.
5. Right-click and choose Paste from the pop-up menu, click Paste on the Clipboard group, or press the Ctrl + V keyboard shortcut.

Alternatively, you can move the text by dragging and dropping the selected text by following these steps:

1. Select the text you want to move,
2. Click and hold the mouse over the selected text, then drag it

to a location where you want it to appear. The cursor will have a rectangular shape under it to indicate that the text is being moved,

3. Release the mouse button, and the text will appear.

NOTE: The cut or copied text is temporarily stored on the Clipboard, and it is kept there until replaced with new content. Figure 1.46 shows the Clipboard group on the Home tab.

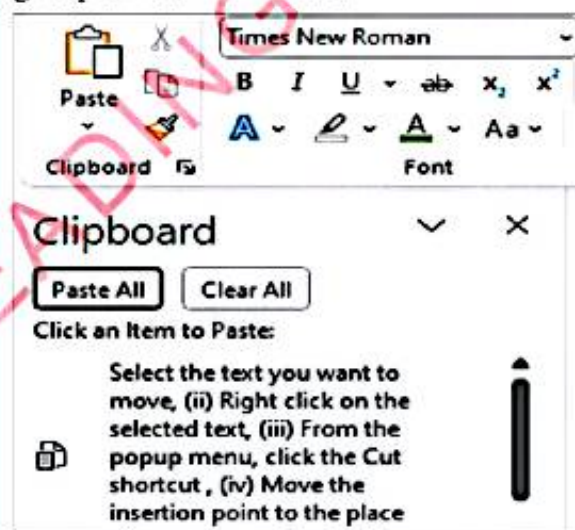


Figure 2. 46: Clipboard content

Pasting a text

The Paste command helps you to place the text you have copied or cut to another place. To paste a text, find a location where you want to insert the text, then click the Paste icon from the Clipboard group of the Home tab, or from the right-click pop-up menu, or use the keyboard shortcut Ctrl + V.

Undo and Redo commands

Sometimes, you make mistakes when entering a text in the word processor. You can easily reverse these actions using the

Undo command. After using Undo one or more times, the Redo command becomes active and allows you to restore any undone actions. Both of these commands are located on the Quick Access Toolbar, as shown in Figure 2.47

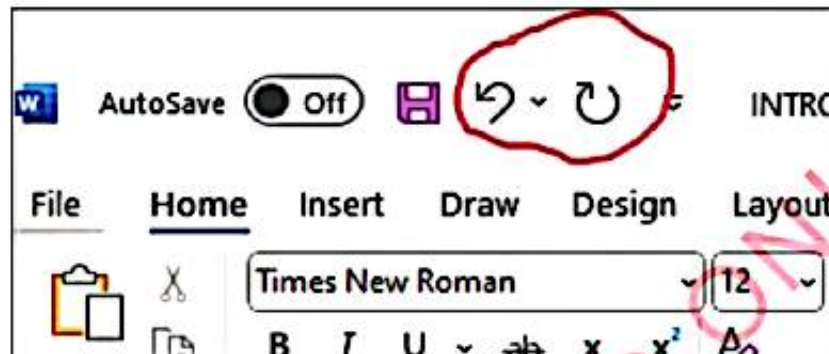


Figure 2.47: Undo and Redo commands

Table 2.1 shows the procedures for the Undo and Redo actions.

Table 2. 1: Undo and Redo functions

To Undo an action	To Redo an action
On the Quick Access toolbar, click the Undo button(↶), or press Ctrl + Z.	On the Quick Access toolbar, click the Redo button (↷), or press Ctrl + Y.

Spelling and grammar check

You can check the spelling and grammar in the file all at once, or you can let the spelling and grammar checkers suggest corrections automatically while you are working. MS Word offers a dictionary of standard grammar and spelling.

Steps for checking spelling and grammar;

1. Choose the language for which you want to check the spelling and grammar, as shown in Figure 2.48

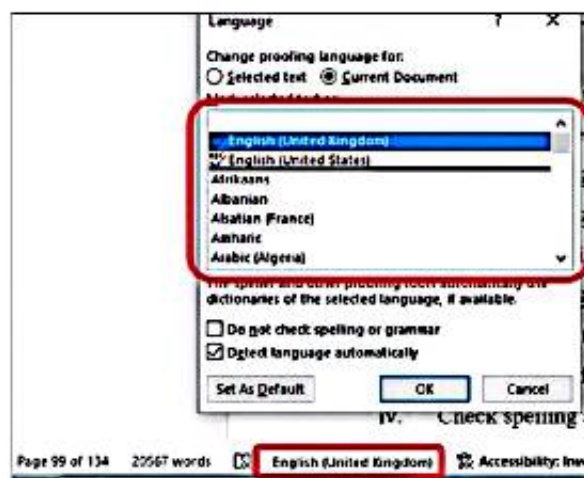


Figure 2.48: Language dialog box

2. Checking all the spelling and grammar in a file at once is useful when proofreading a text. It allows you to review potential mistakes and decide whether to accept each suggested correction. You can handle each error that the program finds in different ways.

For example, you can select a word you want to change, right-click on it, and choose from several options, as shown in Figure 2.49. You may select the suggested word to correct the error or choose to ignore it.

3. If you want MS Word to recognize the word and not flag it as a misspelling in the future, click Add or Add to Dictionary.
4. To skip one occurrence of a misspelled word and move to the next one, click Ignore Once.
5. If you want to ignore all occurrences of a specific misspelled word, click Ignore All, as shown in Figure 2.49.

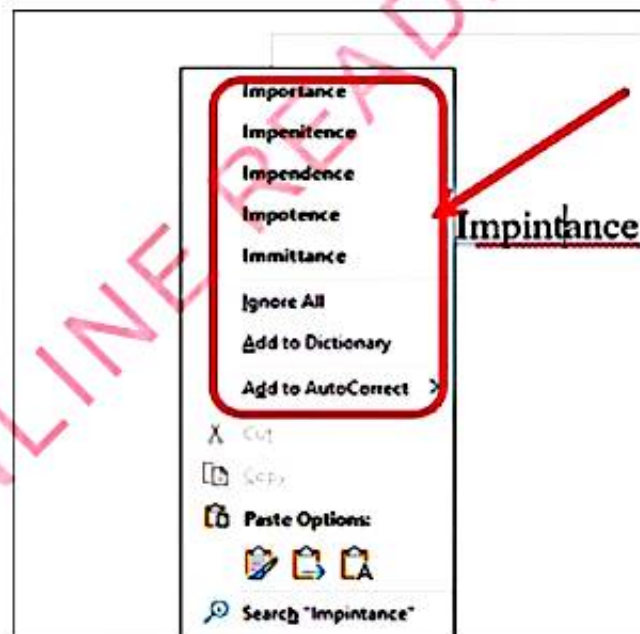


Figure 2. 49: Word correction features

Or

1. Open MS Word document,
2. Click on the proofing error icon on the status bar (). The grammar check window will open as shown in Figure 2.50.
3. Select the correct word from the recommendations.
4. Click **Change**.

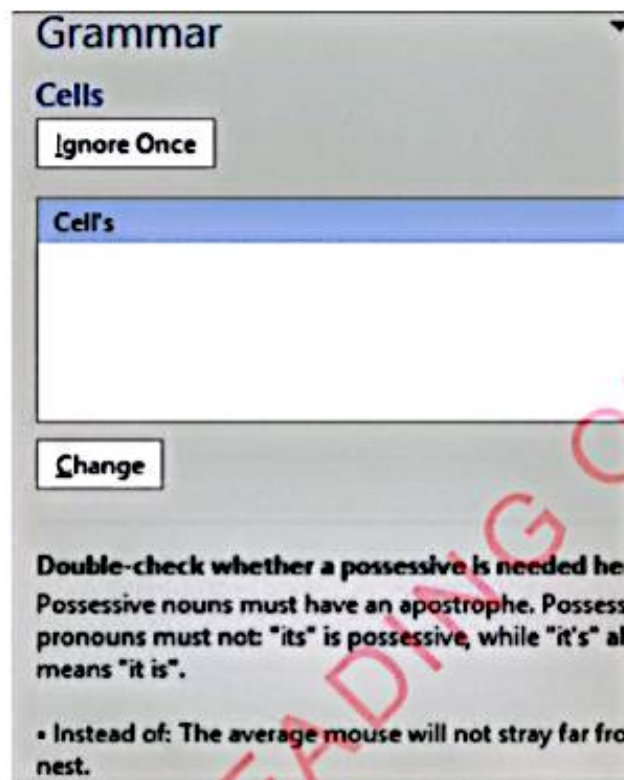


Figure 2.50: Grammar check window

Synonyms and thesaurus

MS Word has features that help users to get alternative words. The user can see words with similar meanings by right-clicking the mouse button on the word they wish to look for alternatives. Figure 2.50 displays the window which gives the option to choose synonyms of the word or find a thesaurus



Figure 2.51: Synonyms and Thesaurus features

Activity 2.11**Changing words using Synonyms and Thesaurus****Steps**

1. On the MS Word workspace, type the word "desired".
2. Right click the word "desired".
3. Select synonyms.
4. The drop-down menu will appear with suggestion of words.
5. Select the word you want to replace with "desired".

OR

1. Type any word on the MS Word workspace.
2. Go to the Review tab, and click Thesaurus.
3. See alternative words in thesaurus.
4. Click on the alternative word you find most suitable; the word will replace the existing word.

Find and replace

Find and replace in MS Word gives a chance to locate a word and substitute it with a new one. This

feature can help you to change the word that might have appeared multiple times in the document.

Steps for finding and replacing

1. In the Editing group of the Home tab, scroll down to access the Editing options (in some versions, this feature may have a different icon, but in MS Word 2021 it appears as seen in Figure 2.52). The find and replace dialog box will then appear as shown in Figure 2.53.

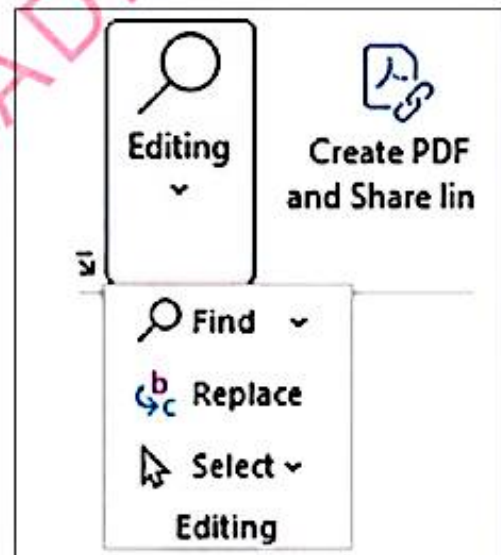


Figure 2. 52: Find and replace command

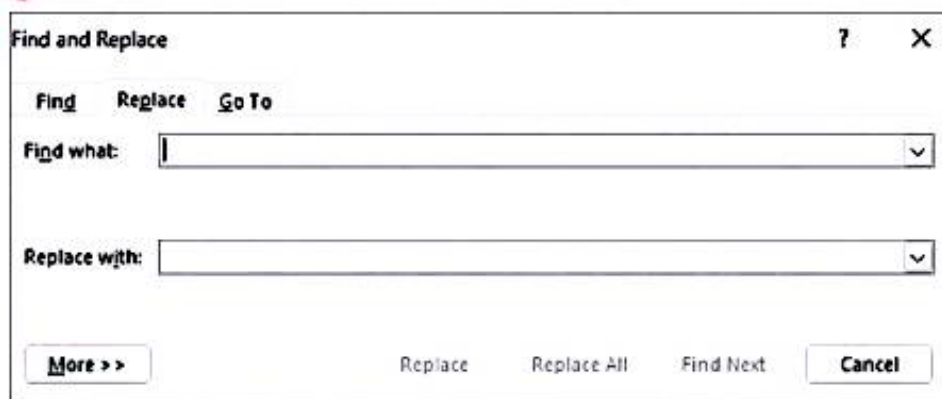


Figure 2. 53: The Find and Replace dialog box

2. Write the word you want to find in the Find what section.
3. Write the replacing word in the Replace with section.
4. Click Replace if you want to find and replace only one occurrence of a word.
5. Click Replace All if you want to replace all occurrences of the given word.

Formatting MS Word document

Formatting helps you to change the appearance of a document to make it look neat and professional. Text formatting options include **font type, font size, font colour, font style, page setup,** and more. The Font group on the Home tab contains the commonly used text formatting commands. You can also access additional text formatting options using the Font dialog box, which is opened by clicking the dialog box launcher in the Font group, as shown in Figure 2.54.

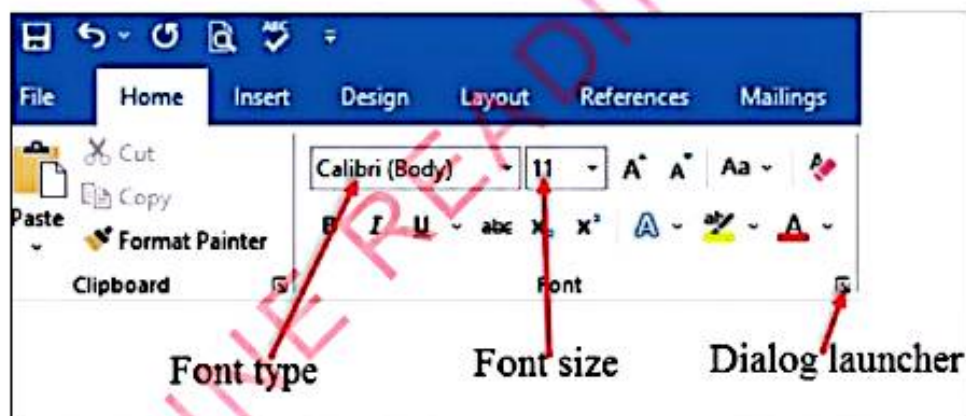


Figure 2.54: Formatting features

Changing font type and font size

A font is the style of text lettering that defines the overall appearance of the text. Examples of font types include **Times New Roman, Arial, Calibri Light, and Calibri.**

Steps for changing font type;

1. Select the text that you want to format.
2. On the Home tab, in the Font group, click the Font style arrow and,
3. Choose the desired font from the list (see Figure 2.55).

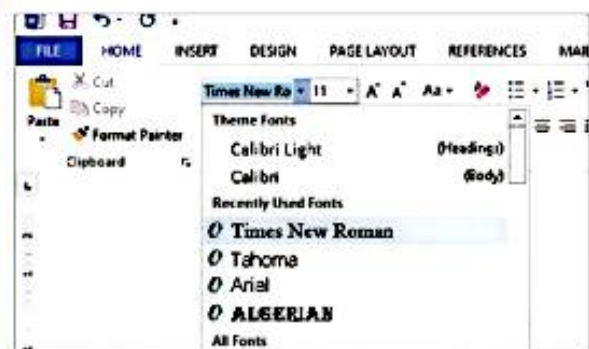


Figure 2.55: The Font type drop-down list

Changing font size

Click on the Font Size arrow and select the desired font size from the list on the Home tab in the Font group (see Figure

Form One

2.55). If a font size of your choice is not listed in the Font size list, click in the Font Size box, type the desired number, and press the Enter key.

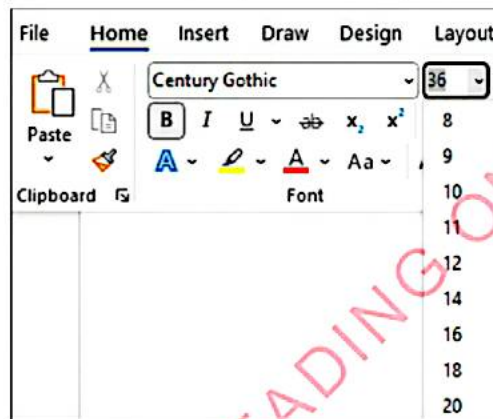


Figure 2.56: Font size drop down list

NOTE: The font size can also be changed by clicking on the Increase Font Size (A) button to increase or the Decrease Font Size (A) button to decrease. (see Figure 2.57).

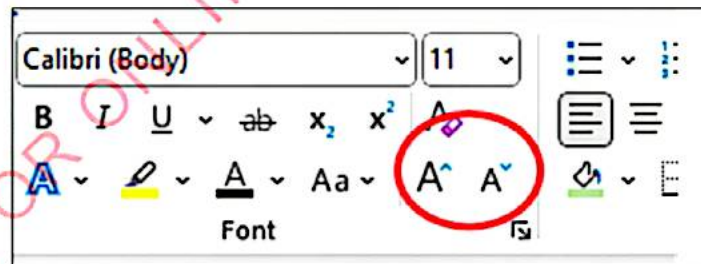


Figure 2.57: Font size changing tools

Applying font attributes

Formatting attributes such as bold, italic, or underline call the attention of readers to particular parts of your text. Figure 2.58 shows the different formatting attributes in a font group.

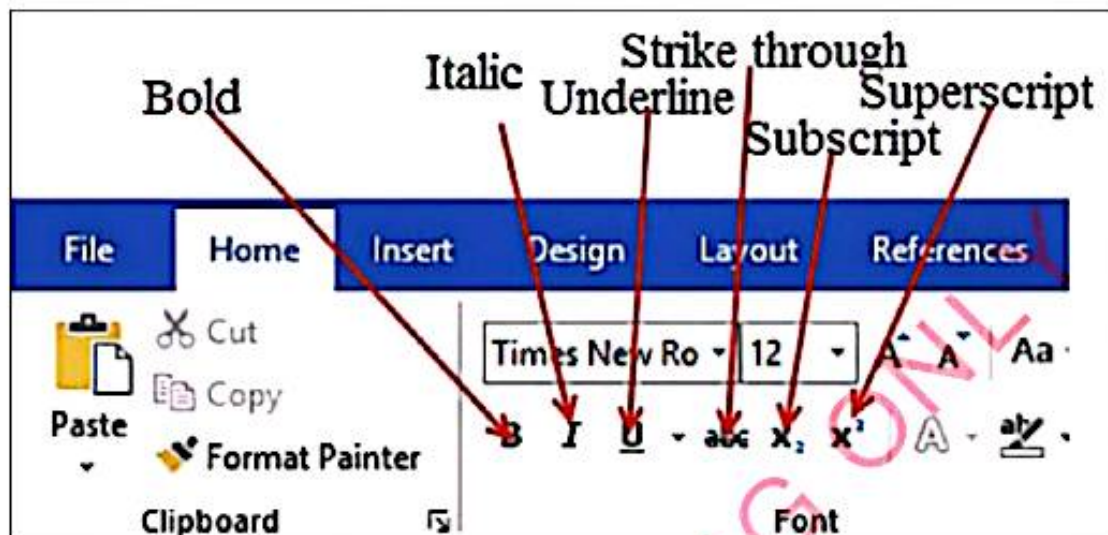


Figure 2.58: Formatting attributes

Additionally, you can assign a superscript or subscript notation to any text that makes it appear above or below the standard text. A subscript is a character such as a number or a letter that is slightly below the normal line (baseline). For example, in H_2O , 2 is a subscript.

A superscript is a character like a number or a letter that is set slightly above the baseline. For example, in x^3 , 3 is a superscript.

These attributes and others are found on the Home tab. In order to apply the attributes to a specific text, do the following:

Steps for changing text attributes;

1. Select the text where the attributes will be applied.
2. Point and click on the attribute you want to apply, for example, Bold as shown in Figure 2.59.

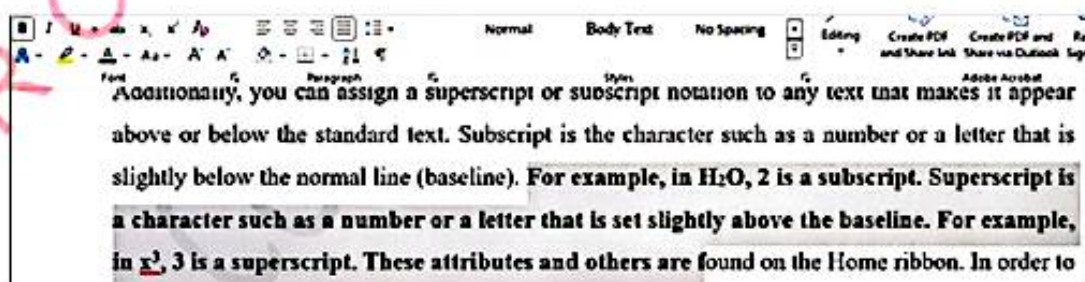


Figure 2. 59: Attribute changing features

Changing font colour and highlighting text

Font colour is used to emphasise some text in the document. If the document has a text that needs to get special attention from the reader, its colour can be changed or highlighted.

Steps for changing font colour;

To change the font colour, follow the following steps:

1. Select the text you want to change,
2. Click the down arrow next to the colour icon. It is usually displayed as letter A underlined with some colour as seen in Figure 2.60.
3. After clicking on the down arrow for the colour, select the colour you want for the text.

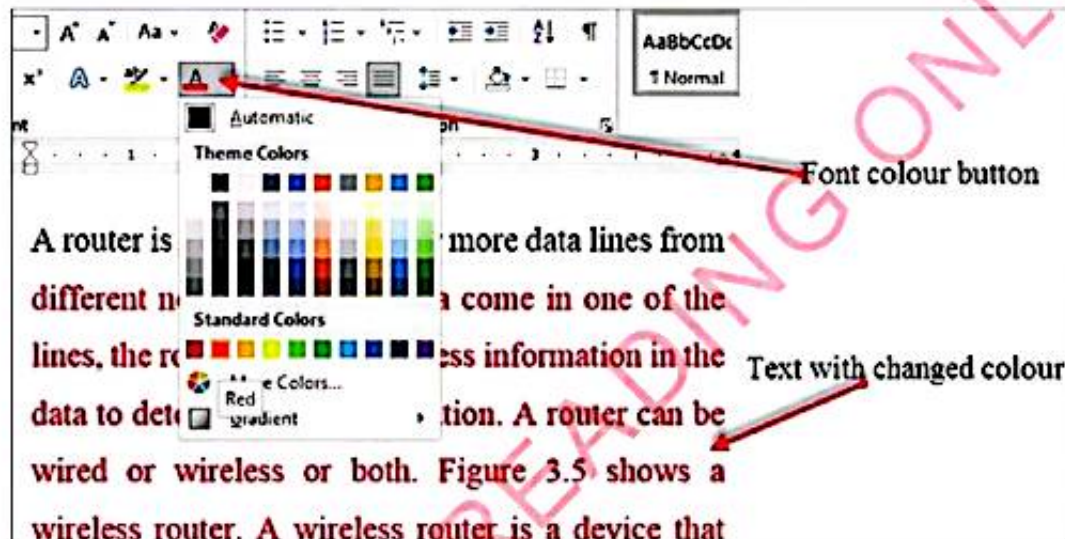


Figure 2. 60: Font colour formatting

Steps for highlighting a text

To highlight a text, the following steps are used:

1. Click the Home tab,
2. In the Font group, click the text highlight button arrow  to select the colour,
3. Drag the mouse over the text you want to highlight. The text becomes highlighted just like using a highlighter on a regular paper, but far neater as shown in Figure 2.61.

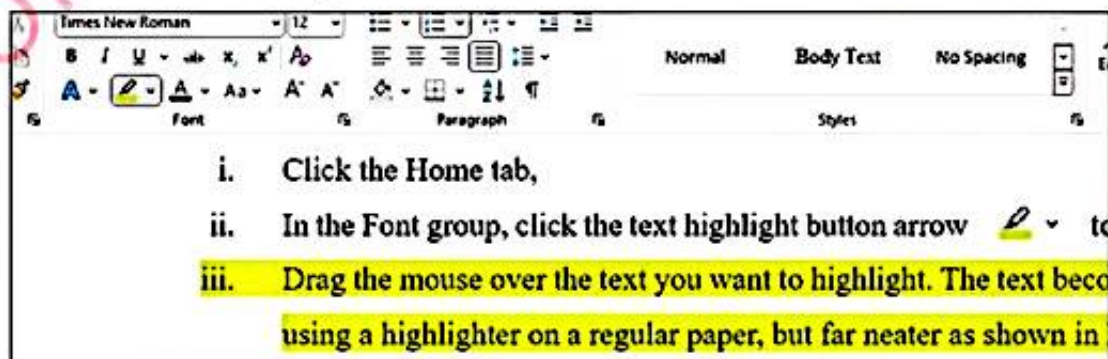


Figure 2. 61: Text highlighting

Text alignment

Alignment is the act of arranging your text in different positions based on the choice or the purpose of the text. There are four kinds of text alignment namely left, right, centre and justify. The MS Word program has a feature that allows the user to either align a text to the left, right, centre, or justify.

By default, MS Word aligns the text to the left margin of the document. However, there may be times when you want to adjust text alignment to the centre, right, or justify. To align a text, do the following:

Steps for aligning text

1. Select the text you want to align.
2. On the Home tab, select one of the four alignment options from the Paragraph group. Figure 2.62 shows the alignment options available.

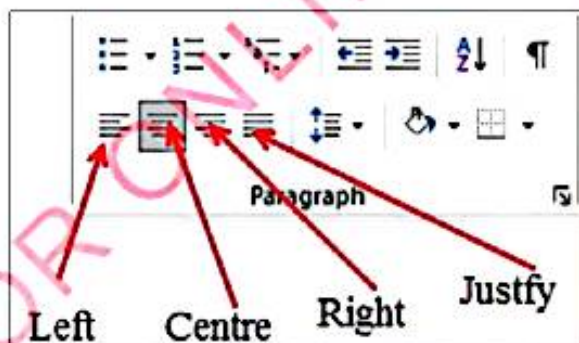


Figure 2.62: Text alignment options

Left alignment

Left alignment means that each line will start from the left margin. Left alignment is commonly used for body text and makes the document easier to read. (This text is Left aligned)

Right alignment

Right alignment means that each line will finish on the right margin. The starting position of each line will be different based on the length of the line. Right alignment is used for small sections of content, such as text in the header and footer. (This text is Right aligned)

Centre alignment

Centre alignment means that each line will be displayed with equal spacing on either side. This setting is mostly used to print the title, header and quotes of any text. (This text is Center-aligned)

Justify alignment

Justify alignment means that each line will start on the left side and finish exactly on the right margin. The extra space will be adjusted among the words. Justified text looks neat as words are evenly distributed to both sides of the page. (This text is justified)

NOTE: If you want to change the alignment of a paragraph, select the text and then place the cursor on the alignment style you want, then click on it.

Changing text case

There is a time when text cases need to be changed. The Change Case command helps to change the case, instead of deleting and retyping a text.

Steps for changing text case;

1. Select the text you want to modify.
2. On the Home tab, in the Font group, click the Change Case command arrow **Aa** . A drop-

down list will appear as in Figure 2.63.

3. Select the option you need to use.

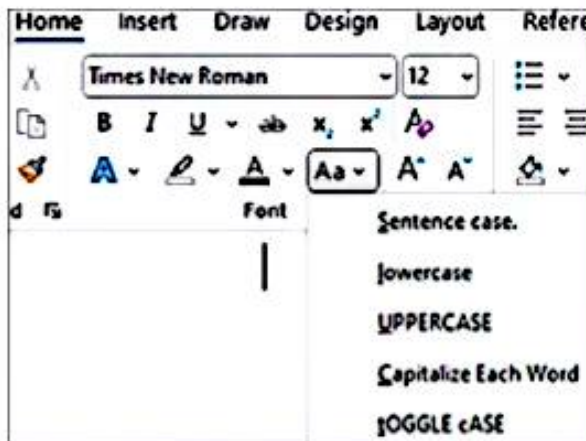


Figure 2.63: Text Case chasing drop down list

Activity 2.12

Formatting a text

1. Type the names of the subjects you learnt in primary school.
2. The title of text should be "I WILL BE AN EXPERT".
3. Bold the title.
4. Increase the size of the title to 24 points.
5. Change the colour of the first subject to blue.
6. Change attributes of one of the subject names to Italic style.
7. Save the file as "my primary school subjects".

Line spacing

The space between each line of a paragraph is called line spacing. It is set to 1 by default in MS Word. It can also be set to 1.15, 1.5, 2, or other values. Spacing enables easy reading of the text. The procedure for using the Line and

Paragraph Spacing button on the Home tab

Steps for changing line spacing

1. Select the text you want to change the line spacing.
2. Click on the line spacing drop-down arrow as shown in Figure 2.64.

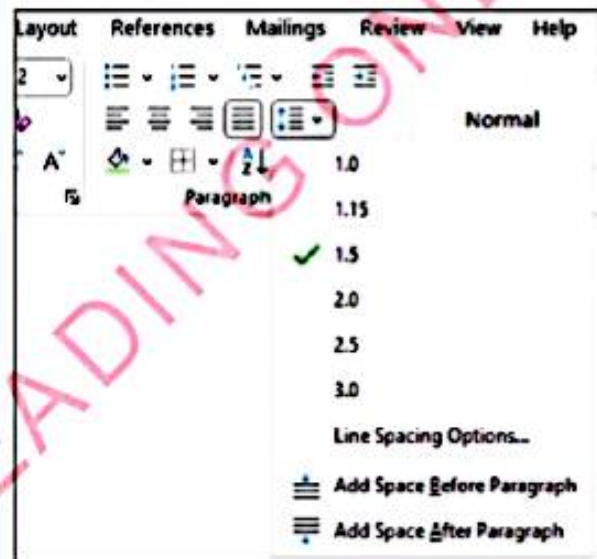


Figure 2.64: Line spacing options

3. Move your cursor over each of the built-in spacing options, and notice how the line spacing changes. Figure 2:64 indicates the drop-down list of the line spacing tool.
4. Click the desired value to keep it as the line spacing.

Bulleting and numbering

In MS Word, bulleted lists and numbered lists can be applied to a text whenever a listing of items is involved. Numbered lists can be created using commands in the Paragraph group of the Home tab, as shown in Figure 2.65

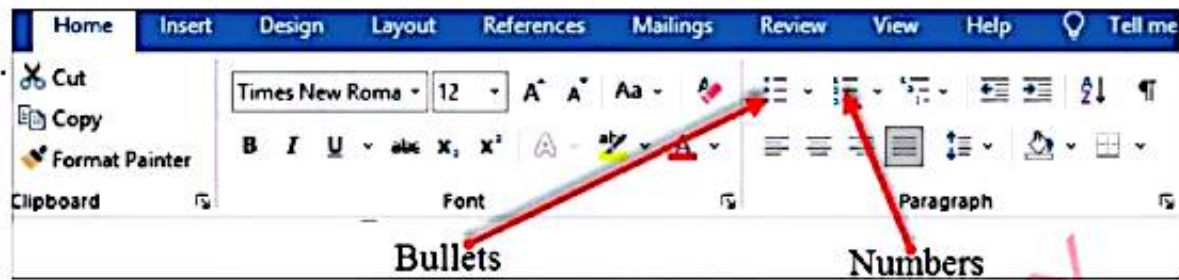


Figure 2. 65: Bullets and Numbering

Listing items using bullets

As mentioned earlier, bullets can be added to a text whenever a listing of items is needed.

Steps for listing items using bullets;

1. Select the text you want to be in bullets,
2. On the Home tab, in the Paragraph group, click the Bullets button arrow. The window like that in Figure 2.66 will appear.

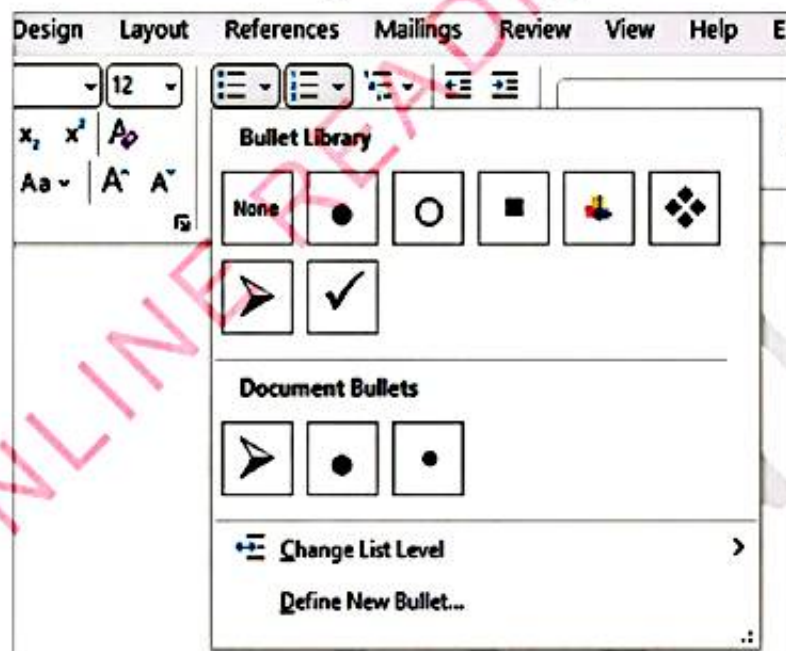


Figure 2. 66: Bullets Types

3. Click the bullet type of your choice.

Steps for listing items using numbers;

As mentioned earlier, numbers can be added to the text whenever listing of items is required.

1. Select the text you want to be numbered.
2. On the Home tab, in the Paragraph group, click the Numbering button arrow .
3. Click the numbering type you prefer from the list as shown in Figure 2.67

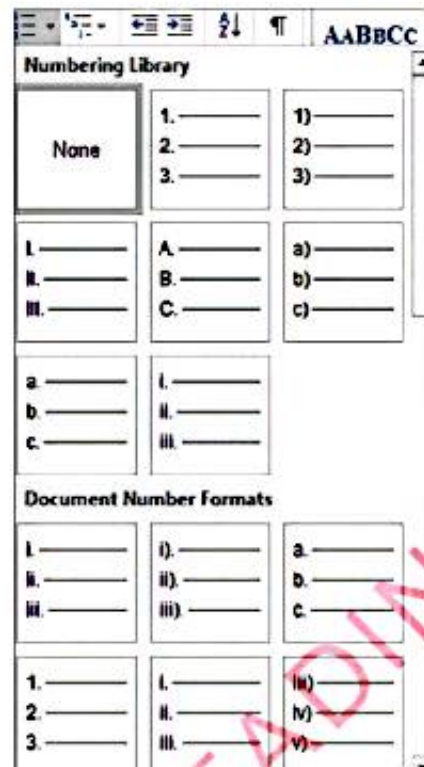


Figure 2. 67: *Numbering drop-down list*

The header and the footer

Headers and footers are sections of a document that appear at the top (header) or bottom (footer) of each page. They usually contain text or graphics such as page numbers, a company logo, the document title, the file name, or the author's name. A header appears in the top margin, while a footer appears in the bottom margin.

MS Word gives the option to use the same header or footer throughout the document or to vary headers and footers in different parts of the document. You can also use different headers and footers on odd and even pages or certain sections of the document.

Steps for inserting footer

1. Click the Insert tab.
2. In the Header and Footer group of the Insert tab, click the Footer arrow to insert the footer (see Figure 2.68).
3. Select the position (Left, Center or Right) and style of the footer, and click it to choose.
4. Type the text of the footer.
5. Click the Close icon.

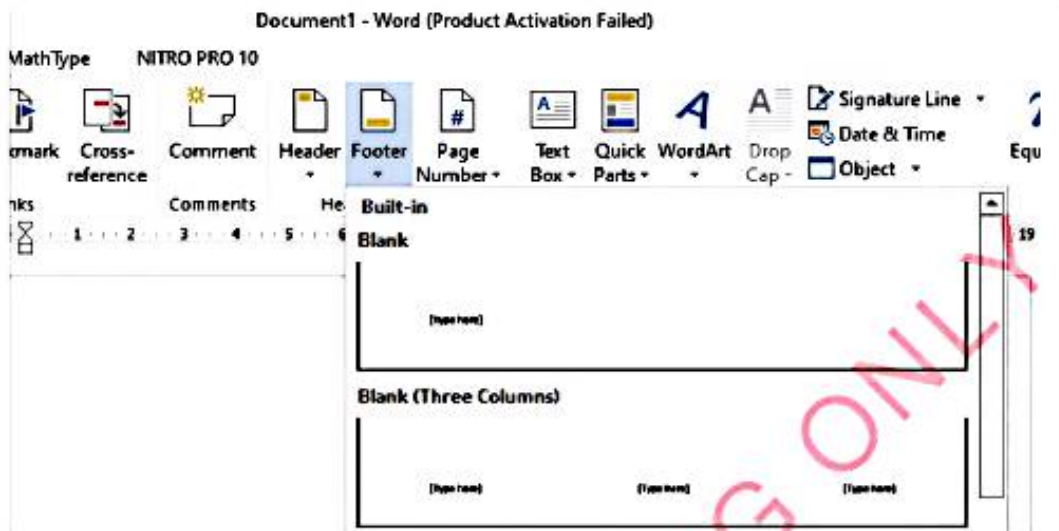


Figure 2.68: Footer's dropdown menu

Steps for inserting header

To insert the header, follow these steps:

1. Click the Insert tab.
2. On the Header and the Footer group of the Insert tab, click the Header arrow to insert the header.
3. Select the position (Left, Center or Right) and the style of the header, as shown in Figure 2.69. A typing cursor will appear as shown in Figure 2.70.
4. Type the text to be used as the header.
5. Click close or escape after finishing.

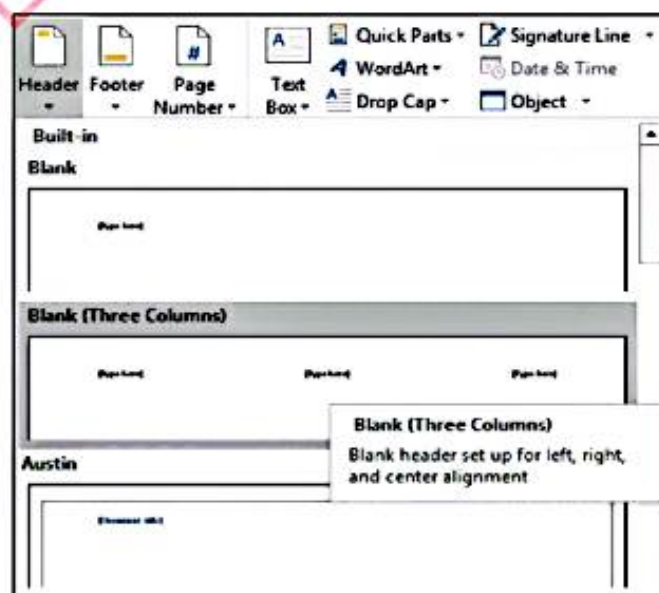


Figure 2.69: Header's drop-down menu

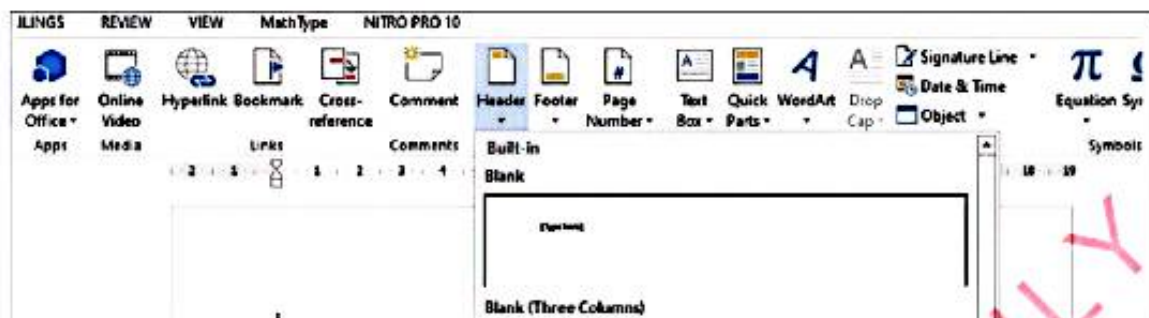


Figure 2.70: Header and footer edit bar

NOTE: After inserting the header and/or footer, click on the Close Header and Footer button, as seen in Figure 2.70, to exit the header and footer editing window.

Page numbering

MS Word allows you to insert page numbers in the document. There are different options you can use to insert page numbers. By default, numbering starts from 1 onwards. But you may use other numbering formats instead of the default one, or use different numbering styles in one document.

Inserting page numbers

Steps for inserting page numbers

1. Click on the page you want to insert a page number.
2. Click the insert tab.
3. In the header and the footer group, click the Page Number arrow.
4. Select the position you want your page numbers to appear (top or bottom) as shown in Figure 2.71.
5. Choose alignment (left, Centre or Right) and the number style.

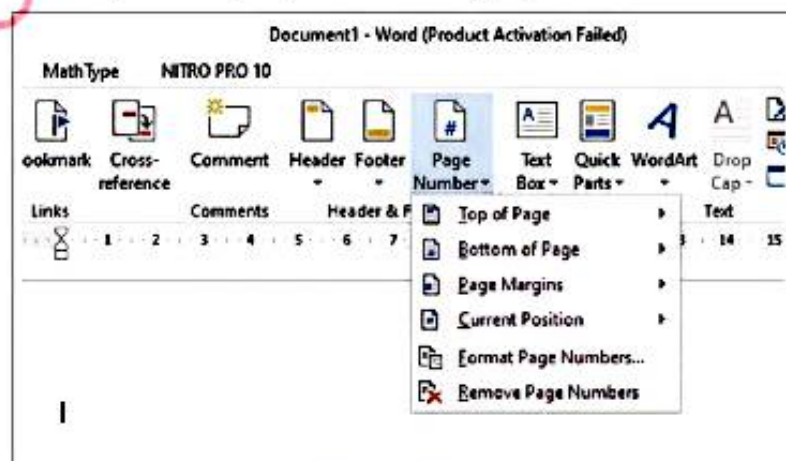


Figure 2.71: Page number insertion menu

Inserting different page numbering formats in the same document

Before inserting different page numbering formats within the same document, insert a section break on the pages where you want to apply different numbering formats.

Steps for inserting a section break

1. Position a cursor to the bottom of the page you want to separate.
2. Click on the Layout tab.
3. In the Page Setup group of the Layout tab, Click Breaks. The window like that in Figure 2.72 will appear.
4. On Section Breaks, click Next Page.

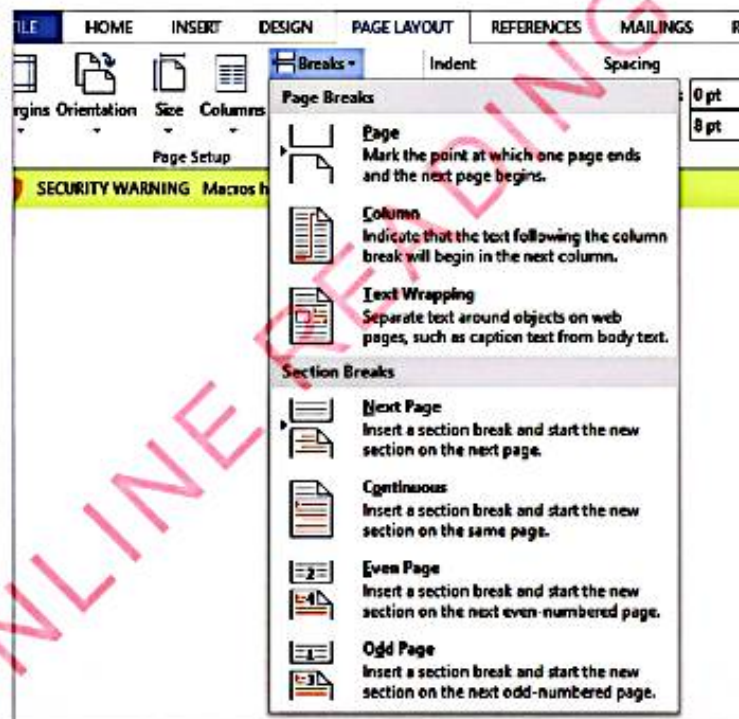


Figure 2.72: Page breaks drop down menu

Steps for inserting new styles of numbers

The necessary steps to follow are:

1. In the Header & Footer group of the Insert tab, click the Page Number arrow and click format page numbers to open a page number format dialog shown in Figure 2. 73.
2. On the page number format pane, set the number format and specify where and how you want the numbering to start, as shown in Figure 2.73.

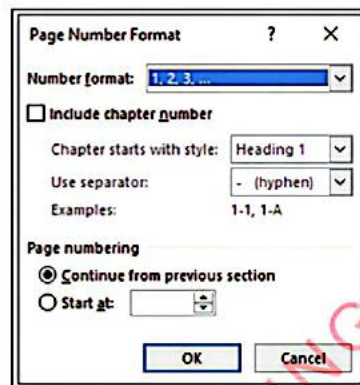


Figure 2.73: Page number formatting dialog

3. Click OK.
4. Go back to the Page Number menu.
5. Select the position of page numbers.
6. Click on the desired position to select it.

Columns

MS Word provides tools that can help you type your document or set it into columns. There are different styles of text columns. For example, you can have a one-column text, a two-column text, and a three-column text, which can either be aligned to the left or to the right, as shown in Figure 1.74. This feature also gives you an option to insert a line between the divided text.

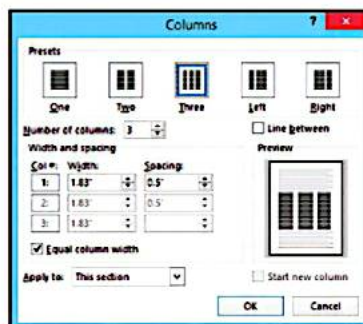
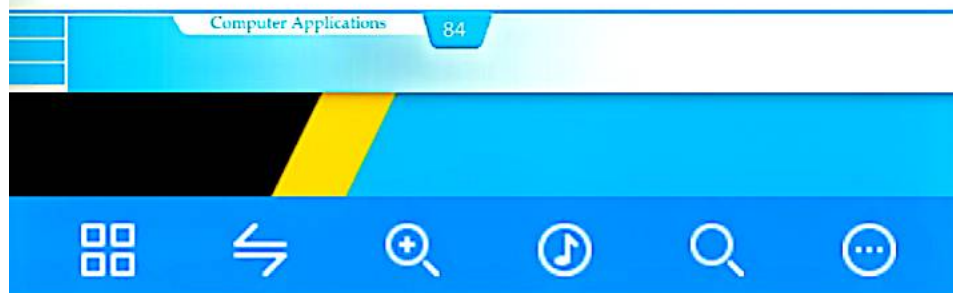


Figure 2.74: Column dialog box



Activity 2: 13

To insert a column, follow the following steps:

1. Select the text you want to divide into columns.
2. Click the Layout tab.
3. In the Page Setup group of the Layout tab, click the arrow at the bottom of the Add or Remove Columns symbol.
4. Select One, Two, Three, or More Columns to choose the desired style of column.

Exercise 2: 3

1. Write a two pages document explaining the story of your past academic history.
2. Format the story in three columns, underline the headings and sub headings.
3. Use the Times New Roman font type and 12-point font size with line spacing of 1.5.
4. Highlight the heading with green colour.
5. Bold the heading.
6. Insert numbering on each paragraph.
7. Insert Header of your document to read "*My Academic History*".
8. Insert page numbers in the document.
9. Justify the text.
10. Save the document in both word and PDF formats.

Tables

MS Word gives you powerful tools to organise your text using tables, which consist of rows and columns. You can create a table by using either the Table command on the Insert tab or by drawing it with the Draw Table command.

Steps for inserting tables;

1. Click on the Insert tab.
2. Click on the Table icon. The window similar to Figure 2.75 will appear.
3. Specify the number of rows and columns.

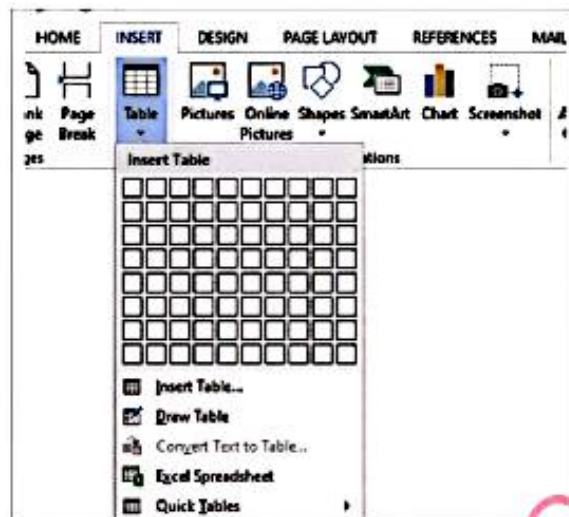


Figure 2.75: Inserting a table by highlighting the number of rows and columns
Or

1. Select the Insert Table option as shown in Figure 2.76(a), and
2. Specify the number of rows and columns, for example, 2 rows and 5 columns specified in Figure 2.76(b).

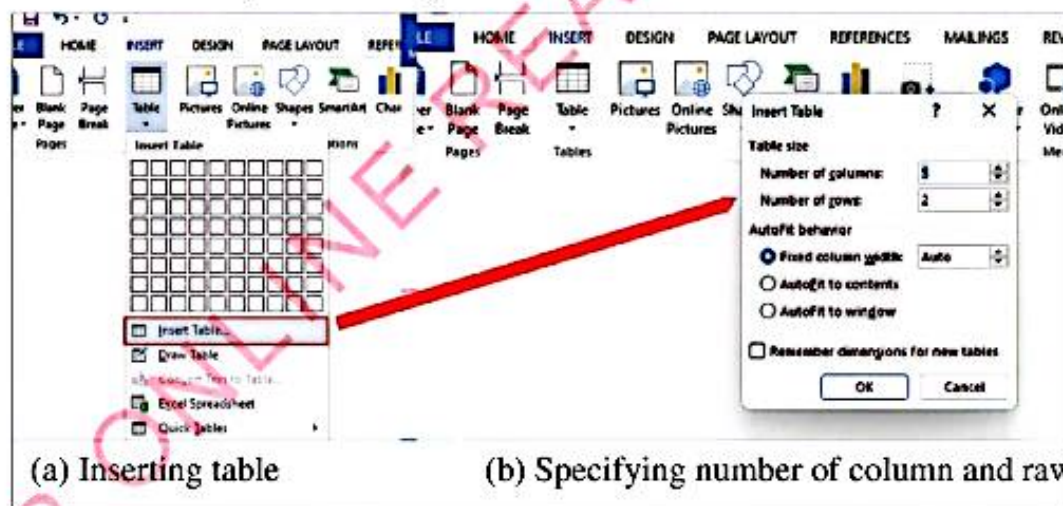


Figure 2.76: Inserting a table by specifying the number of rows and columns

3. Click OK. The table will be created as shown in Figure 2.77

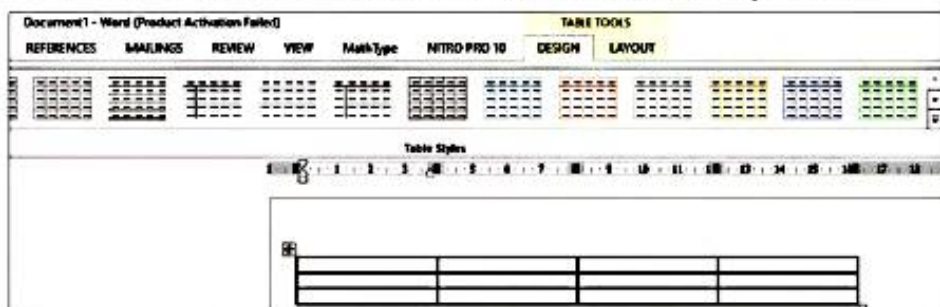


Figure 2.77: A newly created table

Or

1. Click on the Insert tab.
2. Select Draw Table.
3. The drawing pen will appear on the cursor.
4. Select a place to draw the table and drag to draw a table of one cell.
5. Use the pen to draw more columns and rows as per your requirement.

Editing and formatting tables

Editing and formatting tables in MS Word involves various attributes, such as adding borders, merging cells, inserting or deleting rows and columns, aligning text within cells, repeating header rows, applying shading, and adjusting text direction.

Steps for adding borders

1. Select the cells to which you want to add the borders.
2. On the Design tab, as shown in Figure 2.78, click the arrow on the Borders command.

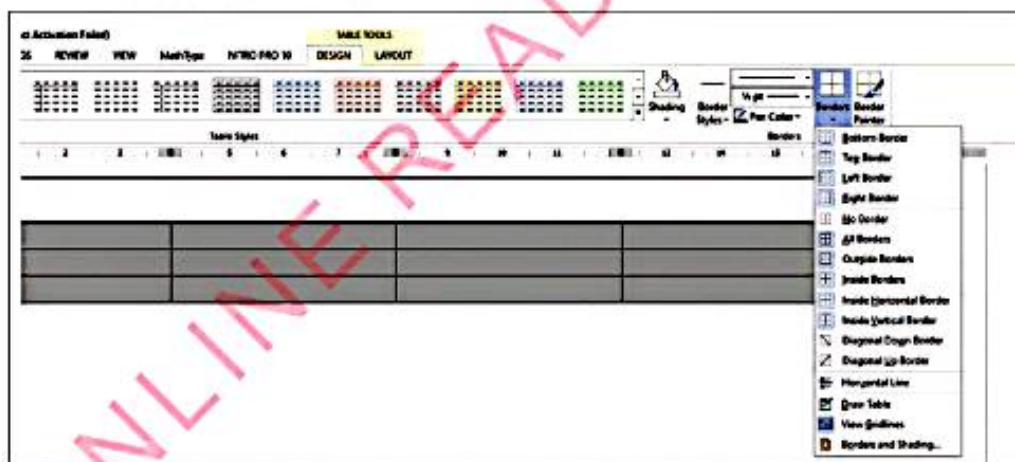


Figure 2.78: Borders insertion menu

3. Choose the type of border you want to apply to your table. In this case, all borders, has been selected, as shown in Figure 1.79.

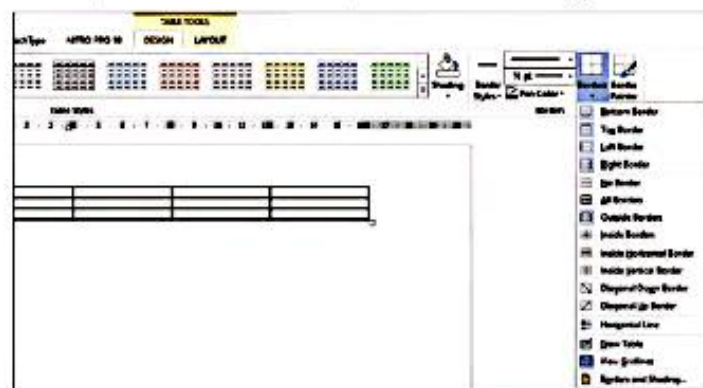


Figure 2.79: Defining table borders

NOTE: you can edit margin border style, colour, or line weight by changing them using design features as shown in Figure 2.79

Steps for merging cells

1. Select the cells you want to merge like what is shown in Figure 2.80,
2. Select the Layout tab under Table Tools,
3. Choose merge cells as illustrated in Figure 2.81(a) and Figure 2.81(b).

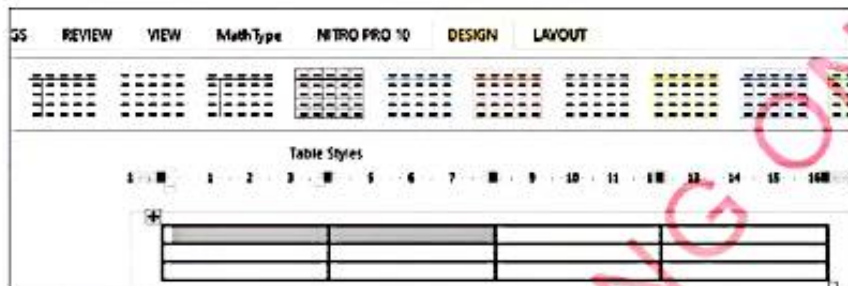


Figure 2.80: Table cells selection for merging



Figure 2.81 (a): Merging table cells

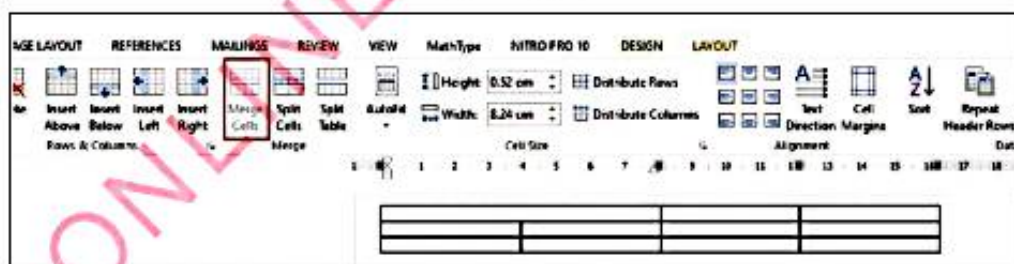


Figure 2.81 (b): Merged table cells

Steps for inserting rows and columns

There are three ways on how to insert a new row or a new column in a table which are:

1. **Using the right-click menu**
 - (a) Place the cursor in a cell (box) where you want to insert a row or column, then right-click to open the menu as shown in Figure 2.82.
 - (b) To insert a row, click "Insert Above" to place a row above the selected cell or "Insert Below" to place it below the selected cell, as shown in Figure 2.82.



Form One

- (c) To insert a column, click "Insert Left" to place the column to the left of the selected cell, or insert right to place it to the right, as shown in Figure 2.82.

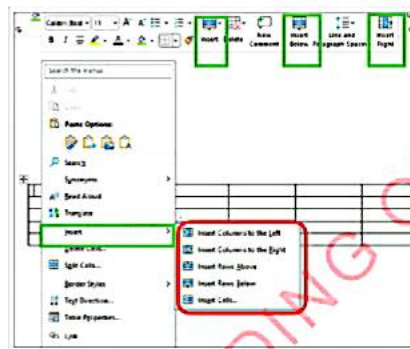


Figure 2.82: Inserting new columns and rows tools

2. Using layout page

Place the cursor in a cell, go to the Layout tab and select "Insert Above" or "Insert Below" for rows, and "Insert Left" or "Insert Right" for columns, as shown in Figure 2.83



Figure 2.83: Table layout commands to Insert Rows and Columns

3. Using the Add (+) Button

Place the cursor over the line separating two rows or columns, and an add (+) button will appear. Click to add a new row or column, as illustrated in Figure 2.84.

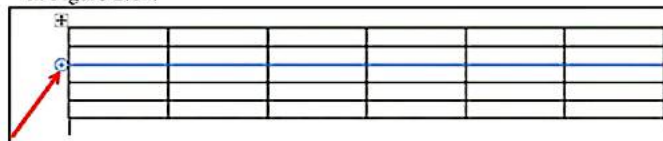


Figure 2.84: Adding a new row to a table



Delete rows, columns, cell or table

A row, a column or a cell can be deleted by selecting the respective item and selecting either Delete Rows, Delete Columns, Delete Cells or Delete Table in the Table Layout or in the right-click menu as shown in Figure 2.85.



Figure 2. 85: Delete commands of the table elements

Erase and draw in the table

In MS Word, there is a Draw Table or Eraser command that can be used to modify a table by adding or removing lines in a table in order to adjust the number of cells, rows, or columns as may be required. Moreover, you can also erase the line and combine cells, or rows, or columns to form one cell.

Steps for drawing or erasing lines in a table

1. Select the table and click the Layout tab.
2. On Layout tab, select either the Draw or Erase option, as shown in Figure 2.86.
3. Use the selected tool to add or remove the lines in the table as desired.



Figure 2. 86: Erase and draw table commands

Steps for aligning the text within the cells

1. Create a table.
2. Insert some text in the cell.
3. Select the text,
4. Click the Layout tab from Table Tools.
5. Choose your desired text alignment as shown in Figure 2.87.

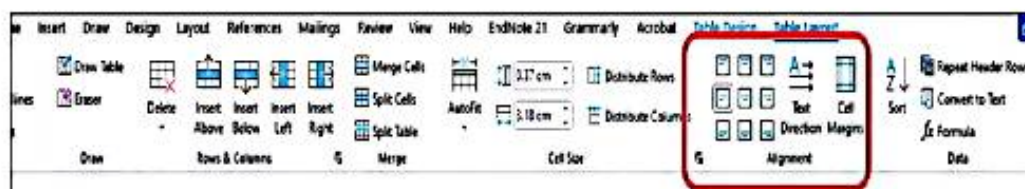


Figure 2. 87: Text alignment commands within the table

Steps for changing the text's direction

Steps for changing text direction are as follows:

1. Select the cells containing the text whose direction you want to change.
2. Click Layout tab under Table Tools,
3. Click the text direction option of your choice as shown in Figure 2.88.

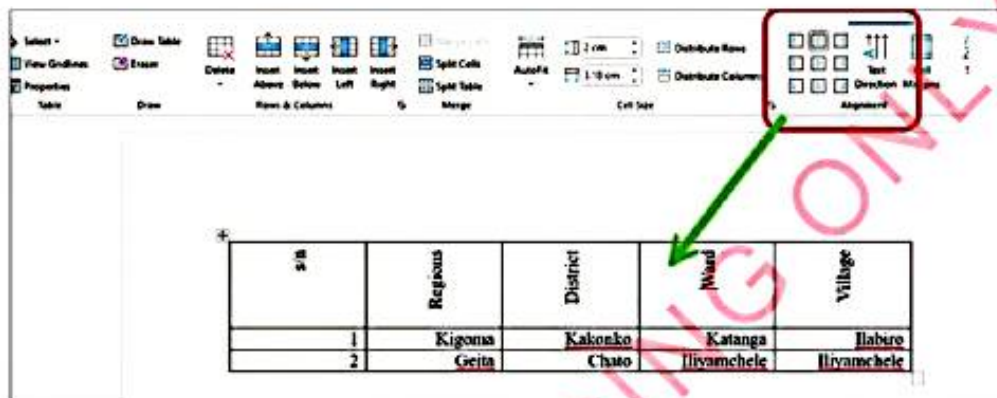


Figure 2.88: Text alignment commands within a table

Exercise 2.4

1. By using Microsoft Word, draw the following table:

TAX REGION	1st Quarter 2023/24				COMMENTS
	July	August	September	Total	
MTD	64,795.8	64,381.5	92,125.70	221,303.1	
Ilala	37,240.2	38,610.3	41,162.18	117,012.7	
Kinondoni	22,194.8	26,613.6	25,119.84	73,928.3	
Temeke	6,823.8	7,927.7	9,166.36	23,917.8	
Arusha	7,444.1	8,788.0	14,264.73	30,496.9	

1. Align the text direction in the column "TAX REGION" to point downwards.
2. Change the style of the border to any style of your choice.
3. Merge the cells under the "COMMENT" column.
4. Type "collection is good" in the comment column.
5. Save your work as TAX collection.

Inserting pictures

Adding pictures to your document is a very good way to have an interaction with the reader. It aids in conveying messages, ideas, and concepts in a very simple and beautiful way. Images or pictures can greatly improve comprehension, attract readers and enable them to understand your topic very easily and visually enrich the content.

MS Word provides a feature that allows you to insert images or pictures directly from your computer into your document. By the end of this section, you will be able to add, edit, and customize pictures in your document, as described in the following steps:

There are two main ways for inserting a picture into a document:

1. Using the Insert tab and the Picture command, or
2. Pasting a copied picture.

Steps for inserting picture using insert picture command:

1. Select the insert tab from the navigation menu, as shown in Figure 2.89.
2. Click the pictures command, then select from the drop-down menu, as shown in Figure 2.89.
3. Select one of the following three options to insert a picture, as shown in Figure 2.89.
 - (i) Insert Picture from This Device.
 - (ii) Insert Picture from Stock Images.

- (iii) Insert Picture from Online Pictures.

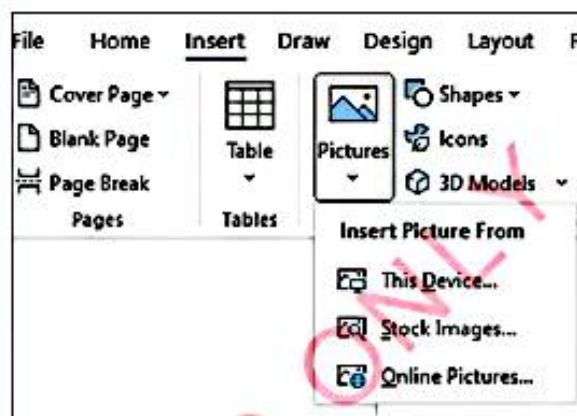


Figure 2. 89: Inserting a picture using the Pictures tool

Steps for inserting a picture from this device option

1. Open the Insert tab from the navigation menu (see Figure 2.89).
2. Click Pictures and choose Insert Picture from this Device.
3. In the file selection window that pops up, select the drive or folder from the left panel that contains the image of your choice, as shown in Figure 2.89.
4. Choose the picture/image you wish to insert in your document and Click Insert, as shown in Figure 2.90.

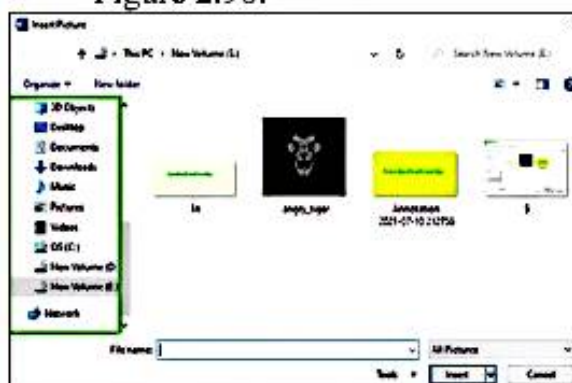


Figure 2. 90: Inserting a picture using the Insert a Picture from This Device method

- The picture will be inserted at the selected area in the document.

Steps for inserting a picture from online sources

- Choose the Online Pictures option from the drop-down menu shown in Figure 2.89
- In the Online Pictures dialog box, you can search from a variety of online pictures as indicated in Figure 2.91



Figure 2. 91: Search the picture name in the search bar from online sources

- Select the desired picture/image and click on the Insert button (Figure 2.91).
- The picture will be added to the selected location in your document.

Steps for Inserting picture by Pasting the copied picture in the document.

- Copy the picture from another location (e.g., computer storage, online source, or from another document or application).
- Place the cursor in the document where you want the image to appear, and paste the copied picture.

Picture formatting

When the picture is inserted or pasted in the document, it comes with a different format which sometimes may require formatting, such as resizing, framing, cropping, or adjusting the layout. You can access these options on the Picture Format tab as shown in Figure 2:92

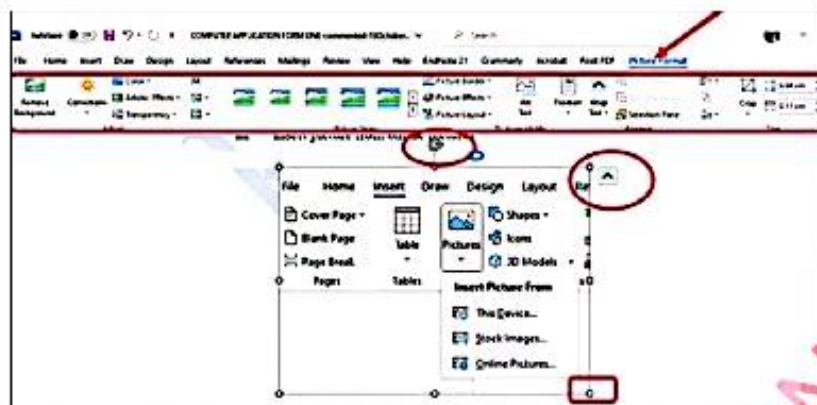


Figure 2. 92: Picture formatting command

Layout formatting

By default, an inserted image will be placed in line with the text. This means the image will behave just like a character in the text, pushing the rest of the words after the cursor next to it and below it as shown in Figure 2.93.

There are two options for adjusting a Picture Layout:

- (i) By using the Layout pop-up menu which appears after left-clicking on the picture.
- (ii) By using the Wrap Text command on the Picture Format tab.

By default, an inserted image will be placed in line with the text. This means the image will act just



like text, pushing the rest of the words after the cursor next to and below it. To change this, left click the image and a Layout Options box will appear to the right of it, as indicated in Figure

Figure 2. 93: Example of a picture inserted in line with text

Steps for adjusting the picture layout using the Layout Options pop-up menu which appears after clicking on the picture.

1. Left-click on the image, and a Layout Options box will appear to the right, as indicated in Figure 2.94.

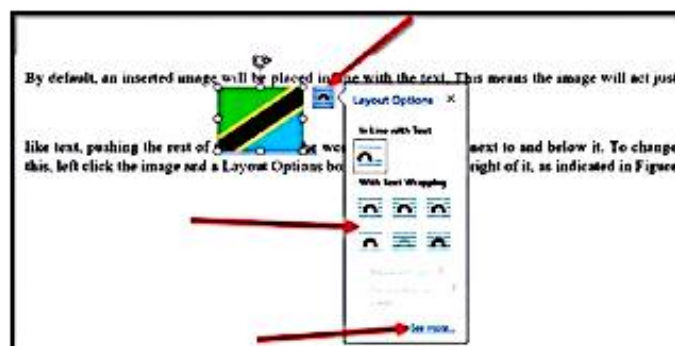


Figure 2. 94: Inserted image layout options box

1. Hover over each icon to see the names of layout options and choose the one that matches your goal. If you wish to see all the layout options, click See more at the bottom of the menu, as shown in Figure 2.94.
2. Text wrapping will determine how the image appears in relationship with the text as indicated in Figure 2.94.
 - (a) Square will make it so the text makes the image to form a square with the text around it.
 - (b) Tight means the very edges of the image will have text as close to it as possible.
 - (c) Through will be similar to tight but will also fill in gaps in the middle of the image
 - (d) Top and bottom makes the image take its own line, meaning text will not be beside the image at all and will have space before and after its placement.
 - (e) Behind text makes the image serve as a background behind the text.
 - (f) In front of the text will place the image over the text in the document, covering it without moving it.

Picture resizing

You can resize a picture according to your requirements by using the corner dots, or "handles" around the picture. You can also remove unwanted parts of

an image by cropping it.

- (ii) To keep the centre in the same place, press and hold the Ctrl key while dragging the dot button.
- (iii) To maintain the image's proportions, press and hold the Shift key while dragging the dot button.
- (iv) To maintain the proportions and keep the centre still, press and hold both the Ctrl and Shift while dragging the sizing handle.



Figure 2.95: Resizing the Picture

Cropping the picture

When you crop a picture, you trim its horizontal and vertical sides. Cropping is useful when you only want to exclude a portion of a picture or add a margin around it.

Steps for picture cropping

1. Select the picture to be cropped.

2. Select the Crop button on the Picture Format tab.
3. Black crop handles appear on the edges and corners of the picture as shown in Figure 2.96.

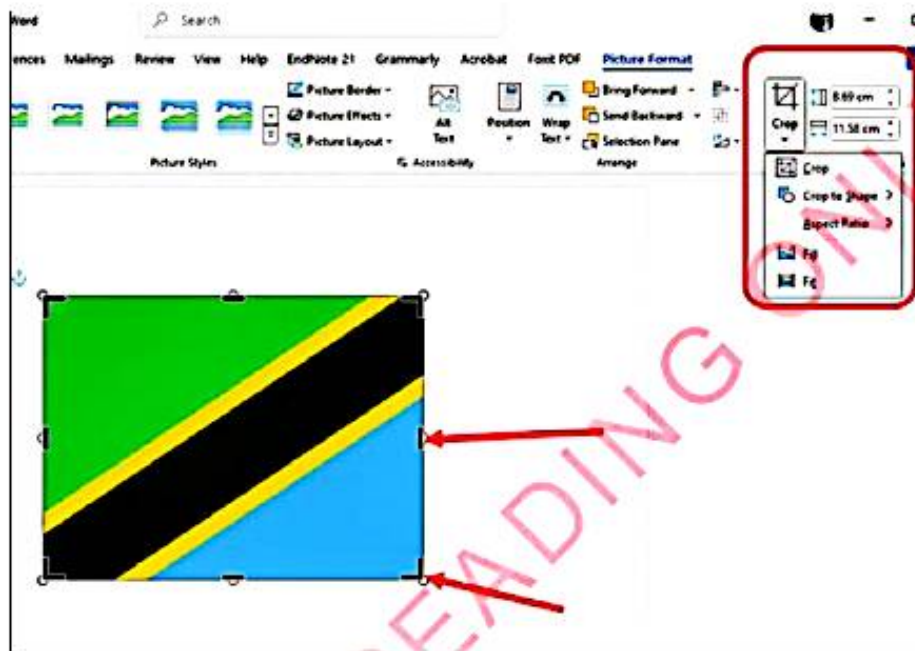


Figure 2. 96: Cropping the Picture

4. Crop the image by doing one of the following:

Table 2. 2: Cropping options and their respective actions

Description	Action
Crop one side	Drag inward on the side cropping handle
Crop two adjacent sides at the same time	Drag inward on the corner cropping handle
Crop equally on two parallel sides at once	Press and hold Ctrl while dragging inward on the side cropping handle

5. You can also outcrop, or add a margin around a picture by dragging the cropping handles outward rather than inward.
6. (Optional) to reposition the crop area, either adjust the crop rectangle by dragging its edges or corners or move the image within it.
7. When finished, press the Esc key or click anywhere outside the picture within the document.

Revision exercise 2

1. Explain the advantages of MS Word as a word processing application.
2. Describe in detail the functions of the Vertical and Horizontal Scrollbars.
3. Type a letter addressed to your head teacher requesting for a permission to go home. Format the letter in a proper letter format.
4. A form two student is asked to write an essay about his/her school. Unfortunately, the word "school" has been typed several times as "schol" in the document. It is possible to correct the misspelled word throughout the document in one operation. Name the feature which would enable this to be done.
5. The first word in the following sentence has been typed as "their" instead of "there". "Their will be coffee served on entrance". This has been marked as an error in the document. Which feature of the word processing software detects this type of error?
6. Explain two types of section breaks and how they are used.
7. How do page margins control text flow in a document?
8. Explain the difference between spelling errors and grammatical errors, as they appear in the Spelling and Grammar checker.
9. Explain the difference between the following:
 - i. Save and Save As
 - (ii) Copy and Paste
 - (iii) Copy and Cut

Bibliography

- Idgoli, H. (2004). The Internet encyclopedia (Vol. 3). John Wiley & Sons Inc.
- Comer, D. E. (2009). Computer networks and Internets (5th ed.). Pearson Education Inc.
- Comer, D. E. (2019). The Internet book: Everything you need to know about computer networking and how the Internet works (5th ed.). Taylor & Francis Group.
- Gambrel, B. (Ed.). (2014). Microsoft official academic course: Microsoft Excel 2013. John Wiley & Sons Inc.
- Maguttah, E. (2011). Project ICT: Pupil's book 7. Abantu Publications Ltd.
- Mansfield, R. (2016). Mastering VBA for Microsoft Office 2016. John Wiley & Sons Inc.
- Marmel, E. (2016). MS Word 2016: The fast and easy way to learn. John Wiley & Sons Inc.
- Tanenbaum, A. S., & Wetherall, D. J. (2011). Computer networks (5th ed.). Pearson Education Inc.