

Open Distance Learning

BACC1043

Computer Application in Accounting

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Developed by: International College of Yayasan Melaka

TABLE OF CONTENTS

Topic 1	Basic Computer Concepts	
	1.1 Computer Literacy	1
	1.2 Definition Of Computer	3
	1.3 Data And Information	3
	1.4 Components Of Computer	4
	1.5 Disadvantages And Advantages Of Computer	5
	1.6 Definition Of Network And Advantages Of Network	7
	1.7 The Uses Of The Internet And World Wide Web	8
	Summary	10
	Key Terms	10
	References	10
Topic 2	The Internet and World Wide Web	
	2.1 The Evolution Of The Internet	11
	2.2 Internet Connections	12
	2.3 Internet Service Providers	12
	2.4 IP Address And Domain Name	13
	2.5 Web Browser	13
	2.6 Search Engine	14
	Summary	17
	Key Terms	17
	References	17
Topic 3	Software	
-	3.1 Application software	18
	3.2 Operating system and utility program	23
	Summary	28
	Key Terms	28
	References	28
Topic 4	Input & Output	
	4.1 What is input	29
	4.2 Input devices	30
	4.3 What is output	35
	4.4 Output devices	35
	Summary	41
	Key Terms	41

	References	41
Topic 5	Components of System Unit	
•	5.1 The system unit	42
	5.2 Processor	45
	5.3 Memory	46
	5.4 Expansion slot and adapter cards	47
	5.5 Ports and connectors	48
	5.6 Buses	48
	Summary	50
	Key Terms	50
	References	50
Topic 6	Storage	
	6.1 Storage	51
	6.2 Hard disk	53
	6.3 Flash memory	54
	6.4 Cloud storage	54
	6.5 Optical disc	55
	Summary	56
	Key Terms	56
	References	56
Topic 7	Operating System	
	7.1 System Software	57
	7.2 Operating Systems	58
	7.3 Operating System Functions	59
	7.4 Utility Programs	61
	7.5 Types Of Operating Systems	63
	Summary	67
	Key Terms	67
	References	67
Topic 8	Computer Security and Safety: Ethics and	
	Privacy 9.1. Computer cocurity risks	60
	8.1 Computer security risks 8.2 Internet and network attacks	68 69
	8.3 Unauthorized access and use	72 72
	8.4 Hardware theft and vandalism 8.5 Software theft	73 74
		, ,

	Summary	76
	Key Terms	76
	References	77
Topic 9	Word Processor	
	9.1 Introduction	78
	9.2 Working with Text	81
	9.3 Formatting	83
	9.4 Bullets & Numbering	88
	9.5 Paragraphing	90
	9.6 Margin & Alignment	91
	9.7 Tables & Borders	93
	9.8 Drawing	100
	9.9 Page Numbering	110
	9.10 Printing	111
	Summary	116
	Key Terms	117
	References	117
Topic 10	Presentation Software	
	10.1 Introduction	118
	10.2 View	121
	10.3 Transition	127
	10.4 Animation	131
	10.5 Inserting Audio and Video	136
	10.6 Slide Show	139
	Summary	141
	Key Terms	141
	References	141
Topic 11	Electronic Spreadsheet	
	11.1 Introduction	142
	11.2 Working with Sheet	143
	11.3 Formula	146
	11.4 Functions	152
	11.5 Chart	158
	Summary	161
	Key Terms	161
	References	161

UNDERSTANDING COURSE GUIDE

Refer and understand this *Course Guide* carefully from the beginning to the end. It describes the course and how you use the course material. It suggests the learning time to complete the course successfully. Referring the *Course Guide* will help you to clarify important contents that you might miss or overlook.

ABOUT THE COURSE

BACC 1043 Computer Application in Accounting is a subject for Diploma in Accounting that offered by School of Business Management in ICYM. This course is worth 3 credit hours and should be covered to 14 weeks

You should be acquainted with learning independently and being able to optimize the learning modes and environment available to you. Make sure refer right course material and understand the course requirements as well as how the course is conducted.

LEARNING TIME SCHEDULE

It is a standard ICYM practice that learner accumulate 40 study hours for every credit hour. As for this three-credit hour course, you are expected to spend 120 study hours. Table 1 gives an estimation of how the 120 study hours could be accumulated.

Table 1: Estimation of Student Learning Time

Teaching and Learning Activities								
Distribution of CLO		Face to Face			Non-Face to			
Student Learning Time by Chapter	CLO	L	Т	Р)	0	Face (Independent Learning)	Total
Topic 1	1	3	2				2	
Topic 2	2	2	1				2	
Topic 3	1	2	2				2	
Topic 4	1	2	2				2	
Topic 5	1	1	1				2	
Topic 6	1	1	1				1	
Topic 7	1	2	2				3	
Topic 8	2	1	1				2	
Topic 9	3			2			8	
Topic 10	3			6			16	
Topic 11	3			2			14	
Sub-Total SLT								90
Continuous Assessme	ant	%	Fa	ce to	o Fa	ce	Non-Face to Face	
Continuous Assessment		70	Physic	al	0	nline	(Independent Learning)	
1 Quiz		10				1	4	
2 Test		20				1	6	
3 Assignment		20				1	7	20
Sub-Total SLT			l Fa	co to	, E.		Non Eaco to	20
Final Assessment		%	Physic	ce to		nline	Non-Face to Face (Independent Learning)	
1 Final Examination	า	50	2.5				7.5	
Sub-Total SLT								10
GRAND-Total SLT								120

COURSE LEARNING OUTCOME

By the end of this course, you should be able to:

- 1. Define key terminology used in describing computer hardware, its components and the specific software applications and the terms generally associated with those applications. (C1, PLO1)
- 2. Use the Internet to send and receive email, and to navigate through the www or world wide web. (C3, PLO2)
- 3. Operate application of word processing, worksheet and power point in accounting works. (C3, PLO3)

COURSE SYNOPSIS

This course is divided into 11 topics. The synopsis for each topic can be listed as follows:

Topic 1 students will learns the basic computer concepts, such as what a computer is, how it works, and what makes it a powerful tool

Topic 2 students will learns about the Internet, World Wide Web, browsers, e-mail, FTP, and instant messaging.

Topic 3 students are introduced to a variety of business software, graphics and multimedia software, home/personal/educational software, and communications software.

Topic 4 students will learns describes the various methods of input and output, and commonly used input and output devices

Topic 5 students are introduced to the components of the system unit; how memory stores data, instructions, and information; and how the system unit executes an instruction.

Topic 6 students will learns about various storage media and storage devices

Topic 7 students learn about a variety of stand-alone operating systems, network operating systems, and embedded operating systems.

Topic 8 students will learns about computer and Internet risks, ethical issues surrounding information accuracy, intellectual property rights, codes of conduct, information privacy, and computer-related health issues.

Topic 9 students learn how to create document using Microsoft Word to construct letter, article, simple poster, and memo.

Topic 10 students learn how to create presentation slide using Microsoft Powerpoint

Topic 11 students learn how to create a simple data analysis using Microsoft Excel

LEARNING GUIDANCE

The learning guidance is important to understand before you go through this module. Understanding the learning guidance will help you to organize your study of this course in a more objective and effective way. Generally, learning guidance for each topic is as follows:

Learning Outcomes: This part is to measurable, observable, and specific statement that clearly indicates what you should know and be able to do because of learning in each chapter. By go through each topic, you can continuously gauge your understanding of the topic.

Self-Learning Material: To aid you in your subsequent learning and to report on what you have learned. The activities are in-text questions (ITQ) and self-assessment questions (SAQ), assignment on each chapter of the material to monitor and develop your own learning.

Activity: Question and activity within module can be constructed to put back the dialogue between student and module in learning activity. With the given question or task, you are encouraged to read the description or explanation within a module, so you can answer the question or solve the problem proposed.

You are encouraged to read since you realize that without reading the description or explanation, you will not be able to answer the question or the assignment. Text question is applied to you to pay attention to a certain problem rather than to assess the learning progress.

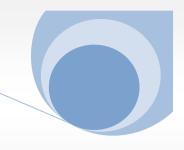
Self-assessment question is such a task that requires written answer form you. If you complete the task, you are asking to check your answer with the answer key provided in the module.

Self -assessment is be developed in various form of test questions, there are easy question, fill in the blank, multiple choices, true-false and matching.

Summary: You will find this part at the end of each topic. This component helps you to recap the whole topic. By going through the summary, you should be able to gauge your knowledge retention level. Should you find points in the summary that you do not fully understand, it would be a good idea for you to revisit the details in the module.

Key Terms: This component can be found at the end of each topic. You should go through this component to remind yourself of important terms or jargon used throughout the module. Should you find terms here that you are not able to explain, you should look for the terms in the module.

References: The References section is where a list of relevant and useful textbooks, journals, articles, electronic contents, or sources can be found. The list can appear in a few locations such as in the *Course Guide* (at the References section), at the end of every topic or at the back of the module. You are encouraged to read or refer to the suggested sources to obtain the additional information needed and to enhance your overall understanding of the course.



TOPIC 1

Basic Computer Concepts

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Recognize the importance of computer literacy
- 2. Identify the components of a computer
- 3. Differentiate Data and Information
- 4. Discuss the uses of the Internet and World Wide Web
- 5. Explain the advantages and disadvantages of a computer

1.1 Computer Literacy

Nowadays, many people use computer in daily life. They use it to communicate, information searching, doing personal task to increase their productivity and helps them in their daily routine.

Computer literacy is about having knowledge on how to use computer.

Figure 1.1 shows the relationship of digital literacy and human activities. Many aspects of digital computer use have affected human life today. Among them are functional skills in improving quality of life, stimulating creativity, enabling people to think critically and make evaluation more easily. Cultural issues are also affected by this digital exposure where

more people can understand the culture of a race that was previously ignored.

The ability to quickly and accurately search for information can preside over the quality of human life. Communication has also become more effective with the use of technology that enables humans to collaborate in conducting matters. However, safety aspects must also be taken into account to ensure that human life remains peaceful in line with the natural nature of human life.



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Figure 1.1 : Digital Literacy



1.2 Definition Of Computer

Computer is a device that operates under the instruction given. These instructions are stored in its own memory and can be modified at anytime. Computer receives data and instructions, process it and produce the result.



Figure 1.2: The flow of computer processing

Figure 1.2 shows that input will be processed in such a way that the output can be used by human.

1.3 Data and Information

Computer process data to produce an information. Data can be text such as names, address, or any other details or, number such as age, price or picture, video or even sound. Data can be entered into the computer and computer will process it and display the data in an organized layout that we called information.

Figure 1.3 show the relationship of how data can be turn into information. Data is a single input, whereas information is the combined of some data that gives a meaningfull interretation to it.

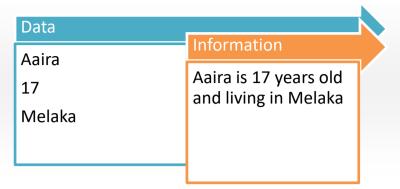


Figure 1.3 : Data vs Information

1.4 Components of Computer

Components of a computer is any devices that can be connected to form the functional computer. Common components are;

- a. Input device –used to enter data or instruction into computer
- b. Output device –used to display the result of computer process
- c. Processor process data into information
- d. Storage to hold data and information
- e. Communication device device that conveys data across computer

Figure 1.4 shows the components of computer. It can be any devices that connected into system unit to make it functional.





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Figure 1.4: The components of computer



The use of computer can give several effects into human life. It can be beneficial if used correctly. It can also have a detrimental effect if not used properly.

THE ADVANTAGES

Speed: When data, instructions, and information flow along electronic circuits in a computer, they travel at incredibly fast speeds. Many computers process billions or trillions of operations in a single second.

Reliability: The electronic components in modern computers are dependable and reliable because they rarely break or fail.

Consistency: Given the same input and processes, a computer will produce the same results — consistently. Computers generate error-free results, provided the input is correct and the instructions work.

Storage: Computers store enormous amounts of data and make this data available for processing anytime it is needed.

Communications: Most computers today can communicate with other computers, often wirelessly. Computers allow users to communicate with one another.

THE DISADVANTAGES

Violation of Privacy: Personal and confidential records were not properly protected may affected individuals in protecting their privacy violated and identities stolen.

Public Safety: Some information that people shared may be used by other people that can do harm to others.

Impact on Labor Force: People can be jobless since computers can replaced human labor in many sectors.

Health Risks: Prolonged or improper computer use can lead to health injuries or disorders.

Impact on Environment: Computer manufacturing processes and computer waste are depleting natural resources and polluting the environment.



1.6

Definition Of Network And Advantages Of Network

A network is a collection of computers and devices connected together, often wirelessly, via communications devices and transmission media (Figure 1.5). When a computer connects to a network, it is online.

Networks allow computers to share resources, such as hardware, software, data, and information. Sharing resources saves time and money.



Figure 1.5: Computer Network.



1.7

The Uses Of The Internet And World Wide Web

The Internet is a worldwide collection of networks that connects millions of businesses, government agencies, educational institutions, and individuals.

Figure 1.6 shows that several network connected together to form the Internet.



Figure 1.6: The flow of computer processing

Checkpoint

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. A personal computer contains a processor, memory, and one or more input, output, and storage devices.
- 2. A network is a collection of computers and devices connected together, often wirelessly, via communications devices and transmission media.

Short Questions

- 1. What are some ways people use computers in the home, at work, and at school? _____ What does it mean to be computer literate?
- 2. In what ways do people use the Internet to communicate with each other?
- 3. How do computers benefit individuals' health care? _____ How can telemedicine benefit health care?
- 4. Explain 5 Components of a computer
- 5. Explain the advantages of using computers
- 6. Explain the disadvantages of using computers

ACTIVITY



Among the advantages of using computers is speed, reliability, consistency, storage, and communications.

Explain why you use computer/mobile device in your daily life in terms of the above advantages.



Computer Network

Data Information

Memory Component

Self Assessment

Login to Elearning to do Self Assessment 1

SUMMARY

- Technology and interactive media are learning tools that are able to support childrens education, growth and relationship.
- Computers cause challness in social , emotional and languages development.
- Computers encourage children to think effectively
- Technology and interactive media are learning tools that are able to support childrens education, growth and relationship.



REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © 2018: Digital Technology, Data, and Devices. Cengage Learning. 2018.



The Internet and World Wide Web

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Explain how to access and connect to the Internet
- 2. Explain how to view pages and search for information on the Web
- 3. Describe the types of Web sites Identify the steps required for Web publishing
- 4. Describe the types of e-commerce
- 5. Explain how e-mail, FTP, newsgroups and message boards, mailing lists, chat rooms, instant messaging, and Internet telephony work

2.1

The Evolution Of The Internet

The Internet has its roots in a networking project started by an agency of the U.S. Department of Defense. That network, called ARPANET, became functional in September 1969, linking scientific and academic researchers across the United States



Allowed scientists at different locations to share information and work together on military and scientific projects



Could function even if part of the network were disabled or destroyed by a disaster such as a nuclear attack.

Figure 2.1 : Arpanet Goals



Data sent over the Internet travels via networks and communications media owned and operated by many companies. Connecting to the Internet Employees and students often connect to the Internet through a business or school network.

Connection	Description
DSL (digital subscriber line)	Technology that provides high-speed Internet connections using regular telephone lines. A cable modem allows access to high-speed Internet services through the cable television network.
Wi-Fi (wireless fidelity)	A network uses radio signals to provide Internet connections to wireless computers and devices.
Mobile broadband	Connections over the cellular radio network
Fixed wireless	Using a dish shape antenna for use in a house or business using radio signals
Satellite modem	A communicates with a satellite dish to provide high-speed Internet connections via satellite.

2.3 Internet Service Providers

Users access the Internet through ISPs, online service providers, and wireless Internet service providers.

An **ISP** (**Internet service provider**) is company that provides internet access to their customers.

In Malaysia, there are many companies that provides internet services to its customer.

Among the popular company for home users are TM, Astro Broadband, and YES.

For mobile users, ALL cellular companies provides data connections for its users.

2.4 IP Address And Domain Name

The Internet relies on an addressing system much like the postal service to send data to a computer at a specific destination.

An **IP address**, short for Internet Protocol address, is a number that uniquely identifies each computer or device connected to the Internet.

A **domain name** is the text version of an IP address.

As with an IP address, the components of a domain name are separated by periods.

2.5 Web Browser

A **Web browser**, or browser, is application software that allows users to access and view Web pages. To browse the Web, you need a computer that is connected to the Internet and that has a Web browser.

The browser retrieves and displays a starting Web page, sometimes called the browser's home page.

Home page, refers to the first page that a Web site displays. Similar to a book cover or a table of contents for a Web site, the home page provides information about the Web site's purpose and content.

Downloading is the process of a computer receiving information, such as a Web page, from a server on the Internet.

Web Addresses A Web page has a unique address, which is called a URL (Uniform Resource Locator) or Web address.





Figure 2.2 : The popular web Browser

2.6 Search Engine

A search engine is particularly helpful in locating Web pages about certain topics or in locating specific Web pages, images, videos, news, and other information for which you do not know the exact Web address.

Instead of clicking through links, search engines require that you enter a word or phrase, called search text, that define the item about which you want information.



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Figure 2.3 : Google





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Figure 2.3 : Bing Search Engine

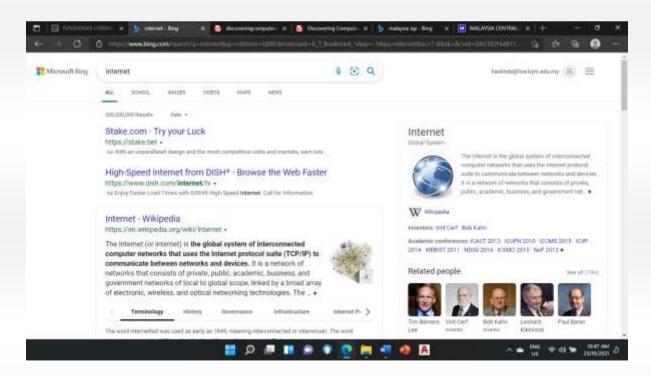


Figure 2.4 : Search Hit

Checkpoint 2

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. DSL is a technology that provides high-speed Internet connections over the cable television network.
- 2. A domain name is the text version of an IP address.
- 3. A Web 2.0 Web site may include application software built into the site for visitors to use.
- 4. Tabbed browsing refers to the practice of Web sites keeping tabs on their visitors.
- 5. A search engine is a program that finds Web sites, Web pages, images, videos, news, and other information.

SHORT QUESTIONS

1.	How is a regional ISP different from a national ISP?	How
	are an ISP, OSP, and WISP different?	
2.	How is a Web page different from a Web site?	How can
	you use a Web address to display a Web page?	
3.	What are the differences between blogs, wikis, and	podcasts?
	When might you use each?	
4.	What is one specification used by content aggregators to	distribute
	content? How might you evaluate the accuracy	of a Web
	site?	
5.	When might you use an online payment system?	How does
	the service work?	

ACTIVITY



Describe how you connect the Internet by using your handphone. Do you need to pay for it?



KEY TERM

Internet Network

Browser Internet service provider

Wifi Search engine

Ip Domain

SUMMARY

- Internet are widely used nowadays
- Need to connect to internet to enable us to use browser to search for information
- DSL, WIFI, satellite dish is among the popular way to connect to Internet



REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © 2018: Digital Technology, Data, and Devices. Cengage Learning. 2018.



Software

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Explain application software
- 2. List types of application software
- 3. Explain System Software
- 4. List types of system software

3.1

Application Software

Most computer users rely on task -oriented software or better known as application software. Therefore, such software can be classified according to the function of the software.

Application software is available in various forms of software, **namely:**

Package. This software is usually produced in large quantities, protected by copyright, produced to meet the needs of users either for individual or organizational use widely. A good example of this type is Ms Office.

Custom. There are some companies that hire computer programmers solely to produce software that meets their needs. This software is only used for the use of certain companies only.

Shareware. Software like this is commonly found on the internet, available for free can be used in certain usually within 30 days. To use it after 30 days payment must be made to the company or individual who developed it.

Freeware. Software like this is commonly found on the internet, anyone can use it without time limit. It is protected by copyright so users cannot sell this software for profit.

Public domain. This software is free from copyright can be used without error. Usually, this software has been donated by its maker for anyone to use without limit.

Software Categories.

There are many categories of software that can be found in the market. This software is used to helps user to complete their task in many ways. These categories are.

Business software. Business software is application software used to help users to be more efficient and effective in carrying out daily business tasks. Business software includes Word processing, Data spreadsheets Graphic presentation databases, PIM, PDA business software, package software, project management software and accounting.

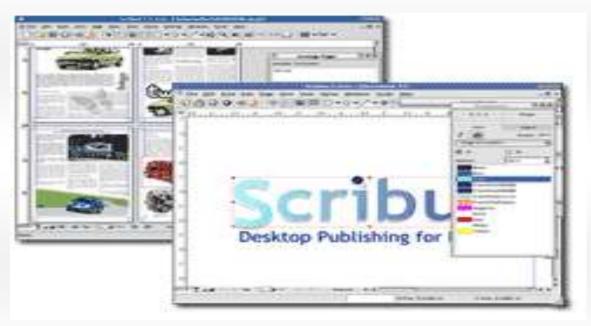
Software	Function
Word Processing	The most widely used and widely used software. This software allows tasks such as editing, formatting, saving, and printing text to be done easily.
	Features of this software Change the shape, type, size and colour of the text. Produce and organize documents into specific layouts such as newspapers. Ability to combine images, graphics, clip art or photographs. Ability to identify spelling errors Ability to determine document size
Spreadsheets	Used to manage and analyse data such as examination score data, finance, name list etc. In a spreadsheet, data is filled in the form of rows and columns known as worksheets. Complete data can be analysed easily such as counting numbers, arranging names in alphabetical order. With it you can also visualize data in the form of bar charts, pies etc.
Presentation	This software is used to show charts, maps or graphics as a viewing or presentation. By using an LCD or projector on screen content can be displayed on the screen for public viewing.
Note taking	This software allows users to insert handwriting, drawings or sketches on any part of the page screen and save and become part of the document.
Software Suite	A collection of application software sold in packages. When the user installs this software, the entire package will be installed in the user's computer. The advantage of packaged software is that it costs less than buying the software individually.
Project	This software allows users to plan, identify, analyse everything that happens in a project including costs, available

Management	resources, and time of a project.
Accounting	Software used by a company to assist the company in in financial activities such as recording, financial reporting, this buying and selling journey allows a complete financial report for the use of company managers.

Graphics And Multimedia Software. This software is commonly used by users involved in the fields of engineering, architecture, publishing, and graphic design.

Software	Function
Computer Aided Design	This software helps users such as engineers to design tools before the actual tools are produced. For architects, this software helps to design building plans in terms of site structure and overall building. For scientists this software helps to design the shape of the molecular structure.
Desktop Publishing	Allows users to design and produce high quality documents containing text, graphics, color etc. as in magazines or newspaper publications.
Image Editing	Graphic artists, multimedia developers, magazine publishers use this software to modify graphic images for use in their products. The software allows users to draw, create objects assisted by tools such as pens, pencils, and brushes digitally.
Video And Audio Editing	Software allows users to modify video segments into video clips. For example, the video can have subtitles added, cut out whichever is not needed, and take only a few excerpts. Examples of audio editing software such as adobe premiere. Audio editing software allows users to modify audio segments into audio clips. These modifications such as removal of background noise, removal of background noise during recording, and modifying the audio tempo from short tones to long tones. Examples of audio editing software such as sound forge.
Multimedia Authoring	Multimedia developer software is application software that can integrate all multimedia elements in one package. These multimedia elements include text, graphics, audio, video, and animation. With this the software works to produce an application that contains these elements. Examples of multimedia developer software include Director, Authorware. The examples of applications developed using multimedia developer software are game applications, children's learning applications and let's cook applications.
Web Page Authoring	Website developer software helps users develop websites. This software allows all multimedia elements to be included on the website. Users are allowed to enter, maintain, and update the website.





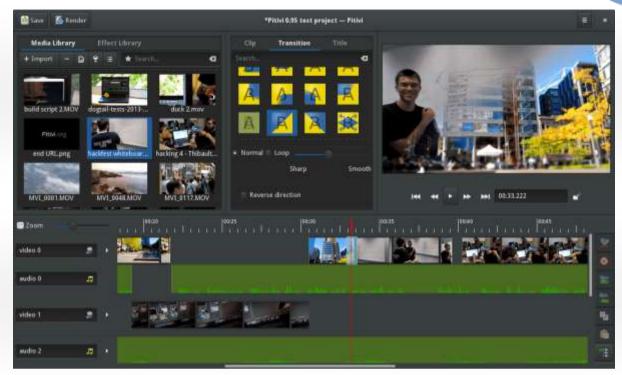
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Figure 3.1 : Desktop Publishing Software



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Figure 3.2 : Image Editing Software



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Figure 3.3: Video Editing Software

Individual user software, home, and education

Most computer users are so dependent on software that is 'task oriented' or better known as application software.

Software	Function
Software Suite	This software is a collection of application software sold in packages. When the user installs this software, the entire package will be installed in the user's computer. Examples are Microsoft office. The advantage of packaged software is that it costs less than buying the software individually.
Personal Accounting Software	The software used by the company to assist the company in in financial activities such as recording, financial reporting, buying, and selling journey allows a complete financial report for the use of company managers.
Image Editing	The software allows users to draw, create objects assisted by tools such as pens, pencils, and brushes digitally.
Education And	Educational and reference software is software that provides instruction to users on how to do something.

Reference	For example, the Learn to Cook software teaches users how to cook.
Entertainment	Entertainment software is software that provides entertainment to users such as game software, software that supports hobbies and video.
Communication	Software that enables user to communicate with other people around the world. Example is media social application such as Facebook, Instagram, and Forum.



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Figure 3.4 : Microsoft Office Software

3.2 Operating system and utility program

To enable application software to be implemented we need a type of software called **system software**. The system software acts as an agent that allows communication between users, applications, and computer hardware to take place. The system software consists of programs referred to as operating systems.

What Is System Software?

System software is defined as all programs including operating systems whose function is to control all operations of hardware computer. Among the functions of system software are:

- ✓ Control when starting a computer system
- ✓ Loading and executing application software
- ✓ Store and receive files or information

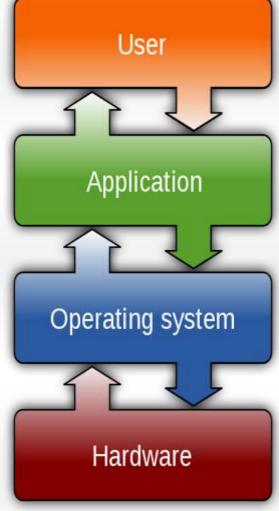
Operating System.

Operating System is a program/software that functions to control all operations that take place in a computer and acts as an interface between users, application software and computer hardware. A computer will not operate without this OS.

The Operating System is stored in the user's hard disk, every time we start the computer the Operating System will be transferred and brought from the hard disk into the computer's memory until all important programs are completed. This process is called loading.

One of the important features in which Operating System provide is the user interface, where this interface serves to determine how users and computers interact. The interface also controls how we enter data, commands and how information is displayed on a computer screen.





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Figure 3.5 : Operating System Role

Program Utilities.

This type of software that are installed on an Operating System and have a function that is specific to a task.

Туре	Description
File Conversion	When a user uses application software, this software will name the file with one name and have a specific symbol such as MS Word using the name .doc on each named file. With the conversion file we can read the typed document without using Ms Word or other word processing software.

Backup Software	Allows us to re -copy important programs in storage such as disk cartridges or other secondary storage devices.
Diagnostic	Allows a computer system to maintain its performance in both software and hardware. A faulty system can be easily detected.
Antivirus	Antivirus programs are very important to prevent computers from being infected with computer viruses that can damage the entire computer system.

Checkpoint

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. Application software serves as the interface between the user, the apps, and the computers or mobile device's hardware.
- 2. While a computer or mobile device is running, the operating system remains in memory.
- 3. When downloading shareware, freeware, or public-domain software, it is good practice to seek websites with ratings for and reviews of products.
- 4. With database software, users run functions to retrieve data.



ACTIVITY

FILL IN THE BLANKS



Explain software that you use every day to facilitate your daily life.

1.	A , consists of a series of related
	instructions, organized for a common purpose, that tells the
	computer what tasks to perform and how to perform them
2.	An, consists of programs designed
	to make users more productive and/or assist them with personal
	tasks
3.	An is a set of programs that
	coordinates all the activities among computer or mobile device
	hardware
4.	applications can assist you in
	becoming more effective and efficient while performing daily
	activities at work, school, and home
5.	software allows users to create
	and manipulate documents
5.	is a collection of drawings,
	photos, and other images
7.	software allows users to create
	visual aids for presentations to communicate ideas, messages, and
	other information to a group
3.	software allows users to organize
	data in rows and columns and perform calculations
9.	A is a collection of data organized
	in a manner that allows access, retrieval, and use of that data
10.	A is a collection of individual
	programs available together as a unit

KEY TERM

Application Program

Operating system Utilities

Antivirus software

blog execute

desktop computer application software

SUMMARY

This chapter presented a variety of programs and apps available for computers and mobile devices. You learned about the role of the operating system and the various ways software is distributed. The chapter presented the features of a variety of productivity applications, graphics and media applications, and personal interest applications.



REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © 2018: Digital Technology, Data, and Devices. Cengage Learning. 2018.



Input and Output

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Explain input and its device
- 2. Explain output and its device

4.1 What is Input?

Input refers to the process of entering data, programs, commands, and user actions into computer memory. There are 4 types of inputs used by computers, namely:

Data: refers to raw data such as numbers, words, images or sounds received by a computer from an input device and processed to produce information.

Program: all the instructions that instruct the computer to perform an operation and then process the data into information.

Command: is a keyword or phrase for input that directs the computer to perform an activity such as using a mouse or keyboard or other types of input tools.

User Response: refers to the data entered by the user because of the response by the software used.



4.2 Input Device

Input device is any tools that have been used to enter data or instruction into the computer. There are many types of input device in variation of the way how it is used.

Keyboard is the most used input tool. Using the keyboard, input is entered by pressing keys on the keyboard.



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Figure 4.1 : Keyboard

Pointing Devices allow users to control symbols/icons on the computer screen. The Pointer Tool is also known as a mouse pointer. We also use pointing tools to select text, images or move objects on the screen and start a program.

Mouse

A palm -sized pointer is used to control the movement of the cursor on the screen. Mouse is usually placed on a flat surface or use a mouse pad.



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Figure 4.2 : Mouse

Touchpad

The touchpad is a flat square surface, which detects the movement of a fingertip on its surface to control the movement of the cursor on the screen. Touch pads are usually only found on a laptop because of their space -saving nature.



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Figure 4.3 : Touch pad

Joystick

A common input device used for computer games only. Joysticks are essential for vertical and horizontal movement and there are buttons that can be pressed on this gadget.



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Figure 4.4 : Joystick



Pen Input

Pen like stick that can be used write on the surface of the smartphone or tablet.



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Figure 4.5 : Pen Input

Touch Screen

This tool allows the user to touch the surface of the screen to enter data or make selections from the provided icons.



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Figure 4.6: Touch Screen

Scanner

A scanner is an input device that electronically scans text or images and is inserted into a computer. The scanner converts the original text or image into a form of digital data that will be stored on the hard disk and processed in the computer. To scan the text, the scanner uses a technology called OCR (Optical Character Recognition) along with OCR software to scan the text in hardcopy to softcopy.



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Figure 4.7 : Scanner

Sound Input/Voice Input

It is usually recorded using a microphone connected to a sound card or a musical instrument such as an electronic music keyboard to a sound card. Sound editing software is used to change the sound.



Figure 4.8 : Voice input

Digital Camera.

Digital camera stores the image taken in a memory in digital form. This image can be used in a computer for display, or editing.



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Figure 4.9 : Digital Camera

Digital Camcorder.

Digital camcorder records video in digital form. The video can be edit using video editing software.



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Figure 4.10 : Digital Camcorder



4.3 What is Output?

Output refers to data that has been processed into a useful form called information, it can be used by computers or users.

Output can be in two forms, that is printed version or on the screen. The printed output is called hard copy, while the output displayed on the screen is called soft copy. Audio and video are also output.



Audio Output

Consists of sound including words or music generated by a computer. Speakers are audio output devices especially for multimedia computers.



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Figure 4.11 : Speaker

Monitor

A display surface called a screen, and the internal electronic part is protected by plastic on the outside.



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Figure 4.12 : Monitor

Flat panel display

A thin display device and does not use Cathode-Ray Tube (CRT) technology.

Resolution

Resolution (intensity) can be said to be the ability of a monitor to display the highest image quality that can be achieved by the monitor. This resolution depends on the type of video adapter card and the capabilities of the monitor itself.

Printer

The printer allows all output in softcopy form to be transferred to form hardcopy. Generally, printers can be divided into 2:

- 1. Impact
- 2. Non-impact

This classification is based on how the printer transfers characters to the printing paper.

Impact Printer

This type of printer transfers the image onto paper using a typewriter - like mechanism, where paper, ink ribbons and tapers encounter each other to produce an alphabet.

Dot Matrix

This printer produces an image by tapping a pin on an inked ribbon. The printer head consists of tubes containing pins which when pressed onto ribbon and paper, small dots will form. The combination of these small dots produces a character. Dot matrix printers usually have a different number of pins such as 9 pins or 24 pins, the higher the number of pins the better the print quality.



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Figure 4.13 : Dot matrix

Non-impact Printer

Non-impact printers because the printing process takes place without any contact mechanism on the printing medium. Examples of this type of printer:



Inkjet printer

This printer works by spraying ink on the printing medium. Paint quality is usually determined based on dpi (dot per inch) which is how much spray to produce dots in one square inch.



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Figure 4.13 : InkJet

Laser printer

This printer acts like a photocopier where the laser radiation is converted into different charge forms and the charged toner (ink) is transferred to the printing medium.



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Figure 4.14 : Laser Printer



Thermal printer.

This type of printer uses heated coloured wax and the resulting combination of the heated wax is transferred to the printing medium.



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Figure 4.15 : Thermal Printer

Plotter printer

A non-impact printer used to draw lines as in building plans and engineering designs.



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Figure 4.16 : Plotter

Checkpoint 4

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. On notebook and some handheld computers, PDAs, and smart phones, the keyboard is built in the top of the system unit.
- 2. An air mouse is a newer type of motion-sensing mouse that allows you to control objects, media players, and slide shows by moving the mouse in predetermined directions through the air.
- 3. Resolution is the number of horizontal and vertical pixels in a display device.

ACTIVITY



Explain the most common input device that you used every day.

Short Questions

- 1. What does the input say? List 4 types of input by users.
- 2. Give examples of input types of pointing devices (pointing devices).
- 3. What does the output say?
- 4. Give an example of an output tool.
- 5. How do impact and non-impact printers differ? Give examples of printers for both types of printers.

KEY TERM

Input Output

Mouse Keyboard

Scanner Printer

Touch pen Plotter

SUMMARY

- There are various input and output device.
- Input and output be an assistive techhnology for computer user.



REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © 2018: Digital Technology, Data, and Devices. Cengage Learning. 2018.



Components of System Unit

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Describe the components in system unit
- 2. Define processor
- 3. Explain the function of a bus
- 4. Explain the purpose of a power supply and batteries

5.1

The system unit

The system unit is a case that contains electronic components of the computer used to process data. System units are available in a variety of shapes and sizes. The case of the system unit is made of metal or plastic and protects the internal electronic components from damage. All computers have a system unit (Figure 5.1).



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Figure 5.1 : System Unit

System unit have a variety of components inside it. Some of these components, which include the processor, memory, adapter cards, drive bays, and the power supply.

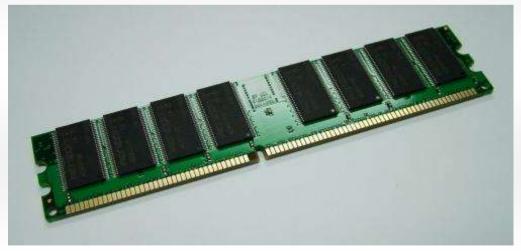
The processor interprets and carries out the basic instructions that operate a computer.



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Figure 5.2 : Processor

Memory typically holds data waiting to be processed and instructions waiting to be executed.



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Figure 5.3 : Memory

The electronic components and circuitry of the system unit, such as the processor and memory, usually are part of or are connected to a circuit board called the motherboard.

Many motherboards also integrate sound, video, modem, and networking capabilities.



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Figure 5.4 : Motherboard

The motherboard, sometimes called a system board, is the main circuit board of the system unit. Many electronic components attach to the motherboard; others are built into it.



The processor, also called the central processing unit (CPU), interprets and carries out the basic instructions that operate a computer. The processor significantly impacts overall computing power and manages most of a computer's operations. On a personal computer, all functions of the processor usually are on a single chip. Some computer and chip manufacturers use the term microprocessor to refer to a personal computer processor chip.

Processors contain a control unit and an arithmetic logic unit (ALU). These two components work together to perform processing operations.

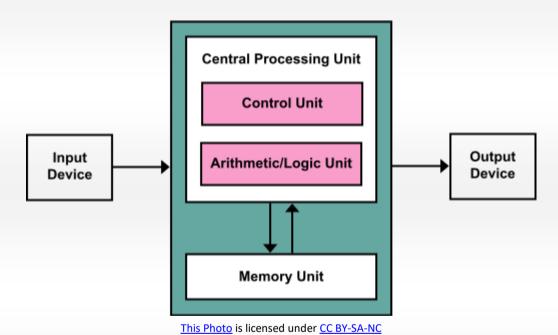


Figure 5.5 : Processor Components

The Control Unit

The control unit is the component of the processor that directs and coordinates most of the operations in the computer.

The Arithmetic Logic Unit

The arithmetic logic unit (ALU), another component of the processor, performs arithmetic, comparison, and other operations. Arithmetic operations include basic calculations such as addition, subtraction, multiplication, and division. Comparison operations involve comparing one data item with another to determine whether the first item is greater

than, equal to, or less than the other item. Depending on the result of the comparison, different actions may occur.



Memory consists of electronic components that store instructions waiting to be executed by the processor, data needed by those instructions, and the results of processed data (information). Memory usually consists of one or more chips on the motherboard or some other circuit board in the computer.

Memory stores three basic categories of items:

- ✓ the operating system and other system software that control or maintain the computer and its devices;
- ✓ application programs that carry out a specific task such as word processing; and
- ✓ the data being processed by the application programs and resulting information. This role of memory to store both data and programs is known as the stored program concept

Types of Memory

The system unit contains two types of memory: volatile and nonvolatile.

Volatile memory loses its contents when the computer's power is turned off.

Nonvolatile memory, by contrast, does not lose its contents when power is removed from the computer. Thus, volatile memory is temporary and nonvolatile memory is permanent.

RAM

Random Access Memory (RAM) is the most common type of volatile memory. Examples of nonvolatile memory include ROM, flash memory, and CMOS.

ROM

Read-only memory (ROM pronounced rahm) refers to memory chips storing permanent data and instructions. The data on most ROM chips cannot be modified — hence, the name read-only. ROM is nonvolatile,

which means its contents are not lost when power is removed from the computer.

Flash Memory

Flash memory is a type of nonvolatile memory that can be erased electronically and rewritten. Most computers use flash memory to hold their startup instructions because it allows the computer easily to update its contents.

5.4

Expansion slot and adapter cards

An expansion slot is a socket on the motherboard that can hold an adapter card. An adapter card, sometimes called an expansion card, is a circuit board that enhances functions of a component of the system unit and/or provides connections to peripherals. A peripheral is a device that connects to the system unit and is controlled by the processor in the computer. Examples of peripherals are modems, disk drives, printers, scanners, and keyboards.



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Figure 5.6 : Expansion Slot



PORTS AND CONNECTORS

A port is the point at which a peripheral attaches to or communicates with a system unit so the peripheral can send data to or receive information from the computer. An external device, such as a keyboard, monitor, printer, mouse, and microphone, often attaches by a cable to a port on the system unit.

Serial Ports

A serial port is a type of interface that connects a device to the system unit by transmitting data one bit at a time. Serial ports usually connect devices that do not require fast data transmission rates, such as a mouse, keyboard, or modem.

Parallel Ports

Unlike a serial port, a parallel port is an interface that connects devices by transferring more than one bit at a time. Parallel ports originally were developed as an alternative to the slower speed serial ports. Some printers can connect to the system unit using a parallel port. This parallel port can transfer eight bits of data (one byte) simultaneously through eight separate lines in a single cable.

USB Ports

A USB port, short for universal serial bus port, can connect up to 127 different peripherals together with a single connector. Devices that connect to a USB port include the following: mouse, printer, digital camera, scanner, speakers, portable media player, CD, DVD, smart phone, PDA, game console, and removable hard disk.



BUSES

A computer processes and stores data as a series of electronic bits. These bits transfer internally within the circuitry of the computer along electrical channels. Each channel, called a bus, allows the various devices both inside and attached to the system unit to communicate with each other. Just as vehicles travel on a highway to move from one destination to another, bits travel on a bus. Buses transfer bits from input devices to

memory, from memory to the processor, from the processor to memory, and from memory to output or storage devices.

Checkpoint 5

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. The motherboard also is called a system board.
- 2. On a personal computer, all functions of the processor usually are on a single chip.
- 3. The system clock keeps track of the date and time in a computer.
- 4. In cloud computing, the back end consists of the servers and storage devices that manage and store the data.
- 5. Most RAM is nonvolatile
- 6. The processor interprets and executes a program or application's instructions while the program or application is in nonvolatile memory
- 7. ROM chips also are called firmware.

ACTIVITY



Explain the specifications of your computer

Short Question

- 1. Explain 2 parts of a processor.
- 2. A computer might have these three types of buses. Explain it.
- 3. The system unit contains two types of memory. Volatile and nonvolatile. Explain it.
- 4. List two common types of RAM chips.
- 5. Differentiate RAM and ROM.

KEY TERM

Processor Adapter cards

System unit Ports and connectors

Memory Buses

Expansion slot

SUMMARY

- There are various components inside the system unit.
- Memory have a volatile and non volatile types.
- Ports and connectors connecting computer with other devices.



REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © 2018: Digital Technology, Data, and Devices. Cengage Learning. 2018.



Storage

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Describe the characteristics of magnetic disks
- 2. Describe the characteristics of a hard disk
- 3. Discuss various types of miniature, external, and removable hard disks
- 4. Describe the characteristics of optical discs
- 5. Differentiate among various CD and DVD formats
- 6. Identify the uses of tape

6.1 Storage

Storage holds data, instructions, and information for future use.

A **storage medium** (media is the plural), also called secondary storage, is the physical material on which a computer keeps data, instructions, and information. Examples of storage media are hard disks, floppy disks, CDs and DVDs, tape, PC Cards and ExpressCard modules, flash memory cards, USB flash drives, smart cards, and microfilm.



Figure 6.1 : Computer Storage

Capacity is the number of bytes (characters) a storage medium can hold. Figure 6-2 identifies the terms manufacturers use to define the capacity of storage media. For example, a reasonably priced USB flash drive can store up to 512 MB of data (approximately 512 million bytes) and a typical hard disk has 250 GB (approximately 250 billion bytes) of storage capacity.

A **storage device** is the computer hardware that records and/or retrieves items to and from storage media.

Writing is the process of transferring data, instructions, and information from memory to a storage medium.

Reading is the process of transferring these items from a storage medium into memory. When storage devices write data on storage media, they are creating output.

The **speed** of storage devices is defined by access time. Access time measures the amount of time it takes a storage device to locate an item on a storage medium. The access time of storage devices is slow, compared with the access time of memory.

6.2 Hard disk

A **hard disk** is a storage device that contains one or more inflexible, circular platters that store data, instructions, and information. People use hard disks to store all types of documents, spreadsheets, presentations, databases, e-mail messages, Web pages, digital photographs, music, videos, and software.

The system unit on most desktop and notebook computers contains at least one hard disk. The entire device is enclosed in an airtight, sealed case to protect it from contamination. A hard disk that is mounted inside the system unit sometimes is called a fixed disk because it is not portable

Characteristics Of A Hard Disk

Characteristics of a hard disk include capacity, platters, read/write heads, cylinders, sectors and tracks, revolutions per minute, transfer rate, and access time.

The **capacity** of a hard disk is determined from the number of platters it contains, together with composition of the magnetic coating on the platters.

A **platter** is made of aluminum, glass, or ceramic and is coated with an alloy material that allows items to be recorded magnetically on its surface. The coating usually is three millionths of an inch thick. On desktop computers, platters most often have a size of approximately 3.5 inches in diameter. A typical hard disk has multiple platters stacked on top of one another. Each platter has two read/write heads, one for each side. The hard disk has arms that move the read/write heads to the proper location on the platter.

6.3 Flash memory

Flash Memory Cards

Common types of flash memory cards include Compact Flash (CF), Secure Digital (SD), XD Picture Card, and Memory Stick. Depending on the device, manufacturers claim miniature mobile storage media can last from 10 to 100 years. To view, edit, or print images and information stored on miniature mobile storage media, the contents is transfer to desktop computer or other device. Some printers have slots to read flash memory cards. If the computer or printer does not have a built-in slot, a card reader/writer can be purchased, which is a device that reads and writes data, instructions, and information stored on flash memory cards. Card reader/writers usually connect to the USB port or Fire Wire port on the system unit. The type of card will determine the type of card reader/writer needed.

6.4 Cloud storage

Some users choose online storage instead of storing data locally on a hard disk. Online storage is a service on the Web that provides hard disk storage to computer users, for free or for a minimal monthly fee.

Users subscribe to an online storage service for a variety of reasons:

- ✓ To access files on the Internet hard disk from any computer or device that has Internet access
- ✓ To allow others to access files on their Internet hard disk so others can listen to an audio file, watch a video clip, or view a picture instead of e-mailing the file to them
- ✓ To view time-critical data and images immediately while away from the main office or location; for example, doctors can view x-ray images from another hospital, home, or office
- ✓ To store offsite backups of data Once users subscribe to the online storage service, they can save on the Internet hard disk in the same manner they save on their local hard disk.



6.5 Optical disc

An optical disc is a type of optical storage media that consists of a flat, round, portable, disc made of metal, plastic, and lacquer. These discs usually are 4.75 inches in diameter and less than one-twentieth of an inch thick.

Optical discs primarily store software, data, digital photographs, movies, and music. Some optical disc formats are read only, meaning users cannot write (save) on the media. Others are read/write, which allows users to save on the disc just as they save on a hard disk.

Checkpoint 6

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. Storage devices can be categorized as input or output devices.
- 2. A storage medium is volatile; that is, items stored on it remain intact even when you turn off a computer or mobile device.
- 3. Compared with the access time of memory, the access time of storage devices is slow.
- 4. On storage media, a higher density means less storage capacity.

ACTIVITY



What type of memory that you used in your handphone?. Can you differentiate it?



- 1. In terms of storage devices, what is reading and writing?
- 2. Is a screen display volatile or non-volatile?
- 3. What does access time measure?
- 4. Explain 5 types of storage.

KEY TERM

Memory RAM

ROM Hard disk

Flash Memory Cloud Storage

SUMMARY

- There are variety of storage options.
- Computers have storage capacity and storage access time.
- There have advantage and disadvantage for every storage option choosen.



REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © 2018: Digital Technology, Data, and Devices. Cengage Learning. 2018.



Operating System

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Identify the types of system software
- 2. Describe the functions of an operating system
- 3. Explain the purpose of the utilities included with most operating systems
- 4. Summarize the features of several stand-alone operating systems
- 5. Identify devices that use embedded operating systems
- 6. Explain the purpose of several stand-alone utility programs

7.1 System Software

When buying a personal computer, it usually has system software installed on its hard disk.

System software consists of the programs that control or maintain the operations of the computer and its devices. System software serves as the interface between the user, the application software, and the computer's hardware. Two types of system software are operating systems and utility programs. This chapter discusses the operating system and its functions, as well as several types of utility programs for personal computers.



7.2 Operating Systems

An operating system (OS) is a set of programs containing instructions that coordinate all the activities among computer hardware resources. Most operating systems perform similar functions that include;

- √ starting a computer
- ✓ providing a user interface
- √ managing programs
- √ managing memory
- √ scheduling jobs
- ✓ configuring devices
- ✓ establishing an Internet connection
- ✓ monitoring performance
- ✓ providing file management utilities
- ✓ control a network
- √ administer security



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Figure 7.1 : Operating System Interface

7.3 Operating System Functions

Many different operating systems exist; however, most operating systems provide similar functions. The following sections discuss functions common to most operating systems. The operating system handles many of these functions automatically, without requiring any instruction from a user.

Starting a Computer

Booting is the process of starting or restarting a computer. When turning on a computer that has been powered off completely, you are performing a cold boot. A warm boot, by contrast, is the process of using the operating system to restart a computer.

Providing a User Interface

You interact with software through its user interface. That is, a user interface controls how you enter data and instructions and how information is displayed on the screen.

Managing Programs

Some operating systems support a single user and only one running program at a time. Others support thousands of users running multiple programs. How an operating system handles programs directly affects your productivity. A single user/single tasking operating system allows only one user to run one program at a time. PDAs, smart phones, and other small computing devices often use a single user/single tasking operating system. A single user/multitasking operating system allows a single user to work on two or more programs that reside in memory at the same time. Users today typically run multiple programs concurrently. It is common to have an e-mail program and Web browser open at all times, while working with application programs such as word processing or graphics

Managing Memory

The purpose of memory management is to optimize the use of random access memory (RAM). RAM consists of one or more chips on the motherboard that hold items such as data and instructions while the processor interprets and executes them. The operating system allocates, or assigns, data and instructions to an area of memory while they are being processed. Then, it carefully monitors the contents of memory. Finally, the operating system releases these items from being monitored in memory when the processor no longer requires them.

Scheduling Jobs

The operating system determines the order in which jobs are processed. A job is an operation the processor manages. Jobs include receiving data from an input device, processing instructions, sending information to an output device, and transferring items from storage to memory and from memory to storage. A multiuser operating system does not always process jobs on a first-come, first-served basis. Sometimes, one user may have a higher priority than other users. In this case, the operating system adjusts the schedule of jobs. Sometimes, a device already may be busy processing one job when it receives a second job. This occurs because the processor operates at a much faster rate of speed than peripheral devices.

Configuring Devices

A driver is a small program that tells the operating system how to communicate with a specific device. Each device on a computer, such as the mouse, keyboard, monitor, printer, and scanner, has its own specialized set of commands and thus requires its own specific driver. When you boot a computer, the operating system loads each device's driver. If you attach a new device to a computer, such as a printer or scanner, its driver must be installed before you can use the device. For many devices, the computer's operating system includes the necessary drivers. Today, many devices and operating systems support Plug and Play. Plug and Play means the operating system automatically configures new devices as you install them. With Plug and Play, a user can plug in a device, turn on the computer, and then use the device without having to configure the system manually.

Establishing an Internet Connection

Operating systems typically provide a means to establish Internet connections. Some operating systems also include a Web browser and an e-mail program, enabling you to begin using the Web and communicate with others as soon as you set up the Internet connection. Some also include utilities to protect computers from unauthorized intrusions and unwanted software such as viruses and spyware

Monitoring Performance

Operating systems typically contain a performance monitor. A performance monitor is a program that assesses and reports information about various computer resources and devices. The information in performance reports helps users and administrators identify a problem with resources so they can try to resolve any problems.

Providing File Management and Other Utilities

Operating systems often provide users with the capability of managing files, searching for files, viewing images, securing a computer from unauthorized access, uninstalling programs, scanning disks, defragmenting disks, diagnosing problems, backing up files and disks, and setting up screen savers.

Some operating systems have network features built into them. In other cases, the network OS is a set of programs separate from the operating system on the client computers that access the network. When not connected to the network, the client computers use their own operating system. When connected to the network, the network OS may assume some of the operating system functions.

Administering Security

The network administrator uses the network OS to establish permissions to resources. These permissions define who can access certain resources and when they can access those resources. For each user, the network administrator establishes a user account, which enables a user to access, or log on to, a computer or a network. Each user account typically consists of a user name and password. A user name, or user ID, is a unique combination of characters, such as letters of the alphabet or numbers, that identifies one specific user.

7.4 Utility Programs

A utility program, also called a utility, is a type of system software that allows a user to perform maintenance-type tasks, usually related to managing a computer, its devices, or its programs.

Utility programs included with most operating systems provide the following functions:

- ✓ managing files, searching for files
- √ viewing images
- ✓ securing a computer from unauthorized access
- ✓ uninstalling programs
- ✓ scanning disks
- √ defragmenting disks
- √ diagnosing problems
- \checkmark backing up files and disks
- ✓ setting up screen savers

File Manager

A file manager is a utility that performs functions related to file management. Some of the file management functions that a file manager performs are displaying a list of files on a storage medium organizing files in folders; and copying, renaming, deleting, moving, and sorting files. A folder is a specific named location on a storage medium that contains related documents.

Search Utility

A search utility is a program that attempts to locate a file on your computer based on criteria you specify. The criteria could be a word or words contained in a file, date the file was created or modified, size of the file, location of the file, file name, author/artist, and other similar properties. Search utilities can look through documents, pictures, music, and other files.

Personal Firewall

A personal firewall is a utility that detects and protects a personal computer from unauthorized intrusions. Personal firewalls constantly monitor all transmissions to and from a computer. When connected to the Internet, your computer is vulnerable to attacks from a hacker. A hacker is someone who tries to access a computer or network illegally.

Uninstaller

An uninstaller is a utility that removes a program, as well as any associated entries in the system files. When you install a program, the operating system records the information it uses to run the software in the system files. The uninstaller deletes files and folders from the hard disk, as well as removes program entries from the system files.

Disk Scanner

A disk scanner is a utility that searches for and removes unnecessary files. Windows Vista includes a disk scanner utility called Disk Cleanup

Disk Defragmenter

A disk defragmenter is a utility that reorganizes the files and unused space on a computer's hard disk so the operating system accesses data more quickly and programs run faster. When an operating system stores data on a disk, it places the data in the first available sector on the disk. It attempts to place data in sectors that are contiguous (next to each other), but this is not always possible. When the contents of a file are scattered across two or more noncontiguous sectors, the file is fragmented. Fragmentation slows down disk access and thus the performance of the entire computer. Defragmenting the disk, or reorganizing it so the files are stored in contiguous sectors, solves this problem.



Diagnostic Utility

A diagnostic utility compiles technical information about your computer's hardware and certain system software programs and then prepares a report outlining any identified problems. Information in the report assists technical support staff in remedying any problems.

Backup Utility

A backup utility allows users to copy, or back up, selected files or an entire hard disk to another storage medium such as CD, DVD, external hard disk, tape, or USB flash drive. During the backup process, the backup utility monitors progress and alerts you if it needs additional discs or tapes. Many backup programs compress, or shrink the size of, files during the backup process. By compressing the files, the backup program requires less storage space for the backup files than for the original files. Because they are compressed, you usually cannot use backup files in their backed up form. In the event you need to use a backup file, a restore program reverses the process and returns backed up files to their original form. Backup utilities include restore programs. You should back up files and disks regularly in the event your originals ar

7.5 Types Of Operating Systems

When you purchase a new computer, it typically has an operating system preinstalled. The three basic categories of operating systems that exist today are desktop, network, and mobile operating system.

Desktop Operating System

A desktop operating system, sometimes called a stand-alone operating system, is a complete operating system that works on desktops, laptops, and some tablets. Desktop operating systems sometimes are called client operating systems because they also work in conjunction with a server operating system. Client operating systems can operate with or without a network.

Examples of the more widely used desktop operating systems are Windows, Mac OS, UNIX, Linux, and Chrome OS.

Windows is an operating system develop by Microsoft, which provided a graphical user interface. Since then, Microsoft continually has updated its Windows operating system, incorporating innovative features and functions with each subsequent version.

UNIX (pronounced YOU-nix) is a multitasking operating system and was implemented on many different types of computers. In the 1980s, the source code for UNIX was licensed to many hardware and software companies to customize for their devices and applications. As a result, several versions of this operating system exist, each with slightly different features or capabilities. Today, a version of UNIX is available for most computer.

Chrome Os introduced by Google, is a Linux-based operating system designed to work primarily with web apps. Apps are available through the Chrome Web Store, and data is stored on Google Drive.

Server Operating Systems

Network operating system is an operating system that is designed specifically to support a network. A network operating system typically resides on a server. The client computers on the network rely on the server(s) for resources. Many of the client operating systems discussed in the previous section work in conjunction with a network operating system.

Examples of server operating systems include the following:

- Windows Server: Developed by Microsoft, Windows Server enables organizations to manage applications and websites on-site and/or on the cloud.
- OS X Server: Developed by Apple, OS X Server enables organizations to collaborate, share files, host websites and mail servers, and more on Mac computers and iOS devices.

Mobile Operating Systems

The operating system on mobile devices and many consumer electronics is called a mobile operating system and resides on firmware. Popular mobile operating systems include Android, iOS, and Windows Phone.

Android

Android is an open source, Linux-based mobile operating system designed by Google for smartphones and tablets. A variety of manufacturers produce devices that run the Android operating system, adding their own interface elements and bundled software. As a result, an Android smartphone manufactured by Samsung may have different user interface features from one manufactured by Google.



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Figure 7.2 : Android Operating System

Windows Phone

Windows Phone, developed by Microsoft, is a proprietary mobile operating system that runs on some smartphones.

iOS

iOS (originally called iPhone OS), developed by Apple, is a proprietary mobile operating system specifically made for Apple's mobile devices. Supported devices include the iPhone, iPod Touch, and iPad.



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Figure 7.3:iOS



Checkpoint 7

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. Every computer must have operating system
- 2. User interface is the same for all computers regardless of the operating system install
- 3. Desktop and mobile has the same operating system

ACTIVITY



Explain the operating system of your computer and mobile device. Is it the same?

Short Question

- 1. Define the term, operating system. List the functions of an operating system.
- 2. List methods to start a computer or device.
- 3. Identify the five steps in the start-up process.
- 4. Explain the role of a boot drive.
- 5. List reasons why users might shut down computers or mobile devices regularly.
- 6. Define the term, user interface.
- 7. Describe how a computer manages memory.

KEY TERM

System software Operating system

Booting File manager

Utility Program Firewall

SUMMARY

• Common function to most operating system are starting and shut down computer, provide user interface, managing program, managing memory, coordinating task, configuring device, monitoring performance and others.

• There are variety operating system for desktop, server and mobile that can meet the need for every user.



REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © 2018: Digital Technology, Data, and Devices. Cengage Learning. 2018.



Computer Security and Safety: Ethics and Privacy

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Identify ways to safeguard against computer viruses, worms, Trojan horses, botnets, denial of service attacks, back doors, and spoofing
- 2. Discuss techniques to prevent unauthorized computer access and use
- 3. Identify safeguards against hardware theft and vandalism
- 4. Explain the ways to protect against software theft and information theft

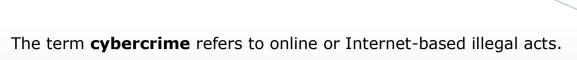
8.1

Computer Security Risks

A **computer security risk** is any event or action that could cause a loss of or damage to computer hardware, software, data, information, or processing capability. Some breaches to computer security are accidental while others are planned intrusions.

Some intruders do no damage; they merely access data, information, or programs on the computer. Other intruders indicate some evidence of their presence either by leaving a message or by deliberately altering or damaging data.

An intentional breach of computer security often involves a deliberate act that is against the law. Any illegal act involving a computer generally is referred to as a computer crime.





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Figure 8.1 : Cybercrime



Information transmitted over networks has a higher degree of security risk than information kept on a company's premises. Internet and network attacks include computer viruses, worms, and Trojan horses; botnets; denial of service attacks; back doors; and spoofing.

A **computer virus** is a potentially damaging computer program that affects, or infects, a computer negatively by altering the way the computer works without the user's knowledge or permission. Once the virus infects the computer, it can spread throughout and may damage files and system software, including the operating system.

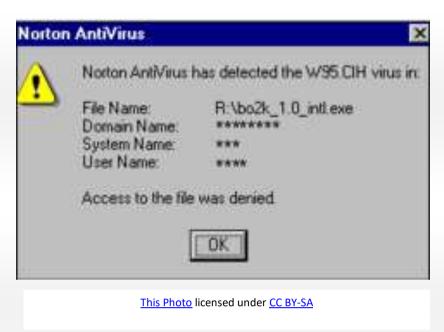


Figure 8.2 : Antivirus

A **worm** is a program that copies itself repeatedly, for example in memory or on a network, using up resources and possibly shutting down the computer or network.

A **Trojan** horse (named after the Greek myth) is a program that hides within or looks like a legitimate program. A certain condition or action usually triggers the Trojan horse. Unlike a virus or worm, a Trojan horse does not replicate itself to other computers.

Computer viruses, worms, and Trojan horses are classified as malware (short for malicious software), which are programs that act without a user's knowledge and deliberately alter the computer's operations.

A computer infected by a virus, worm, or Trojan horse often has one or more of the following symptoms:

- ✓ Screen displays unusual message or image
- ✓ Music or unusual sound plays randomly
- ✓ Available memory is less than expected
- ✓ Existing programs and files disappear
- √ Files become corrupted
- ✓ Programs or files do not work properly
- ✓ Unknown programs or files
- ✓ System properties change mysteriously appear

Users can take several precautions to protect their home and work computers from these malicious infections.

- ✓ Do not start a computer with removable media, such as CDs, DVDs, and USB flash drives, in the drives or ports
- ✓ Never open an e-mail attachment unless you are expecting the attachment and it is from a trusted source.
- ✓ Turn off message preview in your e-mail program. Some viruses are hidden in macros, which are instructions saved in software such as a word processing or spreadsheet program.
- ✓ In programs that allow users to write macros, you should set the macro security level so the application software warns users that a document they are attempting to open contains a macro.
- ✓ Users should install an antivirus program and update it frequently. An antivirus program protects a computer against viruses by identifying and removing any computer viruses found in memory, on storage media, or on incoming files.

Botnets

A botnet is a group of compromised computers connected to a network such as the Internet that are being used as part of a network that attacks other networks, usually for nefarious purposes.

A **compromised computer**, known as a zombie, is one whose owner is unaware the computer is being controlled remotely by an outsider. Cybercriminals use botnets to send spam via e-mail, spread viruses and other malware, or commit a denial of service attack.

Denial of Service Attacks

A denial of service attack, or DoS attack, is an assault whose purpose is to disrupt computer access to an Internet service such as the Web or email. Perpetrators carry out a DoS attack in a variety of ways.

Back Doors

A back door is a program or set of instructions in a program that allow users to bypass security controls when accessing a program, computer, or network. Once perpetrators gain access to unsecure computers, they often install a back door or modify an existing program to include a back door, which allows them to continue to access the computer remotely without the user's knowledge.



Spoofing

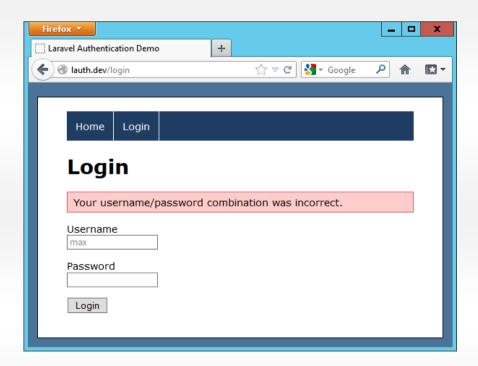
Spoofing is a technique intruders use to make their network or Internet transmission appear legitimate to a victim computer or network.

Safeguards against Botnets, DoS Attacks, Back Doors, and Spoofing To defend against botnets, DoS attacks, improper use of back doors, and spoofing, users can implement firewall solutions and install intrusion detection software.

8.3 Unauthorized Access And Use

Another type of computer security risk is unauthorized access and use. Unauthorized access is the use of a computer or network without permission.

Unauthorized use is the use of a computer or its data for unapproved or possibly illegal activities. Unauthorized use includes a variety of activities: an employee using an organization's computer to send personal e-mail messages, an employee using the organization's word processing software to track his or her child's soccer league scores, or someone gaining access to a bank computer and performing an unauthorized transfer.



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Figure 8.3 : Unauthorized Access



Hardware theft and vandalism are other types of computer security risks.

Hardware theft is the act of stealing computer equipment.

Hardware vandalism is the act of defacing or destroying computer equipment. Hardware vandalism takes many forms, from someone cutting a computer cable to individuals breaking into a business or school computer lab and aimlessly smashing computers. Mobile users are susceptible to hardware theft.

To help reduce the chances of theft, companies and schools use a variety of security measures. Physical access controls, such as locked doors and windows, usually are adequate to protect the equipment. Many businesses, schools, and some homeowners install alarm systems for additional security. School computer labs and other areas with a large number of semifrequent users often attach additional physical security devices such as cables that lock the equipment to a desk, cabinet, or floor.

Small locking devices also exist that require a key to access a hard disk or CD/DVD drive. Mobile computer users must take special care to protect their equipment. Some users attach a physical device such as a cable to lock a mobile computer temporarily to a stationary object.

Some notebook computers use passwords, possessed objects, and biometrics as methods of security. When you boot up these computers, you must enter a password, slide a card in a card reader, or press your finger on a fingerprint scanner before the hard disk unlocks. This type of security does not prevent theft, but it renders the computer useless if it is stolen.



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Figure 8.4 : Laptop Lock



Another type of computer security risk is software theft.

Software theft occurs when someone steals software media, intentionally erases programs, or illegally copies a program.

One form of software theft involves someone physically stealing the media that contain the software or the hardware that contains the media, as described in the previous section.

Another form of software theft occurs when software is stolen from software manufacturers. This type of theft, called piracy, is by far the most common form of software theft.

Software piracy is the unauthorized and illegal duplication of copyrighted software.

To protect software media from being stolen, owners should keep original software boxes and media in a secure location. All computer users should back up their files and disks regularly, in the event of theft. To protect

themselves from software piracy, software manufacturers issue users license agreements.



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Figure 8.5 : Software Theft

Checkpoint 8

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. Any illegal act involving a computer generally is referred to as a cybercrime.
- 2. Hackers often claim the intent of their security breaches is to improve security.
- 3. A firewall is hardware and/or software that allows users to bypass security controls when accessing a program, computer, or network.
- 4. In order to safeguard against unauthorized access and use of its computers, a company should have a digital certificate.

ACTIVITY



Share your experience regarding internet attack on your PC or mobile device.

Short Question

- 1. Define the terms, digital security risk, computer crime, cybercrime, and crimeware.
- 2. List common types of malware.
- 3. Identify risks and safety measures when gaming.
- 4. Define these terms: botnet, zombie, and bot.
- 5. Describe the damages caused by and possible motivations behind DoS and DDoS attacks.
- 6. A(n) ____ allows users to bypass security controls when accessing a program, computer, or network.
- 7. Define the term, spoofing. How can you tell if an email is spoofed?
- 8. List ways to protect against Internet and network attacks.

KEY TERM

Virus Malware

Cyber crime Zombie

Software Theft Firewall

SUMMARY

This chapter identified some potential computer risks and the safeguards that schools, businesses, and individuals can implement to minimize these risks. Wireless security risks and safeguards also were discussed.





REFERENCES

Misty E. Vermaat, Susan L. Sebok, Steven M. Freund etc. *Discovering Computers* © *2018: Digital Technology, Data, and Devices*. Cengage Learning. 2018.



Microsoft Word

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Create document that contain formatted text, table, image, smart art
- 2. Create a simple poster that combined text box, and picture element.

9.1 Introduction

With Microsoft Word on your PC, Mac, or mobile device, you can:

- ♣ Create documents from scratch, or a template.
- ♣ Add text, images, art, and videos.
- Research a topic and find credible sources.
- ♣ Access your documents from a computer, tablet, or phone with OneDrive.
- ♣ Share your documents, and work with others.
- Track and review changes.

To create a document, simply open Word, select a blank document or template, and start typing. Word offers many professionally designed templates to help you create letters, resumes, reports, and more.

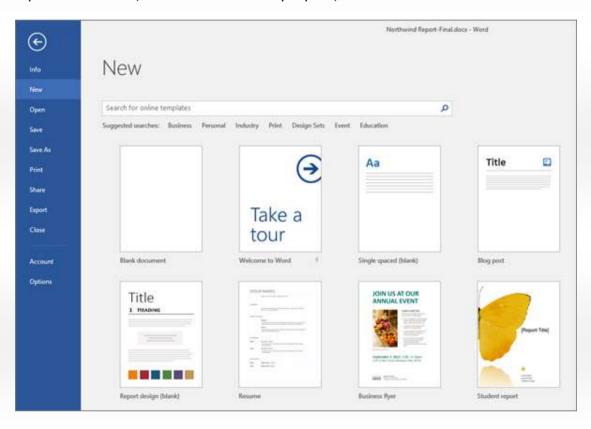


Create a blank document

- 1. Open Word. Or, if Word is already open, select **File > New**.
- 2. Select Blank document.

Create a document using a template

1. Open Word. Or, if Word is already open, select **File > New**.



2. Double-click a template to open it.

Tip: Pin templates you like, so you always see them when you start Word. Select the template and then select the pin icon that appears next to the name of the template.



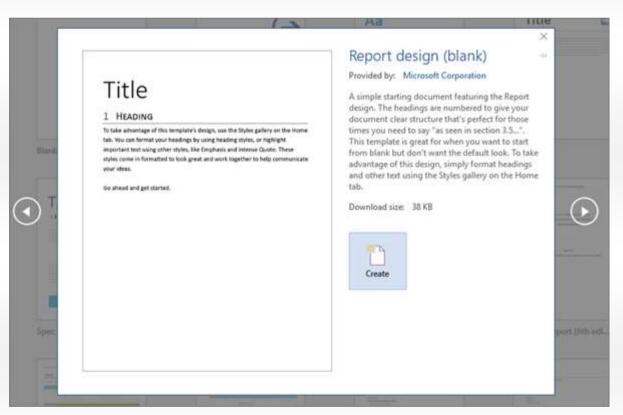
Search for a template

- 1. Open Word. Or, if Word is already open, select **File** > **New**.
- 2. In the **Search for online templates** box, enter a search word like **letter**, **resume**, or **invoice**.



Or, select a category under the search box like **Business**, **Personal**, or **Education**.

3. Click a template to see a preview. Click the arrows on the side of the preview to see more templates.



4. Select Create.



9.2

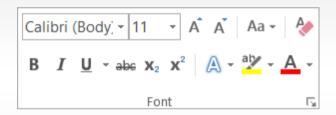
Working with Text

Add text

- 1. Place the cursor where you want to add the text.
- 2. Start typing.

Format text

- 1. Select the text you want to format.
- 2. Select an option to change the font, font size, font color, or make the text bold, italics, or underline.



Copy formatting

- 1. Select the text with the formatting you want to copy.
- 2. Click Format painter, and then select the text you want to copy the formatting to.

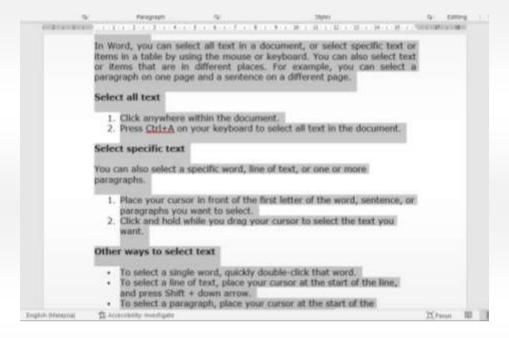
Tip: Double-click **Format painter** if you want to copy the formatting in more than one place.

Select text

In Word, you can select all text in a document, or select specific text or items in a table by using the mouse or keyboard. You can also select text or items that are in different places. For example, you can select a paragraph on one page and a sentence on a different page.

Select all text

- 1. Click anywhere within the document.
- 2. Press Ctrl+A on your keyboard to select all text in the document.



Select specific text

You can also select a specific word, line of text, or one or more paragraphs.

- 1. Place your cursor in front of the first letter of the word, sentence, or paragraphs you want to select.
- 2. Click and hold while you drag your cursor to select the text you want.





Other ways to select text

- To select a single word, quickly double-click that word.
- To select a line of text, place your cursor at the start of the line, and press Shift + down arrow.
- To select a paragraph, place your cursor at the start of the paragraph, and press Ctrl + Shift + down arrow.



9.3 Formatting

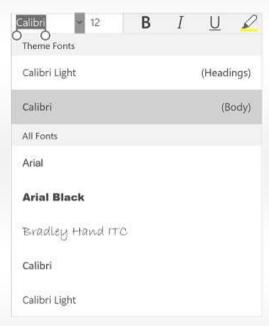
You can use Word to select and format text, change line and paragraph spacing, change indentation, and add lists. You can also use the edit menu to cut, copy, paste, and delete text that you select.



Change the font, font size, or font style

You can use the formatting options available on the **Home** tab to format text.

• **Change the font**: Select some text and then tap the font name box. Choose a font from the drop-down list.



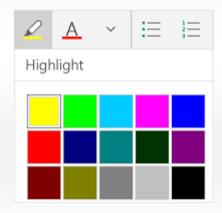
• Change the font size: Select some text, tap the font size box, and then choose a size from the drop-down list.



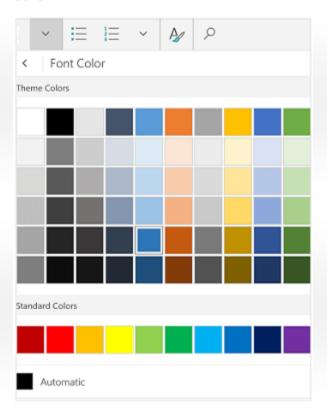
• Add bold, italics, or underlining: Select some text and then tap the appropriate icon to apply the formatting.

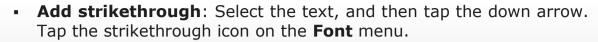


• **Highlight text**: Select some text, tap the highlight icon, and then choose a highlight color.



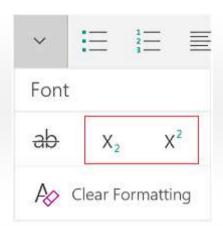
• Change the font color: Tap the font color icon, and then choose a color.





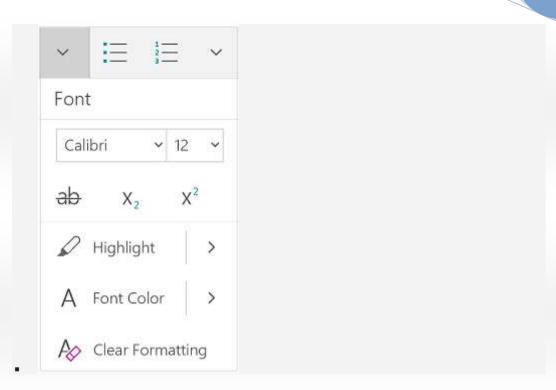


- **Remove formatting**: Select the text that has the formatting you want to remove, and then tap the down arrow. Tap **Clear Formatting** on the **Font** menu.
- Add subscript or superscript: Select some text, tap the down arrow, and select subscript or superscript on the Font menu



Notes:

• If you are using your device in portrait mode, many of the formatting options will appear on the Font menu.



 Apply a style: Select some text, tap the style icon, and then select from the list of defined styles.



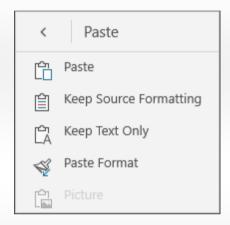


Use editing tools

You can also select formatting options from the edit menu.



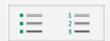
 Cut and paste or copy and paste: Select some text, tap the scissors icon to cut the text or the copy icon to copy the text, tap a new location, and then tap the clipboard icon. Tap the arrow next to the clipboard to see the Paste menu. You can select Paste, Keep Source Formatting, Keep Text Only, or Paste Format.



• Look up a definition: Select a word and then tap Smart Lookup.

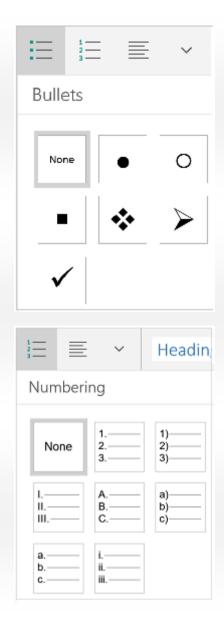
9.4 Bullets & Numbering

• Add bullet or numbered lists: Select the text and then tap the bullet or the numbered list icon.



You can select a bullet or numbering style.





• **Indent a paragraph**: Tap anywhere in the paragraph, and then tap the indent icon or the negative indent icon.



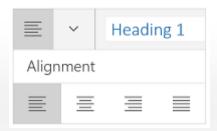


9.5 Pa

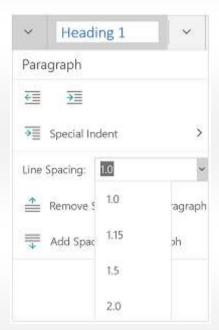
Paragraphing

Format paragraphs

• **Align the text**: Tap the text and then tap the alignment icon to align the text left, center, right, or justified.

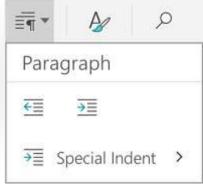


• **Line spacing**: To add or remove space before or after a line or paragraph, tap the arrow and then select from the spacing options.

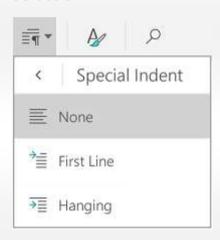


• Insert or remove tabs: Tap the place where you want the tab to be located, tap the paragraph tab icon, and then tap the insert tab or remove tap icon.





To indent only the first line or use a hanging indent, tap the paragraph tab icon, tap **Special Indent**, and then make your selection.

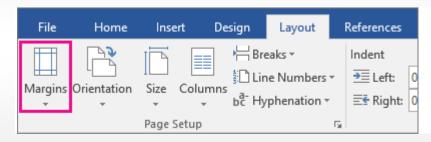


9.6 Margin & Alignment

Change margins in your document to change the layout and make sure everything fits.

Apply a predefined margin setting

1. Select **Layout** > **Margins**.





2. Select the margin measurements you want.

	Norma Top: Left:	1" 1"	Bottom: 1" Right: 1"	
	Narrov Top: Left:	0.5"	Bottom: 0.5" Right: 0.5"	
	Modera Top: Left:	1"	Bottom: 1" Right: 0.75"	
	Wide Top: Left:	1" 2"	Bottom: 1" Right: 2"	
	Mirrore Top: Inside:	1"	Bottom: 1" Outside: 1"	
	Office Top: Left:	2003 Defa 1" 1.25"	Bottom: 1" Right: 1.25"	
Custom M <u>a</u> rgins				

Note: If your document contains multiple sections, the new margins apply only to the selected sections.

Create a custom margin

- 1. Select Layout > Margins.
- 2. Select **Custom Margins**.
- 3. In **Margins**, use the Up and Down arrows to enter the values you want.
- 4. Select **OK** when done.

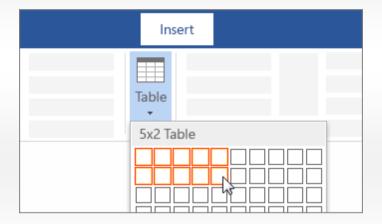
Change default margins

- 1. Select Layout > Margins > Custom Margins.
- 2. Set your margins.
- 3. Select **Set As Default**.
- 4. Confirm your selection.

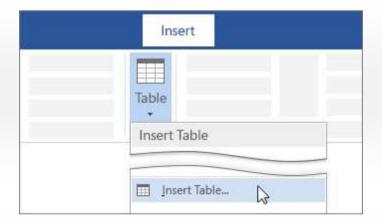


9.7 Tables & Borders

For a basic table, click **Insert** > **Table** and move the cursor over the grid until you highlight the number of columns and rows you want.



For a larger table, or to customize a table, elect **Insert** > **Table** > **Insert Table**.



Tips:

- If you already have text separated by tabs, you can quickly convert it to a table. Select Insert > Table, and then select Convert Text to Table.
- To draw your own table, select Insert > Table > Draw Table.

Format a table

After you create a table, Word offers you many ways to format that table. If you decide to use Table Styles, you can format your table all at once, and even see a preview of what your table will look like formatted in a particular style before you actually apply the style.

You can create a custom look for tables by splitting or merging cells, adding or deleting columns or rows, or adding borders. If you're working with a long table, you can repeat the table headings on each page on which the table appears. To prevent awkward page breaks that disrupt the flow of your table, you can also specify just how and where the table should break across pages.

Use Table Styles to format an entire table

After you create a table, you can format the entire table by using Table Styles. By resting your pointer over each of the preformatted table styles, you can preview what the table will look like.

- 1. Click in the table that you want to format.
- 2. Under **Table Tools**, click the **Design** tab.
- 3. In the **Table Styles** group, rest the pointer over each table style until you find a style that you want to use.



Note: To see more styles, click the **More** arrow .

- 4. Click the style to apply it to the table.
- 5. In the **Table Style Options** group, select or clear the check box next to each the table element to apply or remove the selected style.

Add or remove borders

You can add or remove borders to format a table the way that you want.



Add table borders

- 1. Under **Table Tools**, click the **Layout** tab.
- 2. In the **Table** group, click **Select**, and then click **Select Table**.
- 3. Under **Table Tools**, click the **Design** tab.
- 4. In the **Table Styles** group, click **Borders**, and then do one of the following:
 - Click one of the predefined border sets.
 - Click Borders and Shading, click the Borders tab, and then choose the options that you want.

Remove table borders from the whole table

- 1. Under **Table Tools**, click the **Layout** tab.
- 2. In the **Table** group, click **Select**, and then click **Select Table**.
- 3. Under **Table Tools**, click the **Design** tab.
- 4. In the **Table Styles** group, click **Borders**, and then click **No Border**.

Add table borders to specified cells only

1. On the **Home** tab, in the **Paragraph** group, click **Show/Hide**.



2. Select the cells that you want, including their end-of-cell marks.



- 3. Under **Table Tools**, click the **Design** tab.
- 4. In the **Table Styles** group, click **Borders**, and then click the border that you want to add.

Remove table borders from specified cells only

1. On the **Home** tab, in the **Paragraph** group, click **Show/Hide**.



2. Select the cells that you want, including their end-of-cell marks.



- 3. Under **Table Tools**, click the **Design** tab.
- 4. In the **Table Styles** group, click **Borders**, and then click **No Border**.

Display or hide gridlines

Gridlines show the cell boundaries of a table on the screen wherever the table doesn't have borders applied. If you hide the gridlines in a table that has borders, you won't see the change because the gridlines are behind the borders. To view the gridlines, remove the borders.

Unlike borders, gridlines appear only on the screen; they are never printed. If you turn off gridlines, the table is displayed as it will be printed.

Note: Gridlines are not visible when you view a document in a Web browser or in Print Preview.

Display or hide table gridlines in a document

 Under Table Tools, on the Layout tab, in the Table group, click View Gridlines.

Add a cell, row, or column

Add a cell

- 1. Click in a cell that is located just to the right of or above where you want to insert a cell.
- 2. Under **Table Tools**, on the **Layout** tab, click the **Rows & Columns** Dialog Box Launcher.
- 3. Click one of the following options:

Click th	nis	To do this		
Shift right	cells	Insert a cell and move all other cells in that row to the right.		
		Note: This option may result in a row that has more cells than the other rows.		
Shift down	cells	Insert a cell and move remaining existing cells in that column down one row each. A new row will be added at the bottom of the table to contain the last existing cell.		
Insert entire	row	Insert a row just above the cell that you clicked in.		
Insert entire column	1	Insert a column just to the right of the cell that you clicked in.		

Add a row

- 1. Click in a cell that is located just below or above where you want to add a row.
- 2. Under **Table Tools**, click the **Layout** tab.
- 3. Do one of the following:
 - To add a row just above the cell that you clicked in, in the **Rows and Columns** group, click **Insert Above**.
 - To add a row just below the cell that you clicked in, in the Rows and Columns group, click Insert Below.

Add a column

- 1. Click in a cell that is located just to the right or left of where you want to add a column.
- 2. Under **Table Tools**, click the **Layout** tab.
- 3. Do one of the following:
 - To add a column just to the left of the cell that you clicked in, in the Rows and Columns group, click Insert Left.
 - To add a column just to the right of the cell that you clicked in, in the **Rows and Columns** group, click **Insert Right**.

Delete a cell, row, or column

1. Do one of the following:

To select	Do this
A cell	Click the left edge of the cell.
A row	Click to the left of the row.
A column	Click the column's top gridline or top border.

- 2. Under **Table Tools**, click the **Layout** tab.
- In the Rows & Columns group, click Delete, and then click Delete Cells, Delete Rows, or Delete Columns, as appropriate.

Merge or split cells

Merge cells

You can combine two or more cells in the same row or column into a single cell. For example, you can merge several cells horizontally to create a table heading that spans several columns.

1. Select the cells that you want to merge by clicking the left edge of a cell and then dragging across the other cells that you want.

2. Under **Table Tools**, on the **Layout** tab, in the **Merge** group, click **Merge Cells**.

Split cells

- 1. Click in a cell, or select multiple cells that you want to split.
- 2. Under **Table Tools**, on the **Layout** tab, in the **Merge** group, click **Split Cells**.
- 3. Enter the number of columns or rows that you want to split the selected cells into.

Repeat a table heading on subsequent pages

When you work with a very long table, it will be divided wherever a page break occurs. You can make adjustments to the table so that the table headings are repeated on each page.

Repeated table headings are visible only in Print Layout view and when you print the document.

- 1. Select the heading row or rows. The selection must include the first row of the table.
- 2. Under **Table Tools**, on the **Layout** tab, in the **Data** group, click **Repeat Header Rows**.

Note: Word automatically repeats the table headings on each new page that results from an automatic page break. Word does not repeat a heading if you insert a manual page break within a table.

Control where a table is divided

When you work with a very long table, it must be divided wherever a page break occurs. By default, if a page break occurs within a large row, Microsoft Word allows a page break to divide the row between the two pages.

You can make adjustments to the table to make sure that the information appears as you want it to when the table spans multiple pages.

Prevent a table row from breaking across pages

- 1. Click in the table.
- 2. Under **Table Tools**, click the **Layout** tab.
- 3. In the **Table** group, click **Properties**, and then click the **Row** tab.
- 4. Clear the **Allow row to break across pages** check box.

Force a table to break across pages at a particular row

- 1. Click in the row that you want to appear on the next page.
- 2. Press CTRI +FNTFR.



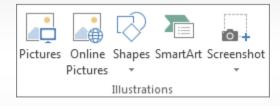
Add a drawing to a document

These are the basic types of graphics that you can use to enhance your Word documents: drawing objects, SmartArt, charts, pictures, and clip art. Drawings refer to a drawing object or a group of drawing objects.

Drawing objects include shapes, diagrams, flowcharts, curves, lines, and WordArt. These objects are part of your Word document. You can change and enhance these objects with colors, patterns, borders, and other effects.

Add a drawing to a document

- 1. Click in your document where you want to create the drawing.
- 2. On the **Insert** tab, in the **Illustrations** group, click **Shapes**.

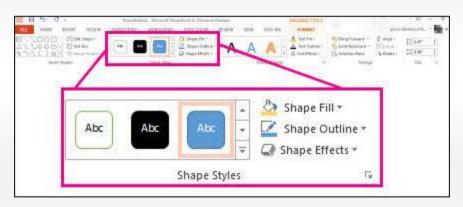


3. You can do any of the following on the **Format** tab, which appears after you insert a drawing shape:

- 4. **Insert a shape.** On the **Format** tab, in the **Insert Shapes** group, click a shape, and then click somewhere in the document.
- 5. **Change a shape.** Click the shape you want to change. On the **Format** tab, in the **Insert Shapes** group, click **Edit Shape**, point to **Change Shape**, and then choose a different shape.
- 6. **Add text to a shape.** Click the shape you where you want text, and then type.
- 7. **Group selected shapes.** Select several shapes at a time by pressing CTRL on your keyboard and clicking each shape you want to include in the group. On the **Format** tab in the **Arrange** group, click **Group** so that all of the shapes will be treated like a single object.
- 8. **Draw in the document.** On the **Format** tab, in the **Insert Shapes** group, expand the shapes options by clicking the arrow. Under **Lines** click **Freeform** or **Scribble**.

Tip: To stop drawing with the Freeform or Scribble lines, double-click.

- 9. **Adjust the size of the shapes.** Select the shape or shapes you want to resize. On the **Format** tab, in the **Size** group, click the arrows or type new dimensions in the **Height** and **Width** boxes.
- 10. **Apply a style to a shape.** In the **Shape Styles** group, rest your pointer over a style to see what your shape will look like when you apply that style. Click the style to apply it. Or, click **Shape Fill** or **Shape Outline** and select the options that you want.



Note: If you want to apply a color and gradient that aren't available in the **Shape Styles** group, select the color first, and then apply the gradient.

11. Add flow charts with connectors. Before you create a flow chart, add a drawing canvas by clicking the Insert tab, clicking Shapes in the Illustrations group, and then clicking New Drawing Canvas. On the Format tab, in

- the **Insert Shapes** group, click a Flow chart shape. Under **Lines**, choose a connector line such as the **Curved Arrow Connector**.
- 12. Use shadow and three-dimensional (3-D) effects to add interest to the shapes in your drawing. On the Format tab, in the Shape Styles group, click Shape Effects, and choose an effect.
- 13. **Align the objects on the canvas.** To align the objects, press and hold CTRL while you select the objects that you want to align. On the **Format** tab, in the **Arrange** group, click **Align** to choose from an assortment of alignment commands.

Delete all or part of a drawing

- 1. Select the drawing object that you want to delete.
- 2. Press DELETE.

Add shapes

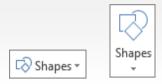
You can add shapes, such as boxes, circles, and arrows, to your documents, email messages, slide shows, and spreadsheets. To add a shape, click **Insert**, click **Shapes**, select a shape, and then click and drag to draw the shape.

After you add one or more shapes, you can add text, bullets, and numbering to them, and you can change their fill, outline, and other effects on the **Format** tab.

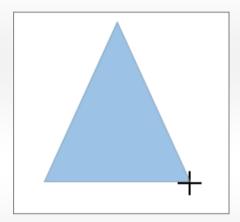
Tip: You can add individual shapes to a chart, or add shapes on top of a SmartArt graphic to customize the chart or the graphic.

Add a shape in Excel, Outlook, Word, or PowerPoint

1. On the **Insert** tab, click **Shapes**.



2. Click the shape you want, click anywhere in the workspace, and then drag to place the shape.



To create a perfect square or circle (or constrain the dimensions of other shapes), press and hold Shift while you drag.

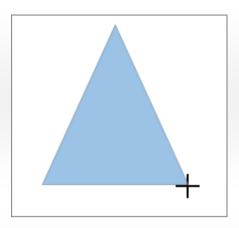
Add a shape in Project

To follow these steps, you need to open or create a report. To do that, on the **Report** tab, click **Recent** to open an existing report, or click **More Reports** to select a report from the list in the **Reports** dialog box or create a new report.

1. In the open report, on the **Design** tab, click **Shapes**.



2. Click the shape you want, click anywhere in the workspace, and then drag to place the shape.



To create a perfect square or circle (or constrain the dimensions of other shapes), press and hold Shift while you drag.

Add text to a shape

Insert a shape, or click an existing shape, and then enter text.

 Right-click the shape and click Add Text or Edit Text, or just start typing.

Note: The text that you add becomes part of the shape — if you rotate or flip the shape, the text rotates or flips also.

2. To format and align your text, click the **Home** tab, and then choose options from the **Font**, **Paragraph**, or **Alignment** groups, depending on the program you're using and what kind of formatting you want to apply. (Text formatting options are limited in Project.)

Change from one shape to another shape

1. Click the shape you want to change.

To change multiple shapes, press Ctrl while you click the shapes that you want to change.

2. On the **Format** tab, in the **Insert Shapes** group, click **Edit Shape**, point to **Change Shape**, and then click the new shape that you want.

Add the same shape multiple times

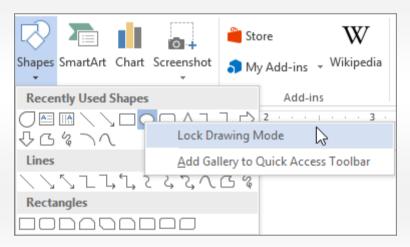
If you need to add the same shape repeatedly, you can do so quickly by using Lock Drawing Mode.

Note: Instead of adding individual shapes to create a drawing, you might want to <u>Choose a SmartArt graphic</u>. In a SmartArt graphic, the arrangement of the shapes and the font size in those shapes is updated automatically as you add or remove shapes and edit your text.

1. On the **Insert** tab, click **Shapes**.



2. Right-click the shape you want to add, and then click **Lock Drawing Mode**.



- 3. Click anywhere in the workspace, and then drag to place the shape.
- 4. Repeat step 3 to add the shape as many times as you like.

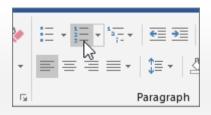
Tip: To create a perfect square or circle (or constrain the dimensions of other shapes), press and hold Shift while you drag.

5. After you add all the shapes you want, press Esc to turn off Lock Drawing Mode.

Add a bulleted or numbered list to a shape **Note:** This feature isn't available in Project.

- 1. Select the text in the shape that you want to add bullets or numbering to.
- 2. Select the **Home** tab on the ribbon, and in the **Paragraph** group, select **Bullets** or **Numbering**.





You can find different bullet styles and numbering formats by clicking the down arrow next to **Bullets** or **Numbering**.

Add a Quick Style to a shape

Quick Styles let you apply a style to your shape with one click. You'll find the styles in the Quick Style gallery. When you rest your pointer over a Quick Style thumbnail, you can see how the style affects your shape.

- 1. Click the shape you want to change.
- 2. Select the **Format** tab, and in the **Shape Styles** group, select the Quick Style you want to use.



To see more Quick Styles, click the **More** button .

Change the color of a shape

To learn how to change fill color, border color, or text color, see <u>Change</u> the colors in a text box or shape.

Delete a shape

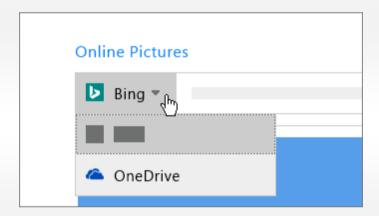
Click the shape that you want to delete, and then press Delete. To delete multiple shapes, press Ctrl while you click the shapes that you want to delete, and then press Delete.



Insert pictures

- 1. Do one of the following:
 - Select Insert > Pictures > This Device for a picture on your PC.
 - Select Insert > Pictures > Stock Images for high quality images or backgrounds.
 - Select Insert > Pictures > Online Pictures for a picture on the web.

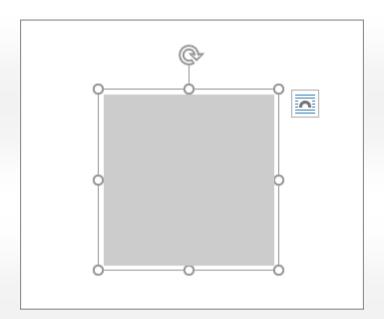
Tip: For a picture from your OneDrive, go to the drop-down list at the top left, and switch from **Bing** to **OneDrive**.



2. Select the picture you want, and then select **Insert**.

Resize or move pictures

- To resize a picture, select the picture and drag a corner handle.
- To wrap text around a picture, select the picture, and then select a wrapping option.



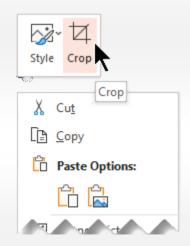
Tip: Pick something other than **In Line with Text**, and you can move the picture around the page: select the picture and drag it.

Crop a picture in Office

Crop a picture to trim away outer edges that are unnecessary.

Crop the margins of a picture

- 1. Use **Insert** > **Picture** to add the image to an Office file (such as a Word document, PowerPoint presentation, or Excel workbook).
- 2. Right-click the picture. A pop-up menu appears with two buttons either immediately above or below the menu. **Crop** is one of the buttons.





3. Select the **Crop** # button.

Black crop handles appear on the edges and corners of the picture.



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

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 change the crop area by dragging the edges or corners of the crop rectangle, or move the picture.
- 7. When you're finished, press Esc or click anywhere outside the picture within the document.

Note: Cropping tools are not available for shapes, but in Office 2010 and later, you can resize a shape and use the **Edit Points** tool to achieve an effect similar to cropping or to customize the shape.

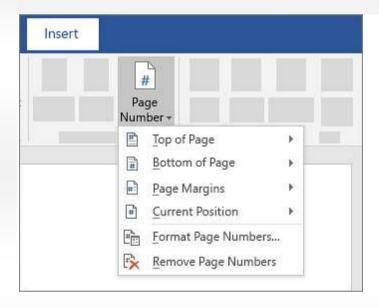


9.9 Page Numbering

Page numbering in Word

A header or footer can contain text, information about the document, or even images. However, the most common elements in a header or footer are page numbers. Page numbers can be continuous though a document, all but the first page, or start over in each section.

Note: The best way to work with page numbers is in Word on a laptop or desktop computer, rather than in a web browser or mobile app.



Add page numbers to a header or footer in Word

Add page numbers to a header or footer

- 1. Click or tap in the header or footer where you want the page numbers to go.
- 2. Go to Insert > Page Numbering.
- 3. Select Current Position.
- 4. Choose a style.

Change where the page number appears

- 1. In the header or footer area, select the page number.
- 2. Use the Tab key to position the page number left, center, or right. If the number is flush left, press Tab once for center, and twice for right. To go back, press Backspace until in position.

Change appearance of page number

- 1. Select the page number
- 2. On the **Home** tab, use the **Font** choices and dialog box to change the font family, style, size, and color.



Print a document in Word

Before you print, you can preview your document and specify which pages you want to print.

Preview your document

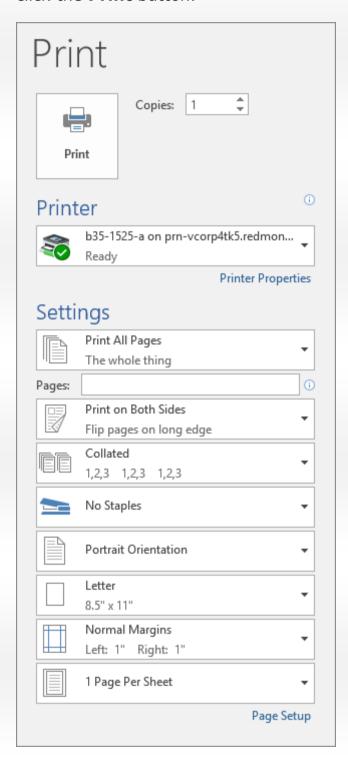
- 1. Click **File > Print**.
- 2. To preview each page, click the forward and backward arrows at the bottom of the page.



If the text is too small to read, use the zoom slider at the bottom of the page to enlarge it.

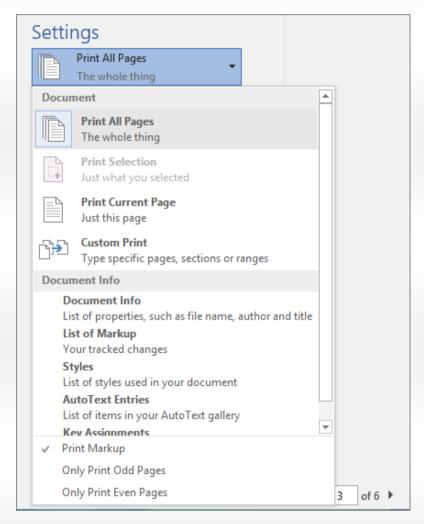


3. Choose the number of copies, and any other options you want, and click the **Print** button.



Print specific pages

- 1. Click File > Print.
- To print only certain pages, print some of the document's properties, or print tracked changes and comments, click the arrow under **Settings**, next to **Print All Pages** (the default), to see all of your options.



- 3. To print only certain pages, do one of the following:
 - To print the page shown in preview, select Print Current Page.
 - To print consecutive pages like 1 -3, select **Custom Print** and enter the first and last page numbers in the **Pages** box.
 - To print individual pages and a range of pages (like page 3, and pages 4-6) at the same time, select **Custom Print**, and enter the page numbers and ranges separated by commas (e.g. 3, 4-6).



Print in color

Note: If the printer you've chosen under **Printer** supports color, black and white, and grayscale printing options, the options will appear in the list under **Settings**.

- 1. Click **File > Print**.
- 2. Under **Settings**, choose the color printing option, and any other options you want, and click the **Print** button.

Checkpoint 9

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. Italicizing a word is an example of character formatting.
- 2. To center selected paragraphs, click the Center button on the Formatting toolbar.
- 3. To center a graphic in a Word document, right-click anywhere on the graphic and select Center from the shortcut menu.
- 4. To save a Word document as a Web page, click the Save As Web button on the Standard toolbar.

ACTIVITY



Write a letter to your lecturer to ask her/his permission to use computer lab



Multiple Choice

Instructions: Select the best answer. 1. The bar contains buttons that allow you to speak commands. a. status b. talk c. language d. speak 2. A(n) _____ contains buttons and boxes that allow you to perform frequent tasks quickly. a. indicator b. toolbar c. scroll bar d. task pane 3. are used to display different portions of your document in the document window. a. Status indicators b. Toolbars c. Scroll bars d. Rulers 4. The Language bar can be in any state except the following. a. Opened b. Closed c. Hidden d. Restored 5. If a word you type is not in Word's dictionary, a _____ wavy underline displays below the word, and a red _____ displays on the Spelling and Grammar Checking Status icon. a. green, check mark b. green, X c. red, check mark d. red, X 6. The file type indicates that the file is a Word document. a. word b. doc c. file d. wd

7.	The command can be used to duplicate an action that you wish to perform again. a. repeat b. redo c. undo d. copy
8.	Selected graphics display handles at the corner and middle locations. a. selection b. sizing c. picture d. resizing
9.	the OVR status indicator to toggle between overtype and insert mode. a. Click b. Right-click c. Double-click d. Drag
10	 To close a document and start over, a. click Close on the File menu b. click the Close button at the right edge of the menu bar c. click the Close button on the Standard toolbar

SUMMARY

d. both a and b

Many function of microsoft word can be used to helps user settled the daily working nicely and neatly. Among the function that helps are typing with the text, formatting, bullets and numbering, paragraphing, margin and allignment, tables and borders, drawing and page numbering.



Format Bold

Italic Print

Table Alignment

Paragraph Picture

Bullet Numbering



REFERENCES

Microsft 365 Training, Support Microsoft, Oct 20th, 2021, https://support.microsoft.com/en-us/training



TOPIC 10

Microsoft PowerPoint

LEARNING OUTCOMES

By the end of topic, you should be able to:

Create a Powerpoint presentation that consists ot slide transition, animations, picture, video, and sound

10.1

Introduction

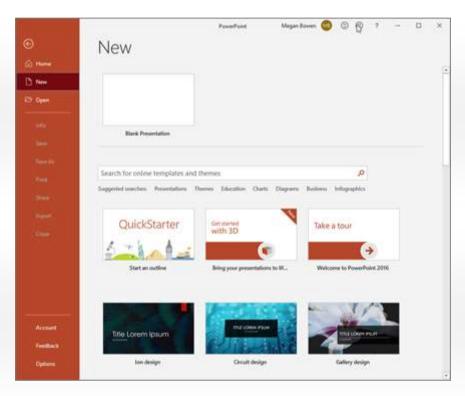
With PowerPoint on your PC, Mac, or mobile device:

- Create presentations from scratch or a template.
- ♣ Add text, images, art, and videos.
- Select a professional design with PowerPoint Designer.
- ♣ Add transitions, animations, and motion.
- Save to OneDrive, to get to your presentations from your computer, tablet, or phone.
- ♣ Share and work with others, wherever they are.



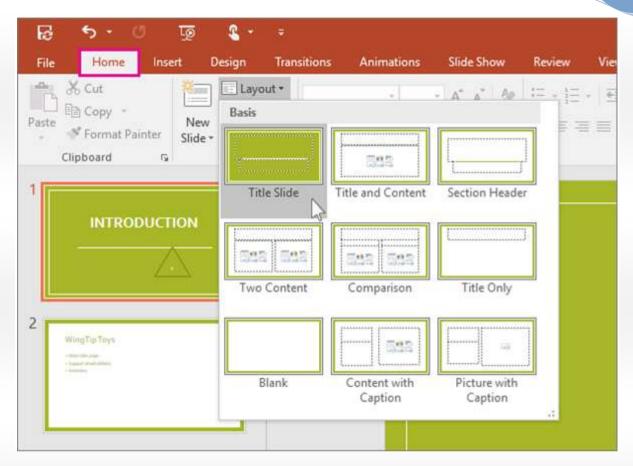
Create a presentation

- 1. Open PowerPoint.
- 2. Select an option:
 - Select Blank Presentation to create a presentation from scratch.
 - Select one of the templates.
 - Select Take a Tour, and then select Create, to see tips for using PowerPoint.



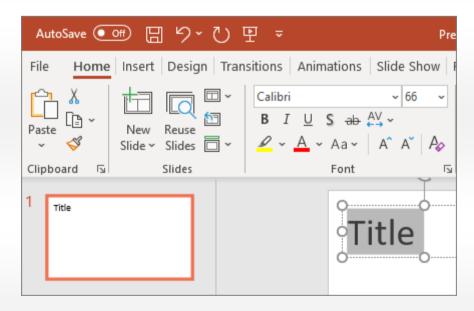
Add a slide

- 1. Select the slide you want your new slide to follow.
- 2. Select **Home** > **New Slide**.
- 3. Select **Layout** and the you type want from the drop-down.



Add and format text

- 1. Place the cursor where you want, and type.
- 2. Select the text, and then select an option on the **Home** tab: **Font**, **Font size**, **Bold**, **Italic**, **Underline**, ...
- 3. To create bulleted or numbered lists, select the text, and then select **Bullets** or **Numbering**.





Add a picture, shape, and more

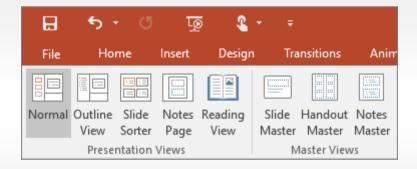
- 1. Select **Insert**.
- 2. To add a picture:
 - Select Pictures.
 - Browse for the picture you want and select Insert.
- 3. To add illustrations:
 - Select Shapes, Icons, 3D Models, SmartArt, or Chart.
 - Select the one you want.



Choose the right view for the task in PowerPoint

You can view your PowerPoint file in a variety of ways, depending on the task at hand. Some views are helpful when you're creating your presentation, and some are most helpful for delivering your presentation.

You can find the different PowerPoint view options on the **View** tab, as shown below.



You can also find the most frequently used views on the task bar at the bottom right of the slide window, as shown below.



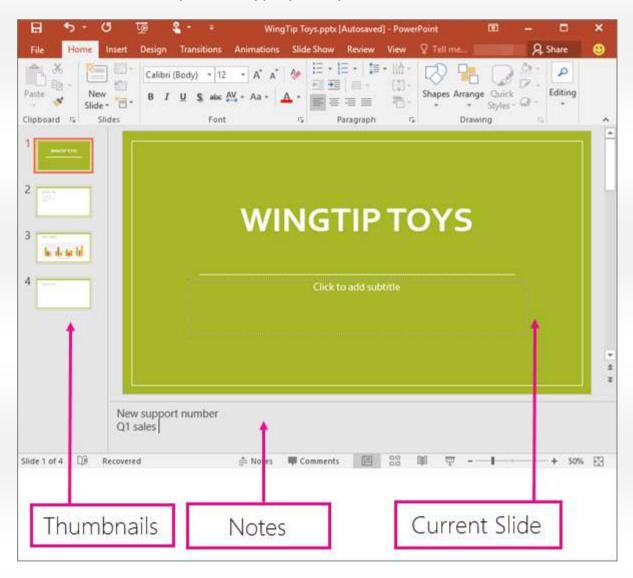


Views for creating your presentation

Normal view

You can get to **Normal** view from the task bar at the bottom of the slide window, or from the **View** tab on the ribbon.

Normal view is the editing mode where you'll work most frequently to create your slides. Below, **Normal** view displays slide thumbnails on the left, a large window showing the current slide, and a section below the current slide where you can type your speaker notes for that slide.





Slide Sorter view

You can get to **Slide Sorter** view from the task bar at the bottom of the slide window, or from the **View** tab on the ribbon.

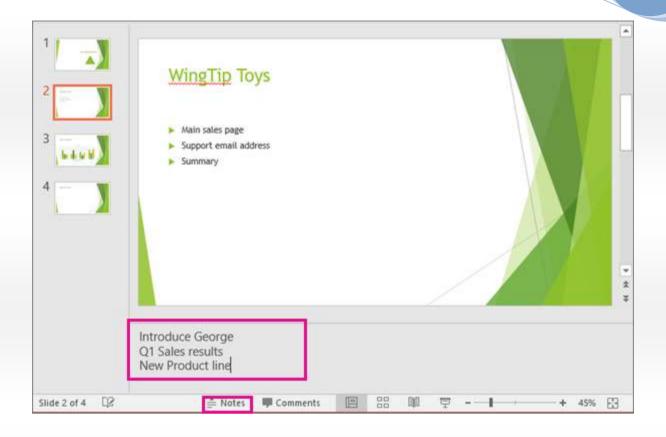
Slide Sorter view (below) displays all the slides in your presentation in horizontally sequenced, thumbnails. Slide show view is helpful if you need to reorganize your slides—you can just click and drag your slides to a new location, or add sections to organize your slides into meaningful groups.



Notes Page view

You can show or hide your speakers notes with the **Notes** button at the bottom of the slide window, or you can get to **Notes Page** view from the **View** tab on the ribbon.

The **Notes** pane is located beneath the slide window. You can print your notes or include the notes in a presentation that you send to the audience, or just use them as cues for yourself while you're presenting.



Outline view

You can get to **Outline** view from the **View** tab on the ribbon.

Use **Outline** view to create an outline or story board for your presentation. It displays only the *text* on your slides, not pictures or other graphical items.



Master views

To get to a master view, on the **View** tab, in the **Master Views** group, choose the master view that you want.

Master views include, **Slide**, **Handout**, and **Notes**. The key benefit to working in a master view is that you can make universal style changes to every slide, notes page, or handout associated with your presentation.

Views for delivering and viewing a presentation

Slide Show view

You can get to **Slide Show** view from the task bar at the bottom of the slide window.

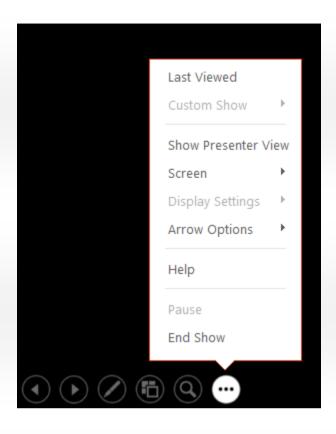
Use Slide Show view to deliver your presentation to your audience. Slide Show view occupies the full computer screen, exactly the way your presentation will look on a big screen when your audience sees it.

Presenter view

To get to **Presenter** view, in **Slide Show** view, in the lower left corner of the screen, click, and then click **Show Presenter View** (as shown below).

Use **Presenter** view to view your notes while delivering your presentation. In **Presenter** view, your audience cannot see your notes.





Reading view

You can get to **Reading** view from the task bar at the bottom of the slide window.

Most people reviewing a PowerPoint presentation without a presenter will want to use Reading view. It displays the presentation in a full screen like Slide Show view, and it includes a few simple controls to make it easy to flip through the slides.

10.3 Transition

Slide transitions are the animation-like effects that happen when you move from one slide to the next during a presentation. Add slide transitions to bring your PowerPoint presentation to life.

- 1. Select the slide you want to add a transition to.
- 2. Select the **Transitions** tab and choose a transition. Select a transition to see a preview.
- 3. Select **Effect Options** to choose the direction and nature of the transition.

Note: Not every transition has **Effect Options**.

4. Select **Preview** to see what the transition looks like.

To remove a transition, select **Transitions** > **None**.

Add, change, or remove transitions between slides

A slide transition is the visual effect that occurs when you move from one slide to the next during a presentation. You can control the speed, add sound, and customize the look of transition effects.

Add slide transitions to bring your presentation to life

- 1. Select the slide you want to add a transition to.
- 2. Select the **Transitions** tab and choose a transition. Select a transition to see a preview.
- 3. Select **Effect Options** to choose the direction and nature of the transition.
- 4. Select **Preview** to see what the transition looks like.

To remove a transition, select **Transitions** > **None**.

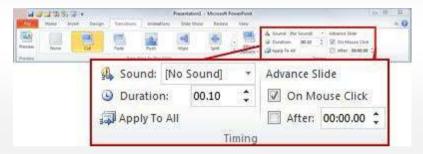
Set the timing and speed of a transition

You can modify the duration of a transition, modify the transition effect, and even specify a sound to play during a transition. Also, you can specify the time to spend on a slide before advancing to the next.

Set the speed of a transition

Use **Duration** to set transition speed. A shorter duration means that a slide advances faster, and a larger number makes the slide advance more slowly.

- 1. Select the slide that has the transition that you want to modify.
- 2. On the **Transitions** tab, in the **Timing** group, in the **Duration** box, type the number of seconds that you want.



Tip: If you want all the slide show's transitions to use the same speed, click **Apply to All**.

Modify the effect options for a transition

Many, but not all, of the transitions in PowerPoint can be customized.

- 1. Select the slide that has the transition you want to modify.
- 2. On the **Transitions** tab, in the **Transition to This Slide** group, click **Effect Options** and select the option that you want.



In this example, a **Gallery** transition is applied to the slide and the **From Right** option is selected.

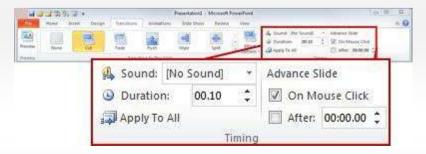


A **Gallery** transition, with the **From Right** option selected, during a presentation.

Specify a time to advance to the next slide

Advance Slide sets the transition timing by specifying how long a slide stays in view before the transition to the next slide begins. If no timing is selected, slides advance when you click the mouse.

- 1. Select the slide that you want to set the timing for.
- 2. On the **Transitions** tab, in the **Timing** group, under **Advance Slide**, do one of the following:



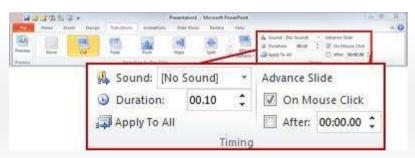
 To make the slide advance to the next slide when you click the mouse, select the On Mouse Click check box.

- To make the slide advance automatically, select the **After** check box, and then enter the number of minutes or seconds that you want. The timer starts when the final animation or other effect on the slide finishes.
- To enable both the mouse and automatic advance, select both the On Mouse Click check box and the After check box. Then, at After, enter the number of minutes or seconds that you want. The slide will advance automatically, but you can advance it more quickly by clicking the mouse.

Tip: If you want all the slides to advance using the same speed, click **Apply to All**.

Set a sound to play during a transition

- 1. Select the slide that has the transition that you want to modify.
- 2. On the **Transitions** tab, in the **Timing** group, in the **Sound** list, select the sound that you want.



Note: If you want to use your own sound, in the **Sound** list, select **Other Sound**. Then, in the **Add Audio** dialog box, select the sound that you want, and then click **OK**

10.4 Animations

Animation can help make a PowerPoint presentation more dynamic, and help make information more memorable. The most common types of animation effects include entrances and exits. You can also add sound to increase the intensity of your animation effects.

Presentation experts recommend using animations and sound effects sparingly. Animation can be useful in making a presentation more dynamic, and help to emphasize points, but too much animation can be distracting. Do not let animation and sound take the focus away from what you are saying.

Add animations and effects

- 1. Select the object or text you want to animate.
- 2. Select **Animations** and choose an animation.
- 3. Select **Effect Options** and choose an effect.

Manage animations and effects

There are different ways to start animations in your presentation:

- On Click Start an animation when you click a slide.
- With Previous Play an animation at the same time as the previous animation in your sequence.
- After Previous Start an animation immediately after the previous one happens.
- **Duration** Lengthen or shorten an effect.
- Delay Add time before an effect runs.

Add more effects to an animation

- 1. Select an object or text with an animation.
- 2. Select **Add Animation** and choose one.

Change the order of animations

- 1. Select an animation marker.
- 2. Choose the option you want:
 - Move Earlier Make an animation appear earlier in the sequence.
 - Move Later Make an animation occur later in the sequence.

Add animation to grouped objects

You can add an animation to grouped objects, text, and more.

- 1. Press Ctrl and select the objects you want.
- 2. Select **Format** > **Group** > **Group** to group the objects together.
- 3. Select **Animations** and choose an animation.

Animate text or objects

You can animate the text, pictures, shapes, tables, SmartArt graphics, and other objects in your PowerPoint presentation.

Effects can make an object appear, disappear, or move. They can change an object's size or color.

Add animations to text, pictures, shapes, and more in your presentation

- 1. Select the object or text you want to animate.
- 2. Select **Animations** and choose an animation.
- 3. Select **Effect Options** and choose an effect.

Manage animations and effects

There are different ways to start animations in your presentation:

- On Click: Start an animation when you click a slide.
- With Previous: Play an animation at the same time as the previous animation in your sequence.

- **After Previous**: Start an animation immediately after the previous one happens.
- **Duration**: Lengthen or shorten an effect.
- Delay: Add time before an effect runs.

Add more effects to an animation

- 1. Select an object or text with an animation.
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Change the order of animations

- 1. Select an animation marker.
- 2. Choose the option you want:
 - Move Earlier: Make an animation appear earlier in the sequence.
 - **Move Later**: Make an animation occur later in the sequence.

Add animation to grouped objects

You can add an animation to grouped objects, text, and more.

- 1. Press Ctrl and select the objects you want.
- 2. Select **Format** > **Group** > **Group** to group the objects together.
- 3. Select **Animations** and choose an animation.

Animate or make words appear one line at a time

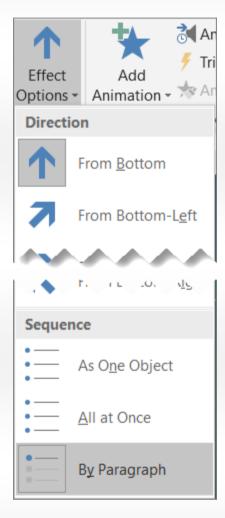
Make text appear one line at a time

- 1. On the slide, select the box that contains your text.
- 2. Select the **Animations** tab, and then pick an animation, such as **Appear**, **Fade In**, or **Fly In**.



For some animations, such as **Fly In**, select **Effects Options**, as you'll need to pick a direction for the bullets to fly in from, such as bottom, top, left, or right.

3. Select **Effect Options**, and then select **By Paragraph** to make the paragraphs of text appear one at a time. (The other option, **All at Once**, makes all the lines of text appear at the same time.)



PowerPoint immediately previews the animation for you.

By default, when you present in Slide Show, each paragraph appears in response to a click. That way, you control when each paragraph appears. You can modify this setting by using the **Start**, **Duration**, and **Delay** controls on the far right end of the **Animation** tab of the ribbon.



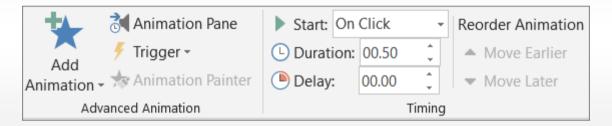
Make text appear one letter at a time

You can also create a "typing" visual effect by making characters in a paragraph appear one at a time.

- 1. On the slide, select the box that contains your text.
- 2. Select the **Animations** tab, and then select the **Add Animation** drop-down menu to select an animation, such as **Appear**, **Fade**, or **Fly In**.

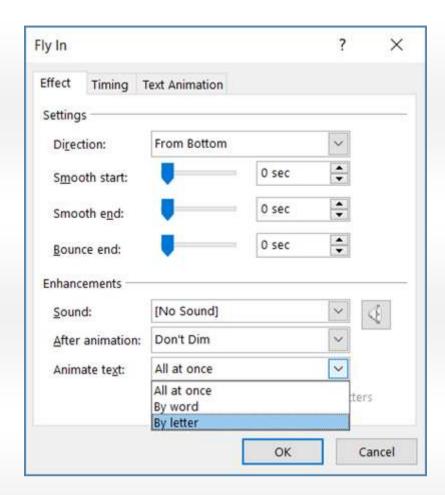


3. Select the **Animations** tab, and then select **Animation pane**.



The Animation Pane opens on the right side of the PowerPoint window.

- 4. In the Animation Pane, select the arrow next to your animation, and select **Effect Options**.
- 5. In the dialog box, on the **Effect** tab under **Enhancements**, select the arrow next to **Animate text**, and select **By letter**. You can change the delay time in the **% delay between letters** box.



PowerPoint immediately previews the animation for you so that you can see the timing as the characters appear individually. You can repeat the preview by selecting the animation in the Animation Pane and selecting **Play Selected**.

10.5 Inserting Audio and Video

Using the **Recording** tab introduced in PowerPoint 2016, you can add a screenshot, screen recording, audio (such as background music), or video to a slide.

Tip: Don't see the **Recording** tab? Right-click any tab in PowerPoint and select **Customize the Ribbon**. On the right side of the dialog box you'll see a list of tabs. Make sure **Recording** is checked.

Insert a screenshot

Open the slide where you want the screenshot to be inserted.

Click **Recording** tab > **Screenshot** button > (the gallery of windows opens)

Either select one of the windows shown (for a full-window clipping of that app) or select **Screen Clipping** to define the area on your screen that you want to capture.

Insert a screen recording

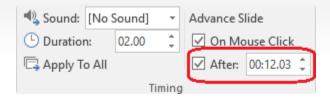
 You can record your computer screen and related audio, and then embed it into your PowerPoint slide—or you can save it as a separate file.

Insert a video file

- 1. Open the slide where you want to add the video.
- 2. Click **Recording** tab > **Video** > and then browse to the location on your computer or network where the video file is stored. Select the file and click **Insert**.

The video will "auto-play" That means that when viewers look at the presentation in Slide Show, and they arrive at the slide where the video is placed, the video immediately begins to play. The viewer doesn't need to click Play to start it. When the video finishes playing, the slide show automatically advances to the next slide.

Important: If you insert a video this way, then subsequently trim the video, the trimming doesn't alter the auto-advance timing for the video. You must manually set the slide to advance at the appropriate time. (Select the video, click the **Transitions** tab of the ribbon, and at the far right end of the ribbon, adjust the **Advance Slide** > **After** setting to the amount of time that equals the length of the trimmed video.)



Embed a web video

 Click Insert tab > Video > Online Video and then select or specify the video you want to embed.

Insert an audio file

- 1. Open the slide where you want to add the audio file.
- 2. Click **Recording** tab > **Audio** > **Audio** on **My PC** > and then browse to the location on your computer or network where the audio file is stored. Select the file and click **Insert**.

The recording will "auto-play" That means that when viewers look at the presentation in Slide Show, and they arrive at the slide where the audio recording is placed, it immediately begins to play. The viewer doesn't need to click Play to start it. When the audio finishes playing, the slide show automatically advances to the next slide.

Record sound and insert it on a slide

- 1. Open the slide where you want to add the audio.
- 2. Click **Recording** tab > **Audio** > **Record Sound**
- 3. In the **Record Sound** dialog box, click the **Record** button ▶, and begin speaking or playing your own audio. Click the square stop button when you are done. Assign a name to the recording if you like. Then click **OK**, and the recording is placed on the current slide, represented by the standard audio icon.



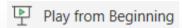
The recording will "auto-play" That means that when viewers look at the presentation in Slide Show, and they arrive at the slide where the audio recording is placed, it immediately begins to play. The viewer doesn't need to click Play to start it. When the audio finishes playing, the slide show automatically advances to the next slide.



10.1 Slide Show

Start a slide show

1. To start your slide show, on the **Slide Show** tab, select **Play From Beginning**.



(If you've turned off the Simplified Ribbon, you don't have a **Slide Show** tab; instead use the **View** tab to start Slide Show.)

2. To manage your slide show, go to the controls in the bottom-left



Select	То
0	Go to the previous slide
0	Go to the next slide
0	View all slides
	To skip to a particular slide, simply click it in this Grid view.
	Turn subtitles on or off
	End the slide show

3. To skip to any slide in the presentation, right-click the screen and select **Go to Slide**. Then, enter the slide number you want in the **Slide** box, and select **OK**.





Checkpoint 10

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. Powerpoint has 3 different type of view, that is reading, outline and normal view
- 2. You can insert an online video into your presentation
- 3. You cannot record your presentation.

ACTIVITY



Create a presentation about yourself.

KEY TERM

Presentation Slide

Transition Animations

SUMMARY

 Powerpoint is a software that can helps you to create an interesting presentation using its element



REFERENCES

Microsft 365 Training, Support Microsoft, Oct 20th, 2021, https://support.microsoft.com/en-us/training



TOPIC 11

Microsoft Excel

LEARNING OUTCOMES

By the end of topic, you should be able to:

- 1. Create data analysis using Excel
- 2. Create a graph using Excel

11.1 Introduction

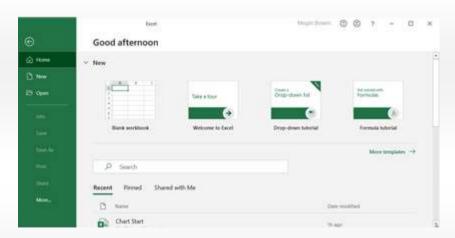
Create a workbook in Excel

Excel makes it easy to crunch numbers. With Excel, you can streamline data entry with AutoFill. Then, get chart recommendations based on your data, and create them with one click. Or easily spot trends and patterns with data bars, color coding, and icons.

Create a workbook

- 1. Open Excel.
- 2. Select Blank workbook.

Or press **Ctrl+N**.





Enter data

To manually enter data:

- 1. Select an empty cell, such as A1, and then type text or a number.
- 2. Press **Enter** or **Tab** to move to the next cell.

To fill data in a series:

- 1. Enter the beginning of the series in two cells: such as Jan and Feb; or 2021 and 2022.
- 2. Select the two cells containing the series, and then drag the fill handle across or down the cells.

11.2 Working with Sheet

Basic tasks in Excel

Excel is an incredibly powerful tool for getting meaning out of vast amounts of data. But it also works well for simple calculations and tracking almost any kind of information. The key for unlocking all that potential is the grid of cells. Cells can contain numbers, text, or formulas. You put data in your cells and group them in rows and columns. That allows you to add up your data, sort and filter it, put it in tables, and build great-looking charts. Let's go through the basic steps to get you started.

Create a new workbook

Excel documents are called workbooks. Each workbook has sheets, typically called spreadsheets. You can add as many sheets as you want to a workbook, or you can create new workbooks to keep your data separate.

- 1. Click **File**, and then click **New**.
- 2. Under New, click the Blank workbook.



6 7

Blank workbook

Enter your data

1. Click an empty cell.

For example, cell A1 on a new sheet. Cells are referenced by their location in the row and column on the sheet, so cell A1 is in the first row of column A.

- 2. Type text or a number in the cell.
- 3. Press Enter or Tab to move to the next cell.

Apply cell borders

- 1. Select the cell or range of cells that you want to add a border to.
- 2. On the **Home** tab, in the Font group, click the arrow next to Borders, and then click the border style that you want.



Apply cell shading

- 1. Select the cell or range of cells that you want to apply cell shading to.
- 2. On the **Home** tab, in the **Font** group, choose the arrow next to **Fill** Color , and then under Theme Colors or Standard Colors, select the color that you want.

Use AutoSum to add your data Create a simple formula **Apply a number format**

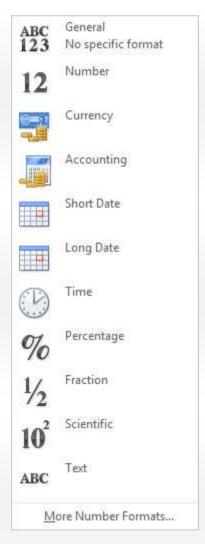
To distinguish between different types of numbers, add a format, like currency, percentages, or dates.



- 1. Select the cells that have numbers you want to format.
- 2. Click the **Home** tab, and then click the arrow in the **General** box.



3. Pick a number format.



If you don't see the number format you're looking for, click **More Number Formats**.



Overview of formulas in Excel

Get started on how to create formulas and use built-in functions to perform calculations and solve problems.

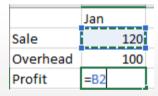
Create a formula that refers to values in other cells

1. Select a cell.

2. Type the equal sign =.

Note: Formulas in Excel always begin with the equal sign.

3. Select a cell or type its address in the selected cell.



- 4. Enter an operator. For example, for subtraction.
- 5. Select the next cell, or type its address in the selected cell.



6. Press Enter. The result of the calculation appears in the cell with the formula.

Using calculation operators in Excel formulas

Operators specify the type of calculation that you want to perform on the elements of a formula. Excel follows general mathematical rules for calculations, which is Parentheses, Exponents, Multiplication and Division. and **Addition** Subtraction, the and acronym **PEMDAS** (Please Excuse My Dear Aunt Sally). Using parentheses allows you to change that calculation order.



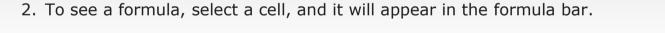
To perform basic mathematical operations, such as addition, subtraction, multiplication, or division; combine numbers; and produce numeric results, use the following arithmetic operators.

Arithmetic operator	Meaning	Example
+ (plus sign)	Addition	=3+3
- (minus sign)	Subtraction Negation	=3-3 =-3
* (asterisk)	Multiplication	=3*3
/ (forward slash)	Division	=3/3
% (percent sign)	Percent	30%
^ (caret)	Exponentiation	=3^3

See a formula

× √ fe

1. When a formula is entered into a cell, it also appears in the **Formula bar.**



× ✓ Æ =SUM(82,83)

Enter a formula that contains a built-in function

- 1. Select an empty cell.
- 2. Type an equal sign = and then type a function. For example, =SUM for getting the total sales.
- 3. Type an opening parenthesis (.
- 4. Select the range of cells, and then type a closing parenthesis).

	Jan	Feb	Mar	Apr	May	Jun	Total
Sales	100	200	250	150	300	500	=SUM(B2:G2

5. Press Enter to get the result.

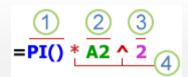
Formulas in-depth

You can browse through the individual sections below to learn more about specific formula elements.

The parts of an Excel formula

A formula can also contain any or all of the following: **functions**, **references**, **operators**, and **constants**.

Parts of a formula



- 1. **Functions**: The PI() function returns the value of pi: 3.142...
- 2. **References**: A2 returns the value in cell A2.
- 3. **Constants**: Numbers or text values entered directly into a formula, such as 2.
- 4. **Operators**: The ^ (caret) operator raises a number to a power, and the * (asterisk) operator multiplies numbers.

Using constants in Excel formulas

A constant is a value that is not calculated; it always stays the same. For example, the date 10/8/2022, the number 210, and the text "Quarterly Earnings" are all constants. An expression or a value resulting from an expression is not a constant. If you use constants in a formula instead of references to cells (for example, =30+70+110), the result changes only if you modify the formula. In general, it's best to place constants in individual cells where they can be easily changed if needed, then reference those cells in formulas.

Using references in Excel formulas

A reference identifies a cell or a range of cells on a worksheet, and tells Excel where to look for the values or data you want to use in a formula. You can use references to use data contained in different parts of a worksheet in one formula or use the value from one cell in several formulas. You can also refer to cells on other sheets in the same workbook, and to other workbooks. References to cells in other workbooks are called links or external references.

• The A1 reference style

By default, Excel uses the A1 reference style, which refers to columns with letters (A through XFD, for a total of 16,384 columns) and refers to rows with numbers (1 through 1,048,576). These letters and numbers are called row and column headings. To refer to a cell, enter the column letter followed by the row number. For example, B2 refers to the cell at the intersection of column B and row 2.

To refer to	Use
The cell in column A and row 10	A10
The range of cells in column A and rows 10 through 20	A10:A20
The range of cells in row 15 and columns B through E	B15:E15
All cells in row 5	5:5
All cells in rows 5 through 10	5:10
All cells in column H	н:н
All cells in columns H through J	Н:Ј
The range of cells in columns A through E and rows 10 through 20	A10:E20

The difference between absolute, relative and mixed references

a. **Relative references** A relative cell reference in a formula, such as A1, is based on the relative position of the cell that contains the formula and the cell the reference

refers to. If the position of the cell that contains the formula changes, the reference is changed. If you copy or fill the formula across rows or down columns, the reference automatically adjusts. By default, new formulas use relative references. For example, if you copy or fill a relative reference in cell B2 to cell B3, it automatically adjusts from =A1 to =A2.

Copied formula with relative reference

	Α	В
1		
2		=A1
3		=A2

b. **Absolute references** An absolute cell reference in a formula, such as \$A\$1, always refer to a cell in a specific location. If the position of the cell that contains the formula changes, the absolute reference remains the same. If you copy or fill the formula across rows or down columns, the absolute reference does not adjust. By default, new formulas use relative references, so you may need to switch them to absolute references. For example, if you copy or fill an absolute reference in cell B2 to cell B3, it stays the same in both cells: =\$A\$1.

Copied formula with absolute reference

	Α	В
1		
2		=\$A\$1
3		=\$A\$1

c. **Mixed references** A mixed reference has either an absolute column and relative row, or absolute row and relative column. An absolute column reference takes the form \$A1, \$B1, and so on. An absolute row reference takes the form A\$1, B\$1, and so on. If the position of the cell that contains the formula changes, the relative reference is changed, and the absolute reference does not change. If you copy or fill the formula across rows or down columns, the relative reference automatically adjusts, and the absolute reference does not adjust. For example, if you copy or fill a mixed reference from cell A2 to B3, it adjusts from =A\$1 to =B\$1.

Copied formula with mixed reference

	Α	В	С
1			
2		=A\$1	
3			=B\$1

The 3-D reference style

Conveniently referencing multiple worksheets If you want to analyze data in the same cell or range of cells on multiple worksheets within a workbook, use a 3-D reference. A 3-D reference includes the cell or range reference, preceded by a range of worksheet names. Excel uses any worksheets stored between the starting and ending names of the reference. For example, =SUM(Sheet2:Sheet13!B5) adds all the values contained in cell B5 on all the worksheets between and including Sheet 2 and Sheet 13.

- a. You can use 3-D references to refer to cells on other sheets, to define names, and to create formulas by using the following functions: SUM, AVERAGE, AVERAGEA, COUNT, COUNTA, MAX, MAXA, MIN, MINA, PRODUCT, STDEV.P, STDEV.S, STDEVA, STDEVPA, VAR.P, VAR.S, VARA, and VARPA.
- b. 3-D references cannot be used in array formulas.
- c. 3-D references cannot be used with the intersection operator (a single space) or in formulas that use implicit intersection.

What occurs when you move, copy, insert, or delete worksheets The following examples explain what happens when you move, copy, insert, or delete worksheets that are included in a 3-D reference. The examples use the formula =SUM(Sheet2:Sheet6!A2:A5) to add cells A2 through A5 on worksheets 2 through 6.

- a. **Insert or copy** If you insert or copy sheets between Sheet2 and Sheet6 (the endpoints in this example), Excel includes all values in cells A2 through A5 from the added sheets in the calculations.
- b. **Delete** If you delete sheets between Sheet2 and Sheet6, Excel removes their values from the calculation.
- c. **Move** If you move sheets from between Sheet2 and Sheet6 to a location outside the referenced sheet range, Excel removes their values from the calculation.

- d. **Move an endpoint** If you move Sheet2 or Sheet6 to another location in the same workbook, Excel adjusts the calculation to accommodate the new range of sheets between them.
- e. **Delete an endpoint** If you delete Sheet2 or Sheet6, Excel adjusts the calculation to accommodate the range of sheets between them.

11.4 Functions

SUM function

The **SUM** function adds values. You can add individual values, cell references or ranges or a mix of all three.

For example:

- **=SUM(A2:A10)** Adds the values in cells A2:10.
- =SUM(A2:A10, C2:C10) Adds the values in cells A2:10, as well as cells C2:C10.

Syntax:

SUM(number1,[number2],...)

Argument name	Description
number1 Required	The first number you want to add. The number can be like 4, a cell reference like B6, or a cell range like B2:B8.
number2- 255 Optional	This is the second number you want to add. You can specify up to 255 numbers in this way.

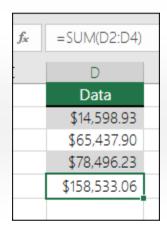
Best Practices with SUM

This section will discuss some best practices for working with the SUM function. Much of this can be applied to working with other functions as well.

The =1+2 or =A+B Method - While you can enter =1+2+3 or =A1+B1+C2 and get fully accurate results, these methods are error prone for several reasons:

- 1. **Typos** Imagine trying to enter more and/or much larger values like this:
 - =14598.93+65437.90+78496.23

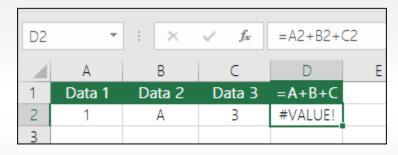
Then try to validate that your entries are correct. It's much easier to put these values in individual cells and use a SUM formula. In addition, you can format the values when they're in cells, making them much more readable then when they're in a formula.



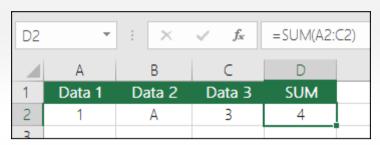
2. **#VALUE!** errors from referencing text instead of numbers

If you use a formula like:

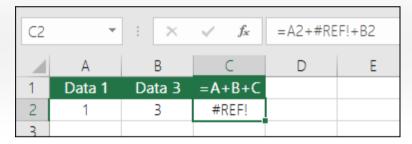
=A1+B1+C1 or =A1+A2+A3



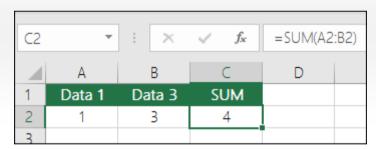
Your formula can break if there are any non-numeric (text) values in the referenced cells, which will return a #VALUE! error. SUM will ignore text values and give you the sum of just the numeric values.



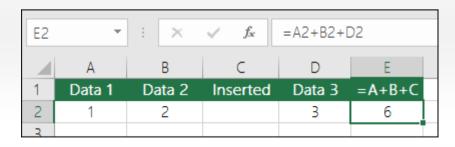
3. #REF! error from deleting rows or columns



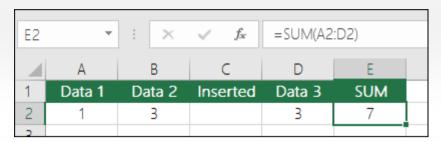
If you delete a row or column, the formula will not update to exclude the deleted row and it will return a #REF! error, where a SUM function will automatically update.



4. Formulas won't update references when inserting rows or columns



If you insert a row or column, the formula will not update to include the added row, where a SUM function will automatically update (as long as you're not outside of the range referenced in the formula). This is especially important if you expect your formula to update and it doesn't, as it will leave you with incomplete results that you might not catch.



5. SUM with individual Cell References vs. Ranges

Using a formula like:

=SUM(A1,A2,A3,B1,B2,B3)

Is equally error prone when inserting or deleting rows within the referenced range for the same reasons. It's much better to use individual ranges, like:

=SUM(A1:A3,B1:B3)

Which will update when adding or deleting rows.

AVERAGE function

This article describes the formula syntax and usage of the **AVERAGE** function in Microsoft Excel.

Description

Returns the average (arithmetic mean) of the arguments. For example, if the range A1:A20 contains numbers, the formula **=AVERAGE(A1:A20)** returns the average of those numbers.

Syntax

AVERAGE(number1, [number2], ...)

The AVERAGE function syntax has the following arguments:

- Number1 Required. The first number, cell reference, or range for which you want the average.
- **Number2, ...** Optional. Additional numbers, cell references or ranges for which you want the average, up to a maximum of 255.

Remarks

- Arguments can either be numbers or names, ranges, or cell references that contain numbers.
- Logical values and text representations of numbers that you type directly into the list of arguments are not counted.
- If a range or cell reference argument contains text, logical values, or empty cells, those values are ignored; however, cells with the value zero are included.
- Arguments that are error values or text that cannot be translated into numbers cause errors.
- If you want to include logical values and text representations of numbers in a reference as part of the calculation, use the AVERAGEA function.
- If you want to calculate the average of only the values that meet certain criteria, use the AVERAGEIF function or the AVERAGEIFS function.

Note: The **AVERAGE** function measures central tendency, which is the location of the center of a group of numbers in a statistical distribution. The three most common measures of central tendency are:

- **Average**, which is the arithmetic mean, and is calculated by adding a group of numbers and then dividing by the count of those numbers. For example, the average of 2, 3, 3, 5, 7, and 10 is 30 divided by 6, which is 5.
- **Median**, which is the middle number of a group of numbers; that is, half the numbers have values that are greater than the median, and half the numbers have values that are less than the median. For example, the median of 2, 3, 3, 5, 7, and 10 is 4.
- **Mode**, which is the most frequently occurring number in a group of numbers. For example, the mode of 2, 3, 3, 5, 7, and 10 is 3.

For a symmetrical distribution of a group of numbers, these three measures of central tendency are all the same. For a skewed distribution of a group of numbers, they can be different.

Tip: When you average cells, keep in mind the difference between empty cells and those containing the value zero, especially if you have cleared

the **Show a zero in cells that have a zero value** check box in the **Excel Options** dialog box in the Excel desktop application. When this option is selected, empty cells are not counted, but zero values are.

To locate the **Show a zero in cells that have a zero value** check box:

 On the File tab, click Options, and then, in the Advanced category, look under Display options for this worksheet.

MAX function

Description

Returns the largest value in a set of values.

Syntax

MAX(number1, [number2], ...)

The MAX function syntax has the following arguments:

• **Number1**, **number2**, ... Number1 is required, subsequent numbers are optional. 1 to 255 numbers for which you want to find the maximum value.

MIN function

Description

Returns the smallest number in a set of values.

Syntax

MIN(number1, [number2], ...)

The MIN function syntax has the following arguments:

• **Number1**, **number2**, ... Number1 is optional, subsequent numbers are optional. 1 to 255 numbers for which you want to find the minimum value.



Create a chart from start to finish

Charts help you visualize your data in a way that creates maximum impact on your audience. Learn to create a chart and add a trendline.

Create a chart

- 1. Select data for the chart.
- 2. Select Insert > Recommended Charts.
- 3. Select a chart on the **Recommended Charts** tab, to preview the chart.

Note: You can select the data you want in the chart and press ALT + F1 to create a chart immediately, but it might not be the best chart for the data. If you don't see a chart you like, select the **All Charts** tab to see all chart types.

- 4. Select a chart.
- 5. Select **OK**.

Add a trendline

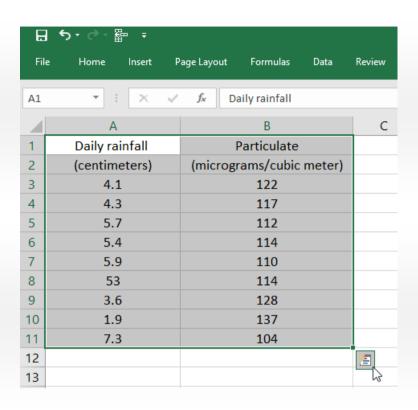
- 1. Select a chart.
- 2. Select **Design** > **Add Chart Element**.
- 3. Select **Trendline** and then select the type of trendline you want, such as **Linear**, **Exponential**, **Linear Forecast**, or **Moving Average**.

Choose your chart using Quick Analysis

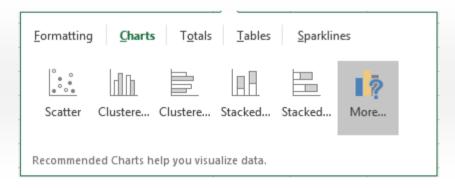
Quick Analysis takes a range of data and helps you pick the perfect chart with just a few commands.

- 1. Select a range of cells.
- 2. Select the **Quick Analysis** button that appears at the bottom right corner of the selected data.

Or, press Ctrl + Q.



3. Select Charts.



4. Hover over the chart types to preview a chart, and then select the chart you want.

Checkpoint 11

Instructions: Find the true statement below. Then, rewrite the remaining false statements so they are true.

- 1. Excel will recalculate a formula if any changes are made to the data
- 2. You can create many types of chart using excel
- 3. You must insert; to enable you to calculate in excel



ACTIVITY

Create a graph based on this data



Location	Date	Rainfall (inch)	Temperature(C)
Melaka	20/10/2022	0.2	25
Kuala Lumpur	20/10/2022	2.3	26
Selangor	20/10/2022	1.3	27

KEY TERM

Formula Function

Graph Sort

SUMMARY

Excel is a software to make data analysis and a graph. It helps user to prepare a report more accurat by using the formula or functions.



REFERENCES

Microsft 365 Training, Support Microsoft, Oct 20th, 2021, https://support.microsoft.com/en-us/training



