

Computer Application in Technology Education

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Preliminary Remarks

We have organised the chapters of this study text according to the outline of the entire specialised area “Computer Applications”, which includes the content both for face-to-face and for self-learning phases. For a better understanding, you find the number of the original chapter within brackets in each heading of a chapter.

1 MS Windows (Chapter 2)

Learning Objectives

Upon successful completion of this chapter, you will be able to:

- Describe some of the basic functions of an operating system and Windows in particular
- Describe the parts of the Windows desktop environment
- Feature of Window 7 OS feature
- Install Windows 7 OS
- Use of Disk cleanup utility
- Create and manage different types of user accounts
- Use Parental Control Utility
- Use Microsoft Security Scanner and MS Security Essential to clean computer from viruses.

1.1 Introduction to MS Windows

When a computer is powered on, you'll hear some beeping as it does some hardware checks and then the operating system loads. Every computer needs an operating system which lets you, literally, operate your computer. There are a few around and Microsoft Windows is just one of them, albeit one of the most popular ones. A computer running the Windows Operating System may display a login screen or it may show the desktop immediately, depending on the setup. The Apple Macintosh family of computers runs a different operating system called Mac OS. When you purchase software, you must be sure to check the system requirements and purchase software for the operating system you are using. For example, software purchased for the Windows Operating System will not work on an Apple Macintosh.

1.1.1 Key Features Include

Some of the functions the Windows operating system allows you to do are:

- Access applications (programs) on your computer (word processing, games, spread sheets, calculators and so on)
- Load any new programs on to the computer
- Manage hardware such as printers, scanners, mice, digital cameras
- Manage how files are stored on your computer (File Management, covered later in this module)
- Change computer settings such as color schemes, screensavers and the resolution of your monitor.
- Plug and play capability with hardware and peripheral devices
- Completely customizable task bar
- Jump lists
- Home group networking
- Low memory footprint

Microsoft Windows is a group of OSs manufactured by Microsoft. Windows is available in 32 and 64-bit versions and offers a graphical user interface (GUI), multitasking functionalities, virtual memory management capabilities and support for several peripheral devices. Windows OSs constitute client as well as server versions.

Windows 7 is a *computer operating system with graphical user interface (GUI)*, which enables you to work with a wide variety of programs on your computer, often simultaneously. Windows 7 is itself a special computer program that communicates your instructions to the actual computer hardware and displays the results.

Important aspects for selecting a Windows Operating System:

The most important aspects are the purpose and function which you intend to perform using your computer. After deciding your computer's primary function, you will need to decide what kind of networking and administrations tools you need and the level of security you desire

1.2 MS Windows

1.2.1 Important Features of Windows Operating Systems:

Home and Office Use: We assessed the operating system in terms of how well it supports general home use; for example, it should have basic Internet security and be easy to use. OSs for office or business use need sophisticated Internet security, the capacity to network and ought to include administration tools.

Multimedia Use: Some OSs are designed to entertain, these can play/record television, burn DVDs and can support HD video and music without supplementary software.

Security: All OSs should provide frequently updated security features such as firewalls, pop-up blockers, antivirus and antispyware software and more. OSs for business or network use requires additional security and administrator tools.

Networking: Business and home OSs can be used in a network. These systems should offer administration tools and security.

Ease of Use: All OSs should be straightforward; we looked at its search functions and more to rate the ease of use.

Technical Help/Support: Since OSs perform numerous functions, above average support is needed. Generally, Microsoft offers more support choices to its business customers and mostly self-guided support for individuals.

1.2.2 Windows within Windows

A *Window* refers to a rectangular area of the screen, within which you may view program folders and files or display file contents such as documents, spreadsheets and graphic images. A window can occupy part of the screen, can be maximized to fill the entire screen or can be minimized so that it is no longer visible but remains active and is easily re-accessed.

Using Desktop, Taskbar or Start Menu.

The Desktop: The icons that are visible on your desktop depend on choices made at installation. In labs, you will usually see icons for

- My Computer (the gateway to your computer's drives or data storage areas)
- Recycle Bin (a temporary "trashcan" that holds files you want to delete)

The Taskbar: The Taskbar lies across the bottom edge of your screen. The Start button on the left provides access to all the programs, data files and other features available on your computer. When you open a program or file, a corresponding rectangular icon will be displayed on your taskbar - even if the program has been minimized and is no longer visible on your screen. To access that program, you just need to click its icon on the taskbar!

The Start menu: When you click on the Start button, a set of menu options is displayed. The contents will vary depending on your computer setup and most frequently accessed programs. If you click on the All Programs option, you'll see a list of all the programs installed on your computer – even those that don't have icons on the desktop. Press the [ESC] (escape) key to close the menu.

1.2.3 Installing Windows

The hardware requirements for installing Windows 7 operating system are given below. You need to check it in advance before installing the operating system.

- **CPU:** 1 GHz with 32 bits or 64 bits.
- **RAM:** 1 GB Ram for 32 bits or 2 GB Ram for 64 bits.
- **HDD:** 16 GB empty space hard disk for 32 bits or 20 GB for 64 bits.
- **DVD drive:** in working condition (if installing from a DVD).

Before starting installation to your computer please make sure to have the following items:

- Windows 7 installation disk
- CD/ License Key
- Drivers CD: (It is needed after installation process)
- **NOTE:** Please make sure to back up all of your important data from the hard disk before proceeding with this installation.

Now follow these steps to install Windows 7 on your computer:

- 1) Turn your computer on then press *Del* or *F2* (depends on your computer's mainboard) to enter the system BIOS.
- 2) Go to Boot menu and choose *Boot* from CD/DVD.
- 3) Press *F10* to save the configuration and exit *BIOS* then reset your computer.
- 4) Insert the *Windows 7* operating system disk into your DVD drive and then restart your computer. Windows 7 will start loading files.
- 5) Select for these options:
 - a) Language to Install
 - b) Time and currency format
 - c) Keyboard or input method
- 6) Click *Install Now*.
- 7) Check the box *I accept the license terms* in *Please read the license* then click *Next* to accept the End User License Agreement (E.U.L.A.) .
- 8) A window will appear asking about *Which type of installation do you want?*.
 - a) Upgrade: if you want to upgrade from an older Windows version to Windows 7.
 - b) *Custom (advance)* if you want to install a new version of Windows.

- 9) *Where do you want to install windows?* Make sure the partition is highlighted.
- 10) Delete the partition by clicking on *Drive options (advanced)* on the bottom right corner of the field.
- 11) Make sure the partition is highlighted and click on *Delete*. If drive advanced options is greyed out, then the partition will not have to be deleted.

NOTE: Deleting the partitions will erase all data on the system. Choose *Partition for installation*, if your computer has only one hard disk, it will be easy for selection, but if it has some partitions, you will have to consider which partition to choose.

- 12) *Disk 0 Unallocated Space* should be the only listing at this point. If it is press *next*, if not please proceed to delete any additional partitions that may be listed.
- 13) The next screen will show *Installing Windows*. This process should take approximately 10 minutes after which the system will reboot.

***NOTE:** Do not press any keys during this boot up process so as to not disturb the rest of the installation.

- 14) The next screen will show *Installing Windows* again to complete the installation process.
- 15) *Setup is starting Windows* will appear on the screen, then you will be asked to create a user name and a computer name.
- 16) Type you're a user account and computer name. After that click *Next*.
- 17) Now you will be prompted you create a password for your account (optional).
- 18) Type a password for your account, you can also type a password hint to help in case of forgetting the password in the future and then click *Next*.
- 19) Type in activation code or key for your license in *Product key box* if you have any. Click *Next*.

20) Choose how to protect your Windows. Here we choose *Use recommended settings*.

21) This will allow you to choose your local time zone and also adjust the date and time.

22) The next screen will come up and ask you to choose one of three options:

- a) Use recommended settings
- b) Install important updates only
- c) Ask me later

23) Set up your Time zone, then click *Next*.

24) Choose an option from 3 choices:

- a) Public Network
- b) Work Network
- c) Home Network

25) Click on the appropriate location of your computer to enable Windows 7 to apply the correct network settings. Choose *Home Network* for using Internet at home.

1.2.3.1 Some Errors during Windows 7 Installation

After Windows 7 installation, if there are problems, e.g. connecting with the internet, please check these troubleshooting:

- Make sure Internet cable and the modem are working properly, the connection points are not getting loose.
- Check the network drive (normally Windows 7 automatically detects drivers).
- Set up Windows IP if the modem doesn't analyze it automatically (searching on Internet for how to set it up).
- Some devices might not work such as: USB 3.0, Webcam, Bluetooth etc. then you should check the driver to see if it has been installed properly.

1.2.4 Installing/Uninstalling different Software/Antivirus programs

How you add a program depends on where the installation files for the program are located. Typically, programs are installed from a CD or DVD, from the Internet or from a network.

To install a program from a CD or DVD

Insert the disc into your computer and then follow the instructions on your screen. Administrator permission required If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

Many programs installed from CDs or DVDs open an installation wizard for the program automatically. In these cases, the AutoPlay dialog box appears and you can choose to run the wizard. For more information, see AutoPlay: frequently asked questions.

If a program doesn't begin installation automatically, check the information that came with the program. This information will likely provide instructions for installing the program manually. If you can't access the information, you can also browse through the disc and open the program setup file, usually called Setup.exe or Install.exe.

To install a program from the Internet



In your web browser, click the link to the program. Do one of the following:

- (1) To install the program immediately, click *Open* or *Run* and then follow the instructions on your screen. 🏠 If you're prompted for an administrator password or confirmation, type the password or provide confirmation.



- (2) To install the program later, click *Save* and then download the installation file to your computer. When you're ready to install the program, double-click the file and then follow the instructions on your screen. This is a safer option because you can scan the installation file for viruses before you proceed.

To install a program from a network

If you connect your computer to a domain (such as an internal corporate network) that has programs that you can add, you can install programs from *Control Panel*.

- 1) Open *Get Programs* by clicking the Start button , clicking *Control Panel*, clicking *Programs*, clicking *Programs and Features* and then, in the left pane, clicking *Install a program from the network*.
- 2) Click a program in the list and then click *Install*.
- 3) Follow the instructions on your screen.  If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

To Uninstall or Change a Program

- 1) Open *Programs and Features* by clicking the Start button , clicking *Control Panel*, clicking *Programs* and then clicking *Programs and Features*.
- 2) Select a program and then click *Uninstall*. Some programs include the option to change or repair the program in addition to uninstalling it, but many simply offer the option to uninstall. To change a program, click *Change* or *Repair*.  If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

1.2.5 How to Remove Programs (Windows 7)

We can use Add/Remove programs utility of windows 7 to install/uninstall programs.

- 1) Open the *Control Panel*. You can access the *Control Panel* from the *Start menu*. The *Start menu* can be opened by clicking the Windows logo in the bottom-left corner of the display or by pressing the Windows key on your keyboard.
- 2) Open *Programs and Features*. The *Control Panel* is typically displayed in one of two different ways: either a *Category View* or an *Icon view*. *Category view* will have 8 or 9 icons with a few options under each one, while *Icon view* will be a large list of icons.
 - a) In *Category view*, click the *Uninstall a program* link under the category *Programs*.
 - b) In *Icon view*, click the icon *Programs and Features*.
- 3) Find the program you want to uninstall. When you open *Programs and Features*, you will see a list of all of your installed programs. You may need to wait a few moments for the list to fully load. Click the program in the list to select it.

If the program you want to remove does not appear on the list, check to see if it has its own uninstallation tool. This will be typically located in the *Start menu group*, which you can get to by clicking *Start → All Programs → Program Name or Company*.

If you can't find the uninstallation tool anywhere, it may be malware and will need special procedures to remove. Download a program such as *Malwarebytes* and scan your computer for malware.

- 4) Click the button *Uninstall*. This will appear in the top toolbar when a program is selected in the list. You can also right-click on the program to find *Uninstallation* in the menu that appears. Click it to begin the uninstallation process. You will be asked if you want to continue.
- 5) Follow the prompts. Different programs will have different uninstallation programs. You may get asked if you want to keep settings in configuration files. If you plan on reinstalling the program at a later date, leaving these could make getting it set up easier.


If the program refuses to uninstall or reappears after being installed, you probably have a virus. To deal with a virus, you may need to run several different virus removal programs. See this guide for some tips on dealing with virus infections.

- 6) Run an extra cleaning program. A lot of times, stray files and registry entries will be left behind during the uninstallation process. These can gum up your computer over time, especially if you are installing and uninstalling pro-

grams on a regular basis. Programs such as *CCleaner* can help to remove these stray files and keep your computer running smoothly.

- 7) If you are removing many programs at one time and are freeing up a considerable amount of space, you may want to defragment you hard disk drive to improve your computer's performance.

Activity 1

What operating system do you have on your computer at home?	

What version of operating system do you have on your computer and on your computer in the institutions' computer Lab?	

What is the specification of the computer at your home?	

What are the different software applications installed on your computer?	

1.3 Managing User Accounts and Parental Controls

In Windows 7 users who share a computer can have their own user account, personal settings of computer. It also allows parents to set up Parental Controls to limit the types of games and programs their children are able to use.

Before you start making new user accounts, it's important to understand the two types of accounts:

- **Standard:** Standard accounts are the basic accounts you use for normal, everyday tasks. As a Standard user, you can do just about anything you would need to do, such as running software or personalizing your desktop. Also Parental Controls can be placed on Standard accounts.
- **Administrator:** Administrator accounts are special accounts that are used for making certain changes to system settings or managing other people's accounts. They have full access to every setting on the computer. Every computer will have at least one Administrator account.

Standard accounts are safer everyday use. In fact, you can make Administrator-level changes while logged into a Standard account; you will just need to provide an Administrator password when making the changes.

1.3.1 Creating User Accounts

- 1) Go to the Control Panel from the Start Menu.
- 2) Click *Add or remove user accounts*.
- 3) The *Manage Accounts* pane will appear you can add more accounts or manage existing ones through this account.
 - 1) Choose the account you want to change.
 - 2) Click to create a new account.
 - 1) From the *Manage Accounts* pane, click *Create a new account*.
 - 2) Type an account name.
 - 3) Select *Standard user* or *Administrator*.
 - 4) Click *Create Account*.

1.3.2 Changing Account Settings

Setting Password:

- 1) From the *Manage Accounts* pane, click the account name or picture.
- 2) Choose the account you would like to change.
- 3) Click create password.
- 4) Type a password in the *New password* field and retype it in the *Confirm new password* field.

If you want, you can type a password hint to help you remember your password.

- 1) Click *Create password*.
- 2) To go back to the *Manage Accounts* pane click *Manage another account*.

1.3.3 Using Parental Controls

Parental Controls in windows 7 help you control the types of content your children can access. You can place parental controls on any Standard account and each account can have different settings. You can always change the Parental Controls settings as your children get older.

To set up Parental Controls:

- 1) Go to the *Control Panel* from the *Start Menu*.
- 2) Click *Set up parental controls for any user*.
- 3) Click on any *Standard Account*.
- 4) Click *On* to turn Parental Controls on.
- 5) From Parental Control Main page you can click
 - a) Time limits
 - b) Games
 - c) Allow and block specific programs to set the Parental Controls.

Time limits

The time limits settings allow you to control when your children can use the computer. Click and drag from any box to allow or block a section of time. If you want, you can set different time limits on different days. For example, you may want to allow more computer use on weekends.

Games


The Games settings allow you to select which game ratings to allow and you can also allow or block specific games. First, you'll have to click *Yes* to allow your children to play games, then you can change your Games settings.

To allow or block specific programs:

Allow and block specific programs controls which nongame programs your children can use. By default, your children can use all nongame programs. But there may be some programs you don't want your children to use, like a financial or email program. Here's how to block specific programs:

- Click option "User Name" can only use the programs I allow.
- Click *Check All* to allow all programs or
- Uncheck the programs you want to block.

Activity 2

1) Create a new account with administrative rights? Set a password for this account. Login using this new account and note down what administrative tasks you can perform.	
<hr/> <hr/> <hr/>	
2) Create a new account with standard rights? Set a password for this account. Login using this new account and note down what administrative tasks you can perform.	
<hr/> <hr/>	
3) Apply the parental control on the newly created standard account? Write the steps that you have to perform.	
<hr/> <hr/> <hr/>	

1.3.4 Windows 7 - Disk Cleanup/Virus Cleanup

Disk Cleanup (cleanmgr.exe) is a computer maintenance utility included in Microsoft Windows designed to free up disk space on a computer's hard drive. The utility first searches and analyzes the hard drive for files that are no longer of any use and then removes the unnecessary files. There are a number of different file categories that Disk Cleanup targets when performing the initial disk analysis such as:

- Compression of old files
- Temporary Internet files
- Temporary Windows files
- Downloaded program files
- Recycle Bin
- Removal of unused applications or optional Windows components
- Setup log files
- Off-line files

1.3.4.1 Steps to delete files

If you have more than one drive or partition on your computer, you will be prompted to choose which drive you want Disk Cleanup to clean.

You can open Disk Cleanup by clicking

- 1) Start button,
- 2) All Programs
- 3) Accessories
- 4) System Tools
- 5) Disk Cleanup

Note: Here's another way to open Disk Cleanup: Click the *Start button*. In the Search box, type *Disk Cleanup* and then, in the list of results, click *Disk Cleanup*.

Once you launch Disk Cleanup, if you have more than one hard disk in your system, you'll be prompted to select drive you want to clean. Disk Cleanup will begin to analyze the files on your hard disk to determine what can be safely removed. It will calculate how much space you'll be able to free up. The main Disk Cleanup interface displays a list of unnecessary files, their size and a check box. Check box allows you to specify that you want to remove those files.

1.3.4.2 Removing a Computer Virus

If your computer is infected with a virus, you'll want to remove it as quickly as possible. A fast way to check for viruses is to use an online scanner, such as the Microsoft Safety Scanner. The scanner is a free online service that helps you identify and remove viruses, clean up your hard disk and generally improve your computer's performance.

Microsoft Safety Scanner

The *Microsoft Safety Scanner* is a free downloadable security tool that provides on-demand scanning and helps remove viruses, spyware and other malicious software. It works with your existing antivirus software.

Note: The *Microsoft Safety Scanner* expires 10 days after being downloaded. To rerun a scan with the latest anti-malware definitions, download and run the Microsoft Safety Scanner again.

The *Microsoft Safety Scanner* is not a replacement for using an antivirus software program that provides ongoing protection.

For real-time protection that helps to guard your home or small business PCs against viruses, spyware and other malicious software, download *Microsoft Security Essentials*.

Microsoft Security Essentials is a free product you can download to help defend computers running Windows Vista and Windows 7 against viruses, spyware and other malicious software.

- Comprehensive protection—Microsoft Security Essentials helps defend your computer against viruses, worms, Trojans and other malicious software and provides you with free spyware protection.
- Easy to get, easy to use—Microsoft Security Essentials is available at no cost, so there's no registration process that requires billing or personal information collection. It installs after a quick download and then stays automatically up to date with the latest spyware protection technology and signature updates.
- Quiet protection—Microsoft Security Essentials doesn't get in your way. It runs quietly in the background and schedules a scan when your computer is most likely idle. You only see alerts when you need to take action.

Activity 3

1) Which utility (exe program) is used to clean the disk?

2) What is Microsoft Safety Scanner and what are its functions?

3) What is Microsoft Security Essential and what are its functions?

4) Differentiate between Microsoft safety scanner and Microsoft Security Essential.

Task 1

The student should look upon the task as a test of knowledge, management skills and communication skills. When you write an answer asked in the task, you are indicating your knowledge to the teacher:



Task

- Your level of understanding of the subject.
- How clearly you think.
- How well you can reflect on your knowledge & experience.
- How well you can use your knowledge in solving problems, explaining situations and describing organizations and management.
- How professional you are and how much care and attention you give to what you do.

Give Answers to these questions:

- 1) Describe the basic computing functions of Operating Systems.
- 2) Explain the main features of Windows 7 operating system.
- 3) Discuss the Windows 7 Desktop in detail. How the new desktop is different from those of earlier versions of Windows.
- 4) What are the minimum hardware requirements for installing Windows 7 OS?
- 5) What kind of OS are there for the Mac Computers? What is the difference between Windows 7 OS and Mac OS?
- 6) List the steps for installing/uninstalling application software.
- 7) What are the different types of files we can delete using Disk Cleanup tool?
- 8) Why are different types of user accounts created? What are the purposes of Parental Control?
- 9) Download, install and use Microsoft Security Essential on your computer. Scan and clean the viruses from your computer. Describe the whole process and report what different viruses are cleaned by it.
- 10) Write an essay on the following topic:

Role of an Operating system on the performance, security and usability of the computer.

Your essay should be from 800 – 1000 words.

If there are any questions, please do not hesitate to contact

Dr. Shafiq ur Rehman via e-mail: shafiqurrehman1@yahoo.com

2 Word Processing Software Advance Features (Chapter 3)

Learning Objectives

Upon successful completion of this chapter, you will be able to

- understand and use the Word Processing Software Advance Features, like clipboard, options of “Paste Special”, formatting styles, using the command in the “editing group”, creating tables and apply formulas
- Create index and Cross reference of tables

2.1 Word Processing Software Advance Features

Microsoft Word 2010 makes it easier to create, format, collaborate and to navigate through long documents. For more impact, new features focus on the appearance of your finished document. With this new version, you can access the richness and familiarity of Word in your browser and on your mobile phone. In this chapter you will learn about some advanced features of MS Word 2010.

2.1.1 Clipboard

The clipboard is the location in a computer operating system such as Microsoft Windows that stores information that has been cut or copied from a document or other location. The clipboard will hold this information until it has been overwritten by new information. For example, a user may copy information from a word processor and paste that information into an e-mail message.

Clipboard is a special memory area (buffer) where data is stored temporarily before being copied to another location. Many word processors, for example, use a clipboard for cutting and pasting. When you cut a block of text, the word processor copies the block to the clipboard; when you paste the block, the word processor copies it from the clipboard to its final destination. In Microsoft Windows and the Apple Macintosh operating system, the Clipboard (with a capital C) can be used to copy data from one application to another.

The Macintosh uses two types of clipboards. The one it calls the Clipboard can hold only one item at a time and is flushed when you turn the computer off. The other, called the Scrapbook, can hold several items at once and retains its contents from one working session to another.

The Office Clipboard stores text and graphics that you copy or cut from anywhere and it lets you paste the stored items into any other Office file. Here's how it works in Word 2013.

- 1) If you're not already there, click Home, then click the launcher in the lower-right corner of the Clipboard group (Figure 1).

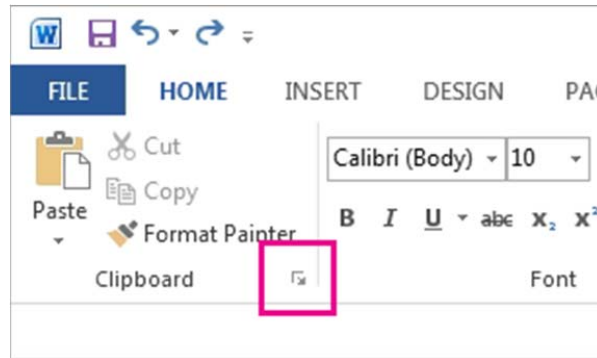


Figure 1: Clipboard Launcher

- 2) Select the text or graphics you want to copy and press Ctrl+C. You can also press Ctrl+X to cut the text or graphics.

Each selection appears in the Clipboard (Figure 2), with the latest at the top. You can copy (or cut) 24 items and they stay in the Clipboard until you close all your Office programs.

Optionally, repeat step 2 until you've copied all the items you want to use.

After you open the Clipboard, it stores content that you copy or cut from anywhere. The same thing happens when you set the Clipboard to store content but remain closed, as long as you have an Office program running. For more about that, see Set options for the Clipboard below.

You can do the following from the clipboard:

Paste items from the Clipboard

You can paste items into any Office file that you have open, individually or all at once.

- 1) In your document, click where you want to paste the item.
- 2) In the Clipboard, click the item you want to paste or, to paste everything, click *Paste All*.

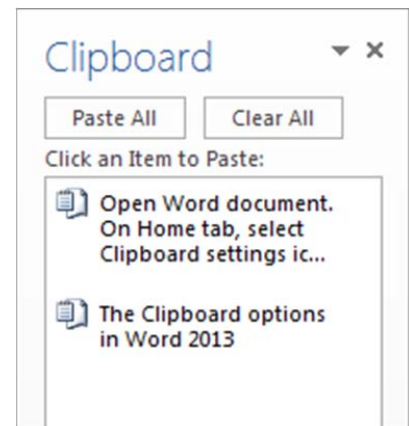


Figure 2: Clipboard Content

Delete items from the Clipboard

- Click the arrow on the right side of the item and click *Delete* (Figure 3).
- Right-click the item you want to delete and click *Delete*.
- Click *Clear All* to clear everything out of the Clipboard.

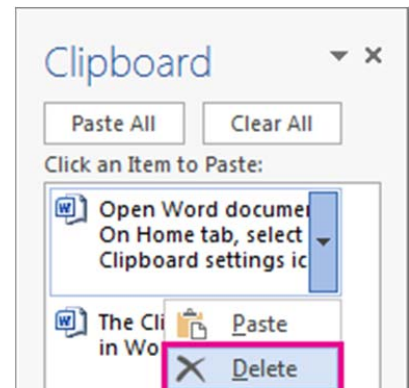


Figure 3 Deleting items from Clipboard

Close the Clipboard

- Click the *X* in the upper-right corner of the Clipboard pane.
- Click the arrow next to the *X* and click *Close* (Figure 4).

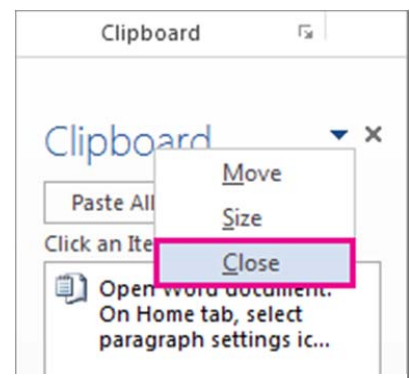


Figure 4 Closing Clipboard

Set options for the Clipboard

The options control a variety of Clipboard functions, such as when the Clipboard appears.

- 1) With the Clipboard open, click *Options* at the bottom of the pane (Figure 5).

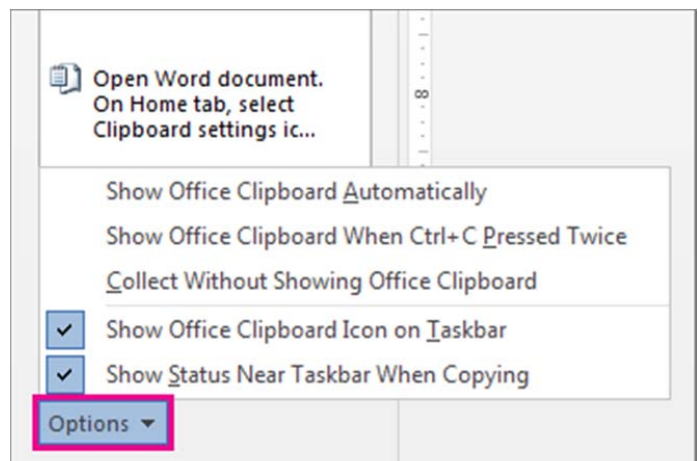


Figure 5 Clipboard Options

Here's what each option does¹:

Option	Description
Show Office Clipboard Automatically	Displays the Office Clipboard when you copy more than one item.
Show Office Clipboard When CTRL+C Pressed Twice	Displays the Office Clipboard when you press Ctrl+C twice.
Collect Without Showing Office Clipboard	Automatically copies items to the Office Clipboard without displaying the Clipboard task pane. When you select this option, the Clipboard will store content copied or cut from anywhere.
Show Office Clipboard Icon on Taskbar	Displays the Clipboard icon in the notification area of your Windows taskbar when the Clipboard is active. This option is on by default.
Show Status Near Taskbar When Copying	Shows the number of items you've collected in the bottom-right corner of the Word window. This option is on by default.

2.1.2 Paste Special

Most users know how to use the Cut/Copy and Paste commands. They've been around since the early days of word processing and they're universal across almost every Windows application and Windows itself. When we use the copy - paste commands for the contents of a web page it pastes the text along with the embedded HTML code. This results in odd fonts, size and formatting of the text which requires a lot of effort to format it properly. The embedded code may also conflict with the settings you have used in the document. Sometimes, we may sometimes have something on our clipboard that we want to paste into our document in a special way, for example if we want to define the appearance in a certain way. In such cases it can be useful to know how to paste in an alternative way.

¹ Source:<http://office.microsoft.com/en-us/word-help/use-the-office-clipboard-HA102850067.aspx>

Therefore, we need a way to paste just the words we copied, just raw, unadulterated, code-free text. This is possible with the Paste Special command. In Microsoft Word 2010 the Paste options are available in the Clipboard group of Home tab. To access it click the bottom half of the button, the one with the down arrow. That'll produce a handful of Paste options, one of which is Paste Special (represented by a clipboard with a bold letter A). Steps to use Paste Special Command:

- 1) Click the Home tab.
- 2) Click the arrow under Paste in the Clipboard sub-tab.
- 3) Click Paste Special.

A dialog box like in Figure 6 will pop up:



Figure 6: Paste Special Dialog Box²

Select *Unformatted text* or *Unformatted Unicode Text* (the latter seems to work better when copying from a PDF) and click OK. Your copied text will paste in the same format as the text that surrounds it in your document. Keyboard shortcuts for Paste Special is **Ctrl+Alt+V**.

² Source: <http://blog.apastyle.org/apastyle/2010/09/computer-editing-tip-paste-special.html>

2.1.3 Formatting by Styles

A style is a set of formatting instructions. When you apply a style, Word will format the text according to how that style has been defined. For example, you can use a style to make heading text large and bold.

Word supports four types of styles: paragraph styles, character styles, table styles and list styles. Paragraph styles can include both font (e.g. size, type, colour, bold/italic) and layout (e.g. justification, line spacing) settings. Paragraph styles are, as might be expected, usually applied to whole paragraphs; however most can also be applied as character styles to selected text (when only the font settings are activated). The default paragraph style is called Normal.

Character styles are used for changing the format of a particular piece of text within a paragraph. They contain only font settings. The default character style is called Default Paragraph Font. Table styles contain cell border, shading and alignment (as well as font) settings. List styles contain numbering (or bulleting) settings (+ font etc.) for each level in a list.

There are many reasons for using styles, apart from consistency. Styles are simple to use and saves time for formatting. One paragraph style can be set to automatically change to another as you press the Enter key to end a paragraph. You can define your own styles and/or modify the ones provided by Microsoft Word. If you modify a style in a document, all paragraphs or occurrences of text using that style are immediately reformatted to reflect the new style. Finally, styles can be used to generate an Index and/or Table of Contents or Figures.

Styles are associated with the document or template in which they are first defined. However it is possible to move or merge styles from one document or template into another one.

Using the Default Paragraph Styles

All documents have pre-defined styles, derived from the template used by that document. As you will see, each paragraph can have its own style setting.

- 1) Start up Word or create a new document (i.e. press <Ctrl n>)
- 2) Save the file (press <Ctrl s>, type in a File name: of test styles then press <Enter> for [Save])

Note the buttons in the Styles group on the Home tab of the Ribbon:

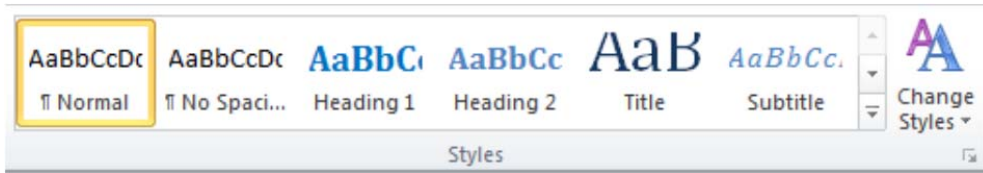


Figure 7: Styles Group

There are many reasons for using styles, apart from consistency. Styles are simple to use and save you having to first turn on formatting and then turn it off again to return to normal. One paragraph style can be set to automatically change to another as you press the Enter key to end a paragraph. You can define your own styles and/or modify the ones provided by Microsoft Word. If you modify a style in a document, all paragraphs or occurrences of text using that style are immediately reformatted to reflect the new style. Finally, styles can be used to generate an Index and/or Table of Contents or Figures.

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Using the Default Paragraph Styles

All documents have pre-defined styles, derived from the template used by that document. As you will see, each paragraph can have its own style setting.

- 1) Start up Word or create a new document (i.e. press <Ctrl + n>).
- 2) Save the file (press <Ctrl + s>, type in a File name: then press <Enter> for [Save]).

The buttons in the Styles group on the Home tab of the Ribbon shows three of the pre-defined paragraph styles. These derive from the template being used for the document - in this case the default template, normal.dotx. To use a style (e.g. Heading 1):

- 1) Click on the *Heading 1* button.
- 2) Type in the words for your first heading - e.g. Exercise on Using Styles - the words will appear larger (14-point), emboldened, in blue letters and in a different font (Cambria).
- 3) Press <Enter> - the style will automatically be reset to *Normal*.
- 4) Type in a couple of lines of ordinary text (which appears in an 11-point Calibri font).

Paragraph styles can be applied at any time to a particular paragraph - they do not have to be set in advance of typing. To demonstrate this:

- 1) Make sure the typing position is within the paragraph - press <Backspace> if necessary.
- 2) Move the mouse cursor over the buttons in the Styles group - the paragraph changes to match.
- 3) Click on the More down arrow at the foot of the scroll bar attached to the styles - more styles appear.
- 4) Choose *Heading 2* - the whole paragraph will change to Cambria 13-point blue bold.
- 5) Repeat steps 9 and 10 but choose *Normal* - the text will return to Calibri 11-point.

You can sometimes apply a paragraph style to some selected text:

- 1) Select part of your normal text - a single word will suffice (double click on it).
- 2) Click on the *Heading 1* button - the text changes to Cambria 14-point blue bold.
- 3) Press the <right arrow> key to move away from the selection - note that the paragraph style still shows as *Normal* on the button in the Styles group.
- 4) Click on the *Heading 2* button - the whole paragraph takes on the Heading 2 style except for the word(s) using the Heading 1 character style!

Even if you select the whole paragraph and apply a new paragraph style, the words using the different character style remain different:

- 1) Select the whole paragraph - the easiest way is to click three times anywhere within it.
- 2) Click on the *Normal* button - again, only the paragraph style is effected (at least one word is still Cambria 14-point blue bold).
- 3) To return the whole paragraph to normal, the current style settings must be cleared:
- 4) With the whole paragraph selected, click on the More down arrow and choose *Clear Formatting* - the whole paragraph should return to Calibri 11-point.
- 5) Press the <right arrow> key to release the selection.

Hopefully, the above exercise has demonstrated the difference between a paragraph and character style.

The Apply Styles Dialog Box

Having to click on the More down arrow to access the different styles isn't very friendly. In previous versions of Word, a toolbar button gave you a drop-down list. This was replaced in Word 2007 by the Apply Styles dialog box (though the old [Styles] button still works if you add it to the Quick Access Toolbar).

To display the dialog box:

- 1) Click on the More down arrow again but this time choose *Apply Styles...* - the dialog box appears (Figure 8).

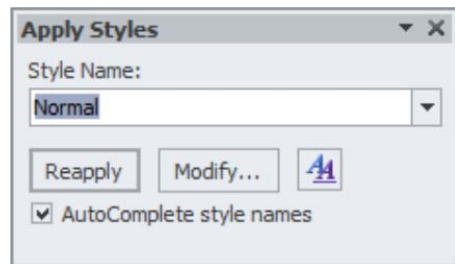


Figure 8: Applying Styles

This box floats over both the text and the Ribbon, so you can position it wherever you choose.

- 2) Drag the dialog box to your preferred position
- 3) Click on the list arrow attached to the *Style Name:* box and choose *Heading 2*.
- 4) Repeat step 3 setting the style of the current paragraph back to Normal

The dialog box not only lets you select an existing style, it also offers an easy way to modify a style or create a new one of your own.

The Styles Task Pane

- 1) Click on the *Styles* button (to the right of *Modify*) in the *Apply Styles dialog box* (or click on the *Styles* group arrow on the *Ribbon*) – a floating task pane appears (Figure 9).
- 2) Double click in the blue heading area of the pane to anchor it to the right of your text.
- 3) Turn on *Show Preview* at the foot of the pane to see the styles as they will appear in the document.

Note that some styles are shown as paragraph styles (¶), some as character styles (a) and some as linked (paragraph and character ¶a) styles. The latter are the styles which can be applied to part of a paragraph (as a character style) as well as to the whole paragraph (as a paragraph style). Your *myquote* style is a paragraph style and cannot be used as a character style. To see this:

- 1) Select a word in your first (normal) paragraph by double clicking on it.
- 2) Click on the *myquote* style in the *Styles* task pane – the whole paragraph becomes a quote.
- 3) Press <Ctrl z> for [Undo] to reset the original style of the paragraph.

You can make *myquote* a linked style, if you want to be able to use it as a character style. To do this:

- 1) Click on your quotation then on the *Modify...* button in the *Apply Styles dialog box*.
- 2) Change the *Style Type:* to *Linked* (paragraph and character) then press <Enter> for [OK].
- 3) Check that *Disable Linked Styles* is turned off at the foot of the *Style Pane*.
- 4) Repeat steps 1 and 2 –you can now apply the style to the single word.

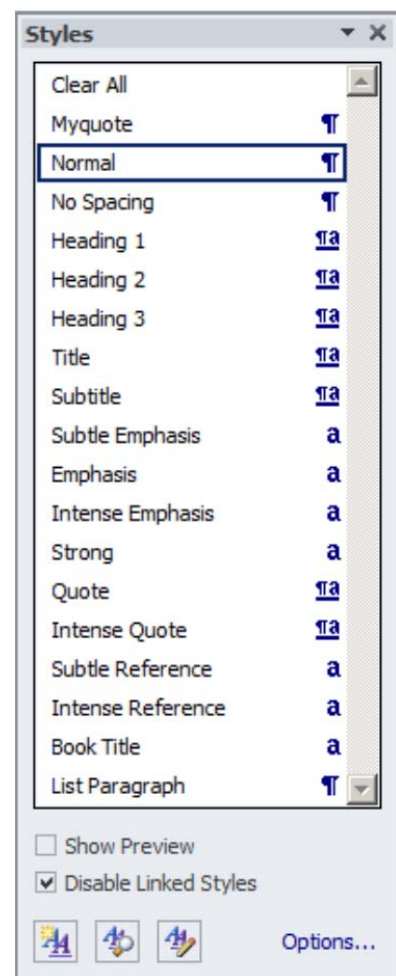


Figure 9: Styles Task Pane

The Styles task pane can also be used to modify styles and create new ones. To modify a style (e.g. normal):

- 1) Move the mouse cursor over the *Normal style* in the task pane – the formatting details appear.
- 2) Click on the list arrow attached to *Normal* and choose *Modify...*
- 3) Change the line spacing to *1.5 Space* – click on *OK* to close the *Modify Style dialog box*.

Your text should be now one-and-a-half spaced, including your quotation as myquote is based on the normal style. Note that another option available via a style's list arrow in the *Task Pane* is *Update Normal to Match Selection* which is another way of updating a style (as seen earlier in the notes).

2.1.4 Editing Group

Editing group has the commands to

- Find and replace text and other data in your Word 2010 files
- Select tool to select objects in the Word document.

You can also use it to find and replace text, formatting, paragraph breaks, page breaks and other items.

You can also use the *Go To* command to find a specific place in your document.

Find text

You can quickly search for every occurrence of a specific word or phrase.

- 1) On the Home tab, in the Editing group, click *Find* (Figure 10) or press <CTRL+F>. The Navigation pane opens.
- 2) In the *Search Document box*, type the text that you want to find.
- 3) Click a result to see it in your document or browse through all the results by clicking the *Next Search Result* and *Previous Search Result* arrows.



Figure 10: Editing Group

Note: If you make a change in your document and the search results disappear, click the down arrow in the Navigation pane to view the list of results.

Find other document elements

To search for a table, a graphic, a comment, a footnote or an endnote or an equation, do the following:

- 1) On the Home tab, in the Editing group, click *Find* or press <CTRL+F>. The Navigation pane opens (Figure 11).
- 2) Click the arrow next to the magnifying glass and then click the option that you want.
- 3) Click a result to see it in your document or browse through all the results by clicking the *Next Search Result* and *Previous Search Result* arrows.

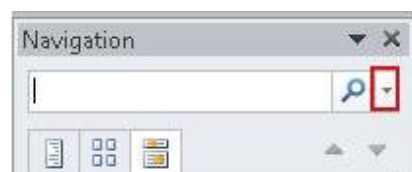


Figure 11: Find Dialog Box

Find and replace text

- 1) On the Home tab, in the Editing group, click *Replace*.
- 2) In the *Find what* box, type the text that you want to search for and replace.
- 3) In the *Replace with* box, type the replacement text.
- 4) Click *Find Next* and then do one of the following:
 - To replace the highlighted text, click *Replace*.
 - To replace all instances of the text in your document, click *Replace All*.
 - To skip this instance of the text and proceed to the next instance, click *Find Next*.

Use codes to find letters, formatting, fields or special characters

Use the following codes to find letters, formatting, fields or special characters. Note that some codes work only if the Use wildcards option is turned on or off.

Codes that work in the Find what box or Replace with box

To find	Type
Paragraph mark (¶)	^p (doesn't work in the Find what box when the Use wildcards option is turned on) or ^13
Tab character (→)	^t or ^9
ASCII character	^nnn, where nnn is the character code.
ANSI character	^0nnn, where 0 is zero and nnn is the character code
Em dash (–)	^+
En dash (-)	^=
Caret character	^^
Manual line break (↵)	^l or ^11
Column break	^n or ^14
Page or section break	^12 (when replacing, inserts a page break)

To find	Type
Manual page break	^m (also finds or replaces section breaks when the Use wildcards option is turned on)
Nonbreaking space (·)	^s
Nonbreaking hyphen (¯)	^~
Optional hyphen (¨)	^-

Codes that work in the Find what box only (when Use wildcards is turned off)

To find	Type
Any character	^?
Any digit	^#
Any letter	^\$
Picture or graphic (inline only)	^g
Footnote mark	^f or ^2
Endnote mark	^e
Field (when field codes are visible)	^d or ^19 or ^21
Comment (when comments are inline)	^a or ^5
Section break	^b
White space	^w (any space or any combination of regular and nonbreaking spaces and tab characters)

Code that works in the Replace with box only

To find	Type
Microsoft Windows Clipboard contents	^c

Go to a specific page, table or other item

You can search for and replace special characters and document elements such as tabs and manual page breaks. For example, you can find all double paragraph breaks and replace them with single paragraph breaks.

- 1) On the Home tab, in the Editing group, click the arrow next to *Find* and then click *Go To*.
- 2) In the *Go to what box*, click the type of item.
- 3) Do one of the following:
 - To go to a specific item, type the appropriate identifying information for the item in the *Enter item type box* and then click *Go To*.
 - To go to the next or previous item of the specified type, leave the *Enter box* empty and then click *Next* or *Previous*.

Use of select tool

- 1) On the Home tab, in the Editing group, click *Select*.
- 2) Do one of the following;
 - To select all of the text in the document, click *Select All*.
 - To select shapes that are hidden, stacked or behind text, click *Select Objects* and then draw a box over the shapes.
 - To select other objects (object: A table, chart, graphic, equation or other form of information. Objects created in one application, for example spreadsheets and linked or embedded in another application are OLE objects.), such as pictures, Smart Art graphics or charts, press and hold <CTRL> while you select the objects that you want.
 - To select text with similar formatting, click *Select Text with Similar Formatting*.

Tips for selecting shapes and objects

To do this	Do the following
Select multiple objects.	Press and hold <SHIFT> or <CTRL> while you click the objects.
Select an object that is under other objects and cycle forward through the stack of objects.	Select the top object and then press <TAB>.
Select an object that is under other objects and cycle backward through the stack of objects.	Select the top object and then press <SHIFT+TAB>.
Select objects that are part of a group (group: A collection of objects that behave as one for the purpose of moving, resizing or rotating them. A group can be composed of multiple sets of groups.).	Select the group and then do one of the following: To select one object, click the object. To select multiple shapes in a group, press and hold <SHIFT> or <CTRL> while you click the shapes.
Cancel the selection of one object at a time.	Press and hold <SHIFT> or <CTRL> while you click each object.

2.1.5 Tables

Tables can be used for displaying data in a compact format that is in columns and rows. Tables can be created easily and quickly in Word 2010. By default, tables are delimited with single lines (defining the rows, columns and cells), which print out. You can, however, reset the lines such that they do not print but still show as guide-lines when you are editing the table in Word.

Creating a Table

As with many features in Word there are several different ways to create a table - you can:

- Drag out a Table of the required size
- Draw the table using the Draw Table option
- Use a Quick Table for a pre-defined layout

Using the Table Icon

It is the easiest way to create a table just by dragging out of the required size table:

- 1) Click where you want to insert the table - here, start at the top of a new blank document.
- 2) Move to the *Insert tab* and click on the *Table* button - a table grid and other options appear (Figure 12).
- 3) Create a 3 x 3 Table - drag the mouse cursor over the cells and click the mouse button when the table is the desired size (if you hold down the mouse button, the table is drawn when you release it).
- 4) A skeleton table appears at the Insertion Point with three columns of equal width and height and the Table Tools Design and Layout tabs appear on the Ribbon.
- 5) To move out of the table, press <Ctrl End> or use the down arrow key several times - the Table Tools tabs disappear, showing that you are no longer in the table.
- 6) Press <Enter> for a blank line.

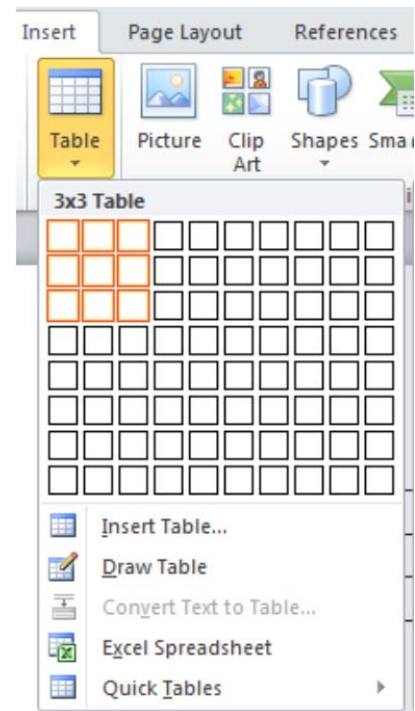


Figure 12: Creating Table by Table Icon

Using the Command

To create a table using the Insert Table command, carry out the following steps:

- 1) Position the Insertion Point where the table is required - here, at the very end.
- 2) Click on the *Table* button (on the *Insert tab*) and choose *Insert Table...*
- 3) The *Insert Table dialog box* appears (Figure 13) - under *Table size*, enter the *Number of columns:* and *Number of rows:* required (here, set up 4 columns and 2 rows).

The next set of options down, *AutoFit behaviour*, determine how the column widths are defined.

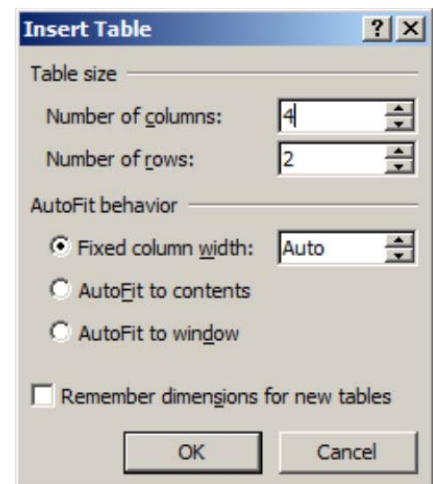


Figure 13: Creating by Table Command

By default, column widths are set so that the table fills the page horizontally with equally-sized columns (as you saw with the first table

The AutoFit to contents option fits the column width to the text as you type it.

Remember dimensions for new tables can be used to make these values the default for future new tables.

- 4) Here, change AutoFit behaviour to AutoFit to contents.
- 5) Press <Enter> for [OK] and a very small skeleton table appears.
- 6) Move on by pressing <Ctrl End> then <Enter> for a new line.

Drawing By

Word provides a Drawing Table facility which lets you to create a table by drawing it. Draw a table as follows:

- 1) Click on the *Table* button and choose *Draw Table* - the cursor changes into a drawing pen.
- 2) Position the drawing pen where you want to insert the table then hold down the left mouse button and drag out the outside border (as you do this, a dotted rectangle is displayed).
- 3) Release the mouse button when the rectangle is the correct size - the table border appears and the Table Tools tabs are displayed.

Next, draw the cells required:

- 4) Repeat steps 2 and 3 to draw the columns and rows.
- 5) If you make a mistake, press <Ctrl z> for [Undo] (or click on the *Eraser* button then on the unwanted line - click on *Eraser* again to turn it off and *Draw Table* to change the cursor back to a pen).

Once you have finished drawing the inner lines, you may want the columns/rows to be of equal size:

- 1) Move to the *Table Tools Layout* tab and note the buttons in the Cell Size groups.
- 2) Use the *Distribute Rows* and/or *Distribute Columns* buttons to make them equally sized.
- 3) Press <Ctrl End> to move out of your drawn table then <Enter> for a new line.

Performing Calculations in a Table

You can perform simple calculations in a table (it is assumed that you have already entered numerical data in the cells of the table):

- 1) Press <Tab> to create a new row in your table.
- 2) Press <Tab> again to move to the second column and type:
Total:
- 3) Press <Tab> to move to the last column then move to the Layout tab and click on the *Formula* button - the *Formula dialog box* appears (Figure 14).

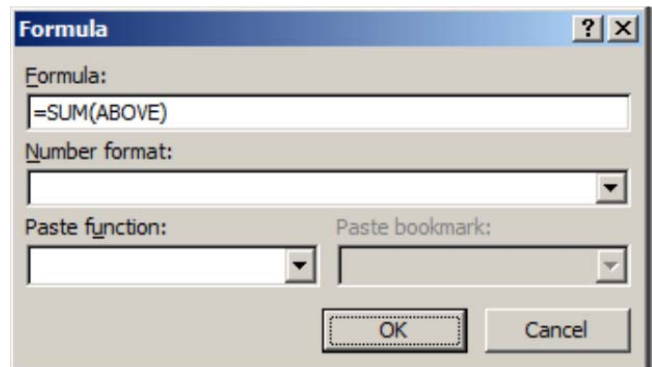


Figure 14: Adding Formula in Table

- 4) Press <Enter> for [OK] - the total appears in the cell you have entered the formula.

Word does not claim to be a spreadsheet, so the total will not be updated automatically if one of the values changes. To test this out:

- 1) Change the values in one or more cells - the total remains the same.
- 2) To recalculate it, right click on the total figure and choose *Update Field* from the pop-up menu - the recalculated values appears.

You can also create formulas like =SUM(LEFT) or =SUM(BELOW) by amending the formula accordingly. You can also perform other calculations, such as working out an average value. Try this here:

- 1) Right click on the current calculation (Sum) and choose *Edit Field...*
- 2) Click on the *Formula...* button to redisplay the *Formula dialog box*.
- 3) Delete the current formula except for the = sign.
- 4) Click on the list arrow attached to *Paste Function:* and choose *AVERAGE*.
- 5) Type *ABOVE* to complete the function (i.e. =AVERAGE(above)).
- 6) You can set up a Number format: if you want, but here press <Enter> for [OK].
- 7) End by changing *Total* to *Average* in the second column.

Tip: For a formula which works on certain cells only, use the cell references. The rows in a table are denoted by numbers, the columns by letters - in exactly the same way as Excel. Examples of valid formulae are: =SUM(A2,A3,A4), =SUM(A2:B4), =SUM(2:2) (i.e. all cells in the second row), =SUM(C:D) (all the cells in both the third and fourth columns).

Header Rows

Where you have a table which stretches over more than one page, you can set up a row to act as a Header. This then appears at the top of each page. You haven't got any long tables here, but the effect can be seen if you force a table to cross a page break.

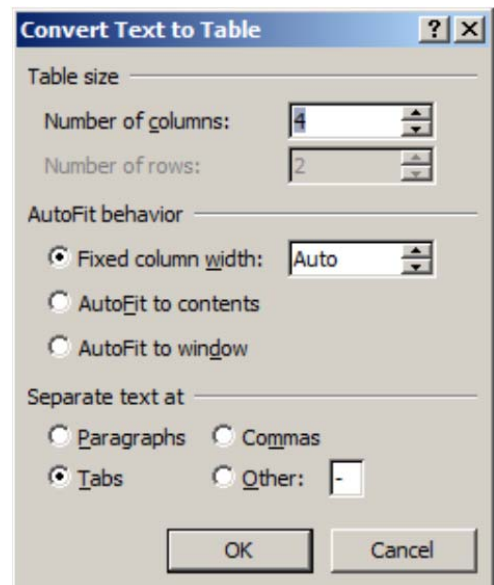
- 1) Move the Insertion Point into the top row in your table of expenses.
- 2) Now click on the *Repeat Header Rows* button in the *Data group* on the right of the *Layout tab*.
- 3) Move the Insertion Point to *immediately* above your table.
- 4) Press <Enter> until the table splits across a page - you should find that the heading row is shown on both pages.
- 5) Having seen the effect, press <Ctrl z> to [Undo] the excess empty paragraphs.

Note: If you want more than one row to be used as the header, select them before issuing the Header Rows Repeat command.

Converting Text to a Table

Any tab-separated text can be converted into a table using the [Convert] button in the Data group. This offers two options: Text to Table... and Table to Text.... The latter can be used to convert an existing table into tab-separated text.

- 1) Press <Ctrl End> to move to the end of your document then <Enter> for a new line.
- 2) Type 1 (press <Tab>) 2 (<Tab>) 3 (<Tab>) 4 (this time press <Enter>).
- 3) Type 5 (press <Tab>) 6 (<Tab>) 7 (<Tab>) 8 (<Enter>).
- 4) Drag through the two rows to select them then move to the *Insert tab* and click on the *Table* button and select *Convert Text to Table...* - the dialog in the box on the right appears (Figure 15).



Note the settings here - paragraph or comma-separated text can also be converted into a table (indeed, any specified character can be used to denote the column breaks).

Figure 15: Convert Table to Text Dialog box

- 5) Press <Enter> for [OK] - the text is converted into a table.

To change a table into text (use the current table for practice):

- 1) Move to the *Layout tab* then click on the *Convert to Text* button - the dialogue of Figure 16 appears.
- 2) Set the options as necessary - here, change *Separate text with* to *Paragraph Marks*.
- 3) Press <Enter> for [OK] - the table is converted into text, one value per line.

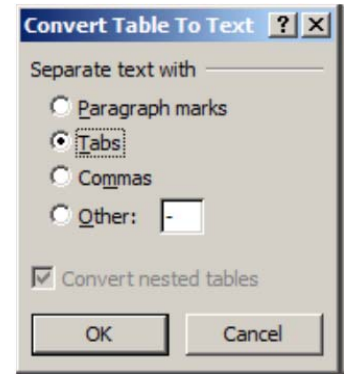


Figure 16: Text Separator for Table to Text

Numbering Tables, Cross-Referencing and Creating an Index

If you are typing a long document, like a book or thesis, you may well want to create an Index of Tables. Word has the facility to do this - it works just like when you create a Table of Contents. In order to make use of this facility, the table headings must be created using a Caption. This is available from the References ribbon.

- 1) Press <Ctrl Home> to move to the start of your document.
- 2) Press <Enter> for a new line (note that a blank line is added before your table, not in it).
- 3) Click on the *References tab* at the top and then *Insert Caption* in the *Captions group* on the ribbon, the dialog in Figure 17 appears.

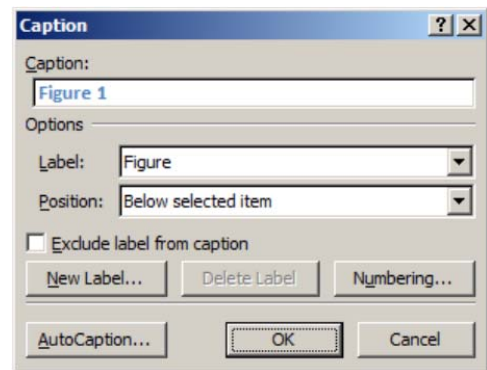


Figure 17: Caption


- 4) Under *Options* change the *Label* to *Table*, using the list arrow provided.
- 5) Click after *Table 1* in the *Caption:* text box, add a space and then type *Using the Table Icon*.
- 6) Press <Enter> for [OK] (the caption is added) then <Enter> again for a new line.
- 7) Move the Insertion Point down to the blank line above your second table - press <Enter>.
- 8) Repeat steps 3 to 6, this time typing *Using the Insert Table Command*.
- 9) Repeat steps 7 and 8 for your third table typing *Drawing a Table*.
- 10) Now press <Ctrl Home> to move to the start of your document.
- 11) Click on the *References tab*, then *Insert Table of Figures* in the *Captions group* on the ribbon and press <Enter> for [OK] when the *Table of Figures window* appears.

An Index of Tables should appear at the top of your document.

You can reference a table in your text (so that the numbering changes automatically if the table itself is renumbered) using a cross-reference:

- 1) Move down to the blank line below your first table.
- 2) Type in, then click on the *References tab* followed by *Cross-reference* in the *Captions group* on the ribbon.
- 3) Change the *Reference type:* to *Table*.
- 4) Change *Insert reference to:* to *Only label and number*.
- 5) Press <Enter> for [Insert] then <Esc> for [Close].
- 6) Continue typing above, note how ...

Activity 4

<p>1) Enlist the Advanced Features of MS Word 2010.</p> <hr/> <hr/> <hr/> 
<p>2) What is the purpose of clip board? What are the different ways of using clipboard?</p> <hr/> <hr/>
<p>3) Differentiate between Paste Special and Format painter.</p> <p>-</p> <hr/> <p>-</p> <hr/> <p>-</p> <hr/> <p>-</p> <hr/> <p>-</p> <hr/>
<p>4) What are the different uses of Styles Group?</p> <hr/> <hr/> <hr/>

Activity 5

1) Write steps to perform the following tasks.

- Use clipboard to:
- Paste more than one item at the same time.
- Add and delete items in the clipboard
- Define different settings for clipboard



2) Using Paste Special to add paste contents from the webpage and from other sources.

3) Use Styles for format document for four levels of headings i.e., Level 1, Level 2, Level 3 and Level 4.

Task 2

The student should look upon the task as a test of knowledge, management skills and communication skills. When you write an answer asked in the task, you are indicating your knowledge to the teacher:



- Your level of understanding of the subject
- How clearly you think
- How well you can reflect on your knowledge & experience
- How well you can use your knowledge in solving problems, explaining situations and describing organizations and management
- How professional you are and how much care and attention you give to what you do.

Perform the following tasks and write down the steps how you have performed these tasks:

- 1) Create custom styles in Microsoft Word.
- 2) Paragraph styles - Modify existing paragraph styles.
- 3) Styles - create new paragraph styles.
- 4) On a new document, create the basic table (with 5 columns and 4 rows) as shown below:

Name	Gender	Age	Eyes	Interests
Ali	M	48	Blue	Travel
Bilal	F	49	Brown	Music
Saad	M	54	Brown	Music

- 5) Add your own details at the end of the table (press TAB key to insert an extra line at the end of the table).
- 6) Change the border lines, shading and row height to create a table similar to the example shown below:

Name	Gender	Age	Eyes	Interests
Ali	M	48	Blue	Travel
Bilal	F	49	Brown	Music
Saad	M	54	Brown	Music
	F	39	Blue	Reading Music

7) On a new document, create the following form using a table:

Name:	<input type="text"/>		
Address:	<input type="text"/>	Postcode:	<input type="text"/>
Date of Birth:	<input type="text"/>	Sex:	Male <input type="checkbox"/> Female <input type="checkbox"/>
Dr. Name:	<input type="text"/>		
Dr. Address:	<input type="text"/>	Postcode:	<input type="text"/>

- 8) Create a document describing the usefulness of word processing software with 4 levels of headings in the text and appropriate screen shots with suitable captions using insert caption command. Then
- 9) Insert table of content using the table of content command
- 10) Insert the list of figures using the command provided for it in the ms word.
- 11) List the detailed steps how you have completed this particular task.

If there are any questions, please do not hesitate to contact

Dr. Shafiq ur Rehman via e-mail: shafiqurrehman1@yahoo.com

3 Presentation Software Important Features (Chapter 7)

Learning Objectives

Upon successful completion of this chapter, you will be able to

- Understand about the useful Practices of MS PowerPoint like adding animations, insert multimedia clips / content in the slides, creating animation using motion path, understand the concept of “Master Slide”, add action buttons.

3.1 Useful Practices of MS PowerPoint

Microsoft PowerPoint, usually just called PowerPoint, is a commercial presentation program developed by Microsoft. It is part of the Microsoft Office suite and generally uses a graphical approach to presentations in the form of slide shows that accompany the oral delivery of the topic. The main purpose of MS PowerPoint is to enable the user to create dynamic, informational slides through the use of text, graphics and animation. Slide presentations created with the software are often displayed on projection screens for business, training or educational presentations, although they can be distributed as stand-alone files.

With the new release of Microsoft Office 2010, many advanced features were added in PowerPoint 2010. Following is a list of several new features in PowerPoint 2010:

- 1) Embed and edit video from within PowerPoint. These embedded videos become part of your PowerPoint presentation; you don't have to manage additional files when sharing with others.
- 2) Use new and improved picture editing tools. You can use picture editing tools including versatile artistic effects and advanced correction, colour and cropping tools, to fine-tune every picture in your presentation to look its absolute best.
- 3) Work together more successfully. If you are one of the many people who work with others on presentations and projects, PowerPoint 2010 is the perfect tool for you. The new added co-authoring capabilities to edit the same presentation allow you to work with people in different locations at the same time. You can even communicate as you work, directly from PowerPoint
- 4) Access and share your content from more places. Your ideas, deadlines, projects and work emergencies don't always occur conveniently when you are at your desk. Fortunately, you now have the power to get things done when and where you need to, from the Web with Microsoft PowerPoint Web App or even from your smart phone with Microsoft PowerPoint Mobile.

3.1.1 Add Animations in a Presentation

Animations can be applied to every object on a slide – including titles and other text boxes. Many objects can even have animation applied to different components, for example each shape in a SmartArt graphic, each paragraph in a text box and each column in a chart. Animations can be applied to three separate ‘events’ for each object:

- Entrance – how the object arrives on the slide
- Emphasis – an effect to focus attention on an object while it is visible
- Exit – how the object disappears from the slide

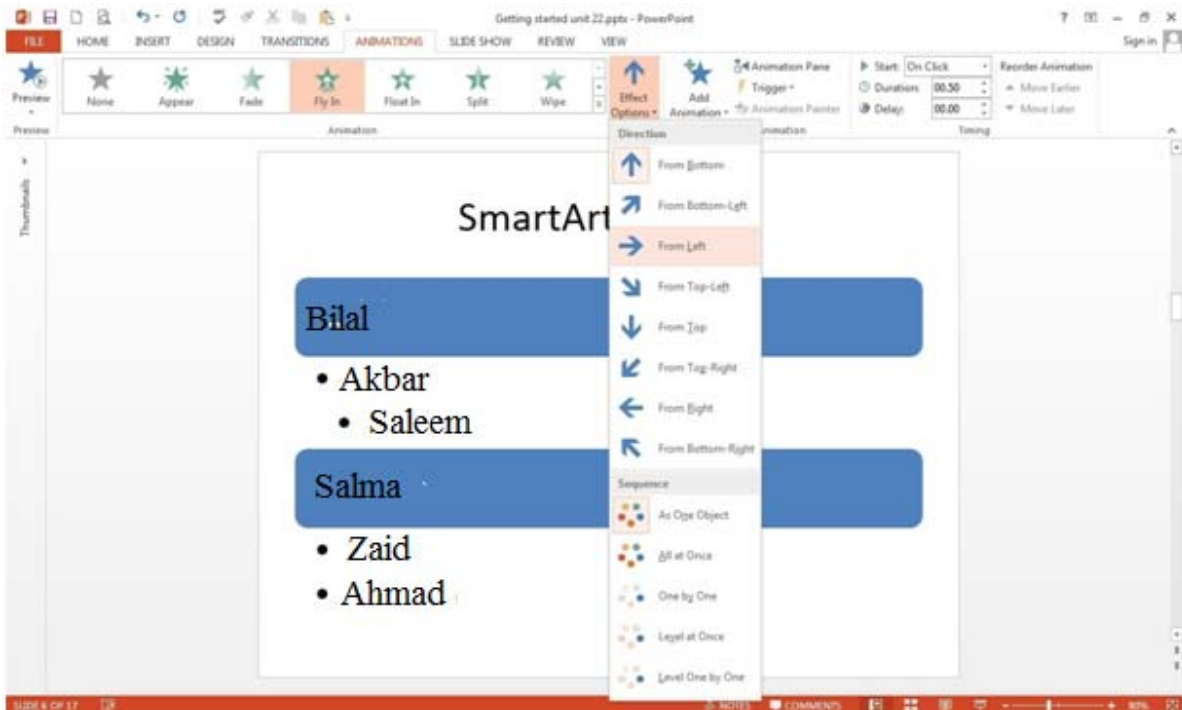



Figure 18: Effect Option

To apply an animation effect, choose the object or objects to be animated, then choose *Animation Styles* or *Add Animation* from the *Animations toolbar*.

To add an animation effect to an object, do the following:

- 1) Select the object that you want to animate.
- 2) On the *Animations* tab, in the *Animation* group, click on  and then select the animation effect that you want.

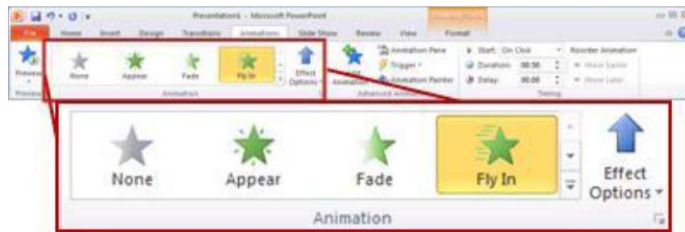


Figure 19: Animations

Apply multiple animation effects to a single object

To apply multiple animations onto the same object, do the following:

- 1) Select the text or object that you want to add multiple animations.
- 2) On the *Animations* tab, in the *Advanced Animation* group, click *Add Animation*.

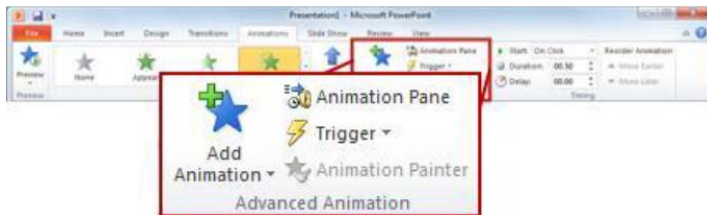


Figure 20: Multiple Animations

View a list of animations currently on the slide

You can view the list of all the animations on the slide in the Animation task pane. The Animation task pane shows important information about an animation effect, such as the type of effect, the order of multiple effects in relation to one another, the name of the object affected and the duration of the effect.

- 1) To open the *Animation task pane* on the *Animations* tab in the *Advanced Animation* group click *Animation Pane*.
- 2) In the *Task pane*, numbers indicate the order in which the animation effects play. The numbers in the task pane correspond to the non-printing numbered tags that are displayed on the slide.
- 3) Timelines represent the duration of the effects.
- 4) Icons represent the type of animation effect. In this example, it is an *Exit* effect.

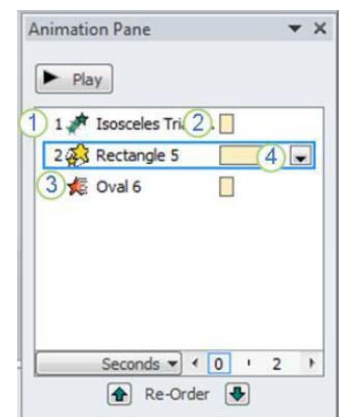


Figure 21: Animation Preview

- 5) Select an item in the list to see the menu icon (down arrow) and then click the icon to reveal the menu.

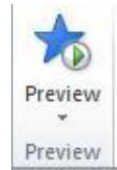
Set the effect options, timing or order for an animation

- 1) To set the effect options on the *Animations tab*, in the *Animation group*, click the arrow to the right of *Effect Options* and click the option that you want.
- 2) You can specify the start, duration or delay timing for an animation on the *Animations tab*.
 - To set the start timing for an animation, in the *Timing group*, click the arrow to the right of the *Start menu* and select the timing that you want.
 - To set the duration of how long the animation will run, in the *Timing group*, enter the number of seconds that you want in the *Duration box*.
 - To set a delay before the animation begins, in the *Timing group*, enter the number of seconds that you want in the *Delay box*.
 - To reorder an animation in the list, in the *Animation task pane*, select the animation that you want to reorder and on the *Animations tab*, in the *Timing group*, under *Reorder Animation*, either select *Move Earlier* to make the animation occur before another animation in the list or select *Move Later* to make the animation occur after another animation in the list.

Test your animation effect

After you add one or more animation effects, to validate that they work, do the following:

- 1) On the *Animations tab*, in the *Preview group*, click *Preview*.



Advanced Animation Timeline

With the advanced Timeline you can see the duration, start and end for each animation in relation to the other animations. For advanced animation needs the *with previous* setting is utilized more and the animation start position and duration are adjusted with the *Advanced Timeline* (as example when an overlapping animation is needed).

To see the *Advanced Timeline*, click any animation and choose *Show Advanced Timeline*.

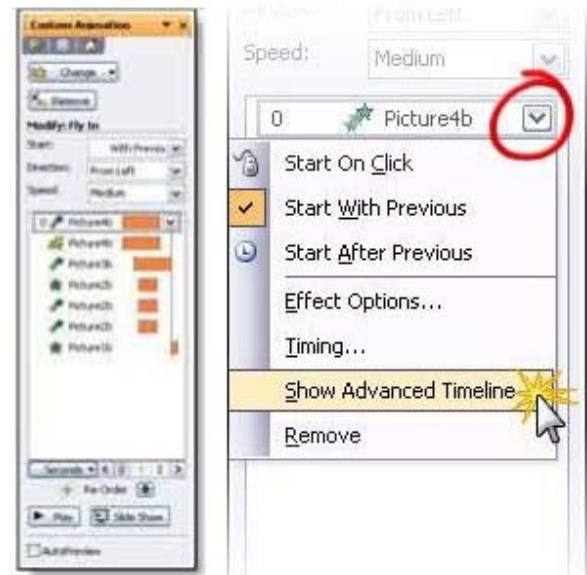


Figure 22: Animation Timeline

To use the animation painter

The animation painter works much like the Format Painter which has been part of the Microsoft Office suite of programs for a long time.

The animation painter allows the creator of the presentation to copy the animation effects of one object (and all the settings applied to that animated object), to another object (or many objects) with a single click of the mouse on each new object. This feature is a real time saver

a) First Steps for Using the Animation Painter

- 1) Select the slide which contains the animation you wish to copy.
- 2) Click on the *Animations tab* of the ribbon.

b) Copy Animation to ONE Object

- 1) Click on the object that contains the desired animation.
- 2) In the *Advanced Animation section* of the ribbon, click on the *Animation Painter button* (Figure 23). Note that the mouse cursor now changes to an arrow with a paint brush.
- 3) Click on the object to which you wish to apply this same animation.

This animation and all its settings have now been applied to the new object.

c) Copy Animation to SEVERAL Objects

- 1) Click on the object that contains the desired animation.
- 2) In the *Advanced Animation section* of the ribbon, double click on the *Animation Painter button* (Figure 23).

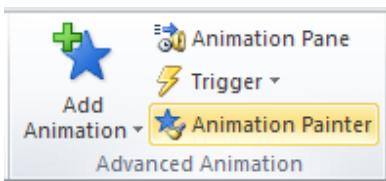


Figure 23: Advance Animation

- 3) Note that the mouse cursor now changes to an arrow with a paint brush.
- 4) Click on the first object to which you wish to apply this same animation.
- 5) This animation and all its settings have now been applied to the new object.
- 6) Continue to click on all objects that require the animation.
- 7) To turn the animation painter off, click the *Animation Painter button* again.

3.1.2 Insert multimedia clips / content in the slides

You can insert one or more video clips — that is, movies — into any slide. You might want to play a video quote from your product manager, for example or run a short documentary movie for a fund-raising event. You could even create a video for product tutorials and educational materials.

Most of the movie clips stored in the Clip Organizer are simply animated .gif files, small files that contain an animated sequence of images. If you imported your own movie files into the Clip Organizer, you will find them there, too, generally stored in .avi format. You might be able to find additional movie clips on your network, intranet or the Internet.

To insert a movie into a slide, follow these steps:

- 1) Display the slide in which you want to add a video clip.
- 2) On the *Insert menu*, point to *Movies and Sounds* and then click *Movie from Clip Organizer*.

You can now browse the Clip Organizer for a movie clip. PowerPoint will open the Clip Art task pane and will select the Movies option in the Results should be drop-down list. You can use the Clip Art task pane to locate a video clip stored on your computer or on the Office Online Web site.

- 3) Click the movie you want to add to your slide.

Insert a movie from a file

You can insert a movie from a movie file on a local disk, a shared network location or an Internet site.

- 1) On the *Insert menu*, point to *Movies and Sounds* and then click *Movie from File*.
- 2) Select the movie file in the *Insert Movie dialog box* and then click the *OK* button.

If you selected a movie clip in animated .gif format, the animation will run automatically the entire time the slide is displayed in a slide show. If, however, you selected a movie in another format (such as .avi), PowerPoint will display a message box letting you choose when the movie will play.

To have the movie play automatically when the slide is displayed in a slide show, click the *Automatically* button.

To have the movie play only after you click the movie image, click the *When Clicked button*. PowerPoint will then add the clip to your slide.

Insert a sound

Sound effects, such as music and voice recordings, can add another level of professionalism to your slide presentations. Music is an effective way to introduce or end a presentation and it gives your audience something to listen to as they enter and leave the presentation room. You could play a movie theme song as background music for several slides or play a voice recording that contains advertising slogans to insert on a single slide, for example.

To add a sound clip to your slide show, perform the following steps:

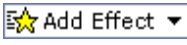

- 1) Display the slide to which you want to add sound.
- 2) Use one of the following three methods to insert the sound clip:
 - To browse through the Clip Organizer for a sound clip, on the *Insert menu*, point to *Movies and Sounds* and then click *Sound from Clip Organizer*.
PowerPoint will display the *Clip Art task pane* and will select *Sounds in the Results Should Be drop-down list*. You can use the *Clip Art task pane* to locate a sound clip stored on your computer or on the Office Online Web site.
 - To insert a sound clip from an existing sound file on a local disk, a shared network location or an Internet site (if you haven't imported the file into the Clip Organizer), on the *Insert menu*, point to *Movies and Sounds* and then click *Sound from File*.
The *Insert Sound dialog box* will appear. Select the sound file that you want and then click the *OK* button.
 - To record your own sound clip (you must have a microphone attached to your computer) and add it to the slide, on the *Insert menu*, point to *Movies and Sound* and then click *Record Sound*.
 - PowerPoint will display the *Record Sound dialog box*. Use the controls in this dialog box to record your sound and then click the *OK* button.

The sound will play during a slide show only when you click the sound icon. (You can modify this behaviour using the Custom Animation task pane.)

- To have the clip play automatically when the slide is displayed in a slide show, click the *Automatically* button.
- To have the clip play only after you click the sound icon, click the *When Clicked* button.

3.1.3 Creating animation using Motion Path





Apply or draw a motion path

- 1) In normal view, display the slide that has the text or objects you want to create a motion path for.
- 2) Select the text item or object you want to animate. For text items, you can select a placeholder or paragraph (including a bullet).
- 3) If the *Custom Animation task pane* is not displayed, on the Slide Show menu, click Custom Animation.
- 4) In the *Custom Animation task pane*, click , then  and do one of the following:

Apply a preset motion path

- 1) Click a preset path or click *More Motion Paths* to choose from more options.

Create a custom motion path

- 1) Point to *Draw Custom Path* and then do one of the following:
 - Click *Freeform*  to draw a path with both curved and straight segments. Drag to draw freehand shapes; click and move the mouse to draw straight lines.
 - Click *Scribble*  and drag to draw a path that looks more like it was drawn with a pen or to create smooth curves.
 - Click *Line*  and drag to draw a straight path.
 - Click *Curve*  and click where you want the curved path to start and then continue to move the mouse and click wherever you want to add a curve.
- 2) Do one of the following:
 - If you want to end the freeform (freeform: Any shape that you draw by using the Curve, Freeform and Scribble tools. Freeform shapes can include straight lines and freehand curves. They can be drawn opened or closed and can be edited by using the drawing tools.) or curved path and leave it open, double-click at any time.
 - If you want to end a line or scribbled path, let go of the mouse button.
 - If you want to close a shape, click at its starting point.

Tip: To make the path mimic an exit effect, set effect options to fade or hide the item after the animation plays or draw the motion path off the slide.

Copying Motion path using Animation painter

In Microsoft PowerPoint 2010, you can quickly and easily copy animations from one object to another using the Animation Painter.

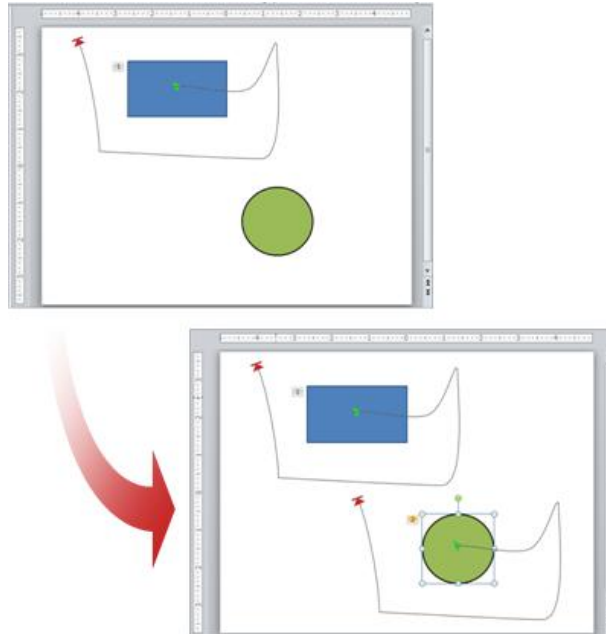


Figure 24 Animation Motion Path

Figure 24: An example where the Motion Path animation from the blue square is “painted” or copied onto the green circle.

To copy an animation, do the following:

- 1) Select the object with the animations that you want to copy.
- 2) On the *Animations tab*, in the *Advanced Animation group*, click *Animation Painter*.

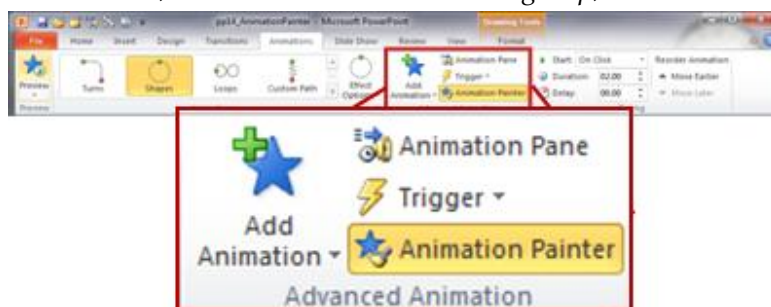



Figure 25: Animation Painter

- 3) Your cursor will change to appear like this: 
- 4) On the slide, click the object to which you want to copy the animations.

3.1.4 Slide Master View

Slide Master View is a special mode in PowerPoint that allows you to modify slides and slide layouts in your presentation. Slide Master View can be used to make changes to every slide in your presentation. It helps in modifying individual slide layouts, creating new layouts and saving custom layouts.

You may have noticed that when you select a different theme in PowerPoint, it rearranges the text on your slides and adds shapes to the background. That's because each theme has built-in slide layouts and background graphics. You can edit these layouts with a feature called Slide Master View. Once you learn how to use Slide Master View, you'll be able to customize your entire slide show with just a few clicks.

Slide Master View is a special feature in PowerPoint that allows you to quickly modify the slides and slide layouts in your presentation. From there, you can edit the slide master, which will affect every slide in the presentation. You can also modify individual slide layouts, which will change any slides using those layouts. For example, suppose you find a theme you like, but you don't like the slide layouts. You could use Slide Master View to customize the layouts exactly the way you want.

In Slide Master View, the Slide Master tab will appear first on the Ribbon, but you'll still be able to access commands on different tabs as normal.

3.1.4.1 Formatting Master Slides in PowerPoint 2010

Benefits of formatting master slides:

- You can define the formatting for all slides at once, so the format will be consistent on all slides.
- Any changes you make to the master slides will be automatically applied to all slides in the presentation.

Open the Slide Master

- 1) From the menu ribbon, select the *View tab > Slide Master*.



Figure 26: View Option

- 2) A new *Slide Master tab* will automatically appear.

Formatting Text

- 1) Click on the master title style to select it.
- 2) From the *Slide Master* tab, select the *Fonts* dropdown in the *Edit Theme* area.

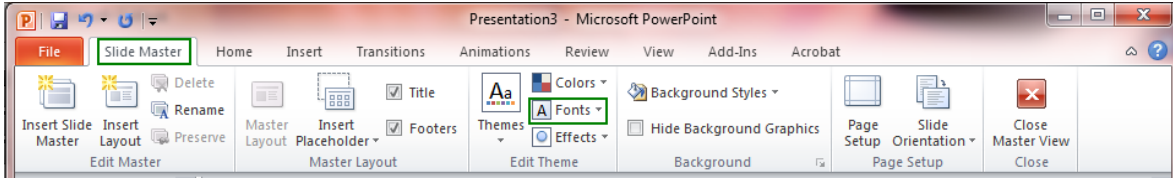


Figure 27: Slide Master Option

- 3) Select the desired font, font style, font size, effects and colour.
- 4) Click *OK* when you have finished selecting the font attributes for the title style.
- 5) Click elsewhere on the slide to deselect the title style and view the font formatting.
- 6) Repeat the steps as needed until you are satisfied with the appearance of the title style.
- 7) Select each text style and follow steps 2 - 6 to format the appearance of the text.
- 8) To change the bullets for each level of text, click on the text to select it and from the *Home* tab, expand the *Bullets and Numbering* menus.

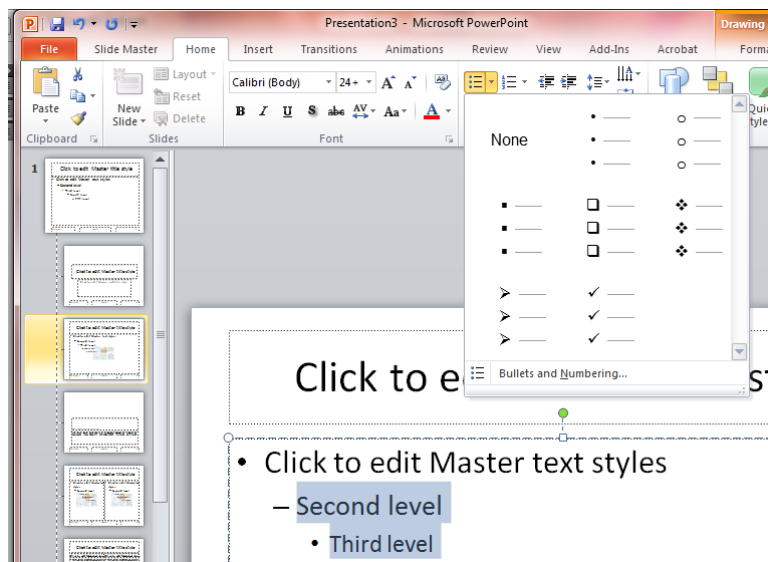


Figure 28: Setting Slide Master

Tip: You can also double click to highlight existing bulleted or numbered list and a floating font window will appear.



Figure 29: Font Style

Moving and Resizing Text Areas

- 1) Click on a text area. A border appears with resize handles.
- 2) To resize the text area, click and drag a resize handle while keeping the mouse clicked. A dotted line shows the new size of the area.
- 3) To move the text area, move the mouse pointer over the text area. The mouse pointer becomes a four-headed arrow. Click and drag the text area to a new location while keeping the mouse clicked.

Working with Footers and Special Placeholders

The Slide Master contains placeholders for date/time, slide number and footer. These can be moved around, resized, reformatted and turned on or off.

- 1) In the menu ribbon, select the *Insert* tab > *Header and Footer* (Figure 30).

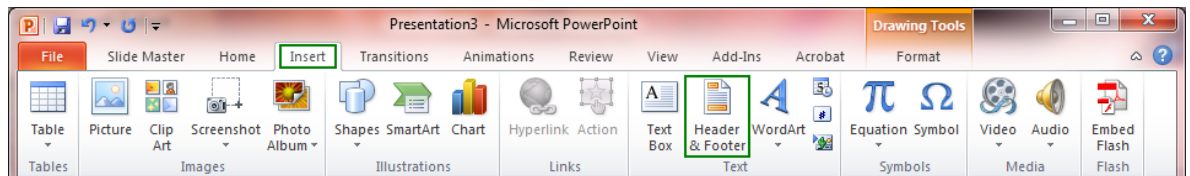


Figure 30: Header & Footer

- 2) The Header and Footer box appears (Figure 31).

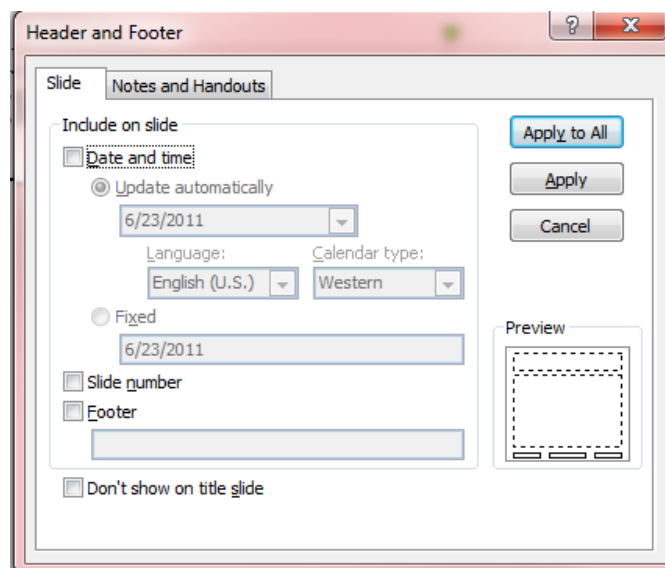


Figure 31: Header & Footer Dialog Box

- 3) Click on the *Slide number* check box if you want the slides to be numbered.
- 4) Type text in the *Footer* box if you want footer text on each slide.
- 5) Click the *Don't show on title slide* check box if you do not want the placeholders to appear on the title slides.

- 6) By default, the date/time does not appear even though the placeholder is turned on. This is because *Fixed* is the default setting and the *Fixed* box is blank. To make the date/time appear, type the date in the *Fixed* box or click *Update automatically* to set up an automatic date/time on each slide. Click the drop down menu to select the desired date/time format.
- 7) Click *Apply to All* to apply the footers and placeholders to all slides.

Changing the Background

- 1) From the menu ribbon, select the *Slide Master* tab > *Background* > *Background Styles* dropdown menu. The Background window appears.

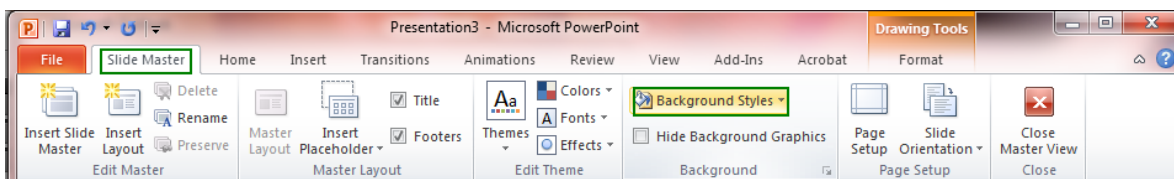


Figure 32: Format Slide Master

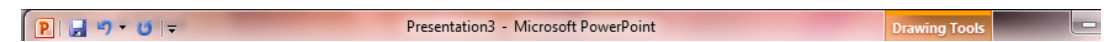
- 2) Select a predefined colour.

Tip: Fill or picture to select a gradient, texture, pattern or picture for your background.

- 1. You can preview your color selections before you apply simply by mouse over your selection.
- 2. Click to apply the background selection to the slide master.

Return to *Normal view*

- 1. After defining your slide master formats, return to the normal view so you can edit individual slides by selecting the *Slide Master* tab > *Close Master View* from the ribbon.



3.1.4.2 Best practice for creating and working with slide masters

It is a good idea to create a slide master before you start to build individual slides, rather than after. When you create the slide master first, all of the slides that you add to your presentation are based on that slide master and the associated layouts. When you begin making changes, be sure to make them on the slide master.

If you create a slide master after you build individual slides, some of the items on the slides may not conform to the slide master design. You can override some of the slide master customizations on individual slides by using the background and text formatting features, but others (such as footers and logos) can be modified only in Slide Master view.

Create or customize a slide master

- 1) Open a blank presentation and then, on the *View tab*, in the *Master Views group*, click *Slide Master*.
- 2) When you open *Slide Master view*, a blank slide master with the default, associated layouts appears.
Note: In the slide thumbnail pane, the slide master is the larger slide image and the associated layouts are positioned beneath the slide master.
- 3) To remove any of the built-in slide layouts that accompany the default slide master, in the slide thumbnail pane, right-click each slide layout that you want to delete and then click *Delete Layout* on the shortcut menu.
- 4) To set the page orientation for all of the slides in your presentation, on the **Slide Master** tab, in the **Page Setup** group, click **Slide Orientation** and then click either **Portrait** or **Landscape**.
- 5) On the *File tab*, click *Save As*.
- 6) In the *File name box*, type a file name.
- 7) In the *Save as type list*, click *PowerPoint Template* and then click *Save*.
- 8) On the *Slide Master tab*, in the *Close group*, click *Close Master View*.

3.1.5 Add action buttons

Action buttons are built-in button shapes that you can add to your presentation and then assign an action to occur upon the click of a mouse or when someone mouses over the button. You can also assign actions to clip art, pictures or the text in a SmartArt graphic. The idea is that when you deliver your presentation, you can click or mouse-over an action button to:

- Go to the next slide, the previous slide, the first slide, the last slide, the most recent slide viewed, a specific slide number that you specify, a different Microsoft Office PowerPoint presentation or a Web page
- Run a program
- Run a macro
- Play a sound

Insert an action button on a single slide

- 1) Select the slide you want to place a button on.
- 2) On the *Slide Show menu*, point to *Action Buttons* and then select the button you want – for example, *Home*, *Back* or *Previous*, *Forward* or *Next*, *Beginning*, *End* or *Return*.
- 3) Click the slide.
- 4) In the *Action Settings dialog box*, set the actions that you want on the *Mouse Click* and *Mouse Over tabs* and then click *OK*.

For example, to open another document or play a movie when the button is clicked during the slide show, on the *Mouse Click tab*, click *Hyperlink to* and then in the drop-down list, select *Other File*. In the *Hyperlink to Other File dialog box*, navigate to the file you want to open and then click *OK* twice.

Insert an action button on every slide

If you're using one slide master (slide master: The main slide that stores information about the theme and layouts of a presentation, including the background, colour, fonts, effects, placeholder sizes and positions.), you can insert an action button on the master and the button is available throughout the presentation. If you are using multiple slide masters (such as when you have applied more than one design template to your presentation), you must insert the action button on each master.

- 1) On the *View menu*, point to *Master* and then click *Slide Master*.
- 2) On the *Slide Show menu*, point to *Action Buttons* and then select the button you want – for example, *Home*, *Back* or *Previous*, *Forward* or *Next*, *Beginning*, *End* or *Return*.
- 3) Click the *slide master*.
- 4) In the *Action Settings dialog box*, set the actions that you want on the *Mouse Click* and *Mouse Over tabs* and then click *OK*.

For example, to open the previous slide when the button is clicked during the slide show, on the *Mouse Click tab*, click *Hyperlink to* and then in the drop-down list, select *Previous Slide*. Click *OK*.

- 5) Click *Close Master View* on the *Master View toolbar* (toolbar: A bar with buttons and options that you use to carry out commands. To display a toolbar, press <ALT> and then <SHIFT F10>).

3.1.5.1 Assign an action to a built-in button or picture

Some examples of built-in action button shapes that you can find in the Shapes gallery include right and left arrows and commonly understood symbols for going to next, previous, first and last slides and for playing movies or sounds and more.



Figure 34: Action Button

3.1.5.2 Add an action button and assign an action

- 1) On the *Insert tab*, in the *Illustrations group*, click *Shapes* and then under *Action Buttons*, click the button that you want to add.
- 2) Click a location on the slide and then drag to draw the shape for the button.
- 3) In the *Action Settings dialog box*, do one of the following:
 - To choose the behaviour of the action button when you click it in Slide Show view, click the *Mouse Click tab*.
 - To choose the behaviour of the action button when you move the pointer over it in Slide Show view, click the *Mouse Over tab*.
- 4) To choose the action that will take place when you click or move the pointer over the action button, do one of the following:
 - To use the shape without a corresponding action, click *None*.
 - To create a hyperlink, click *Hyperlink to* and then select the destination (for example, the next slide, the previous slide, the last slide or another PowerPoint presentation) that you want the hyperlink action to go to.

Note: To link to a file created by another program, such as a Microsoft Office Word or Microsoft Office Excel file, in the *Hyperlink to list*, click *Other File*.

- To run a program, click *Run program*, click *Browse* and then locate the program that you want to run.
- To run a macro (macro: An action or a set of actions that you can use to automate tasks. Macros are recorded in the Visual Basic for Applications programming language.), click *Run macro* and then select the macro that you want to run.

Note: The **Run macro** settings are available only if your presentation contains a macro. When you save the presentation, you must save it as a *PowerPoint Macro-enabled Show*.

If you want the shape that you chose as an action button to perform an action, click *Object action* and then select the action that you want it to perform.

- To play a sound, select the *Play sound check box* and then select the sound that you want to play.
- Click *Ok*.

3.1.5.3 Add a picture or clip art and assign an action

- 1) On the *Insert tab*, in the *Illustrations group*, do one of the following:
 - Click *Picture* and then in the *Insert Picture dialog box*, locate the picture that you want to add and then click *Insert*.
 - Click *Clip Art* and then in the *Clip Art pane*, locate and then click the picture that you want to add.
- 2) Click the picture or clip art that you added and then on the *Insert tab*, in the *Links group*, click *Action*.
- 3) In the *Action Settings dialog box*, do one of the following:
 - To choose the behaviour of the picture or clip art when you click it in Slide Show view, click the *Mouse Click tab*.
 - To choose the behaviour of the picture or clip art when you move the pointer over it in Slide Show view, click the *Mouse Over tab*.
- 4) To choose the action that will take place when you click or move the pointer over the picture or clip art, do one of the following:
 - To use the shape without a corresponding action, click *None*.
 - To create a hyperlink, click *Hyperlink to* and then select the destination (for example, the next slide, the previous slide, the last slide or another Power-Point presentation) that you want the hyperlink action to go to.
 - To run a program, click *Run program*, click *Browse* and then locate the program that you want to run.
 - To run a macro (macro: An action or a set of actions that you can use to automate tasks. Macros are recorded in the Visual Basic for Applications programming language.), click *Run macro* and then select the macro that you want to run.
 - If you want the picture or clip art to perform an action other than what is listed, click *Object action* and then select the action that you want it to perform.
 - To play a sound, select the *Play sound check box* and then select the sound that you want to play.

Task 3

The student should look upon the task as a test of knowledge, management skills and communication skills. When you write an answer asked in the task, you are indicating your knowledge to the teacher:



- Your level of understanding of the subject.
- How clearly you think.
- How well you can reflect on your knowledge & experience.
- How well you can use your knowledge in solving problems, explaining situations and describing organizations and management.
- How professional you are and how much care and attention you give to what you do.

Perform the following tasks and write down the steps how you have performed these tasks:

- 1) Apply headers, footers and page numbers to handout masters.
- 2) Apply Quick Styles to the handout masters at least 75% of the time.
- 3) Print handouts with 1 or more slides per page at least 75% of the time.
- 4) Change the notes page to have Landscape orientation at least 75% of the time.
- 5) Add Text to the Notes Page at least 75% of the time.
- 6) Access the slide master view.
- 7) Identify masters and layouts in use.
- 8) Apply global (theme master) changes.
- 9) Apply local (theme layout) changes.
- 10) Open the Animation Pane.
- 11) Open the Animation Pane.
- 12) Open the Animation Pane.
- 13) Animate an Object (SmartArt/chart etc.).
- 14) Edit/reorganise an animated sequence.
- 15) Edit/reorganise an animated sequence.
- 16) Change the animation order.
- 17) An audio clip icon represents any audio files you include. The new default format for audio is AAC rather than the previous .wma. Audio can start automatically, on click or as part of an animated sequence.
- 18) Audio can be linked or embedded.
- 19) Embedded files inflate the size of the PowerPoint file.
- 20) Linked files must be put into a folder structure which accompanies the presentation.
- 21) Play audio over several slides.

4 Computer Network Fundamentals (Chapter 9)

Learning Objectives

Upon successful completion of this chapter, you will be able to

- Know different types of computer network, such as LAN, MAN, WAN, Internet
- Know different network topologies
- Know types of network topologies

4.1 Introduction

A computer network is a system of interconnected computers and peripheral devices. For example, it may connect computers, printers, scanners and cameras. A computer network consists of a collection of computers, printers and other equipment that is connected together so that they can communicate with each other. Figure 35 gives an example of a network in a school comprising of a local area network or LAN connecting computers with each other, the internet and various servers. In a network, computers can exchange and share information and resources. A computer network may operate on wired connections or wireless connections.

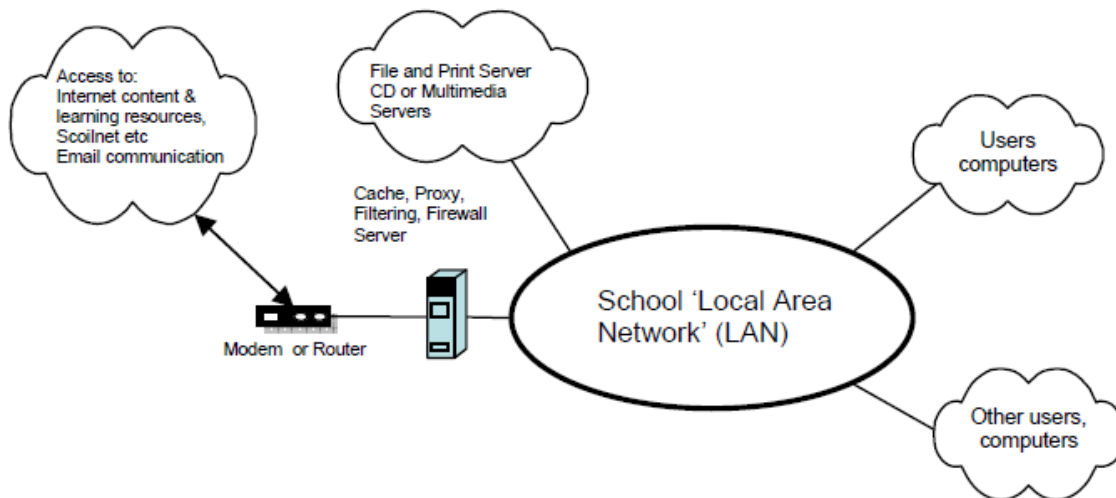


Figure 35: Computer Network

When two or more networks are linked or connected and are able to communicate with one another using suitable hardware and software, it is called an inter-network.

4.2 Types of Computer Network according to network configuration

Broadly speaking, there are two types of network configuration, peer-to-peer networks and client/server networks.

Peer-to-peer networks are more commonly implemented where less than ten computers are involved and where strict security is not necessary. All computers have the same status, hence the term 'peer' and they communicate with each other on an equal footing. Files, such as word processing or spreadsheet documents, can be shared across the network and all the computers on the network can share devices, such as printers or scanners, which are connected to any one computer.

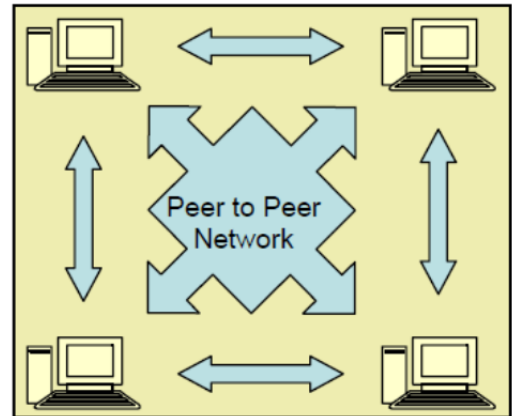


Figure 36: Peer to Peer Network

Client/server networks are more suitable for larger networks. A central computer or 'server', acts as the storage location for files and applications shared on the network. Usually the server is a higher than average performance computer. The server also controls the network access of the other computers which are referred to as the 'client' computers. Typically, teachers and students in a school will use the client computers for their work and only the network administrator (usually a designated staff member) will have access rights to the server.

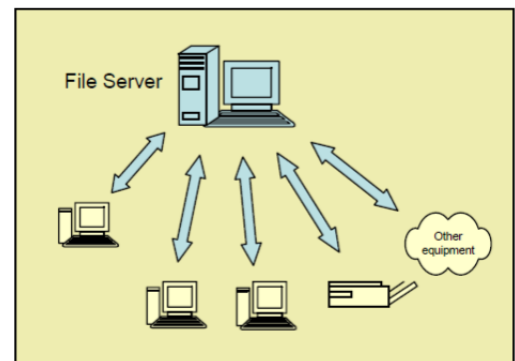


Figure 37: Client/Server Network

4.2.1 Components of a Network

A computer network comprises the following components:

- A minimum of at least 2 computers
- Cables that connect the computers to each other, although wireless communication is becoming more common.
- A network interface device on each computer (this is called a network interface card or NIC)
- A 'Switch' used to switch the data from one point to another. Hubs are outdated and are little used for new installations.
- Network operating system software

4.2.2 Comparison between Peer-To-Peer and Client/Server Networks

Peer-to-Peer Networks vs. Client/Server Networks	
Peer-to-Peer Networks	Client/Server Networks
Easy to set up	More difficult to set up
Less expensive to install	More expensive to install
Can be implemented on a wide range of operating systems	A variety of operating systems can be supported on the client computers, but the server needs to run an operating system that supports networking
More time consuming to maintain the software being used (as computers must be managed individually)	Less time consuming to maintain the software being used (as most of the maintenance is managed from the server)
Very low levels of security supported or none at all. These can be very cumbersome to set up, depending on the operating system being used	High levels of security are supported, all of which are controlled from the server. Such measures prevent the deletion of essential system files or the changing of settings
Ideal for networks with less than 10 computers	No limit to the number of computers that can be supported by the network
Does not require a server	Requires a server running a server operating system
Demands a moderate level of skill to administer the network	Demands that the network administrator has a high level of IT skills with a good working knowledge of a server operating system

4.2.3 Structured Cabling

The two most popular types of structured network cabling are twisted-pair (also known as 10BaseT) and thin coax (also known as 10Base2).

A **Network Interface Card NIC** (pronounced 'nick') is also known as a network card. It connects the computer to the cabling, which in turn links all of the computers on the network together. Each computer on a network must have a network card. Most modern network cards are 10/100 NICs and can operate at either 10Mbps or 100Mbps.

A **hub** is a device used to connect a PC to the network. The function of a hub is to direct information around the network, facilitating communication between all connected devices.

A **network operating system (NOS)** is a computer operating system that is designed primarily to support workstations, personal computers and, in some instances, older terminals that are connected on a local area network (LAN). The salient features of network operating systems are:

- Basic operating system features support like protocol support, processor support, hardware detection and multiprocessing support for applications
- Security features: authentication, restrictions, authorization, access control
- Features for file, Web service, printing and replication
- Directory and name services management
- User management features along with provisions for remote access and system management
- Internetworking features like routing and WAN ports
- Clustering capabilities

Common tasks associated with network operating systems include:

- User administration
- System maintenance activities like backup
- Tasks associated with file management
- Security monitoring on all resources in the network
- Setting priority to print jobs in the network

4.3 Types of Computer Network according to geographical region

- LAN(Local Area Networking)
- WLAN(Wireless Local Area Networks)
- WAN(Wide Area Networks)
- MAN(Metropolitan Area Networks)
- Internet

4.3.1 LAN (Local Area Networking)

Local Area Networking is used primarily in small areas such as schools, hospitals and office buildings. Local Area Networking, is one of the older types of networks. TCP/IP is used as the method of communication between computers in

Local Area Networking. Due to its small size, it is possible for one person to administrate a Local Area Network. Local Area Networks are viable to quick change, using a bus network topology that allows for easy access to the Local Area Network.

4.3.1.1 Advantages of LANs:

- A typical LAN network structure Hardware such as printers can be shared so individual workstations do not need their own printer. When they print, the data is stored in a queue on a server. The data is then passed to the printer.
- All the users work can be stored in a central place (the dedicated file server) so a user can access their work through any computer on the network.
- Software can be shared, software packages are stored on the server and downloaded to workstations as requested. Note that a licence still has to be bought for each copy of the software needed.
- Data can be shared because database files stored in the server are available to users around the network; data from CD-ROMs can also be shared across the network.
- Central back-up can take place automatically at regular intervals. A user will usually be able to retrieve work that has been deleted by mistake.
- Messages can be sent to people working at other computers on the network which can save time and paper.
- It is possible to set up a local intranet such as that on the KLB school network. The web pages of information can be accessed only over the LAN. An intranet is free because it does not involve phone links.
- There is control over users' access rights to programs and data.

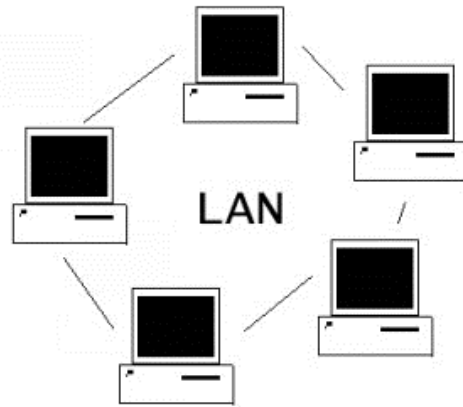


Figure 38: Local Area Network

4.3.1.2 Disadvantages of LANs:

- Printing can be slow. Where a lot of workstations are served by only one or two printers, long print queues may develop.
- A virus can spread more easily. If a virus gets into one computer, it is likely to spread quickly across the network because it will get into the central backing store.
- As data is shared there is a greater need for security. Users of the network have to have authentication techniques such as user ids and passwords. Unique user ID's control access to the files and settings on the network while passwords prevent unauthorised users from logging onto the network. Data may also have to be encrypted so that it is meaningless if intercepted.
- If the server fails, all the workstations are affected. Work stored on shared hard disk drives will not be accessible and it will not be possible to use network printers either.
- The cost of installing the equipment is greater. Cabling can be expensive to buy and to install.
- Damage to cables can isolate computers. Some sections of the network can become isolated and will not be able to communicate with the rest of the network.
- Because networks can be complicated to maintain, a network manager may be need to be employed to run the system.

4.3.2 WLAN (Wireless Local Area Networks)

Wireless Local Area Networks are much like LAN networks, except they do not require network cables to connect each other. Radio and infrared signals are used to communicate between machines whilst using a wireless local area network. Wireless Local Area Networks allow for small amounts of mobility whilst being connected to the internet. Wireless Local Area Networks work according to the IEEE 802.11 standards. Wireless Area Networks are commonly seen being used by a Wi-Fi internet connection. Wireless LAN connections offer a surprising amount of mobility for users with laptops and smart phones while being able to stay connected to the internet by different networking topology.

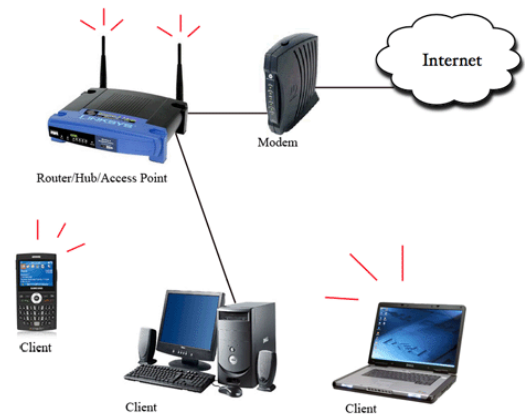


Figure 39: Wireless LAN

4.3.2.1 Advantages of WLAN:

- User mobility
- Voice and data services
- Access to central applications
- Handover between access points
- Robust model for industry
- Economical access points
- Plug-and-Play architecture
- Robust controller
- Security on the level of fixed networks
- “Small Enterprise” option with own controller
- “Branch Office” option for small branches where remote controller is used

4.3.2.2 Disadvantages of WLAN:

- As the number of computers using the network increases, the data transfer rate to each computer will decrease accordingly.
- As standards change, it may be necessary to replace wireless cards and/or access points.
- Lower wireless bandwidth means some applications such as video streaming will be more effective on a wired LAN.
- Security is more difficult to guarantee and requires configuration.
- Devices will only operate at a limited distance from an access point, with the distance determined by the standard used and buildings and other obstacles between the access point and the user.
- A wired LAN is most likely to be required to provide a backbone to the WLAN; a WLAN should be a supplement to a wired LAN and not a complete solution.
- Long-term cost benefits are harder to achieve in static environments that require few moves and changes.

4.3.3 WAN (Wide Area Networks)

Wide Area Networks are used to connect server machines and computers across continents or countries for constant information updates. Wide Area Networks, are used across the globe, many networks connect with one another across continents to create one giant Wide Area Network. Wide Area Networks use optic fibre as their communication medium. The largest example of a Wide Area Network is the internet itself, which connects all users to the information and data that is available on the internet.



Figure 40: Wide Area Network

4.3.3.1 Advantages of WANs:

- These are similar to those of LAN's except the scale of sharing etc. becomes far greater and can be world-wide.

4.3.3.2 Disadvantages of WANs:

- Again these are similar to those of LAN's except that issues such as security become even more important as potential hackers could break into a computer system from anywhere in the world rather than having to physically be in a building.
- Encryption of secure data such as financial transactions is necessary because it is even easier to intercept data.

4.3.4 MAN (Metropolitan Area Networks)

Metropolitan Area Networks are not commonly used these days, they are used to create communication between systems in an entire city. Hence a Metropolitan Area Network area falls between the sizes Local Area Networks and Wide Area Networks. Metropolitan Area Networks are used by city specific businesses such as the New York Times in the state of New York.

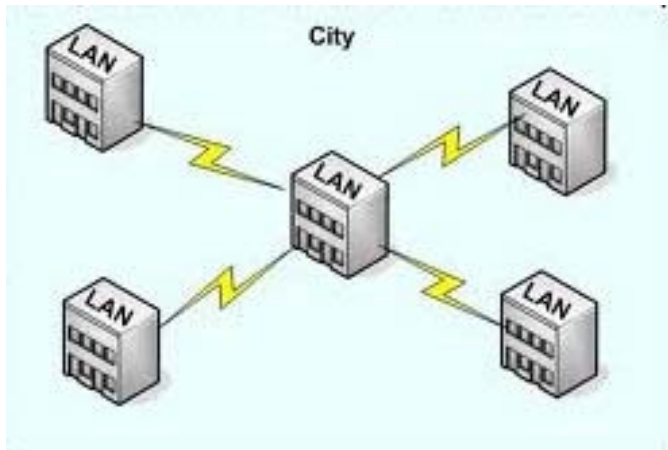


Figure 41: Metropolitan Area Network

4.3.4.1 Campus Area Network

A campus area network of computer network made up of an interconnection of LAN within limited geographical area

4.3.4.2 Advantages of MAN

- It provides a good back bone for a large network and provides greater access to WANs.
- MAN can cover a wider area than a LAN.
- MAN networks are usually operated at airports or a combination of several pieces at a local school.
- By running a large network connectedness, information can be disseminated more widely, rapidly and significantly.
- Public libraries and government agencies typically use a MAN.

4.3.4.3 Disadvantages of MAN

- It can be costly (hardware, software, support, etc)
- More cable required for a man connection from one place to another
- The large the network becomes difficult to manage
- It is difficult to make the system secure from hackers and industrial espionage

4.3.5 Internet

Although there are benefits to using a LAN or WAN, most individuals need to communicate with a resource on another network, outside of the local network within the home, campus or organization. This is done using the Internet.

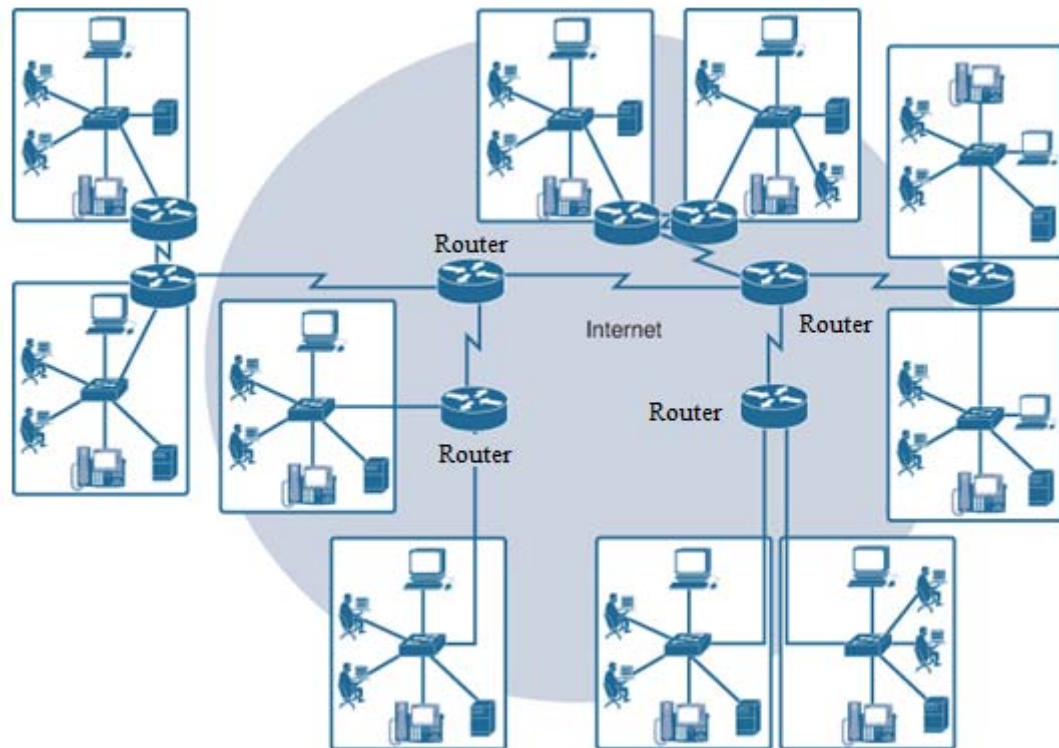


Figure 42: Internet³

As shown in Figure 42, the Internet is a worldwide collection of interconnected networks (internetworks or the Internet for short), cooperating with each other to exchange information using common standards. Through telephone wires, fiber-optic cables, wireless transmissions and satellite links, Internet users can exchange information in a variety of forms.

The Internet is an international collection of networks and is not actually owned by any individual or group. Ensuring effective communication across this diverse infrastructure requires the application of consistent and commonly recognized technologies and standards as well as the cooperation of many network administration agencies. There are organizations that have been developed for the purpose of helping to maintain structure and standardization of Internet protocols and processes. These organizations include the Internet Engineering Task Force (IETF), Internet Corporation for Assigned Names and Numbers (ICANN) and the Internet Architecture Board (IAB), plus many others.

³ Source: <http://ptgmedia.pearsoncmg.com/>

4.3.5.1 Connecting to the Internet

There are many different ways to connect users and organizations to the Internet.

Home users, teleworkers (remote workers) and small offices typically require a connection to an Internet service provider (ISP) to access the Internet. Connection options vary greatly depending on the ISP and the geographical location. However, popular choices include broadband cable, broadband digital subscriber line (DSL), wireless WANs and mobile services.

Organizations typically require access to other corporate sites and the Internet. Fast connections are required to support business services, including IP phones, video conferencing and data center storage.

Business-class interconnections are usually provided by service providers (SPs). Popular business-class services include business DSL, leased lines and Metro Ethernet.

Connecting Remote Users to the Internet

Figure 43 illustrates common Internet connection options for small office and home office users, which include:

- **Cable:** Typically offered by cable television service providers, the Internet data signal is carried on the same coaxial cable that delivers cable television. It provides a high-bandwidth, always-on connection to the Internet. A special cable modem separates the Internet data signal from the other signals carried on the cable and provides an Ethernet connection to a host computer or LAN.
- **DSL:** Provides a high-bandwidth, always-on connection to the Internet. It requires a special high-speed modem that separates the DSL signal from the telephone signal and provides an Ethernet connection to a host computer or LAN. DSL runs over a telephone line, with the line split into three channels. One channel is used for voice telephone calls. This channel allows an individual to receive phone calls without disconnecting from the Internet. A second channel is a faster download channel, used to receive information from the Internet. The third channel is used for sending or uploading information. This channel is usually slightly slower than the download channel. The quality and speed of the DSL connection depends mainly on the quality of the phone line and the distance from your phone company's central office. The farther you are from the central office, the slower the connection.

- **Cellular:** Cellular Internet access uses a cell phone network to connect. Wherever you can get a cellular signal, you can get cellular Internet access. Performance will be limited by the capabilities of the phone and the cell tower to which it is connected. The availability of cellular Internet access is a real benefit in those areas that would otherwise have no Internet connectivity at all and for people who are constantly on the go.
- **Satellite:** Satellite service is a good option for homes or offices that do not have access to DSL or cable. Satellite dishes require a clear line of sight to the satellite, so satellite service might not be an option in heavily wooded areas or places with other overhead obstructions. Speeds will vary depending on the contract, though they are generally good. Equipment and installation costs can be high (although check the provider for special deals), with a moderate monthly fee thereafter. The availability of satellite Internet access is a real benefit in those areas that would otherwise have no Internet connectivity at all.
- **Dial-up telephone:** An inexpensive option that uses any phone line and a modem. To connect to the ISP, a user calls the ISP access phone number. The low bandwidth provided by a dial-up modem connection is usually not sufficient for large data transfer, although it is useful for mobile access while travelling. A modem dial-up connection should only be considered when higher-speed connection options are not available.

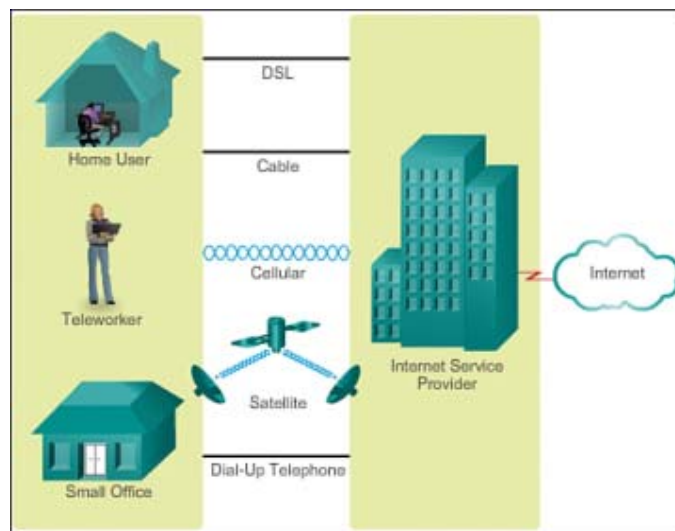


Figure 43: Dialup Telephone

Many homes and small offices are more commonly being connected directly with fiber-optic cables. This enables an ISP to provide higher bandwidth speeds and support more services such as Internet, phone and TV.

The choice of connection varies depending on geographical location and service provider availability.

Connecting Businesses to the Internet

Corporate connection options differ from home-user options. Businesses may require higher bandwidth, dedicated bandwidth and managed services. Connection options available differ depending on the number of service providers located nearby.

Common connection options for organizations include:

- **Dedicated leased line:** This is a dedicated connection from the service provider to the customer premises. Leased lines are actually reserved circuits that connect geographically separated offices for private voice and/or data networking. The circuits are typically rented at a monthly or yearly rate, which tends to make it expensive. In North America, common leased-line circuits include T1 (1.54 Mbps) and T3 (44.7 Mbps), whereas in other parts of the world they are available in E1 (2 Mbps) and E3 (34 Mbps).
- **Metro Ethernet:** Metro Ethernet is typically available from a provider to the customer premises over a dedicated copper or fiber connection providing bandwidth speeds of 10 Mbps to 10 Gbps. Ethernet over Copper (EoC) is more economical than fiber-optic Ethernet service in many cases, is quite widely available and reaches speeds of up to 40 Mbps. However, EoC is limited by distance. Fiber-optic Ethernet service delivers the fastest connections available at an economical price per megabit. Unfortunately, there are still many areas where this service is unavailable.
- **DSL:** Business DSL is available in various formats. A popular choice is symmetric DSL (SDSL), which is similar to asymmetric DSL (ADSL) but provides the same upload and download speeds. ADSL is designed to deliver bandwidth at different rates downstream than upstream. For example, a customer getting Internet access may have downstream rates that range from 1.5 to 9 Mbps, whereas upstream bandwidth ranges are from 16 to 640 kbps. ADSL transmissions work at distances up to 18,000 feet (5,488 meters) over a single copper twisted pair.
- **Satellite:** Satellite service can provide a connection when a wired solution is not available. Satellite dishes require a clear line of sight to the satellite. Equipment and installation costs can be high, with a moderate monthly fee thereafter. Connections tend to be slower and less reliable than terrestrial competition, which makes satellite less attractive than other alternatives.

The choice of connection varies depending on geographical location and service provider availability.

4.4 Network Topologies

In computer networking, topology refers to the layout of connected devices. Network topology is the configuration or physical arrangement in which devices are connected together

Network topologies are categorized into the following basic types:

- Bus

- Ring
- Star
- Tree
- Mesh

4.4.1 Bus Topology

Bus networks (not to be confused with the system bus of a computer) use a common backbone to connect all devices. A single cable, the backbone functions as a shared communication medium that devices attach or tap into with an interface connector. A device wanting to communicate with another device on the network sends a broadcast message onto the wire that all other devices see, but only the intended recipient actually accepts and processes the message. BUS networks: Single central cable connected a number of devices

Ethernet bus topologies are relatively easy to install and don't require much cabling compared to the alternatives. 10Base-2 ("ThinNet") and 10Base-5 ("Thick-Net") both were popular Ethernet cabling options many years ago for bus topologies. However, bus networks work best with a limited number of devices. If more than a few dozen computers are added to a network bus, performance problems will likely result. In addition, if the backbone cable fails, the entire network effectively becomes unusable.

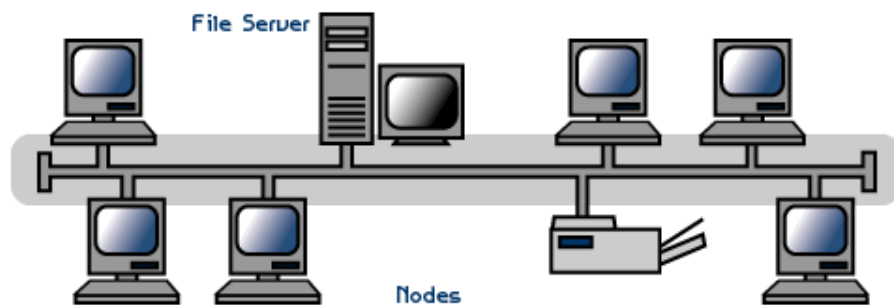


Figure 44: Bus Topology

4.4.1.1 Advantages of a Linear Bus Topology

- Easy to connect a computer or peripheral to a linear bus.
- Requires less cable length than a star topology.

4.4.1.2 Disadvantages of a Linear Bus Topology

- Entire network shuts down if there is a break in the main cable.
- Terminators are required at both ends of the backbone cable.
- Difficult to identify the problem if the entire network shuts down.
- Not meant to be used as a stand-alone solution in a large building.

4.4.2 Ring Topology

In a ring network, every device has exactly two neighbours for communication purposes. All messages travel through a ring in the same direction (either "clockwise" or "counterclockwise"). A failure in any cable or device breaks the loop and can take down the entire network.

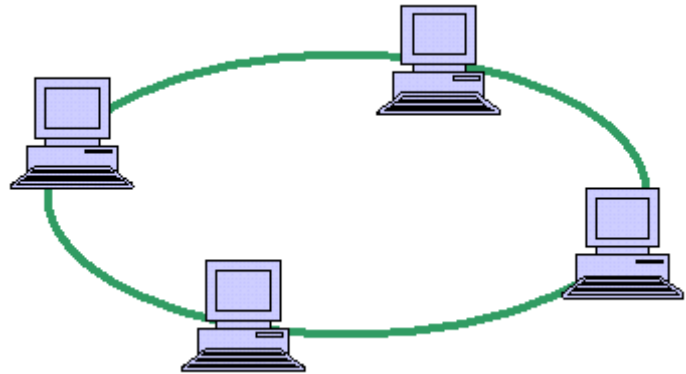


Figure 45: Ring Topology

To implement a ring network, one typically uses Token Ring technology. Ring topologies are found in some office buildings or school campuses.

Failure of any host results in failure of the whole ring. Thus every connection in the ring is point of failure. There exist methods which employ one more backup ring.

Token Ring

Token Passing (in brief) "Token" contains a piece of information which along with data is sent by the source computer. This token then passes to next node, which checks if the signal is intended to it. If yes, it receives it and passes the empty token into the network, otherwise passes token along with the data to next node. This process continues until the signal reaches its intended destination.

The nodes with token are the ones only allowed to send data. Other nodes have to wait for an empty token to reach them. This network is usually found in offices, schools and small buildings.

Advantages of Ring Topology

- The traffic is unidirectional and the data transmission is high-speed.
- In comparison to a bus, a ring is better at handling load.
- The adding or removing of network nodes is easy, as the process requires changing only two connections.
- The configuration makes it easy to identify faults in network nodes.
- In this topology, each node has the opportunity to transmit data. Thus, it is a very organized network topology.
- It is less costly than a star topology.
- There is no need for network server to control the connectivity between workstations.
- Additional components do not affect the performance of network.
- Each computer has equal access to resources.

Disadvantages of Ring Topology

- The failure of a single node in the network can cause the entire network to fail.
- The movement or changes made to network nodes affect the entire network's performance.
- Data sent from one node to another has to pass through all the intermediate nodes. This makes the transmission slower in comparison to that in a star topology. The transmission speed drops with an increase in the number of nodes.
- There is heavy dependency on the wire connecting the network nodes in the ring.

4.4.3 Star Topology

A star topology is designed with each node (file server, workstations and peripherals) connected directly to a central network hub, switch or concentrator.

Data on a star network passes through the hub, switch or concentrator before continuing to its destination. The hub, switch or concentrator manages and controls all functions of the network. It also acts as a repeater for the data flow. This configuration is common with twisted pair cable; however, it can also be used with coaxial cable or fiber optic cable.

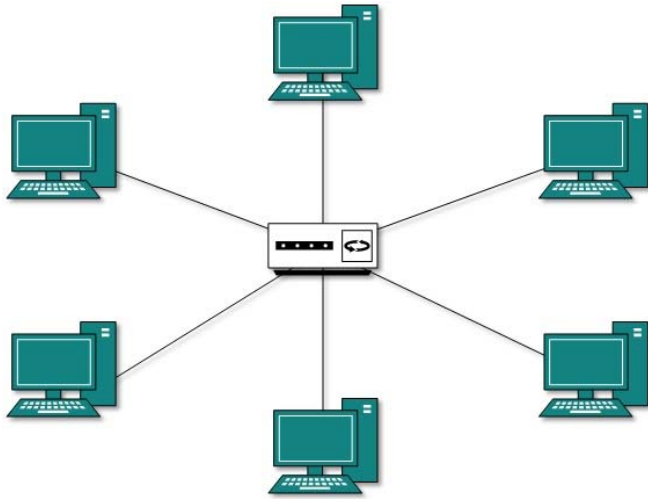


Figure 46: Star Topology

4.4.3.1 Advantages of a Star Topology

- Easy to install and wire.
- No disruptions to the network when connecting or removing devices.
- Easy to detect faults and to remove parts.
- As compared to Bus topology it gives far much better performance, signals don't necessarily get transmitted to all the workstations. A sent signal reaches the intended destination after passing through no more than 3-4 devices and 2-3 links. Performance of the network is dependent on the capacity of central hub.
- Easy to connect new nodes or devices. In star topology new nodes can be added easily without affecting rest of the network. Similarly components can also be removed easily.
- Centralized management. It helps in monitoring the network.
- Failure of one node or link doesn't affect the rest of network. At the same time it's easy to detect the failure and troubleshoot it.

4.4.3.2 Disadvantages of a Star Topology

- Requires more cable length than a linear topology.
- If the hub, switch or concentrator fails, nodes attached are disabled.
- More expensive than linear bus topologies because of the cost of the hubs, etc.
- Too much dependency on central device has its own drawbacks. If it fails whole network goes down.
- The use of hub, a router or a switch as central device increases the overall cost of the network.
- Performance and as well number of nodes which can be added in such topology is depended on capacity of central device.

4.4.4 Tree Topology

Tree topologies integrate multiple star topologies together onto a bus. In its simplest form, only hub devices connect directly to the tree bus and each hub functions as the root of a tree of devices. This bus/star hybrid approach supports future expandability of the network much better than a bus (limited in the number of devices due to the broadcast traffic it generates) or a star (limited by the number of hub connection points) alone.

A tree topology combines characteristics of linear bus and star topologies. It consists of groups of star-configured workstations connected to a linear bus backbone cable. Tree topologies allow for the expansion of an existing network and enable schools to configure a network to meet their needs.

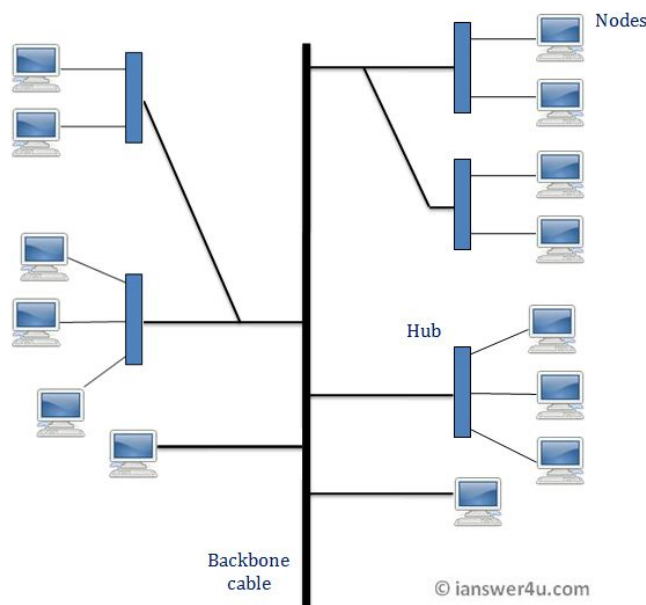


Figure 47: Tree Topology

4.4.4.1 Advantages of Tree Topology

- It is an extension of Star and bus Topologies, so in networks where these topologies can't be implemented individually for reasons related to scalability, tree topology is the best alternative.

- Expansion of Network is possible and easy.
- Here, we divide the whole network into segments (star networks), which can be easily managed and maintained.
- Error detection and correction is easy.
- Each segment is provided with dedicated point-to-point wiring to the central hub.
- If one segment is damaged, other segments are not affected.

4.4.4.2 Disadvantages of Tree Topology

- Because of its basic structure, tree topology, relies heavily on the main bus cable, if it breaks whole network is crippled.
- As more and more nodes and segments are added, the maintenance becomes difficult.
- Scalability of the network depends on the type of cable used.

4.4.5 Mesh Topology

In this type of topology, a host is connected to one or two or more than two hosts. This topology may have hosts having point-to-point connection to every other host or may also have hosts which are having point to point connection to few hosts only.

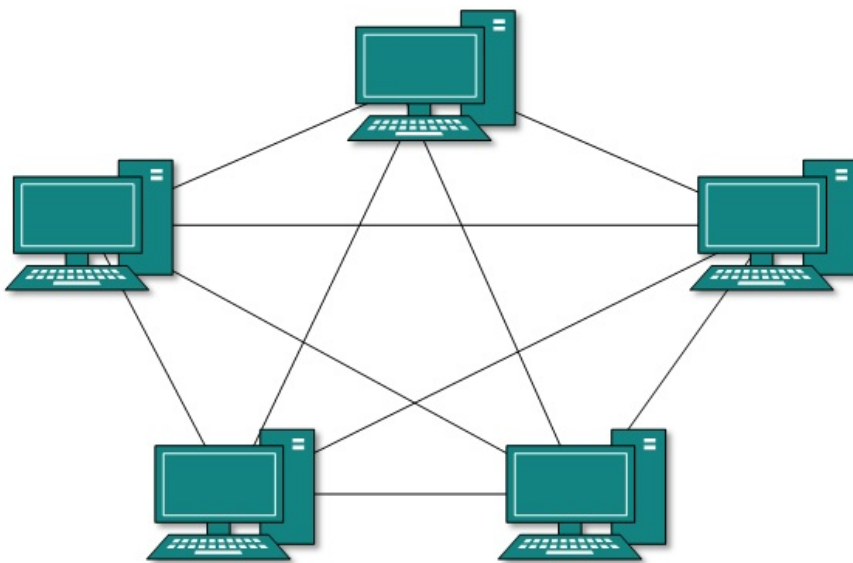


Figure 48: Mesh Topology

Hosts in Mesh topology also work as relay for other hosts which do not have direct point-to-point links. Mesh technology comes into two flavours:

Full Mesh: All hosts have a point-to-point connection to every other host in the network. Thus for every new host $n(n-1)/2$ cables (connection) are required. It provides the most reliable network structure among all network topologies.

Partially Mesh: Not all hosts have point-to-point connection to every other host. Hosts connect to each other in some arbitrarily fashion. This topology exists where we need to provide reliability to some host whereas others are not as such necessary.

4.4.5.1 Advantages of Mesh Topology

- Data can be transmitted from different devices simultaneously. This topology can withstand high traffic.
- Even if one of the components fails there is always an alternative present. So data transfer doesn't get affected.
- Expansion and modification in topology can be done without disrupting other nodes.

4.4.5.2 Disadvantages of Mesh Topology

- There are high chances of redundancy in many of the network connections.
- Overall cost of this network is way too high as compared to other network topologies.
- Set-up and maintenance of this topology is very difficult. Even administration of the network is tough.

Activity 9

Perform the following task and enlist the steps involved in performing the task.



- 1) What 4 factors are involved in connecting to the Internet?

1 _____	2 _____
3 _____	4 _____

- 2) Companies like AOL are called “ISPs”. What does ISP stand for?

I	S	P
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- 3) Why is an “Anytime” type of Internet connection better than “Pay as you go” connections if a user makes frequent use of the Internet?

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- 4) a) What is the name of the **type of software** that is used to send and receive information on the Internet?

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- b) Examples of this **type of software** are browsers and e-mail clients. What is the purpose of each of these programs?

PROGRAM	Purpose
BROWSER E.g. Netscape Navigator	
E-mail Client E.g. Eudora	

5) Why is connecting using **broadband** better than connecting using a **dial-up modem**?

<hr/>

6) There are dangers to using the Internet - our information stored on the computer is at risk. Explain what is meant by the 2 main dangers: **viruses** and **hacking**.

Viruses <hr/>

Hacking <hr/>

Task 4



Task

The student should look upon the task as a test of knowledge, management skills and communication skills. When you write an answer asked in the task, you are indicating your knowledge to the teacher:

- Your level of understanding of the subject.
- How clearly you think.
- How well you can reflect on your knowledge & experience.
- How well you can use your knowledge in solving problems, explaining situations and describing organizations and management.
- How professional you are and how much care and attention you give to what you do.

Perform the following tasks and write down the steps how you have performed these tasks:

- 1) Write a brief description of the function of all the components of Computer Network.
- 2) List all network components installed on your lab PC, including clients, servers, network adapters and network topology.
- 3) Prepare a physical diagram of a network.
- 4) Describe three point-to-point network topologies with diagrams.
- 5) Name 3 things that you need to connect to the Internet?
- 6) Compare and contrast DSL and dial-up access networks.
- 7) What are three characteristics of LANs that distinguish them from other networks?
- 8) What are the main types of Cable used in connecting Networks?
- 9) Differentiate between different Computer network topologies the functional relationship among nodes and the situations when each should be used.
- 10) Draw a small model showing the layout of each of the following network topologies. Show and label each of the parts you remember, including hosts, hubs, terminating resistors, etc.
 - Bus
 - Ring
 - Tree
 - Star
 - Mesh

Deadline:

Your submission will be collected on January, 26th, 2015.

If there are any questions, please do not hesitate to contact

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