



Faculty of Engineering and Technology

Department of Computer Science



INTRODUCTION TO COMPUTERS AND COMPUTING ETHICS

COMP1310



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Preface

This course introduces the students to basic computer systems' terminology, structure, and data representation, as well as the usage of different popular computer applications. It also familiarizes students with algorithms and the process of writing pseudo code. The course also serves as an introductory course in programming by using C as a tool to design simple programs. In addition, the course touches on Computer Science as a discipline by presenting an overview of different Computer Science topics as well as the ethics of computing. Upon completion of this course, the students will have a basic understanding of simple Computer Science and computer programming concepts.

The students will also be able to:

- ☐ Use different popular computer applications such as MS Office.
- ☐ Write algorithms (pseudo Code) to solve simple tasks.
- ☐ Use C to build simple programs.

Acknowledgement

The material included in this manual has been adopted from the following:

1. Laboratory Manual Comp111, Dept. of computer science, Birzeit University Experiment 1,2,3,5 and 13 have been adopted from comp111 laboratory manual.
2. Problem solving and program design in C, by Jeri R. Hanly and Elliot B. Koffman, seventh Edition.
3. Laboratory workbook , Department of Electronic Engineering, N.E.D. University of Engineering and Technology, Karachi-Pakistan
4. Laboratory Manual CSCI 2170, Dept. of computer science, Middle Tennessee state University, by Thomas Cheatham, Judith Hankins and Brenda Parker, 2003 Edition.

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Experiment 1: Operating System (Windows 10).

1.1 Objectives

- To understand the role of operating system in computers
- To be familiar with different version of operating systems working on different devices
- To be familiar with main features in **Windows 10**
- To perform simple operations and action on Windows
- To gain the ability to differentiate between different computer specifications

1.2 Context

An operating system (commonly abbreviated OS and O/S) is an interface between hardware and applications; it is responsible for the management and coordination of activities and the sharing of the limited resources of the computer. The operating system acts as a host for applications that run on the machine. As a host, one of the purposes of an operating system is to handle the details of the operation of the hardware. The OS is like the behind-the-scenes-manager who takes care of all computing tasks such as saving your work, printing a document, starting a program, and so on.

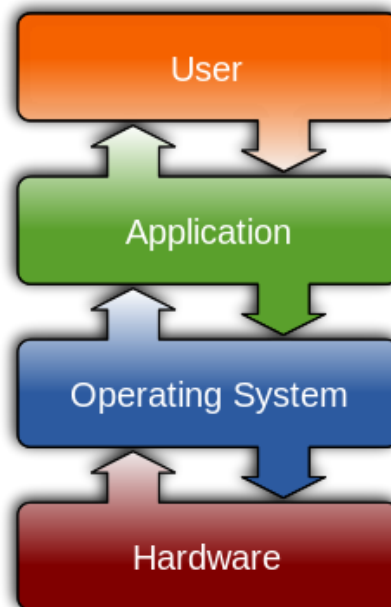


Figure 1. 1 OPERATING SYSTEM

Common contemporary operating systems include Microsoft Windows, Mac OS, and Linux. Microsoft Windows has a significant majority of market share in the desktop and notebook computer markets, while servers generally run on Linux or other Unix-like systems.

The operating system (OS) is a program that allows you to interact with all of the software and hardware on your computer, mainly there is two interaction types with operating systems:

Command-line Interface (CLI): (e.g., DOS), you type a text command and the computer responds according to that command.

Graphical User Interface (GUI): (e.g., Windows), you interact with the computer through a graphical interface with pictures and buttons by using the mouse and keyboard. With UNIX, you have in general the option of using either command-lines (more control and flexibility) or GUIs (easier).

A graphical User Interface (GUI) is a type of user interface, which allows people to interact with electronic devices. A GUI offers graphical icons, and visual indicators, as opposed to text-based interfaces, typed command labels or text navigation to fully represent the information and actions available to a user. The actions are usually performed through direct manipulation of the graphical elements.

Windows 10 main components and features

Desktop

After your computer starts up, it prompts you to enter username and password. Logging on to computer identifies your personal settings and grant special permission for users. Afterward, Desktop appears automatically, which is considered your work area that contains files, icons, shortcuts and other menus.

The taskbar is located on the bottom edge of your desktop. You can move taskbar to other locations. It enables you to switch between open programs and documents, and you can launch some programs pinned to taskbar.



Figure 1.2: WINDOWS 10 TASKBAR

Parts and contents:

Start menu: the central menu to access folders, programs and commands on your computer.

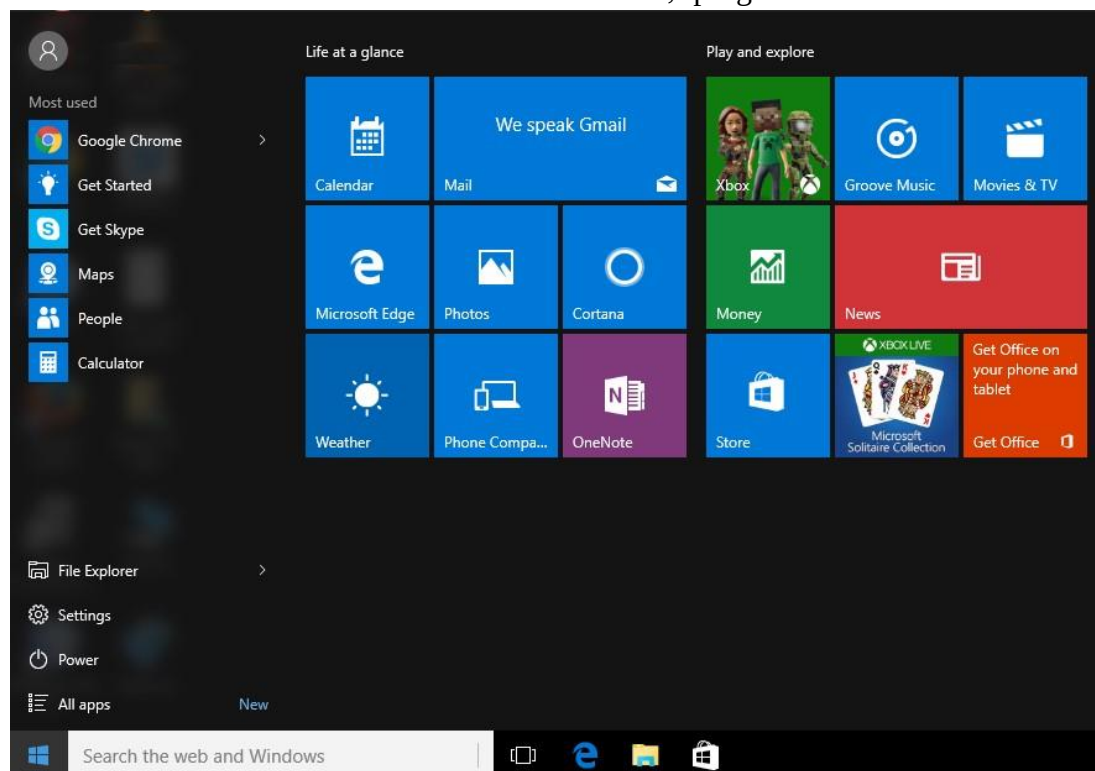


Figure 1.3: START MENU IN WINDOWS 10

Using the menu item "All apps", you can access your computer programs.

To start a program:

Click the Start button, located  in the lower left corner of your screen.

Highlight Programs. The Program menu will appear.

Move to the Program menu and highlight the program you want to start. If you see a right pointer next to your selection, a submenu will appear. Refine your choice by highlighting the appropriate selection on the submenu. Continue until you get to the final submenu.

Click the program name to start the program.

Menu: is a list of related commands, when you click a menu item, a drop-down menu appears. Select the command you want to execute from the drop-down menu. **Sub menus,** are associated with specific program groups. The small arrow to the far right recognizes them.

Icon: is a small image that represents an item ready to be open (e.g. File, folder) or launched (e.g. a program).

Desktop shortcut: is a small file that points to a program, folder, document, or Internet location and usually represented by an icon. When clicking on shortcut icon it takes you directly to the object, it points into it. Shortcut icons contain a small arrow in their lower left corner. Shortcuts are considered as a merely pointer, deleting shortcut will not delete the original item.

Shutdown options:

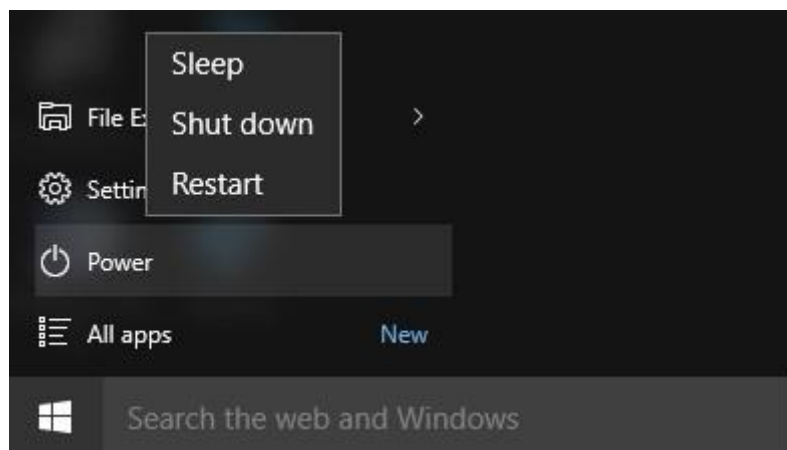


Figure 1. 4 SHUTDOWN OPTIONS IN WINDOWS 10

Shut Down: If you click the Shutdown button, Windows 10 ties up all the loose ends and shuts down the computer completely. You would normally do this to turn off your work computer at the end of the day.

Restart: The Restart button "**reboots**" your computer, that means it saves your information to the hard drive, turns off the computer for a moment, and then turns it back on again. This is most often done after fixing a problem, adding a new program, or making a configuration change to Windows that requires a restart.

Sleep: Clicking on Sleep puts your computer in a low-power state, but does not turn it off. The main advantage is that it allows you to get back to work quickly, without having to wait for the computer to do a full reboot, which can take several minutes.

Hibernate: Hibernate mode is intended mainly for laptop users. It is sort of a compromise between Shut down and Sleep modes. It remembers the current state of your desktop and fully shuts down the

computer. Therefore, if, for instance, you have a web browser open, a Microsoft Word document and a chat window, it would turn off the computer, while remembering what you were working on. Then, when you start up again, those applications will be waiting for you, right where you left off.

Rectangular windows

Windows: is a rectangular portion of your screen where a program runs. You can open several windows at the same time. Windows can be moved, resized, closed, maximized or minimized. Windows are usually depicted as two-dimensional objects (like papers or books) arranged on a desktop. Most windows can be resized, moved, hidden, restored, and closed. When two overlap, one is on top of the other, with the covered part of the lower window not visible. However, many programs with text user interfaces, allow their display to be divided into areas that may also be referred to as "windows". Include creating a new file, arranging the icons or changing how the desktop appears (Properties or Personalize).

A window contains:

- **Title bar:** the title bar displays the name of the current file and the name of the current program.
- **Toolbar:** is a block of buttons or icons, when you click one of these buttons or icons, the program carries out a command or task.
- **Minimize button:** use the minimize button to temporarily decrease the size of a window or remove a window from view. While the window is minimized, the title appears on the taskbar.
- **Maximize button:** click the maximize button to make the window fill the screen.
- **Restore button:** after maximizing a window, if you click the restore button, the window will return to its original size.
- **Close button:** clicking on close button to exit the window and close the program.
- **Search Bar:** using the search bar you can search for any file in the current directory.
- **Local Disk (Hard Drive):** hard drive is the place where all system and user files are stored, all programs installed also on the hard drive.
- **CD Drive:** when you need to access files or program stored on external CD.

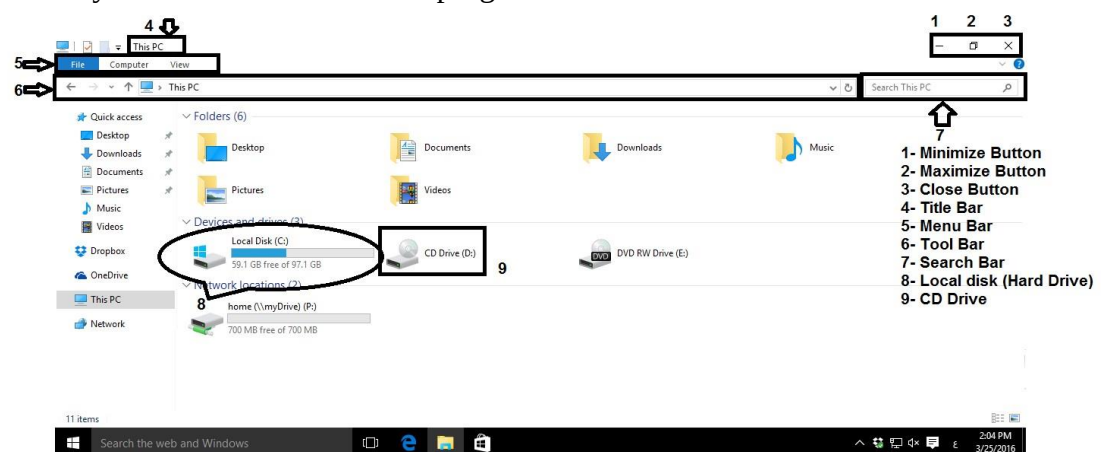


Figure 1.5 WINDOW PARTS

Switch between windows

If you have several windows open at the same time, the window on the top is the window with focus. You can only interact with the window with focus. To change windows, do one of the following:

1. Click anywhere on the window you want to focus on.
2. Hold down the Alt key and press the Tab key (Alt +Tab) until you select the window to which you want to view.

3. All active files displayed on the taskbar. Click the taskbar button for the window you want to focus on.

Windows Explorer

What is Windows Explorer?

Windows Explorer is your tool to work with files, folders, programs, hyperlinks, Control panel and much more. The starting point for work with Windows Explorer is often My PC. That system folder shows and gives access to most of the computer resources.

My Computer includes files and programs, folders and hyperlinks, drives and printers as objects. From the operating system viewpoint, they are all objects, and each object is associated with an icon. The system folder My Computer gives access to almost all of the computers data programs. Each object is represented with an icon plus some text.

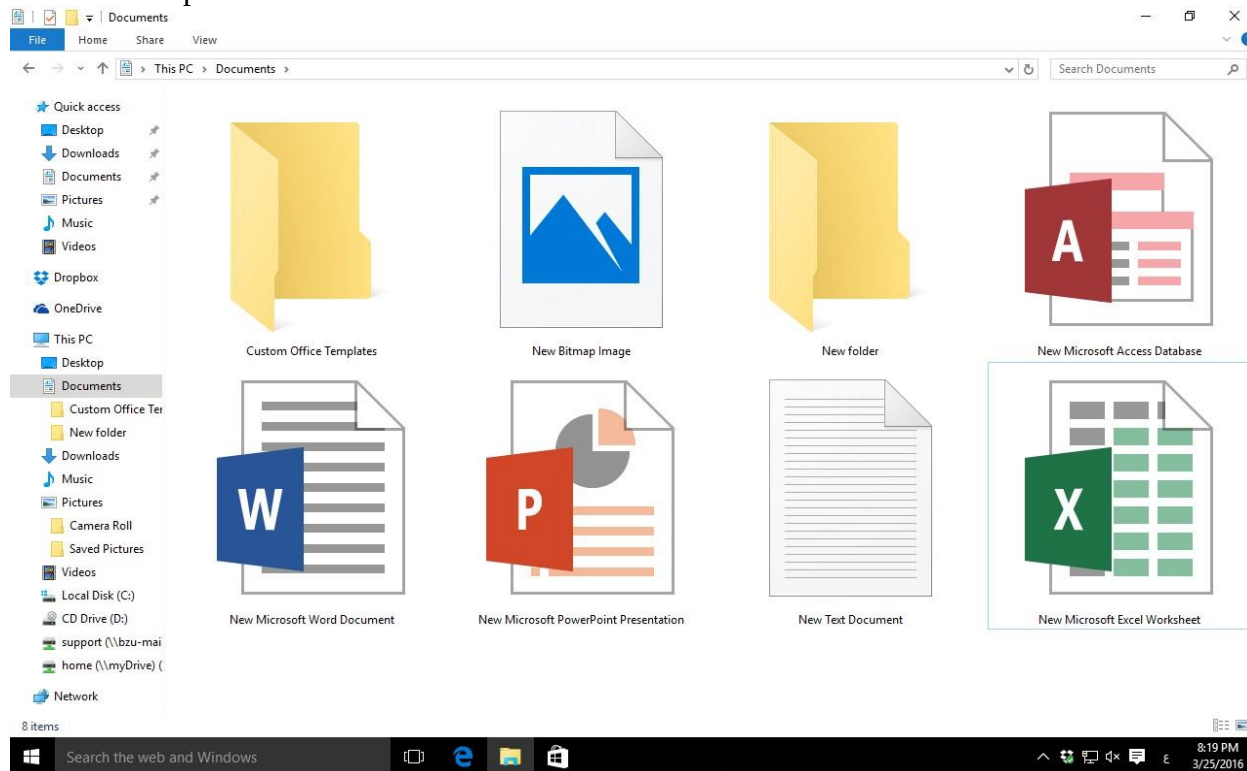
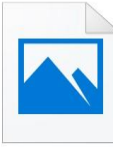


Figure 1. 6 WINDOWS EXPLORER

Drives: Whole hard disks or parts of them (partitions), plus CD-ROMs etc. A drive typically contains many folders.

Folders: Containers for files that you can create yourself. A folder often contains many files.

Files: The smallest data units that we have access to. A file can be a whole document or a part of one.

Type	Icon	Description
HTML		HTML-documents. Contain typically home pages. Can be viewed in a browser like google Chrome.
DOC, DOCX		Microsoft office word document, to edit and modify documents.
XLSX, XLS		Microsoft Excel spread sheets. Excel sheets used to save data and make some calculations.
BMP PNG GIF JPG		Images with different extensions can be viewed on windows, these images can be used in other program like Microsoft office, Photoshop, etc...
AVI MP3 MP4		Movies (video recordings). Can be created with programs like Movie Maker and be played with Windows Media Player.

Microsoft Edge: Web browser introduced in Windows 10 used to access web pages on internet.

Recycle Bin: When you delete an object, Windows 10 sends it to the Recycle Bin. You can restore objects that are located in the Recycle Bin or you can permanently delete them.

Control Panel: is the entry to PC for various settings such as controlling hardware units, user's accounts, installed programs, languages, and others.

Windows Explorer views

Views control how Windows Explorer displays information in the right pane. Windows Explorer provides you with the following choices: Thumbnails, Tiles, Icons, List, and Details.

- **Thumbnails** view displays images. These images represent the contents of folders and files.
- **Tiles** view and **Icons** view display icons to represent drives, folders, and the contents of folders. The icons displayed when you choose Tiles view are larger than the icons that display when you choose Icon view.
- **List** view displays all of the files and folders without supplying the size, type, or date modified.
- **Details** view displays the size, type, and date modified.

To change the view:

1. Right-click any free area in the right pane. A context menu will appear.

2. Highlight View.
3. Select the view you want from the drop-down menu.

Commands you can do using Windows Explorer

To create a new folder in Windows Explorer:

1. In the left pane, click the drive or folder in which you want to create the new folder.
2. Click any free area in the right pane. A context menu will appear.
3. Highlight New.
4. Click Folder.
5. Type a name for the folder.

To create a shortcut to an item located on the Start menu:

1. Click Start. The Start menu will appear.
2. Locate the item to which you want to create a shortcut. If the item is located on a submenu, go to the submenu.
3. Click and drag the item to your desktop.

To create a shortcut to items visible in Windows Explorer:

1. Open Windows Explorer.
2. Minimize the Windows Explorer window.
3. Locate in Windows Explorer the item to which you want to create a shortcut.
4. Hold down the right mouse button and drag the item onto the desktop.
5. Release the right mouse button. A context menu will appear.
6. Click Create Shortcuts Here.

Rename a desktop shortcut / file or folder:

1. Right-click the shortcut / the file or folder. A context menu will appear.
2. Click Rename.
3. Type the new name.

To delete a file or folder:

1. Right-click the file or folder you want to delete. A context menu will appear.
2. Click Delete. Windows Explorer will ask, "Are sure you want to send this object to the recycle bin?"
3. Click Yes.

Cut, copy, and paste

The Cut, Copy, and Paste commands are nearly universal. These three functions are used by almost every Windows program and perform more or less the same function in each of them. You can cut, copy, and paste programs, disks, and text.

Cut: When you cut something, it is deleted from its current location and saved to the Clipboard then you can paste it into other place (you move file or folder from one place to another).

Copy: Copy is similar to Cut except the original item is not deleted from its original place. When you copy something, a copy of the item is saved to the Clipboard then you can paste it into other place (you duplicate a file or folder).

Paste: You can place information on the Clipboard wherever you like. Execute the Paste command takes information you have cut or copied and placed it wherever your cursor is located.

Clipboard: The Clipboard is the storage area for items that have been cut or copied. Information saved to the Clipboard stays there until new information is either cut or copied. Each time you execute Cut or Copy, you replace the old information on the Clipboard with whatever you just cut or copied. You can paste Clipboard information as often as you like, until you replace it with something else.

There are three major methods of cutting, copying, and pasting. The three methods are using the menu, using keyboard shortcuts, and using icons. We will review all of them. In most programs, they will work exactly as described here:

1. Using the Menu

- **Cut**
 1. Select what you want to cut.
 2. Click Edit menu, which is located on the menu bar. A drop-down menu will appear.
 3. Click Cut.
- **Paste**
 1. Place the cursor at the point where you want to place the information that is currently on the Clipboard.
 2. Click Edit. A drop-down menu will appear.
 3. Click Paste.
- **Copy**
 1. Select what you want to copy.
 2. Click Edit, which is located on the menu bar. A drop-down menu will appear.
 3. Click Copy.

To copy a file or folder:

1. Right-click the file or folder you want to copy. A context menu will appear.
2. Click Copy. The file or folder should now be on the Clipboard.

To cut a file or folder:

1. Right-click the file or folder you want to cut. A context menu will appear.
2. Click Cut. The file or folder should now be on the Clipboard.

Note: Cutting differs from deleting. When you cut a file, the files are placed on the Clipboard and wait to be paste. When you delete a file, the file is sent to the Recycle Bin and cannot be paste into other place.

To paste a file or folder:

1. After cutting or copying the file, right-click the object or right-click in the right pane of the folder to which you want to paste. A context menu will appear.
2. Click Paste.

2. Using keyboard shortcuts:

- **Copy**
 1. Select what you want to copy.
 2. Press the keyboard buttons “Ctrl” and “c”.
- **Cut**
 1. Select what you want to cut.
 2. Press the keyboard buttons “Ctrl” and “x”.
- **Paste**
 1. Place the cursor at the point where you want to place the information that is currently on the Clipboard.
 2. Press the keyboard buttons “Ctrl” and “v”.



3. Using Icons from toolbar:

- If you want to copy or cut something, select it then press the suitable icon.

- If you want to paste something already being cut or copied, place the cursor at the point where you want to place the information that is currently on the Clipboard and press the paste icon.

Windows 10 main features

Build in applications

Windows 10 comes with elegant built-in applications like Maps, Photos, Mail & Calendar, Groove, and Movies & TV. These apps use OneDrive to back up your information and synchronize across your Windows 10 devices.

Store

The Store is a one-stop shop for music, videos, games, and apps.

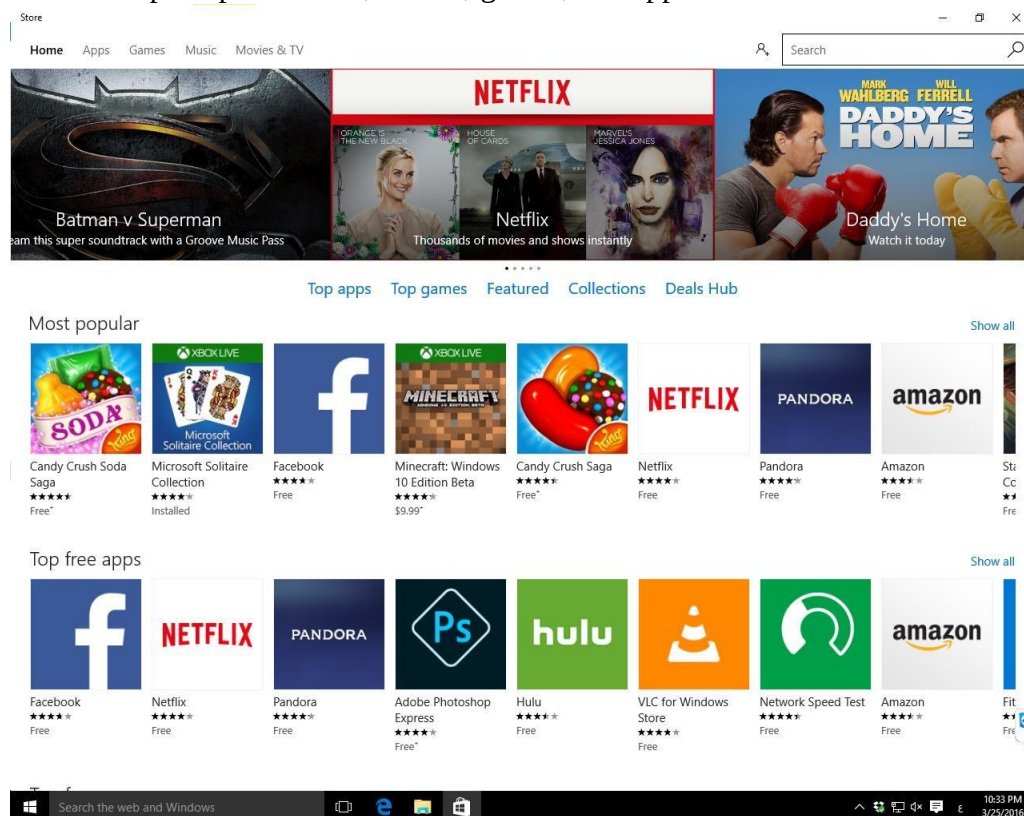


Figure 1. 7 WINDOWS 10 STORE

Cortana

What is Cortana?

Cortana is your clever new personal assistant.

Cortana will help you find things on your PC, manage your calendar, track packages, find files, chat with you, and tell jokes. The more you use Cortana, the more personalized your experience will be. To get started, type a question in the search box on the taskbar. Alternatively, select the microphone icon and talk to Cortana.

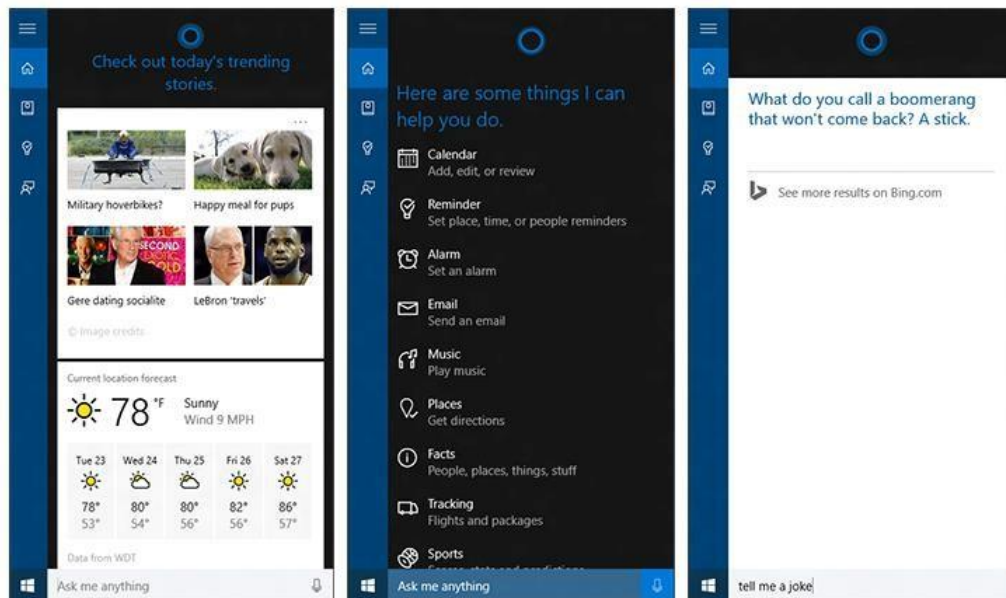


Figure 1. 8 CORTANA IN WINDOWS 10

Cortana provides the following features for users

- Set Reminders for Times, Places, and people.
- Use natural language search for files in your computer or search in web.
- Identify songs: Cortana can listen to a song playing near you and identify it. Say “What is this song?” and Cortana will use your microphone to listen to the music and match it to a specific song.
- Search the Web using Bing, google or any search engine you like.
- Perform calculations and conversion
- Track flights and packages: Cortana can track flights using the flight number and packages using their tracking numbers.
- Check the Weather: Use Cortana to quickly check the weather in different locations. “Weather” will show you the weather at your current location, while “weather in [location]” will show you the weather in another city.
- In addition to many awesome features (set Alarm, get directions, launch programs, send email Chat etc...).

Computer specifications comparison

When you decide to buy a new PC or laptop, you should be careful about several points and technical decision that you will have to make, for instance:

- How much RAM you will need?
- Which processor to choose?
- Which graphics card to pick?
- What display to look for?
- Which hard drive will be best for you?

The sort of applications you will need to run on your PC will help you to decide which feature your PC should have.

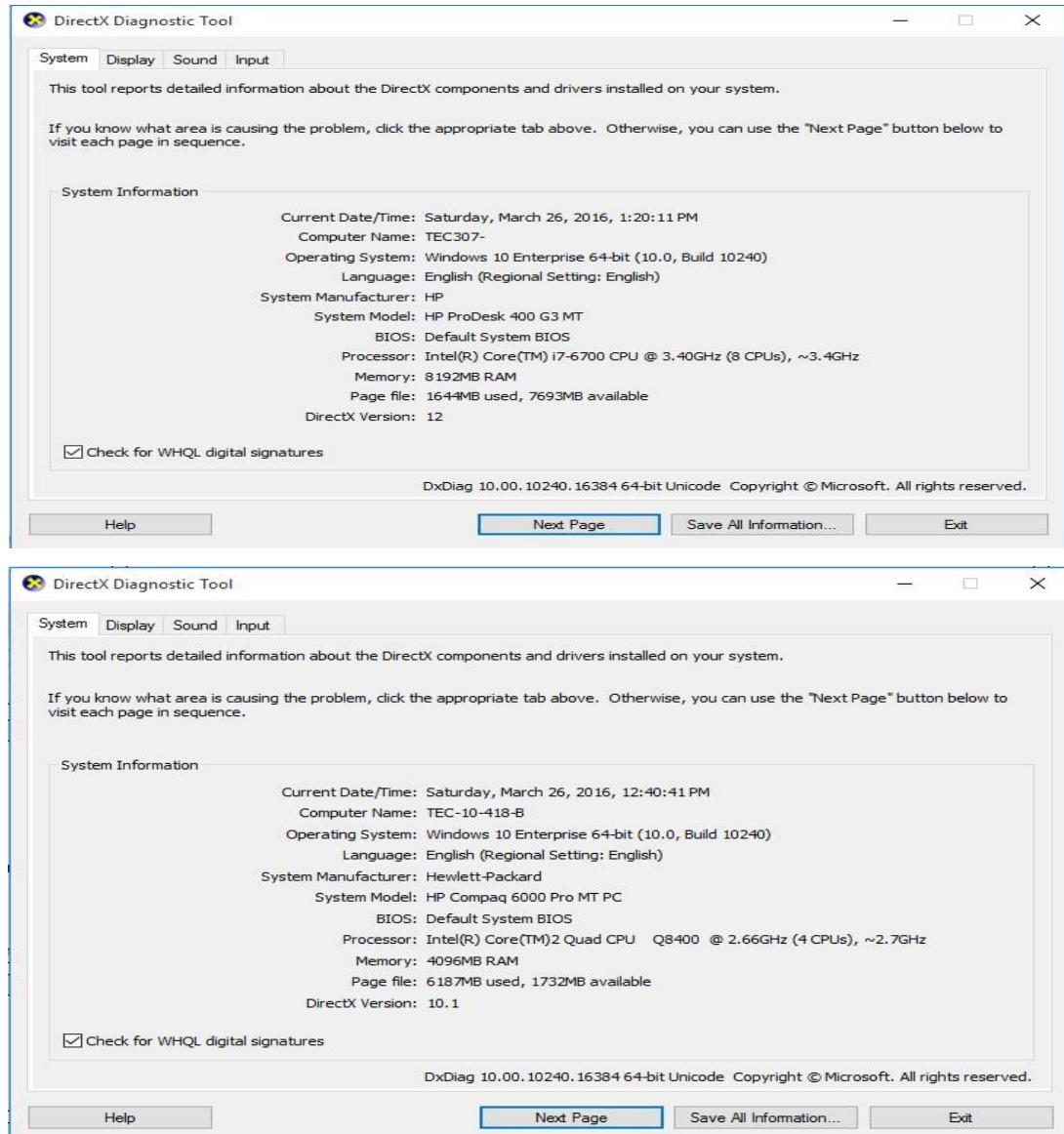


Figure 1. 9 COMPARISON BETWEEN TWO PCS

The upper image shows HP PC, which has 6th generation of i7 processor with clock frequency 3.4GHz, and 8 logical cores, while the second HP computer has Core 2 Quad CPU with 2.66GHz clock frequency and 4 logical cores. The performance of each processor can be easily determined by comparing the feature of each processor.

Random access memory (RAM) of the first PC is 4 GB while the second PC is 8 GB, the more RAM is the better, but usually 4GB is more than enough for normal usage,

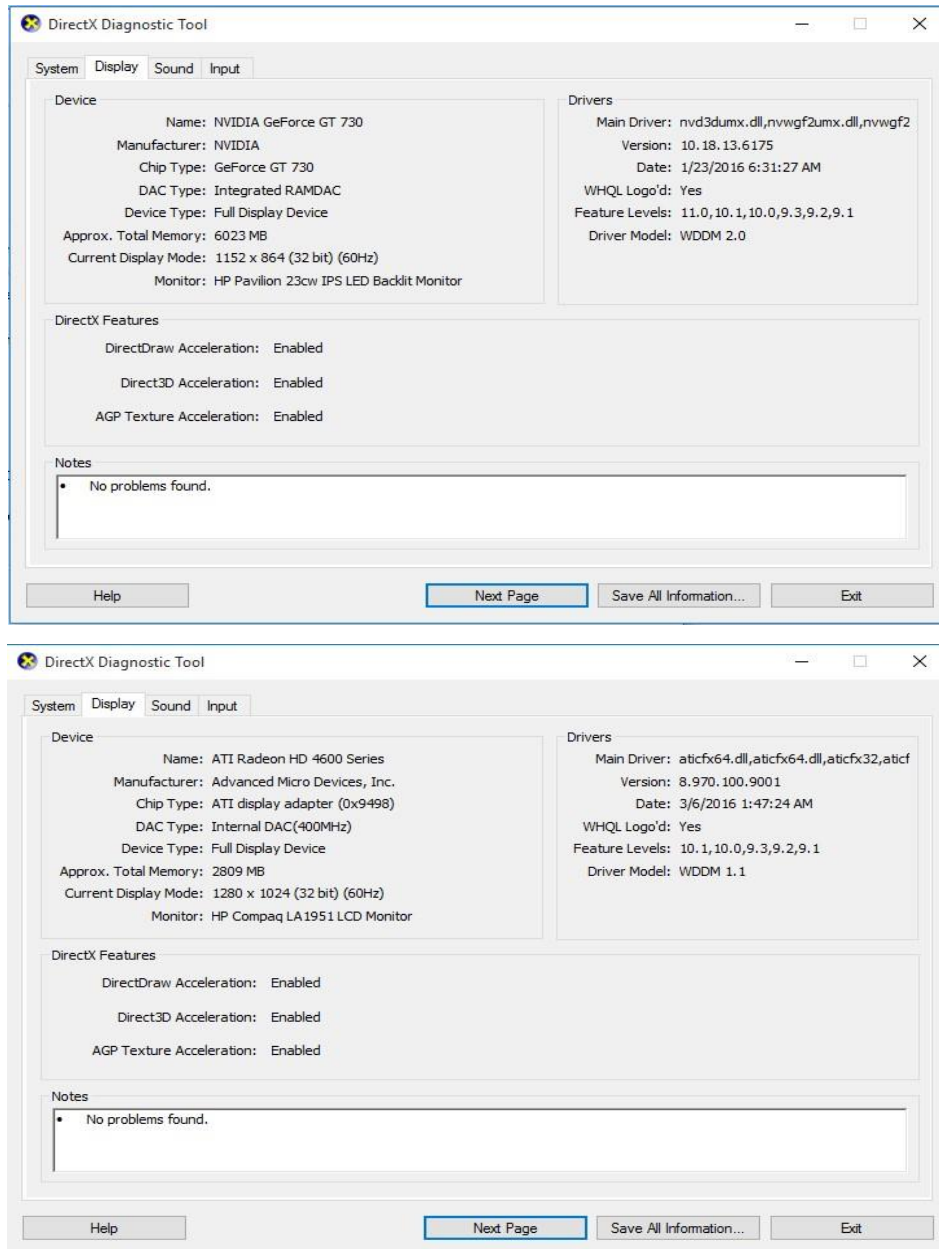
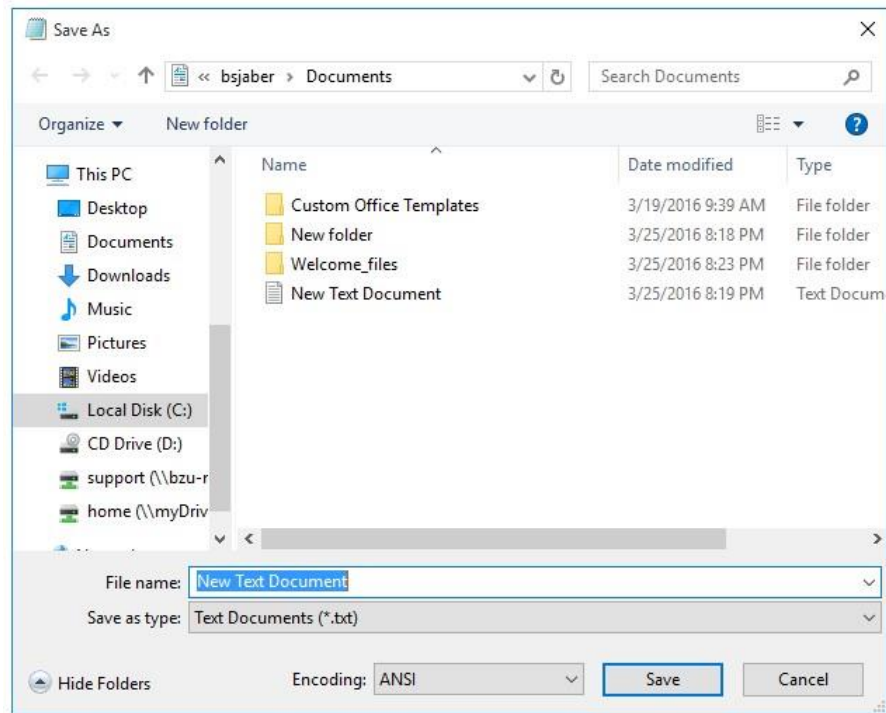


Figure 1. 10 GRAPHIC CARD COMPARISON

The last screen shoot shows a small comparison between two types of graphic cards (ATI RADEON and NVEDIA GeForce), usually Gamers and graphic designers search for high quality graphic cards.

1.3 Activities

1. On your desktop, create a new folder.
2. Rename the folder to hold your name.
3. Delete your folder.
4. Go to Recycle Bin, find your folder there, and restore it.
5. Create a text file and save it into your folder:
 - 5.1. Go to start menu, Search for Notepad, click to open.
 - 5.2. Write in it your name and ID.
 - 5.3. Go to file, save as, name the file and chose your folder on desktop.



6. Go to Desktop, open your folder, Copy the file, and paste it on My Documents.
7. What are the differences between the following?
 - 7.1. File and Folder.
 - 7.2. Copy and Cut
 - 7.3. Cut and Delete

Experiment 2: Microsoft Office Word

2.1 Objectives

- Create and save a document to a specified area.
- Locate and open an existing document.
- Move around a document efficiently.
- Use the mouse and keyboard to select text
- Add or remove effects such as bold, underline and italic
- Set the font size style and color.
- Align text within a document
- Add a header/footer.
- Add date, page number, footnote within a document.
- Preview and print selected pages.
- Use the Auto Correct function
- Cut, copy and paste to manipulate text.
- Use the find and replace function.
- Differ between undo and redo.
- Use pictures, symbols, chart.
- Create and delete tables.
- Create References, table of content and figures.

2.2 Context

Every day, we discover that we cannot live with computers. One of the important usages of computer is dealing with and processing text. In this experiment, we try to make student who is not familiar with word processing to be that. In Computer software's world, there is a lot of text processing software, but the most popular one is Microsoft Word.

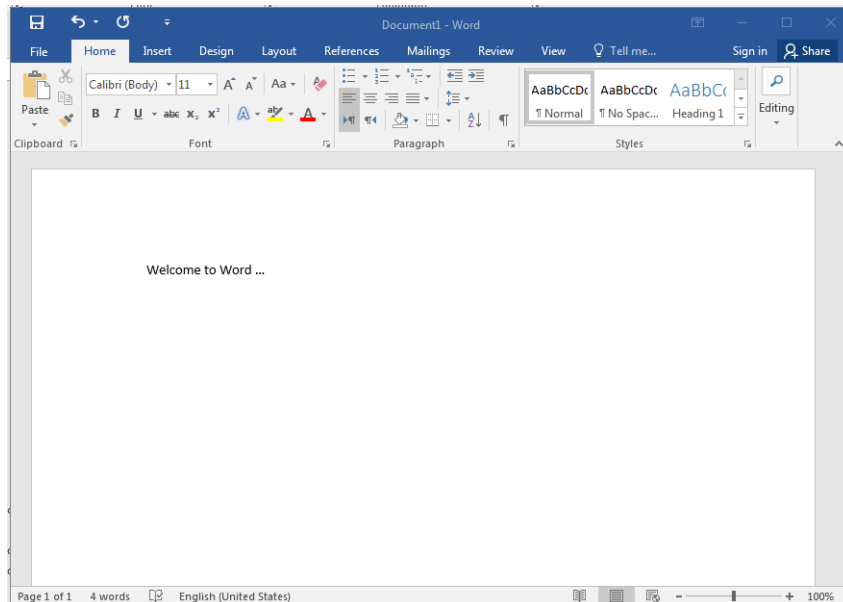
Microsoft word is one of most software applications that deal with **word processing or text processing**. Every student requires programs dealing with word processing during the educational as well the professional life. In this experiment, the student will learn how to work with Microsoft Word 2016, and how to be familiar with its environment so the student can perform the text processing work in addition to writing reports without asking for help.

Getting Started with Microsoft Word 2016

In this part students will learn how to enter and insert text. They should be able to open, save and reopen saved documents. In order to enrich documents, students can change the appearance of the text through different actions. The following are some techniques to be able to manage your documents.

To Open Microsoft word 2016 (MS Word 2016) click the Start **button** on your Windows desktop and select All Programs and then choose Microsoft office then Microsoft word 2016.

Exploring the window:



The File Button

In the upper-left corner of the Word 2016 window is the File button. When you click the button, a menu appears. You can use the menu to create a new file, open an existing file, save a file, and perform many other tasks.



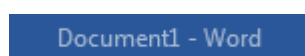
The Quick Access Toolbar

Next to the Microsoft Office button is the Quick Access toolbar. The Quick Access toolbar provides you with access to commands you frequently use. By default, Undo and Redo icons appear on the Quick Access toolbar. You can use Undo to rollback an action you have taken, and Redo to reapply an action you have rolled back.



The Title Bar

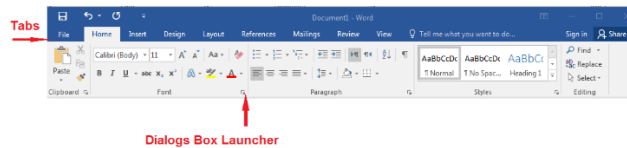
Next to the Quick Access toolbar is the Title bar. The Title bar displays the title of the document on which you are currently working. Word names the first new document you open Document1. As you open additional new documents, Word names them sequentially. When you save your document, you assign the document a new name.



The Ribbon

You use commands to tell Microsoft Word what to do. In Microsoft Word 2016, you use the Ribbon to issue commands. The Ribbon is located near the top of the screen, below the Quick

Access toolbar. At the top of the Ribbon are several tabs; clicking a tab displays several related command groups. Within each group are related command buttons. You click buttons to issue commands or to access menus and dialog boxes. You may also find a dialog box launcher in the bottom-right corner of a group. Clicking the dialog box launcher gives you access to additional commands via a dialog box.

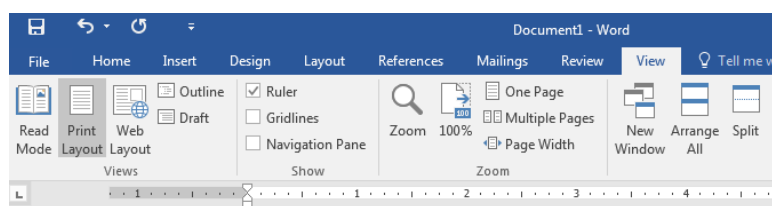


The Ruler

The ruler is found below the Ribbon.



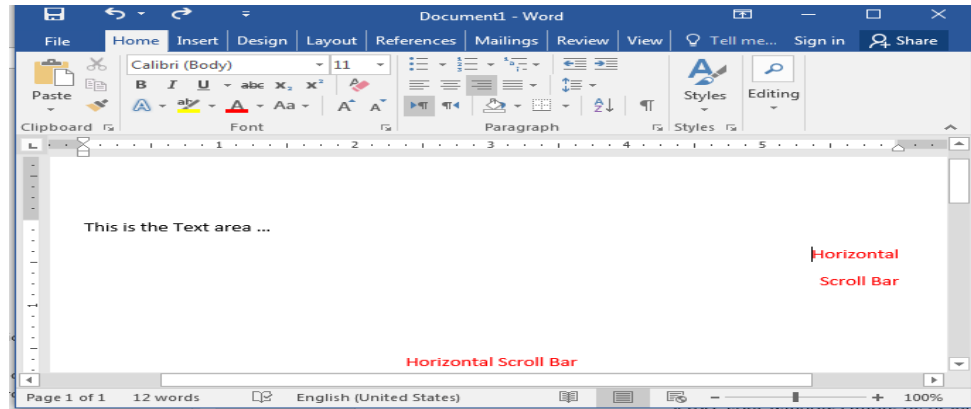
You can use the ruler to change the format of your document quickly. If your ruler is not visible, follow the steps listed here:



1. Click the View tab to choose it.
2. Click the check box next to Ruler in the Show/Hide group. The ruler appears below the Ribbon.

The Text Area

Below the ruler is a large area called the text area. You type your document in the text area. The blinking vertical line in the upper-left corner of the text area is the cursor. It marks the insertion point. As you type, your text displays at the cursor location. The horizontal line next to the cursor marks the end of the document.

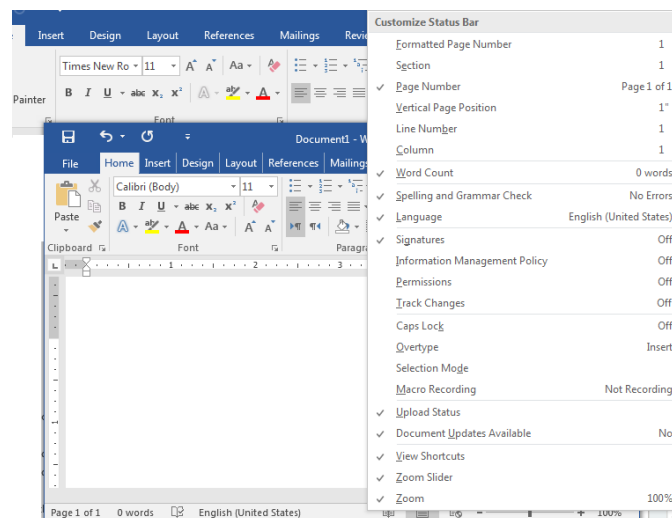


The Vertical and Horizontal and Vertical Scroll Bars

The vertical and horizontal scroll bars enable you to move up, down, and across your window simply by dragging the icon located on the scroll bar. The vertical scroll bar is located along the right side of the screen. The horizontal scroll bar is located just above the status bar. To move up and down your document, click and drag the vertical scroll bar up and down. To move back and forth across your document, click and drag the horizontal scroll bar back and forth. You won't see a horizontal scroll bar if the width of your document fits on your screen.

The Status Bar

The Status bar appears at the very bottom of your window and provides such information as the current page, language and the number of words in your document. You can change what displays on the Status bar by right-clicking on the Status bar and selecting the options you want from the Customize Status Bar menu. You click a menu item to select it. You click it again to deselect it. A check mark next to an item means it is selected.



In Word 2016, you can display your document in one of three views: Web Layout, Print Layout, Reading mode.

1. Web Layout

Web Layout view enables you to see your document as it would appear in a browser such as Internet Explorer.

2. Print Layout

The Print Layout view shows the document as it will look when it is printed.

3. **Read mode**

Reading Layout view formats your screen to make reading your document more comfortable.

Basic Functions in Word 2016 (File Menu):

Create a New Document:

When you open Word in a new default document called Document1 is created and so you can start entering your text immediately but if you want to open another new document you can do one of the following ways:

1. Go to **File** menu and choose **New**.
2. From keyboard press **Ctrl + N**.

Entering and Inserting Text:

After creating your new document, you can start entering your text. The insertion point, or *cursor*, "blinks" at the top of the document where the text you are typing will be displayed. When you have entered enough text for one line, the cursor automatically wraps (moves) to the next line. If you want to start a new paragraph, press the Enter Key couple of times. You can also place the cursor in any location where you want to insert new text.

Moving Around Document:

When you want to move through your document you can use one of the following methods:

1. The cursor in different locations to add text.
2. Click the **Scrollbar** to change which part of the document is shown.
3. Press the **arrow keys** ← → ↑ ↓ on the keyboard to move the cursor through the document.
4. **Ctrl-Home** / **Ctrl-End**: moving the cursor to the beginning/end of the document.
5. **Page Up** / **Page Down**: moving you to previous/ next page.

Selecting Text:

1. **Select a paragraph**: you can simply triple-click anywhere within the paragraph.
2. **Select a Word**: you can simply double-click anywhere within the paragraph.
3. **Select all text**: to select all features is a quick way to highlight all of the text within the entire document. From keyboard press **Ctrl+a**.
4. **Select text using click + Shift Key**: Click to place the insertion point in front of the text that you want to select, then press and hold the shift key on your keyboard, then click with the mouse pointer at the end of the range of text that you want to select.

5. **Select non-subsequent text using ctrl key:** Highlight the text that is to be modified then press and hold the Ctrl key on your keyboard, then highlight the additional text that is to be modified.

Moving Text:

To move text from place to another, select the text you want to move then press and hold down the left mouse button over the selected text; then drag the pointer to the new location, and release the mouse button to drop the text in that location.

Saving a Document:

To save your document:

1. From **File Button** select **Save** or **Save As:** for the first time there's no difference between them, both allow you to save your document in the place you want and the name you choose, for the next times there's a difference. Save As: make a new copy from document and leave the original document as it while Save: save the currently processing document over the original after updated.
2. From Quick Access Toolbar **save** icon. 
3. From Keyboard Press **Ctrl+s**.

Tip: Word Document Extension

Word documents usually saved with **extension** doc (*.doc), you can save your document with another extensions such as html, txt...etc

Closing a Document:

To close your document, you can follow one of these ways:

1. Click the Close  **button** in the document window. If you have edited the document since saving it last, Word asks whether you want to save it, click the Yes button to save your changes, and the document will close.
2. From **File Button** select **Close**.

TIP: Close and Exit

There is a difference between Close and Exit commands. Close means that you want to close the document you working on but you want to keep Microsoft Word 2016 running. While Exit close both the document and the program.

Opening a Document:

To open a preexisting document, you can do one of the following:

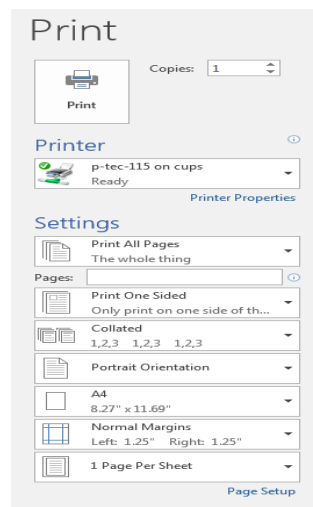
1. From **File Button** Menu select **Open**.
2. From Quick Access Toolbar **open** icon 
3. From Keyboard Press **Ctrl+o**.

Previewing and printing a Document:

It's always better to check your document before you print it, print preview command enable you to see how pages in document will be look like and let you do your formatting instead of doing a lot of printing and waste many papers and ink. To preview your document:

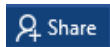
1. From **File Button** select **Print**.
2. From Quick Access Toolbar **preview and print** icon 
3. From Keyboard Press **Ctrl+P**.

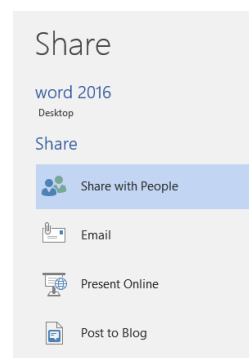
Word makes printing a document easy and enables you to select the printer and font settings. You can print the whole document, a single page, specific page ranges, specific separate pages, or selected text. You can also specify the number of copies to print and collate the copies as you print. To print your document, do one of the following:



Sharing a Document:

In Word 2016 for Windows, it's easier than ever to share your documents. When you share your files using OneDrive or Office 365 SharePoint, you can invite people to the document from right within Word, or send a PDF or Word file as an email attachment. To share your document:

1. From **File Button** select **Print**.
2. From Quick Access Toolbar select **share** 



Editing Document

There are many ways to edit documents. You can cut, copy, or paste text or objects, or overwrite them. Making mistakes in Word is not a big deal, you can undo these changes and if you change your mind you can redo them.

Finding and replacing text can be so hard, searching the document by you or replacing Word by Word is not an easy job especially if we talk about large documents, grammar and spelling mistakes need to be correct, in this part you will be able to do all these things easily without needing so much time.

Cut, Copy and Paste:

It's important to understand the difference between cut and copy. When you cut text, you remove it from its original location and place it in a new location. While copying text makes a duplicate text that can be placed in a new location, the original text remains in its primary location. Paste simply places the text you cut or copied in the new location that you specified. To apply these in Ms-Word Highlight the text to do the following:

1. Cut:

- From **Clipboard** group in **Home tab** use  , or use **Ctrl+x**, or after right-click select **Cut** from context menu.

2.Copy:

- From **Clipboard** group in **Home tab** use  , or use **Ctrl+c**, or after right-click select **Copy** from context menu.

3.Paste:

- From **Clipboard** group in **Home tab** use  , or use **Ctrl+v**, or after right-click select **Cut** from context menu.

TIP: When Cut, Copy, Paste be inactive

For the first time when you open **MS-word 2016** document to begin processing, cut, copy and paste will be in inactive state. Copy and cut convert to active state when the text highlighted. After select copy or cut, paste becomes active too.

When cut, copy, and paste comeback to inactive state?

Overwriting or delete:

Sometimes you will need to modify or delete text in a document. You can do these by many ways but the easiest is to overwrite text or delete it with the Delete command. Overwriting replaces the existing text with new text as you type while deleting completely removes the text from the document.

1. Overwrite:

- Highlight the text that you want to overwrite.
- Start entering the new text.

2. **Delete:**

- Highlight the text that you want to delete.
- Press the **delete key** from keyboard.

TIP: Backspace and Delete

You can use either backspace or delete to remove text completely from your document. Backspace key delete characters to the left of the insertion point while the Delete key delete characters to the right of the insertion point.

Undoing and Redoing Changes:

Word provides an easy way to undo or reverse many of the actions you made. It also provides an easily way to redo actions that you have been recently undone.

1. **To Make Undo** you can do one of the following:

- From **Undo icon** on quick access toolbar. 
- Or from keyboard use **Ctrl+z**.

2. **To Make Redo** you can do one of the following:

- From **Redo icon** on quick access toolbar. 
- Or From keyboard **Ctrl+y**.

TIP: Undo/ Redo More than One Action

To **Undo** or **Redo** more than one action you can repeat the command or simply click the arrow that appear next to **Undo/ Redo** and choose from the list the actions that you want to Undo or Redo.

Finding Text:

When you are working with a long document it can be time consuming to find a specific word or words. The find feature will help you locate specific text within document. To find a specific text, you can use one of these methods:

1. From **Editing** group in **Home tab** select **Find** , In the **Find what field**, type the word you want to locate. Click **Find Next button** until you locate the appropriate occurrence of the word you are searching for.
2. Or **Ctrl+f** from keyboard, In the **Find what field**, type the word you want to locate. Click **Find Next button** until you locate the appropriate occurrence of the word you are searching for.

Replacing Text:

Similar to the find feature, the replace feature will perform a search for a specific word and replace it with another word. To replace a specific text, you can use one of these methods:

1. From **Editing** group in **Home tab** select **Replace** , In the **Find what field**, type the word you want to replace and in **Replace with field**

type the word that you want to use as a replacement. Click **Find Next button** until you locate the appropriate occurrence of the word you are searching for. Click **Replace button** if you want to use the replacement word instead. Click **Replace All button** to replace all matching words.

2. Or **CTRL+F** from keyboard, In the **Find what field**, type the word you want to replace and in **Replace with field** type the word that you want to use as a replacement. Click **Find Next button** until you locate the appropriate occurrence of the word you are searching for. Click **Replace button** if you want to use the replacement word instead. Click **Replace All button** to replace all matching words.

TIP: Replace All

Replace All Button can be very helpful, but sometimes the replace all button will prompt **MS-word** to replace variations in the document that might not have occurred to you. For example, if you try to replace "Form" with "From", words such as "Formula" will become "Fromula" and "Transform" will be "TransFrom".

Using Autocorrect Options:

AutoCorrect corrects common errors as you type, such as misspelled words and incorrect capitalization. When you install MS-word the AutoCorrect feature is turned on by default. AutoCorrect includes many default entries that represented a list of common typing errors. To use Autocorrect do the following:

1. Click the **File button**
2. Select **Word Options**
3. Click **Proofing** in the left pane
4. Click the **AutoCorrect Options** button
5. Select the **AutoCorrect tab**.
6. Examine the check boxes.
7. Scroll down and examine the default entries listed under **Replace and with**. This list represents commonly used symbols and typing mistakes.
8. If you consistently make an error that is not included in the list, you can create a custom entry. In the **Replace field**, type the word you often misspell.
9. In the **with field**, type the correct spelling of the word and click the add button.
10. Click Ok. Now when you type the word incorrectly, Ms-Word will automatically replace it with the customized correction.

Checking Spelling and Grammar:

You may search the document for the spelling and grammar errors. When MS-Word finds a possible error, you can correct it and continue your search. To check spelling and grammar in your document follow the steps below:

1. Click to place the insertion point at the beginning of the document.
2. Click the **spelling and grammar button**  in the **Proofing group** in **Review Tab**. This will open MS-Word's dictionary and automatically begin searching for possible spelling and grammatical errors.
3. If **MS-Word** flags something that is correct, click **Ignore Once** to force the spell check to proceed to the next potential error or **Ignore All** which will skip every instance of the word in the document.

4. To correct a spelling error, click on the correct spelling from the list of suggestions and then click Change. You may also type in your own changes in the top window within the Spelling and Grammar dialog box and click Change.
5. To close the dictionary, click the close Button.

Formatting Text

There are many ways to format documents in Microsoft Word. For example, you can change the font, font size, and font color; highlight the text; add a border, shade the background, adding bulleted lists, numbered lists, and indenting text.

This part will show many tools that will make your text nice and well arranged.

Changing Text Font, Size, color, and Shading:

A font is a set of all characters available in one typeface and size, including uppercase letters, lowercase letters, punctuation, and numerals. To change the appearance of text, you may change the font as well as font style. Be sure to choose a font that is legible and practical. To change do as shown below:

1. Highlight the text that is to be modified.
2. After right-click select **Font** from context menu.
3. Specify the font typeface, size and color and then click ok.

You can also change the font Typeface, size, and color from **Font group** in **home tab** by using the following icons.



Applying Bold, Italic and Underline:

You can change also font style (Bold, Italic, Underline) as shown below:

1. Highlight the text that is to be modified.
2. After right-click select **Font** from context menu.
3. Specify the whether you want it italic, bold, underline and then click ok.

You can also change make this from **Font group** in **home tab** by using the following icons.  Where **B**: Bold, **I**: italic and **U**: underline

Applying Font Effects:

From **Font group** in **home tab** by using the following icons.



- : Draw line through the middle of the text.
- : subscript (create small letters below the text base line).

- X²: subscript (create small letters above the text base line).

Copying Formatting:

If you want to copy character formatting this tool will be very helpful.

1. Highlight the text that contains the formats you want to copy.
2. Click the **format Painter button** in the standard toolbar. 
3. Click, hold and drag the paintbrush mouse pointer over the text you want to format.

Formatting paragraph

Changing Alignment:

To change alignment, Highlight the text that is to be modified and Click the desired alignment button:

1. Align Right : with right alignment the right side of the paragraph is aligned with the right margin or indent.
2. Align Left : Left alignment is word's default alignment for body text. The Left side of the paragraph is aligned with the right margin or indent.
3. Center : with center alignment, each line of paragraph is centered between the left and right margins or indents.
4. Justify : with justified alignment the paragraph is aligned with both the left and right margins or indents.

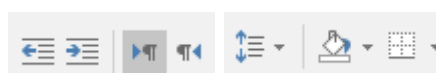
Adding Numbers and Bullets Lists:

1. Select the words you just typed.
2. Choose the Home tab.
3. In the Paragraph group, click the down arrow next to the Bullets button  or numbering . The Lists Library appears.
4. Click to select the type of style you want to use. Word adds styles to your list.

Note: As you move your cursor over the various Lists styles, Word displays the bullet style onscreen.

Change paragraph indent, direction, line spacing, shading, and border:

You can also change all of the above from **Paragraph group** in **home tab** by using the following icons.



Formatting Documents

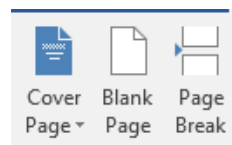
There are many techniques for formatting document in Microsoft Word. For example, pictures, symbols, charts and other objects can be inserted to enrich documents, you can also insert a page break and start text on a new page, insert a section break and have double columns in your document, in addition to these formatting techniques; you can change your page margins.

Furthermore, finishing touches, such as page borders, page numbers, headers and footers...etc, can be used to enhance your document.

Insert pages

From **Insert tab** you can insert:

1. cover page: fully formatted cover page, you fill the title author, date, and other information.
2. blank page: insert a new blank page in the courser position
3. Page break: star the next page at the current position of the courser. To force text to be on the top of the following page, you may insert a manual page break. As you edit the document, you may have delete and reinsert page breaks depending on the flow of text. It may be helpful to wait until you are in the final stages of formatting your document. To insert manual page break:



Tables:

A table is a grid that is made up of columns and rows. The intersection of a column and a row is called a cell. Gridlines are the lines within the table that separate each column and row. Tables are much more effective than tabs for aligning information in columns and rows.

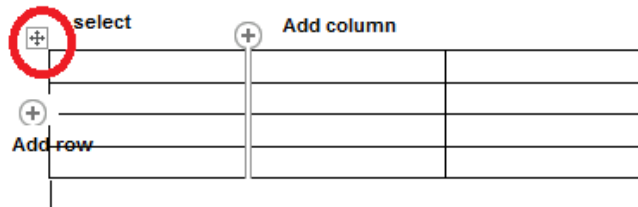
1. To Insert Table:

- From the **Insert tab**, trace to **table** and select **Insert table**.
- Specify the Number of columns and Number of rows.
- Click OK.

2. Insert a Row or Column:

- **Select** row or column.
- Right click on mouse then select to **Insert** and select one of the following (Table, Columns, Rows, or Cells).

Note: you can insert by Click to place your insertion point where you want to insert a row or column. Then Click on plus icon to insert row and column in certain place.



3. Delete a Row or Column

- **Select** row or column.
- Right click on mouse then select to **Delete** and select one of the following (Table, Columns, Rows, or Cells).

4. Table Design

Select the table then use the Table **Design** Tab to change the Table Style



5. Text Direction

- The text direction command will change the orientation of text within a cell.
- Right-click the cell and select **Text Direction**.
- Click to select the desired **Orientation**.
- Click **OK**.

6. Merging Cells

- The merge cells command will combine multiple cells into one cell.
- Select the cells you want to merge together.
- From the **Table** menu, select **Merge Cells**.

Note: table can be inserted to the document in many ways, one by menu, and another by **drawing table's** icon.

Insertions

Inserting Picture:

1. Insert Picture from File:

- Click where you want to insert the picture in your document.
- From **Insert** tab go o **Illustration group** and click **Insert picture Icon**.
- Navigate to the folder or disk drive where the image is stored and then click to select the picture you want to insert and click **insert**.

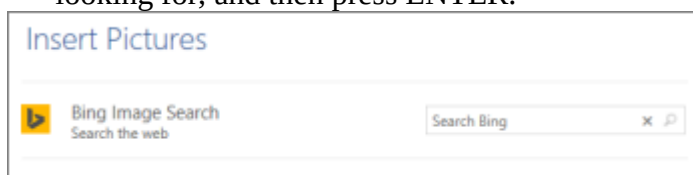


Now try to resize your picture and move it to another place, can you?

2. Insert online Picture: inserting a picture from an online source like Bing.

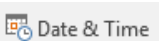
- Click where you want to insert the picture in your document.

- From **Insert** tab go o **Illustration group** and click **Insert Online Pictures**. 
- In the **Bing Image Search box**, type a word or phrase that describes the picture you're looking for, and then press ENTER.



- In the list of results, click an item, and then click **Insert**.

Inserting Date:

1. Click to place the insertion point where you want to insert the date.
2. From **Insert** tab, select **Date and Time** from **text group**. 
3. Click to select one of the desired available formats.
4. If you want the date to be automatically updated to the current date each time you open the document, click to select the **Update Automatically Checkbox**, and then click Ok.

Inserting Symbols:

The Symbol command enables you to insert special characters, international characters, and symbols such as the registered trademark (®) and trademark (™) symbols. You can easily add these and other special characters to your Word documents.

1. Click to place the insertion point where you want to insert the date.

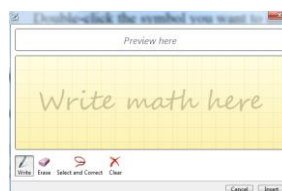


2. From **Insert** tab, select **Symbol** from **Symbols group**.
3. Double-click the symbol you want to insert into your document then **Close**.

Inserting Equations:

The Equation command enables you to insert Equation:

1. Click to place the insertion point where you want to insert the date.
2. From **Insert** tab, select **Equation** from **Symbols group**. 
3. Select insert equation then type a math equation.
4. Or Select a Ink equation to hand write a math equation.



Insert WordArt:

WordArt can be added to your document using a button on the *Insert* command tab.

1. From the Insert command tab, in the Text group, click 

The *WordArt Gallery* dialog box appears.



2. From the *WordArt Gallery*, select the desired style. The *Edit WordArt Text* dialog box appears.
3. In the *Text* box, type your text.
4. To format your text, from the *Font* or *Size* pull-down lists, make the desired selections.
5. To change the font style, click **BOLD** or **ITALIC**.
6. Click **OK**, your WordArt is placed in the document and the *Format* command tab appears.

Insert Shape:

1. On the **Insert tab**, in the **Illustrations group**, click **Shape**. 
2. In the Choose a Shape Graphic gallery, click **Hierarchy**, click a shape and then click OK.

Insert Smart Art:

1. On the **Insert tab**, in the **Illustrations group**, click **SmartArt**. 
2. In the Choose a SmartArt Graphic gallery, click **Hierarchy**, click a Smart art and then click OK.

To add your text to the chart objects, do one of the following:

- Click in a shape in the SmartArt graphic and type your text.
- Click [Text] in the Text pane and type your text.
- Copy text from another location or program, click in the Text pane, and paste your text.

Insert Chart:

1. On the **Insert tab**, in the **Illustrations group**, click **Chart**. 
2. In the Choose a Chart Graphic gallery, click **Hierarchy**, click an organization chart layout (such as Column Chart), and then click OK.

To add your text to the chart objects, do one of the following:

- Click in a shape in the SmartArt graphic and type your text.
- Click [Text] in the Text pane and type your text.
- Copy text from another location or program, click in the Text pane, and paste your text.

Insert Screenshot:

Screenshots are useful for capturing snapshots of information that might change or expire.

On the **Insert tab**, in the **Illustrations group**, click **Screenshot**.



When you click the Screenshot button, you can insert the whole program window or use the Screen Clipping tool to select part of a window. Only windows that have not been minimized to the taskbar can be captured.

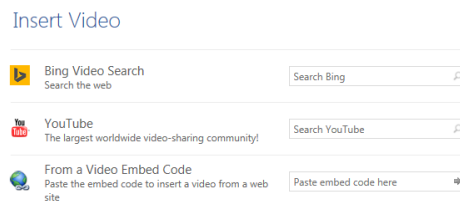
When you choose Screen Clipping, your entire window will temporarily become opaque or “frosted over”. After you select the part of the window that you want, your selection will show through this opaqueness.

Open program windows are displayed as thumbnails in the Available Windows gallery and when you pause your pointer over a thumbnail, a tooltip pops up with the program name and document title.

Insert Online Video:

To find and insert then online video from media YouTube or Bing.

1. On the **Insert** tab, in the **Media** group, click **Online Video**.



2. In the Bing Image Search box, type a word or phrase that describes the picture you're looking for, and then press ENTER.
3. In the list of results, click an item, and then click **Insert**.

Insert a Hyperlink:

Hyperlinks are words, icons, pictures, or other graphics that are used to navigate the Web. A hyperlink can take you to another location on the same Web page or to a different Web page.

1. Highlight the text you want to make a Hyperlink.
2. From the **Insert** tab in links group select **Hyperlink**.
3. In the **insert Hyperlink window**, click to select **Existing File or Web Page**.
4. In the **Text to display field**, verify the test you highlighted appears (this is the text in
5. The document you want to associate the link to.
6. In the **Address field**, type the address of the Web page to which you want to link.
7. Click **OK**. The text within the document will change color and become underlined in order to be a recognizable link.



Use Hyperlinks

To use a hyperlink, the mouse pointer must become an icon of a pointing finger when it is placed directly on the link. If you insert hyperlinks into your document, you will need to educate your audience so they will know how to activate them.

1. Press and hold the **Ctrl key** on your keyboard and **click the hyperlink** simultaneously.
2. The linked file will open in its source application. After you click the hyperlink the color of the hyperlink changes indicating it has been used.

Insert a Bookmark:

A bookmark identifies a specific word, section, or place in your document so you can easily find it again without scrolling through the document. For example, you might create a bookmark to identify text that you want to revise later.

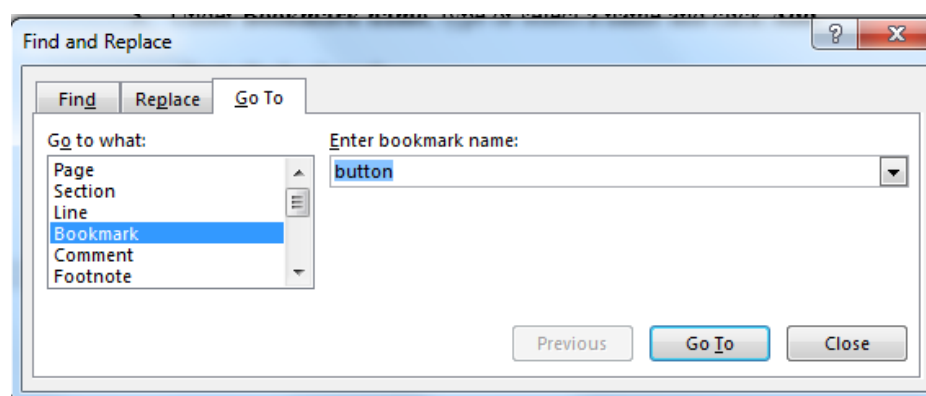
To add a bookmark, you first mark the location in your document you want to go to. After that, you can jump to the location or add links to it within your document. To insert Bookmark:

1. Select text, a picture, or a place in your document where you want to insert a bookmark.
2. Click **Insert** select Bookmark. 
3. Under **Bookmark name**, type or select a name and click **Add**.

Go to the bookmark

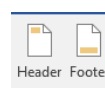
After creating your bookmarks, you can jump to them at any time or add links to them within your document.

4. Type Ctrl+G to open the **Go To** tab in the **Find and Replace** box.
5. Under **Go to what**, click **Bookmark**, select the bookmark name, and then click **Go To**



Inserting Header and Footer:

1. On the **Insert** tab, in the **Header & Footer** group, click **Header** or **Footer**.



2. Click the header or footer design that you want.

Change the Header or Footer for Part of the Document

You may use the same header and footer throughout a document or change the header and footer for part of the document. For example, you may want a unique header or footer on the first page of a document, or to use different headers and footers on odd and even pages.

1. First page:

- On the first page of the document, double click the header or footer area.
- Under **Header & Footer Tools**, on the **Design** tab, in the **Options** group, select the **Different First Page** check box.
- Create a header or footer, or make changes to the existing header or footer, on the first page.

2. Odd and even pages:

- Double-click in the header or footer area.
- Under **Header & Footer Tools**, on the **Design** tab, in the **Options** group, select the **Different Odd & Even Pages** check box.

Note: The existing header or footer is now configured for odd-numbered pages only.

3. Under **Header & Footer Tools**, on the **Design** tab, in the **Navigation** group, click **Next Section**  to advance the cursor to the header or footer for even-numbered pages, and then create the header or footer for even-numbered pages.

Inserting Page Numbers:

1. On the **Insert** tab, in the **Header & Footer** group, click **Page Number** .
2. Click **Top of Page** or **Bottom of Page**, depending on where you want page numbers to appear in your document.
3. Choose a page number design from the gallery of designs.

Design page

Add Watermark:

A watermark is text or a picture that appears behind the text in a document. Watermarks are often used to add graphics to document without obscuring or taking room away from text.

From the **Design** tab in **page background groups** press **watermark** and select **Custom watermark**.



1. To insert a picture as a watermark:

- Click the **Picture Watermark radio button**.
- Click Select **Picture button**.
- Navigate to the folder or disk where the image is stored.
- Click to select the picture that you want to insert.
- Click **Insert**.
- Click **Ok**.

2. To insert text as watermark:

- Click the **Picture Watermark radio button**.
- Click Select **Text button**.
- Enter the text that you want to include as a watermark.
- Select any additional desired options (Font, Size, or Color).
- Under Layout, specify if you want the watermark to be Diagonal or Horizontal.
- Click **Ok**.

Tip: Viewing Watermark

To see watermark you must be sure that your document is in Print Layout View.

Add Page Color: To add a Color for the whole page:



1. From **Design** tab in **Page Background** groups select **Page Color**
2. select the desired color.

Add Page Border:

To add a border for the whole page:

1. From **Design** tab in **Page Background** groups select **Page**
2. Click to select the desired setting, style, color and width ...etc.
3. In the **preview pane**, verify your selections and then click Ok.



Border

Page Layout

Inserting Section Break:

Sometimes sections of long documents must be formatted differently. In order to setup different formatting for different parts of the document, you must divide the document into sections. A section is all of the text between section breaks. To break a document into multiple sections:

1. Click to place the insertion point where you want to insert the section break.
2. From the **Page Layout** tab in **page setup groups** select **Break**.
3. Under **section break types**, click the option that describes where you want the new section to begin:
 - **Next Page:** inserts a section break and start a new section in the next page.

- **Continuous:** inserts a section break and start a new section on the same page.
- **Even / Odd Page:** insert a section break and start a new section on the next Even / Odd numbered page.

4. Click **Ok**.

Tip: Deleting a section Break

Formatting is stored in section breaks. When you delete a section break, you also delete the section formatting for the text above the (deleted) section break. As a result, text becomes part of the following section and assumes the formatting of that section when a section break is removed.

1. Click the **Show/Hide** button in the standard toolbar. 
2. Move the insertion point to the line below the section break code.
3. Press the **Backspace** key on your keyboard. If the insertion point is positioned in front of the section break code, press the **Delete** key on your keyboard.
4. Click **the Show/Hide** button again, to hide the codes.

Adding Columns:

1. Highlight the text that is to be formatted in columns.
2. From the **Page Layout** tab in **page setup groups** press **Columns** and select **more columns**. 
3. Click to select the desired **Number of Columns** or enter the number of columns.
4. Enter the desired column **Width** and **Spacing** between columns.
5. If you want a line between the columns, click the **line between checkbox**.
6. Click **Ok**.

Setting Page Margins:

You can adjust the top, bottom, left, and right margins for a single page or for your entire document. For example, you might need to fit a large amount of text on one page and therefore need to increase the margins for the document's printable area. To set your document margins:

1. From the **Page Layout** tab in **page setup groups** press **Margins** and select **Custom Margins**. 
2. Type the new margin settings (for example, 1 inch in the Left spin box and 1 inch in the Right spin box).
3. Click the **OK** button.

Citation

A citation is an entry of text that tells your reader where you got your information. Information like the author's name, the date of publication, the title of the document, page numbers, publishing

information, what edition the source is, and a URL are often part of this entry. Essentially, your reader should be able to find your source on their own from the information in the citation.

WHEN DO I NEED TO CITE MY SOURCE?

Plagiarism is using another author's words, ideas, or work in print or speech as if they were your own. An author's original thought is protected as intellectual property under United States' copyright law, so plagiarism is essentially an act of fraud. To avoid plagiarism, you need to cite your source whenever you use anything you are borrowing from someone else. This includes using someone else exact wording, paraphrasing, an idea from another author, or even using a similar sentence structure. According to plagiarism.org, these are also considered plagiarism:

- failing to give credit when using or copying words or ideas from another author, including neglecting quotation marks
- giving inaccurate source information
- using so many words or ideas from another source that it makes up most of your work – whether you give credit or not

References the documents

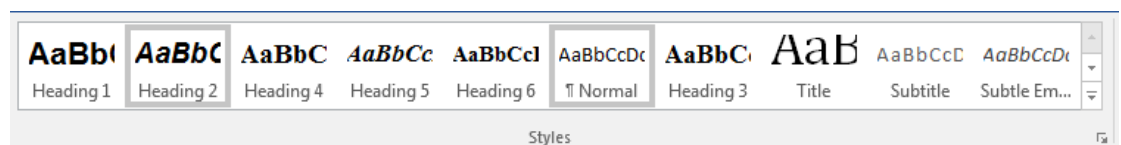
Now that you know how to edit documents, format text, and format your documents, it is time to do a little advanced work in Microsoft Word. In this part you will learn how to insert tables inside your document, create a table of content to your document and finally how to protect it.

Build a Table of Contents

To create a table of contents, you must apply heading styles (Heading 1 through Heading 9) to the headings that you want to include in the table of contents. Once you have applied the heading styles, you can build a table of contents.

To apply built-in heading styles:

1. Highlight the text that is to be included in the table of contents (topic heading, topic subheading, chapter title, etc.).
2. Apply a **Heading Style** (Heading 1 through Heading 9) from the Styles dropdown list in the **Home tab**.
3. Continue following steps 1 and 2 throughout the entire document applying a heading style (Heading 1 through Heading 9) to the text you want to include in your table of contents.



To Build the Table of Contents:

Click to place the insertion point where you want to insert the table of contents.

From the **References tab**, trace **Table of Contents**, and click **Insert Table of Contents**.

Click the **Table of Contents tab**.

Click to select additional options (Show page numbers, Right align page numbers, Tab Leader format, etc.).

In the Print Preview Pane, verify your selections.

Click **OK**.

Update a Table of Contents

When you add or remove text or add and remove manual page breaks, the flow of the text on each page is subject to. As a result, you may need to update the table of contents to reflect changes to the pagination.

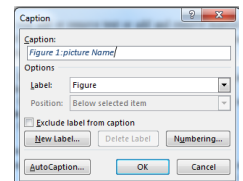
1. Place the mouse pointer directly on the table and contents, right-click and select **Update Field**.
2. Click to select one of the following: **Update page numbers only** or **Update entire table**.
3. Click **OK**.

Build a Table of Figures

To create a table of Figure, you must add captions for each photo in the document. From References select insert captions icon. then type picture name as bellow then press ok.



Once you have applied the Captions for all Figure. you can build a table of Figure.



To Build the Table of Figures:

1. Click to place the insertion point where you want to insert the table of contents.
2. From the **References tab** click **Custom Table of Figures**.
3. Click **OK**.

Update a Table of Figures

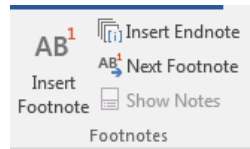
When you add or remove text or add and remove manual page breaks, the flow of the text on each page is subject to. As a result, you may need to update the table of figures to reflect changes to the pagination.

1. Place the mouse pointer directly on the table and contents, right-click and select **Update Field**.
2. Click to select one of the following: **Update page numbers only** or **Update entire table**.
3. Click **OK**.

Insert Endnote and Footnote

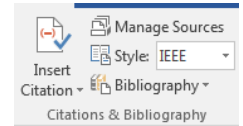
Footnotes and endnotes are used in printed documents to explain, comment on, or provide references for text in a document. You might use footnotes for detailed comments and endnotes for citation of sources.

1. click where you want to insert the note reference mark.
2. On the **References tab**, in the **Footnotes** group, click **Insert Footnote** or **Insert Endnote**.



Insert Citations and Bibliography

A bibliography is a list of sources, usually placed at the end of a document, that you consulted or cited in creating the document. In Microsoft Office Word 2016, you can automatically generate a bibliography based on the source information that you provide for the document.



Each time that you create a new source, the source information is saved on your computer, so that you can find and use any source you have created. To add a new citation to a document, you also create a new source that will appear in the bibliography

1. On the **References** tab, in the **Citations & Bibliography** group, click the arrow next to **Style**.
2. Click the style that you want to use for the citation and source.
3. Click at the end of the sentence or phrase that you want to cite.
4. On the **References** tab, in the **Citations & Bibliography** group, click **Insert Citation**.
5. Do one of the following:
 - To add the source information, click **Add New Source**.
 - To add a placeholder, so that you can create a citation and fill in the source information later, click **Add new placeholder**. A question mark appears next to placeholder sources in Source Manager.
6. Begin to fill in the source information by clicking the arrow next to **Type of source**.
7. Fill in the bibliography information for the source.

Create a bibliography

You can create a bibliography at any point after you insert one or more sources in a document. If you don't have all of the information that you need about a source to create a complete citation, you can use a placeholder citation, and then complete the source information later.

1. Click where you want to insert a bibliography, usually at the end of the document.
2. On the **References** tab, in the **Citations & Bibliography** group, click **Bibliography**.
3. Click a predesigned bibliography format to insert the bibliography into the document.

Footnotes and endnotes

The Merriam-Webster Online Dictionary defines a footnote as a note of reference, explanation, or comment usually placed below the text on a printed page. Footnotes are indicated by consecutively-numbered superscript Arabic numbers in the main text after the punctuation of the phrase or clause. Footnotes appear at the bottom of the page on with the superscript reference mark. A footnote can also have an associated citation at the end of the footnote text. Endnotes appear at the end of the document.

In each style, a reference mark appears in the body of the text, and a reference note (either a footnote or an endnote) containing a matching reference mark is used to document the reference

Adding footnotes or endnotes

Adding a footnote is a two-step process

Step 1: Adding the footnote reference mark in the body of the document

Place the cursor at the exact point in the sentence where the footnote reference mark should appear, after the punctuation. On the References tab, in the Footnotes group, click the Insert Footnote button. This places two reference marks. One reference mark is at the cursor position in the body of the document; the other reference mark is in the footnote area at the bottom of the page.

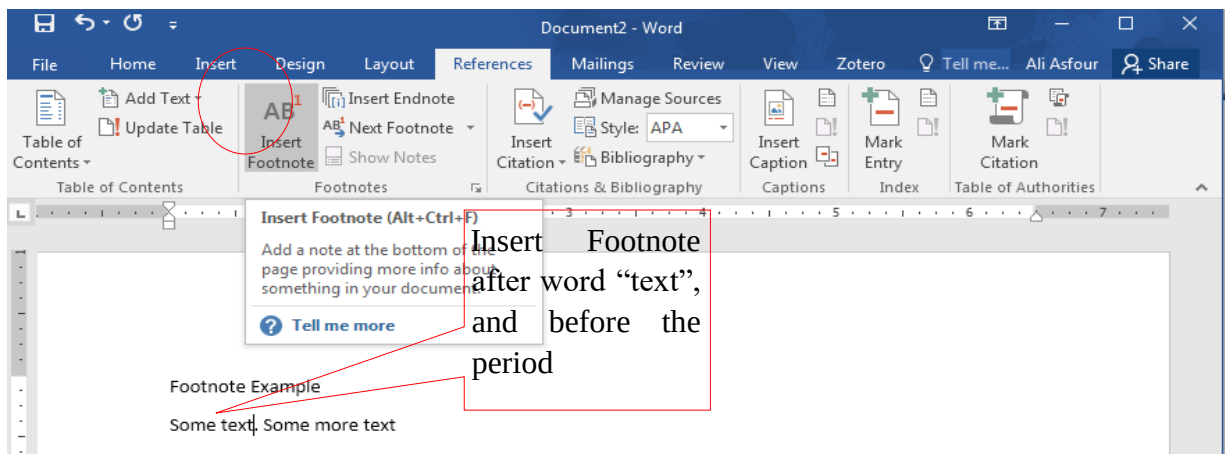


FIGURE 2. 1 INSERT FOOTNOTE

Step 2: Adding the footnote “text”.

When the reference mark is inserted into the body of the document, a placeholder for the footnote text is created at the bottom of the page on which the footnote should appear. To add the reference text into the footnote, click in the footnote placeholder and enter the desired text.

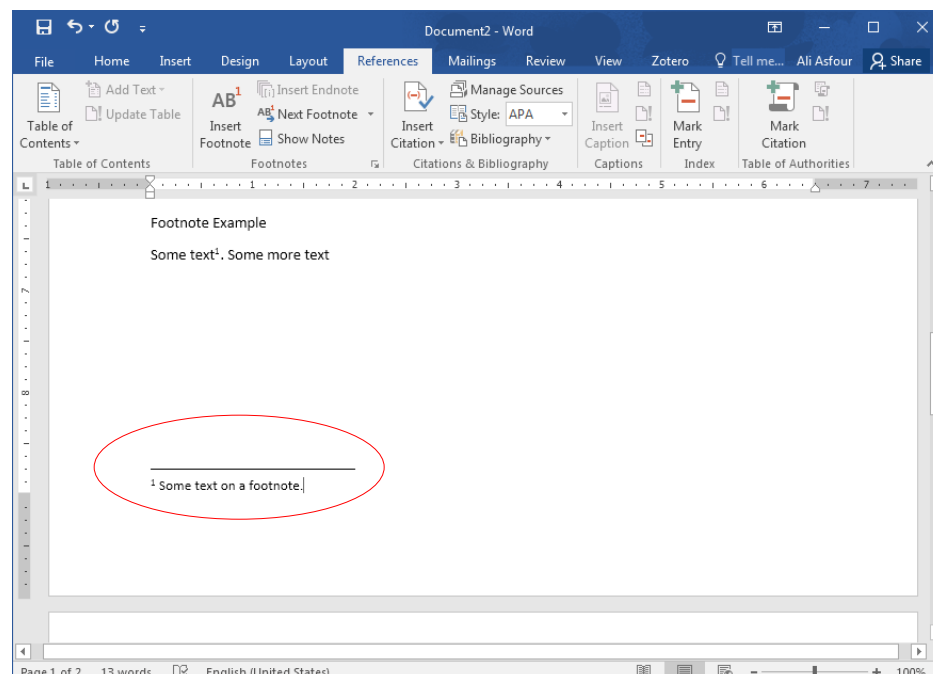


FIGURE 2. 2 ADD FOOTNOTE TEXT

To add another footnote, Repeat the How to add a footnote procedure above to add additional footnotes. To add an endnote, click the Insert Endnote button on the References tab and follow a similar procedure to adding a footnote. Endnotes and footnotes are handled the same within Word 2016, the only difference is the placement of the reference wording

Change the note number format

If you find that you need to change the number formatting style that is automatically applied to the footnote or endnotes text, you can do so after creating the notes.

1. On the References tab, in the Footnotes group, click the dialog box launcher (the small arrow in the lower right corner of Footnotes group)
2. Click either Footnotes or Endnotes from the location area at the top of the dialog box.
3. In the Number format area, select the format you want to use from the drop down list of choices and click the Apply button.

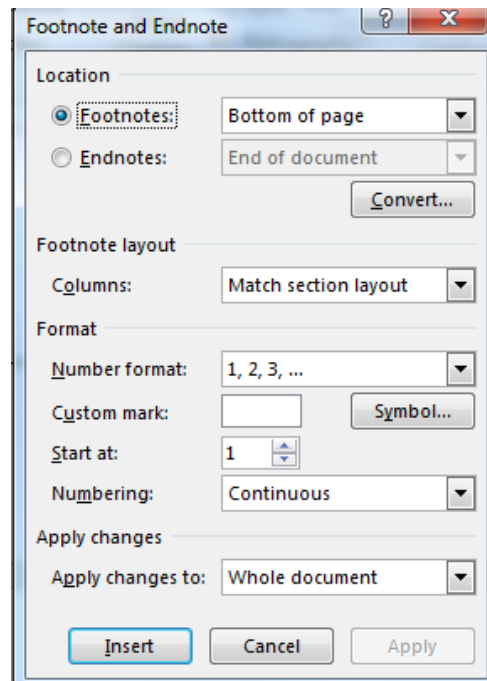


FIGURE 2 3 THE FOOTNOTE AND ENDNOTE DIALOG BOX

Change the footnote or endnote separator

If you need to change the footnote or endnote separator (the line above the reference text) or want to remove it completely, follow the steps listed below:

1. On the View tab, in the Document Views group, click Draft.
2. On the References tab, in the Footnotes group, click Show Notes.
 - a. If you used only footnotes in the document, this will open the Footnotes pane.
 - b. If you used only endnotes in the document, this will open the Endnotes pane.
 - c. If you used both footnotes and endnotes in the document, choose one of the reference areas to edit (View footnote area or View endnote area) in the dialog box that appears and click the OK button.
3. In the dropdown list in the foot notes / endnotes pane, select either the Footnotes Separator or Endnotes Separator depending on which one you want to modify or remove.
4. Delete the separator line, add in your own line, or leave the separator blank.
5. On the View tab, in the Document Views group, click Print Layout.

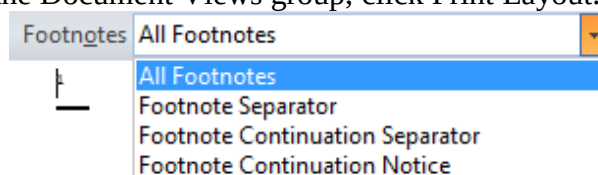


FIGURE 2. 4 EDIT FOOTNOTE AND ENDNOTE

Select (highlight) the footnote reference mark in the body of the document and press the Delete key. This will delete both the footnote/endnote reference mark in the body of the document and the associated footnote/endnote at the bottom of the page.

Browsing footnotes and endnotes

In lengthy documents with a large number of footnotes and/or endnotes, locating the reference marks in the document can be a challenge. Using the option available on the Ribbon, you can quickly navigate among the many reference marks in the document. To browse footnotes and endnotes, follow these steps:

1. Click anywhere in the beginning of the document.
2. On the References tab, in the Footnotes group, click the arrow to the right of the Next Footnote option.
3. In the drop down list, click the appropriate choice based on where you clicked in the document and the reference mark you are trying to locate.
4. The cursor moves into the document in the position of the footnote or endnote. Continue to click the Next option until you locate the necessary reference mark.

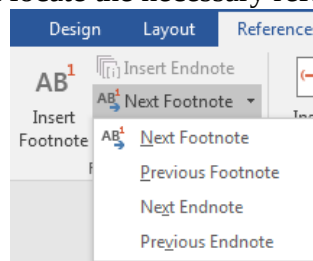


FIGURE 2. 5 BROWSING FOOTNOTES AND ENDNOTES

Captions

When adding images, tables, and other objects in your documents it is a good idea to label the objects with captions and reference them at some point in the document text. Although you can complete these tasks manually, time is wasted updating references if the caption numbers change after adding or deleting images. Word has built-in automatic features to handle both these tasks.

Inserting figure numbers and captions

A caption is a numbered label inside a text box, such as Figure 1, that you can add to a figure, a table, an equation, or another object. If you later add, delete, or move captions, you can easily update the caption numbers all at once. To add captions to document objects, follow these steps:

1. Open a document that contains the object (image, table, etc.) you want to label or add one to an existing document.
2. Click once on the object to select it. Then, either:
 - a. Right click the object and choose Insert Caption from the context menu. –OR –
 - b. On the References tab, in the Captions group, click Insert Caption.

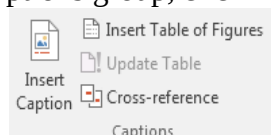


FIGURE 2. 6 FIGURE CAPTION

3. In the Label list, select the label that best describes the object, such as a picture or equation. In the Caption area, type any text, including punctuation that you want to appear after the label.
4. Select any other options you want from the Position list or the Numbering button.

5. Click the OK button when finished and the label is added to the object. Repeat steps 2-5 to add captions to any other objects in the document. Word will automatically number each additional caption.
6. To change any text inserted into a caption simply click once inside the caption and add or remove the necessary text.

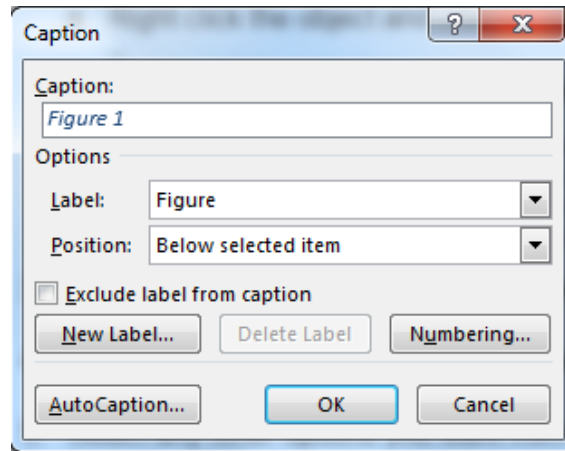


FIGURE 2. 7 CAPTION WINDOW

Deleting captions

You can quickly remove a caption from an object and then renumber the remaining captions to reflect the change. To delete a caption, follow these steps:

1. Determine if the caption is inside a text box or in-line with text.
2. Captions on images: Left click once inside the caption to activate the text box. Right click on the border of the caption (see the blue dotted line in Figure 13). Click Cut in the context menu that appears.
3. Captions on tables and equations: Simply drag across the selected text to highlight it and press the delete key on the keyboard.
4. If necessary, update the remaining captions in the document to reflect the deletion (see the section below).

Updating caption numbering

If you insert a new caption, Word automatically updates the caption numbers. However, if you delete or move a caption, you must manually update the captions. To update caption numbering, follow these steps:

1. Select a caption or captions to update. Do one of the following:
 - a. To update a specific caption, select it.
 - b. To update all captions, click anywhere in the document and press Ctrl+A to select the entire document.
2. Right-click, and then click Update Field in the context menu that appears.

Changing the caption style

The applied formatting for all captions in the document is based on the Caption style. For example, in the sample caption labeled Figure 1 found in Figure 13 above, the text is Times New Roman, bold, blue, and 9 point. You can change the applied caption style by following these steps:

1. On the Home tab in the Styles group, click the dialog box launcher.
2. In the list of available styles that appears in the Styles task pane, point to Caption, then click the small black down arrow at the right end of
3. Click the Modify... (see Figure 14) option in the list of available choices.
4. In the Formatting area, change the font face, size, color and style. The changes made in this area will automatically be reflected in all captions currently used in the document and any new ones you insert.

5. Click the OK button to apply the new caption formatting to the current document.

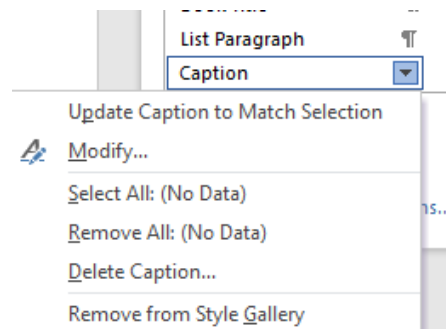


FIGURE 2. 8 UPDATE CAPTION STYLE

Creating a table of figures

To create a Table of Figures:

1. Place the cursor after the word FIGURES.
2. From the References tab, from the Captions group choose Insert Table of Figures.
3. In the Table of Figures dialog box:
 - Check Show page numbers
 - Check Right align page numbers
 - Uncheck Use hyperlinks
 - Tab leader = dot (.....)



FIGURE 2. 9 TABLE OF FIGURES OPTIONS

4. Under Caption labels, choose None. In this case, we want our Figures list to include any potential figures in the appendices — searching by label will only return figures in the main body of the text.
5. Click the Options button, check Style, and then select Figure Caption
6. Click OK, then OK again.
7. Save the file.

Citations and bibliography

If you need to write a research paper, chances are you'll also be required to include a **bibliography**. Or you might be asked to include a **works cited page** or a **list of references**. These are all just different names for the same thing: a list of **sources**—such as books, articles, or even websites—that you used to research and write your paper. A bibliography makes it easy for someone else to see where you found your information.

Choose a reference style

When you're creating a bibliography, you'll need to follow the guidelines of the required **style guide**. Different academic disciplines use their own styles guides, such as **MLA**, **APA**, and **Chicago**. Fortunately, Word comes with several **built-in** style guides; all you need to do is select the one you want to use, and Word will help you format your bibliography correctly.

To do this, click the **References** tab, then select the desired style in the **Citations & Bibliography** group.

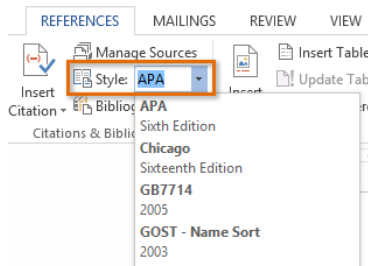


FIGURE 2. 10 REFERENCE STYLE

Add citations and sources

Whenever you use information from one of your sources, you'll need to give credit—or **cite** them. This is known as making a citation. You'll include citations whenever you use information from a source or when you quote a source directly.

To add a citation, select the desired location for the citation in your document, click the **Insert Citation** command on the **References** tab, and select **Add New Source**.

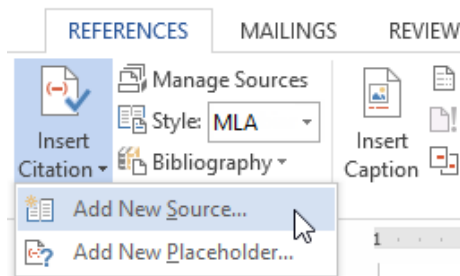


FIGURE2. 11 ADDING NEW REFERENCE SOURCE

A dialog box will appear. Enter the requested information for the source—like the author name, title, and publication details—then click **OK**.

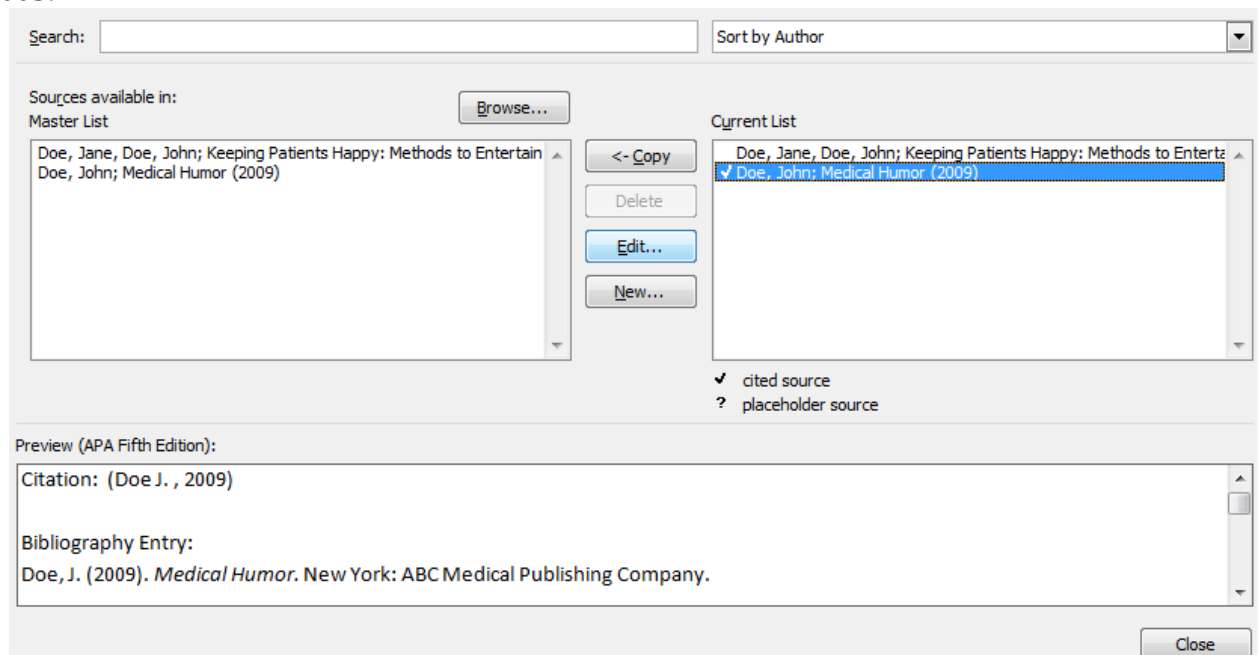
FIGURE 2. 12 REFERENCE DETAILS WINDOW

The citation will appear in the document, and the source will be saved. You can quickly add another citation for the source by clicking **Insert Citation** and selecting the source from the drop-down menu.

Editing source information

Editing that is already in the source management database is very easy. Open the source management database. On the References tab, in the Citations & Bibliography group, click on the Manage Sources button to open the Source Manager dialog box.

For this example, let us assume that the publishing date for the book *Medical Humor* by Doe was incorrect. Instead of 2009, it should be 2005.



This will display the Edit Source dialog box, which allows editing the publication date of the source. Edit the Year field, then click the OK button.

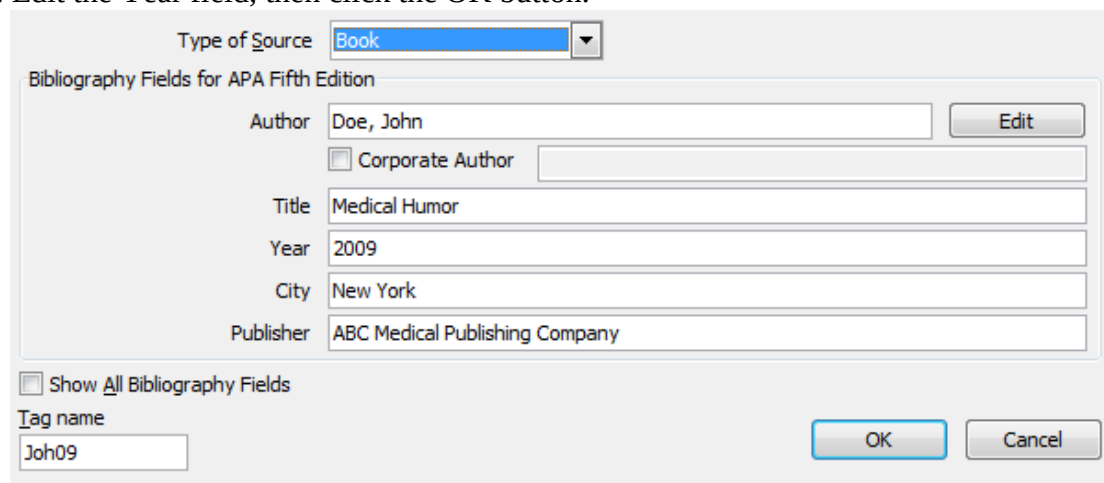


FIGURE 2. 13 EDIT REFERENCES

Insert the bibliography

Once you have added all of your sources, you can create your bibliography in just a few clicks! Just select the **Bibliography** command, then choose the desired style.

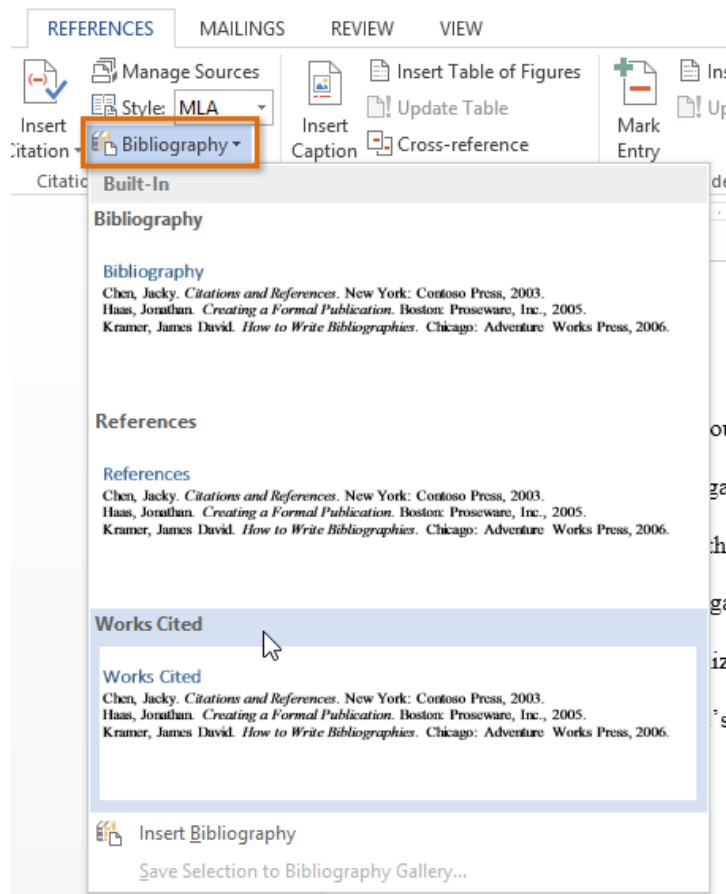


FIGURE 2. 14 INSERT BIBLIOGRAPHY

The bibliography will appear at the end of your document. Your sources will already be formatted to match the selected style guide. You should still double-check each of your sources against your style guide to make sure they're correct. If you need a quick reference for MLA, APA, or Chicago formatting.

If you add more sources to your document, you can easily **update** your bibliography—just click it and select **Update Citations and Bibliography**.

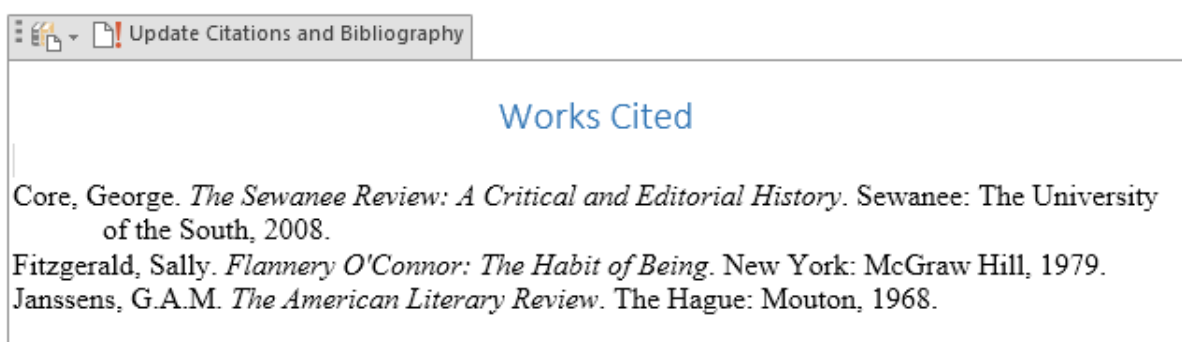


FIGURE 2. 15 LIST OF REFERENCES

Updating the bibliography or works cited page

Now that you have added a citation, you can update your bibliography or works cited page in the same way that you updated the table of contents. To do this, scroll to your bibliography page and use your mouse to click near the “Bibliography” or “Works Cited” heading. When the “Update Citations and Bibliography” tab appears, click it. Notice that your bibliography page automatically added the citation you created earlier and in the correct style format that you chose when setting up the bibliography in the first place.

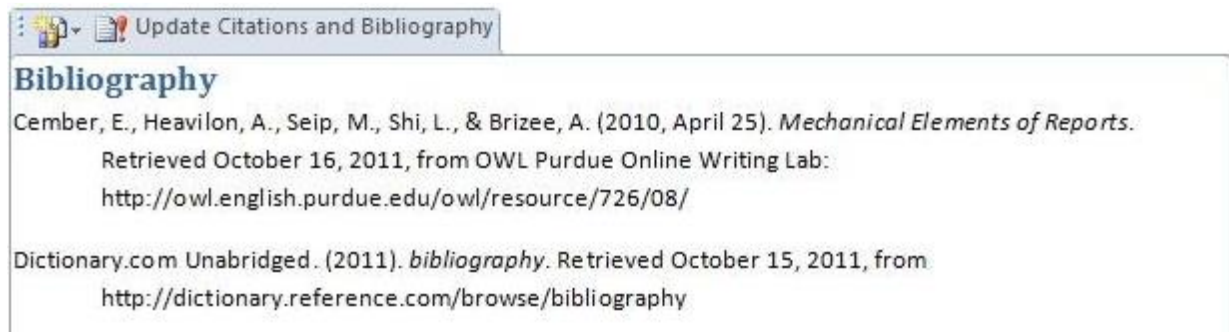


Table of contents

A table of contents helps readers navigate the basic structure of a document. To simplify your document creation process, Word automates the generation of a table of contents. This feature allows you to easily and efficiently create and update a table of contents.

Before Word creates the table of contents, you must decide which material will be included and how it will appear. To indicate which elements should be included, you should designate each element using Heading styles. For example, a main section in your document may be labeled Heading 1 and all subtopic headings below it might be labeled Heading 2. Once the table of contents is generated, these heading and style designations will be reflected as levels in the table.

Adding section and subsection headings

The first step to successfully creating a table of contents in Word is to separate your document into logical sections. Some of the sections may also be divided into relevant subsections. Practice with a sample Word document using the steps listed below.

1. Open a document that contains multiple pages and paragraphs.
2. Take time to add appropriate main section headings and several subheadings throughout the document. Do not format the font appearance of the headings at this time. In Figure 17, you will notice the headings added above each paragraph.

What Is Books & Beyond?

Bookstore or Music Shop?

Some people say it is a bookstore. Some call it a music shop, while others think of it as a great place to meet and have refreshments. Books & Beyond has become a unique phenomenon that not only offers this area's largest selection of sale books, but has also branched into the world of music, with an inventory of CDs and tapes ranging from New Age to Alternative Rock and everything in between¹ What makes us different is our atmosphere. We encourage our visitors to relax with a book in one of our quiet rooms, or take some reading material into our Coffee and Juice Bar to read while snacking.

Food for Your Mind

Have you ever wanted to spend some quiet time away from home? Many of us find that solitude buried in the pages of a good book or lost in the sounds of musical instruments.

Applying heading styles (marking your document)

The second step of building the table of contents involves marking your document so Word knows what wording to use to build the table of contents. Word thinks of your section headings in a hierarchical manner. Heading 1 is used for the highest level of heading (e.g., page titles or main section areas). Heading 2, 3, and so on, up to 9, would be used to identify subheadings under your main heading. Keeping this structure in mind, format the headings and subheadings in your document with the appropriate styles by following these steps:

1. Click once anywhere within the first main heading that you want to assign to a style.
2. On the Home tab, in the Styles group, choose Heading 1 from the style gallery

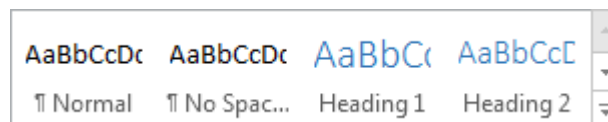
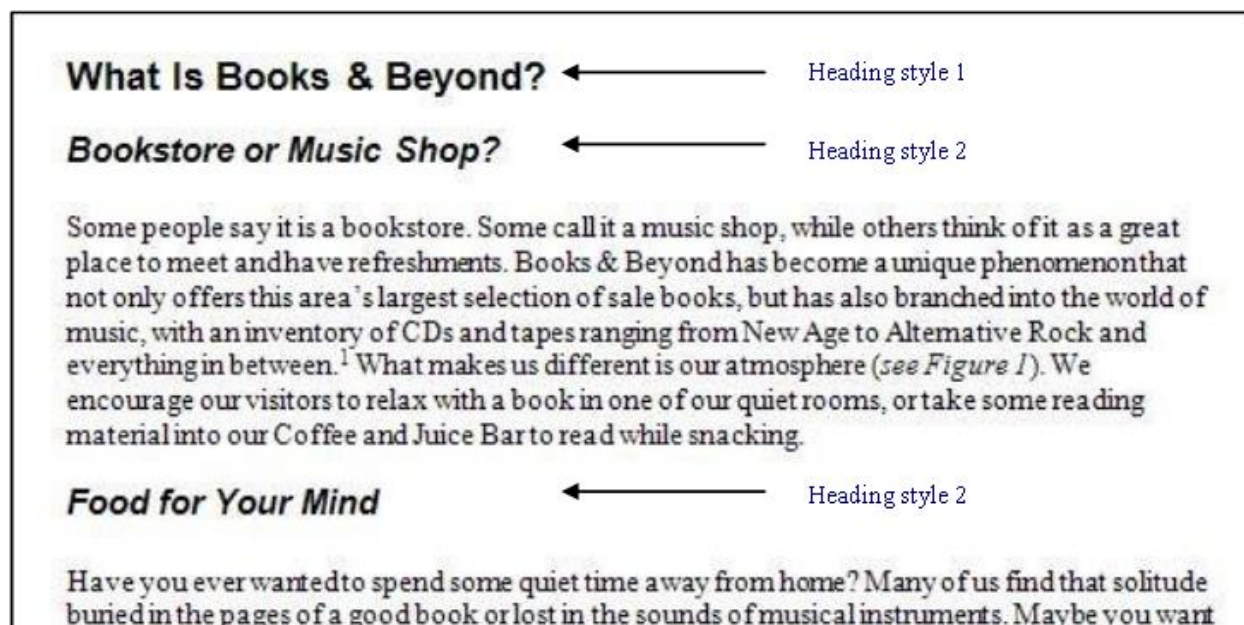


FIGURE 2. 16 HEADINGS

3. Repeat for each of your main section headings.
4. Then, format each of your section subheadings in the style of Heading 2 or Heading 3.
5. Continue to apply the appropriate heading style to each of your document section headings and subheadings. Note the highest heading level you use; you will need to refer to it when inserting the table of contents in the next section.



Inserting the table of contents

Once you have appropriately formatted your document with headings using the various Word heading styles, you can add the table of contents at the beginning of your document. The table of contents will be built based on the heading numbers (styles) you have used throughout the document. These heading numbers are also referred to as levels. To insert a table of contents in your document, follow these steps:

1. Move to the page in your document where you want to add the table of contents. If necessary, insert a blank page.
2. Type in a page heading near the top of the page (e.g., Table of Contents).
3. Position the cursor below the page heading.
4. On the References tab, in the Table of Contents group, click Table of Contents.
5. Click Insert Table of Contents...at the bottom of the gallery.
6. In the Table of Contents dialog box (see Figure 20), choose a format from the General area in the lower left corner. Options include: Classic, Modern, Simple, and more. The choice you make here determines the initial appearance of the table.
7. In the Show levels spin box, choose the highest heading level (style) you want visible in the table. The number should correspond with the highest heading level used in the document.
8. Under the Print Preview area, check the boxes to "Show page numbers" and/or "Right align page numbers".
9. If necessary, choose a Tab leader from the drop down list.
10. Click the OK button and the table of contents is added to the page.

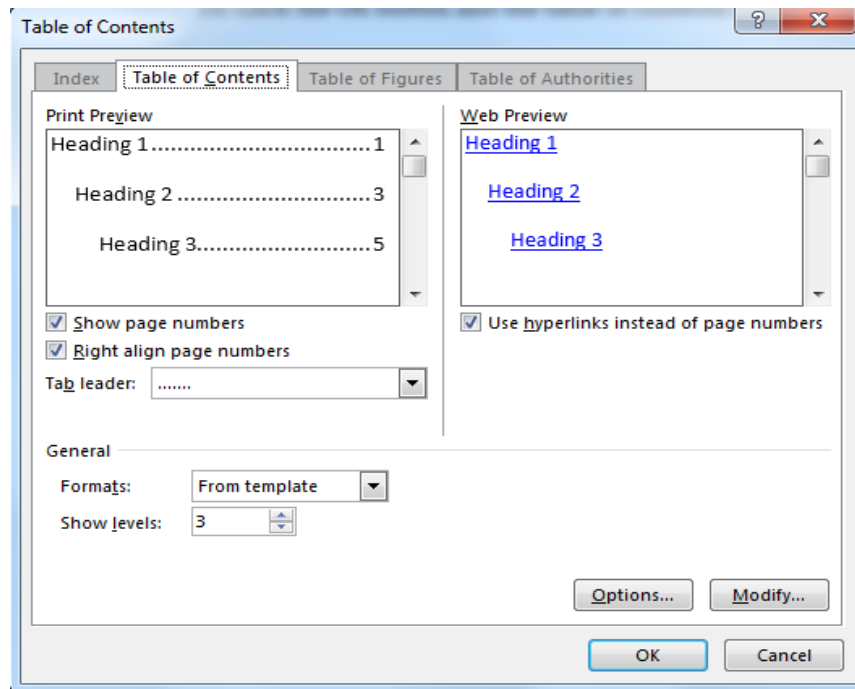


FIGURE 2. 17 INSERT TABLE OF CONTENT

Updating the table of contents

If you change the page numbers or headings in a document containing a table of contents, you have the option of updating the table of contents to reflect those changes. Follow these steps to change the document and automatically update the table of contents:

1. Make a change to one of the existing document section headings or subheadings. Or, insert/remove a section heading or subheading.
2. On the References tab, in the Table of Contents group, click Update Table.
3. Choose an option in the Update Table of Contents dialog box:
 - a. If only page numbers have changed in the document, select Update page numbers only (see Figure 21).
 - b. If headings have changed, select Update entire table.
4. Click the OK button.
5. View the page in the document that contains the table of contents. The changes in the heading and subheading text you made will be reflected in the updated table of contents.

2.3 Activities

1. Your mission is to prepare a letter to someone you know discussing five things you like about Birzeit University and three things you dislike about BZU. The contents of your letter can be fiction or nonfiction.
 - 1.1. Your name and address should be centered and in italics at the top of the page with a Comic Sans font of 14 points.
 - 1.2. Insert your e-mail address (if any).
 - 1.3. Insert today's date, align it right.
 - 1.4. The name and address of your letter's recipient should be left aligned with a Comic Sans font of 9 points.
 - 1.5. At this point I would recommend saving your letter. Create a new folder on your student data disk called "BZU" and save this document as Word BZU in your Word exercises folder.
 - 1.6. The body of your letter should also use a Comic Sans font of 9 points.
 - 1.7. The first paragraph should contain the list of five things you like about BZU.
 - 1.8. The list should be numbered 1-5.
 - 1.9. Each item in the list must contain the phrase BZU
 - 1.10. The second paragraph should discuss three things you dislike about BZU.
 - 1.11. Each item should begin with a bullet.
 - 1.12. Each item must contain the phrase BZU.
 - 1.13. Close your letter with Sincerely, and your name left aligned at the bottom of the letter.
 - 1.14. Draw a smiley face at the bottom of the letter and colored it yellow.
 - 1.15. Put a border for the page and a beautiful background
 - 1.16. Check the spelling and grammar.
 - 1.17. Save your document again.
2. Print your document. Write an article to direct students to some Web sites so that they too can read about places of interest. And be sure to contain the following:
 - 2.1. The names of websites must be in word gallery with shadow, and 3D shape style.
 - 2.2. Insert a picture that express about each website.
 - 2.3. Any comments about any website must insert in a footnote. (You should insert at least one comment).
 - 2.4. Insert a suitable symbol beside each website.
 - 2.5. Insert table with a suitable Dimensions which contain the name of each paragraph and number of words in it.
 - 2.6. Insert a reference.
 - 2.7. The space between lines must be 1.5
 - 2.8. Insert a page number (at a top in Latin format).
 - 2.9. Write the comments in Arabic and English language.
 - 2.10. Write the date of writing this article in the header of the page and the day in the footer of the page (right).

Experiment 3: Microsoft Office Excel

3.1 Objectives

- Create and save document to a specified area.
- Locate and open an existing document.
- Identify different tools, menus, Bars of excel file.
- Identifying parts of the worksheet (columns, rows, cells, labels, etc.)
- Identify the properties of cells, columns, rows.
- Format (delete, insert, select, move, copy, paste) cells, columns, sheets and rows.
- Use Auto Fill procedure.
- Identify cell reference.
- Create and write correct formulas.
- Identifying excel Error types.
- Identify functions of new icons like percentage, currency, and comma.
- Draw and format charts.

3.2 Context

Microsoft Excel is an excellent spreadsheet program for manipulating data. Excel has the tools to manage data and perform complex mathematical functions, which may otherwise take hours to complete.

However, the menu bar and shortcuts for Microsoft Word is nearly very similar to those for Microsoft Excel. Thus, this experiment will mainly concentrate on new things found in Excel.

When you come familiar with Excel basics, you will find it easy to learn and can be fun to use.

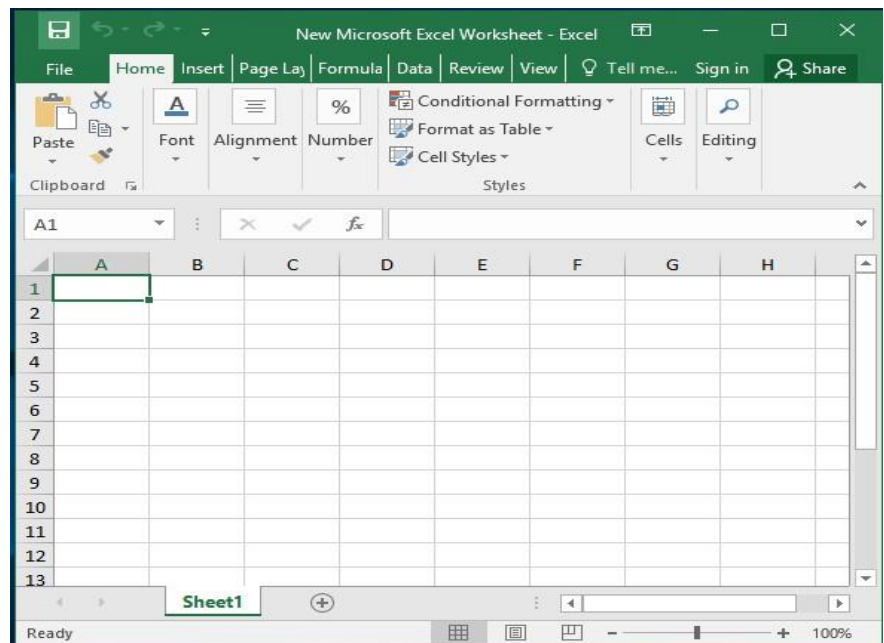


Figure 3. 18 Excel Interface

Features of Excel

An Excel file is called a **workbook**. A workbook can contain one or more **worksheets**. For organizational purposes, it is helpful to separate different sets of data by using different worksheets. A worksheet consists of 256 *columns* and 65,536 *rows*, for 16,777,216 *cells* per worksheet. The extension of excel is **xlsx**.

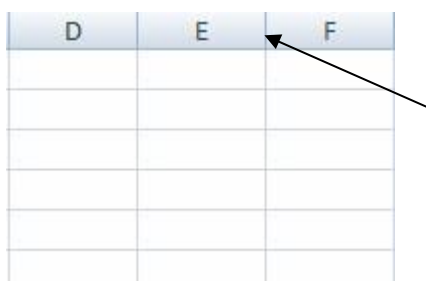
Parts of the Worksheet

1. **Column** – A vertical group of cells in a worksheet. A letter ranging from A to IV identifies each column.
2. **Column Headings** – Sequential *letters* at the top of the worksheet.
3. **Row** – A horizontal group of cells in a worksheet. The row *number* identifies each row.
4. **Row Headings** – Sequential numbers along the left side of the worksheet.
5. **Cell** – Intersection of a column and row. Referred to by the column letter and then the row number.
Example: A2
6. **Label** – Identifies information on the spreadsheet. For example, a column might be labeled expenses.
7. **Value** – The raw data in a spreadsheet

Columns

To change column width

1. Place the mouse pointer on the column heading divider line that divides the column that you want to change from its neighbor to the right.



2. When your mouse pointer changes to a two-way arrow, click, hold, and drag the column divider line to the right or left.
3. To change the width of multiple columns, click, hold, and drag through the column headings that you want to change (select non-adjacent columns by pressing and **Column Heading Divider Lines** holding the **CTRL** as you click). Then click, hold, and drag any divider line.

To insert a column

1. In the column heading area, right click on the column heading to the right of where you want to insert the new column
2. Choose **Insert**

Deleting a Column

1. To delete a column, in the column heading area, right click on the column heading that you want to delete.
2. Choose **Delete**

Hiding a Column

1. To hide a column, in the column heading area, right click on the column heading that you want to hide.
2. Choose **Hide**

1. To unhide a column, select the two columns where the hidden column is situated between them.
2. Right click on the column heading then choose **Unhide**

Applying and Modifying Cell Formats (Currency, Percent, and Decimals.....)

1. Select the cell or range of cells.
2. Right click on the selected cells and choose **Format cells**.
3. Select the desired **Category**.
4. Click **OK**.

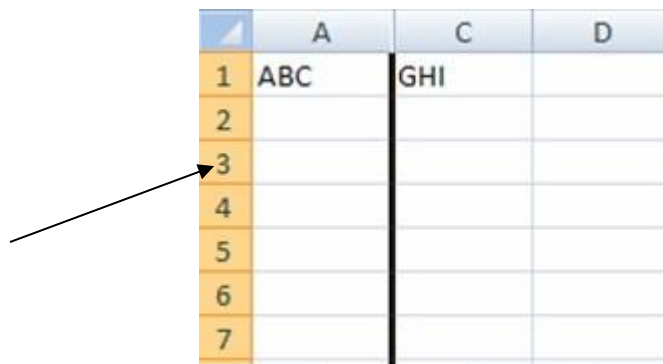
You may also choose from the **Home** menu the icon you want

- Currency Style. 
- Percent Style. 
- Increase/Decrease Decimal. 
- Comma style to remove currency, percentage symbols. 

5.4.2 Rows

To change Row Height

1. In the row heading area, place the mouse pointer on the divider line under the row you want to change.



2. When your mouse pointer changes to a two – way arrow, click, hold, and drag the row heading divider line up or down.
3. To change the height of multiple rows, click hold, and drag through the row headings that you want to change (select non-adjacent rows by pressing and holding the CTRL key as you click). Then click, hold, and drag any divider line.

Inserting a Row

Right click on the row heading below where you want to insert a new row and choose **Insert** from the shortcut menu box.

Deleting a Row

Right click the row heading of the row you want to delete and click **Delete** from the shortcut menu.

Hiding a Row

1. To hide a row, in the row heading area, right click on the row heading that you want to hide.

2. Choose Hide

Un hiding a Row

1. To unhide a row, select the two rows where the hidden row is situated between them.
2. Right click on the row heading then choose **Unhide**

Sorting

To Sort rows in **ascending** (A to Z) or **Descending** order based on the content of one column follow the steps shown in the figure

1. Right click on any cell in the column you want to sort.
2. Choose **sort** then (sort **A to Z**) or (sort **Z to A**)
3. You can also use the sort icon in the **Home** menu

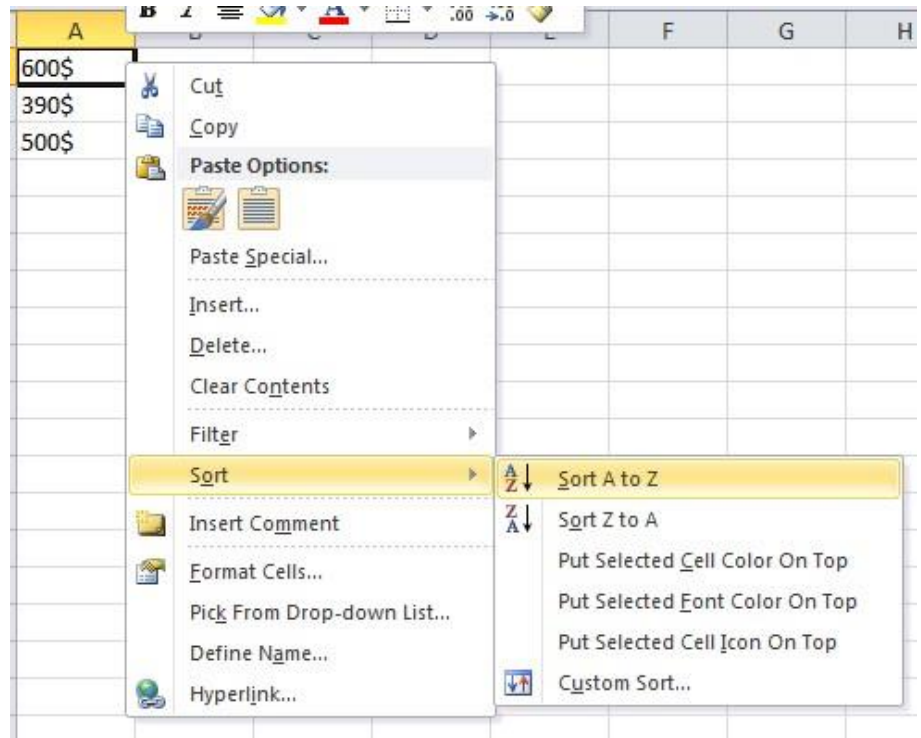
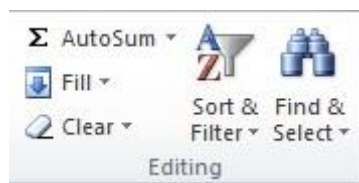
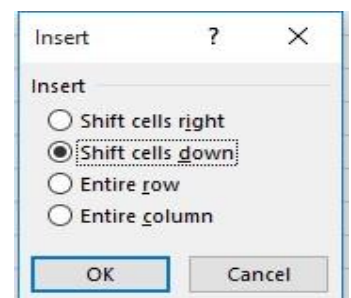


Figure 3.2 sorting

Cells:

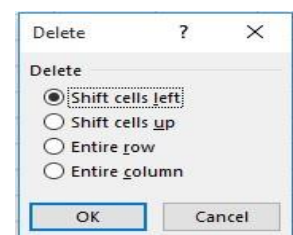
Inserting Cells

1. Click where you want to insert the cell or select a range of cells that you want to insert.
2. **Right-click** on the selected cell(s) and choose **Insert**. The Insert dialog box will appear.
3. Make a choice for how you want the cells to be shifted and click "ok".



Deleting Cells

1. To delete a cell, select and highlight the cell you wish to delete.
2. **Right click** on it and choose **Delete**.
3. The Delete dialog box will appear.
4. Make a choice for how you want the cells to shift and click okay.



Merge and Center Cells:

To merge cells as seen below, do the following:

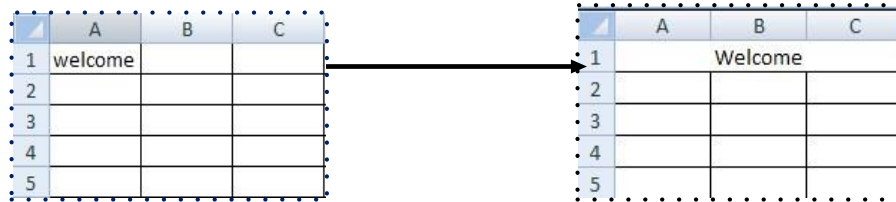


Figure 3.3 Merge cells

1. Select the cells you want to merge.
2. Click the **Merge and Center** button in the **Home** menu.



- 3.
4. Type the title.

Moving Cells through Cutting:

Cutting cell content means that the data will be moved to another cell.

1. Select the cell or cells you want to cut.
2. Right click on the selected cells then click **cut**.
3. Select the location to move the data to then right click on that then choose **Paste**.
4. The short cut key for cutting is Ctrl+X.

Moving Cells Drag and Drop:

If you are moving the cell content only a short distance, the drag-and-drop method may be more efficient.

1. Simply click and hold the highlighted border of the selected cell.
2. Drag it to the destination cell with the mouse.
3. Release the mouse button and the selected data moves.

Moving Cells using Copy and Paste:

When you want the same data to be present at several locations, it is best to copy this data rather than type it at each location. You can copy data within a worksheet, across worksheets, across workbooks, and even to and from other applications.

1. Select the cells you wish to copy.
2. Right click on the selected cells then choose **Copy**
3. Select the location where you would like the copied cells to appear.
4. Right click on that place then choose **Paste**.
5. The shortcut keys copying and pasting are **Ctrl+C** to Copy and **Ctrl+V** to Paste.

Worksheet:

An Excel workbook may contain many worksheets. To navigate to a new worksheet, click on the desired sheet tab (bottom left corner of the screen).



To insert a new single worksheet:

1. Right click on any sheet then choose **insert**

2. From the window which will be shown choose **worksheet**
3. Click **OK**

You can also insert a new sheet by pressing the icon:



Rename a Worksheet:

1. Double-click the sheet tab that you would like to rename.
2. Type a new name over the current name and press **Enter**.

Moving a Worksheet:

1. Click and hold the mouse button on the sheet tab that you would like to move.
2. Drag the sheet to its new location, a small black insertion arrow shows where the worksheet will be inserted.

Delete a Worksheet:

1. **Right Click** on the sheet you want to delete.
2. From the menu choose **delete**.

Selecting

Selecting with the SHIFT key:

The shift key is used to select all the cells in a row column or range from one point to another.

1. Select the starting cell.
2. Hold the **SHIFT** key.
3. Click the ending cell of the selection.

Selecting with the CTRL key:

The control key lets you select non-adjacent cells.

1. Select a cell.
2. Hold the **CTRL** key, select another cell.
3. Continue holding **CTRL** and selecting cells until all the cells you want selected are.

Pasting Linked Data

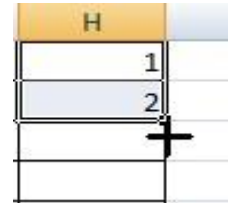
When you paste data from one cell to another you can link the data so if is changed in the original cell it will change in any copied cell.

1. Highlight the data you want to copy.
2. Right click and choose **Copy**.
3. Go to the cells you wish to copy to.
4. Right click and choose from **Paste options** choose the link button.

AutoFill:

Fills are a good way to save time when entering data. AutoFill allows you to fill a row or a column of adjacent cells with a series based on the information in a single cell. You can do this with dates, time, months, years, numbers, and even formulas.

1. Select the cell with data that you would like to begin your series with.
2. Place your mouse pointer in the lower right corner of the active cell.
3. The mouse pointer will change to a fill pointer. Click, hold, and drag the fill pointer into a row or column of adjacent cells.



Protection:

Protect a Sheet:

To protect a sheet so as nothing can be changed in the sheet content do the following

1. On the **Review** menu, choose **Protect**
2. **Sheet**.
3. Enter a password.
4. Check the boxes you want.
5. Click **OK**.
6. A confirm Password dialog box will appear.
7. Enter the same password and click **OK**.

Note: An Error message will appear if you try to change or add anything to the protected sheet

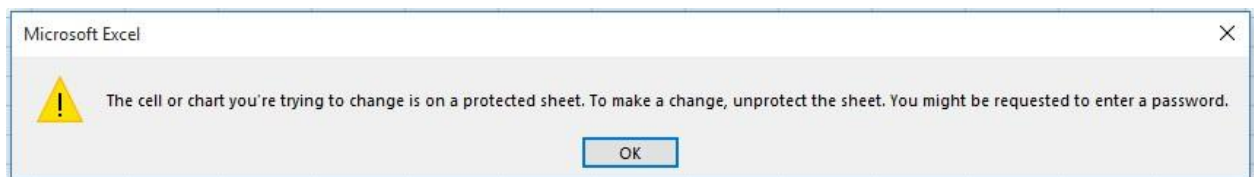


Figure 3. 4 Protection

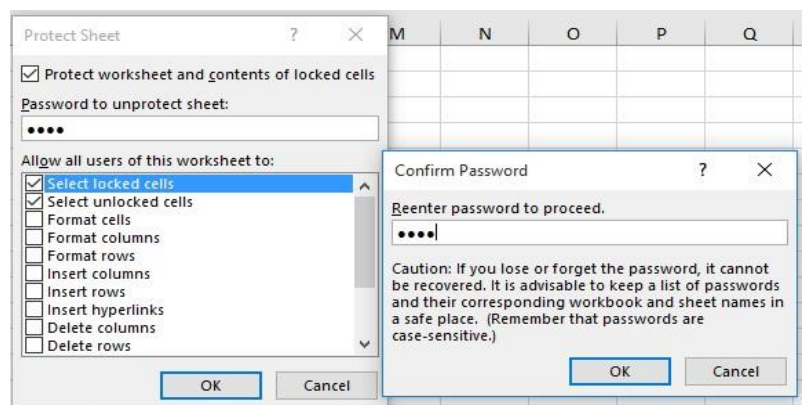
Chart Wizard

In Excel, you can create charts from your worksheet data. A wide range of standard, business, and technical charts are available. It is important to accurately represent your data using the appropriate chart. There are three types of basic charts:

1. **Bar charts:** illustrate individual values at a specific point at time.
2. **Line charts:** illustrate changes in a large number of values over a long period of time.
3. **Pie charts:** show the relationship of each part to the whole.

To create a chart:

1. Select a cell in the data to be plotted.
2. From Insert Menu choose the desired chart



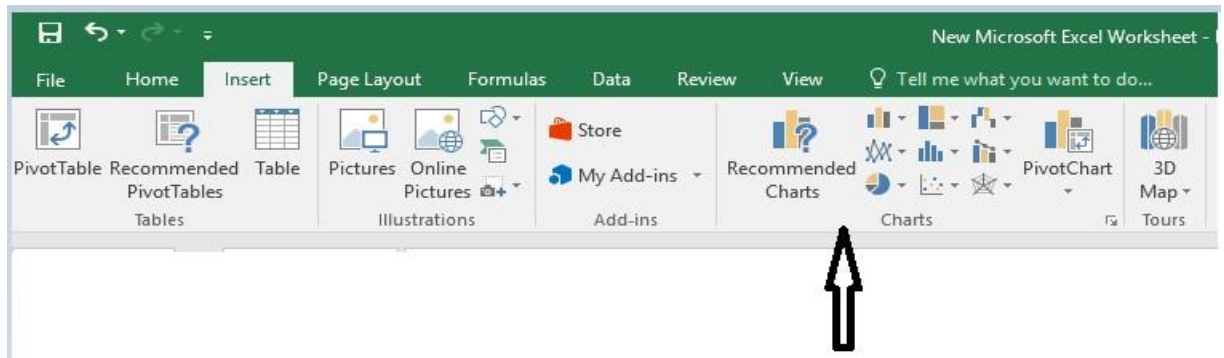


Figure 3.5 Create Chart

Editing the chart

Click **once** the chart so as to show the **Design** menu and **Layout** menu From the **Design Menu**:

1. Select the color you want for the chart (the columns in this example)

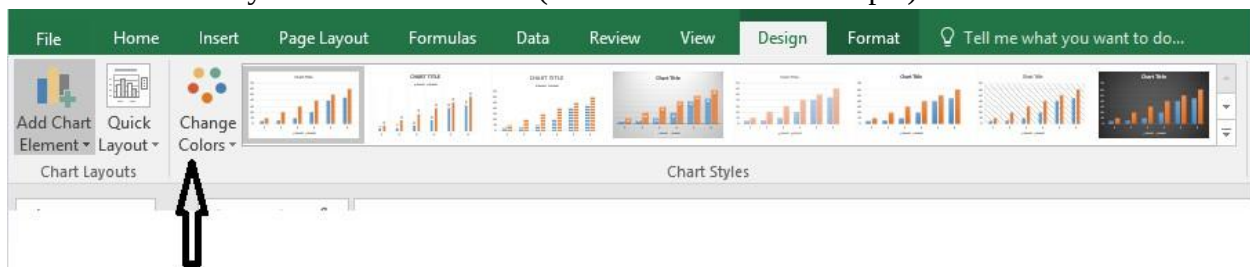


Figure 3.6 Editing the Chart

Cell Reference

A *cell reference* identifies a cell or a range of cells on a worksheet and tells Microsoft Excel where to look for the values that you want to use in a formula. With references, you can use data contained in different parts of a worksheet in one formula. You can also refer to cells on other sheets in the same workbook or to other workbooks.

Excel uses cell references which refer to columns with letters (A through IV, for a total of 256 columns) and rows with numbers (1 through 65,536). To refer to a cell, enter the column letter followed by the row number.

Examples of references

- The cell in column A and row 10: **A10**
- The range of cells in column A and rows 10 through 20: **A10:A20**
- The range of cells in row 15 and columns B through E: **B15:E15**
- All cells in row 5: **5:5**
- All cells in rows 5 through 10: **5:10**
- All cells in column H: **H:H**
- All cells in columns H through J: **H:J**
- The range of cells in columns A through E and rows 10 through 20: **A10:E20**

Formulas

A formula is an equation that performs operations on worksheet data. Formulas can perform mathematical operations, such as addition (+), subtraction (-), multiplication (*), and division (/). Formulas can refer to other cells on the same worksheet, cells on other sheets in the same workbook, or cells on sheets in other workbooks.

The structure or order of the elements in a formula determines the final result of the calculation.

Formulas in Microsoft Excel follow a specific order that includes an equal sign (=) followed by the elements to be calculated. *Example:* =A1+A2

Excel performs the operations from left to right. You can control the order of calculation by using parentheses to group operations that must be performed first.

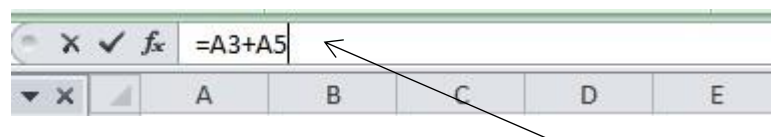
Excel follows these rules:

Expressions within parentheses are processed first. Multiplication and division are performed before addition and subtraction. Calculations are performed from left to right. This is called the order of operations. An easy way to remember is the mnemonic.

Entering a Formula Manually

1. Click the cell in which you want to enter a formula.
2. Type “=”. The equal sign tells Excel that the succeeding characters constitute a formula.
3. Enter the formula. *Examples:* a.
 - a. =A1+A2
 - b. =C7*F6
 - c. =F13/5.5
4. Press **Enter**.

Note: Your formula will appear in the **Formula bar**



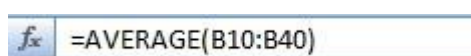
Functions

A *function* is a predefined formula that operates on values and returns a value. All functions consist of a function name followed by a set of *arguments* enclosed in parentheses. To use a predefined function:

1. Select the cell where you want the result to appear.
2. Click the **Insert Function** button. 
3. Click to select the desired *Function Category* (Most Recently Used....)
4. Click to select the desired *Function Name* (Average, Sum, If, etc.).
5. Click **OK**. The **Functions Argument** box will appear.
6. In the formula palette, verify that the cells referenced are correct for the function. If the cells referenced are incorrect, specify the desired cells to be referenced.
7. Click **OK**

• Using Average

1. Select a cell.
2. Type = **Average**.
3. Select a range (B10:B40).
4. Type and press **Enter**.



• Using MIN

The MIN function returns the smallest number from a list of values.

1. Select a cell.
2. Type = **MIN**.
3. Select a range (D15:D40).
4. Type and press **Enter**.

- **Using MAX**

The MAX function returns the largest number from a list of values.

1. Select a cell.
2. Type = **MAX**.
3. Select a range (E5:E40).
4. Type and press **Enter**.

- **Using COUNT**

The Count function counts the number of cells that contain arguments.

1. Select a cell.
2. Type = **COUNT**.
3. Select range to average (C5:C20).
4. Type and press **Enter**.

- **Using AutoSum Menu**

AutoSum has pre-defined functions (MAX, MIN, SUM, AVERAGE, and COUNT) that automatically do calculations after selecting the wanted data.

You can find the AutoSum icon in **Home Menu** or **Formula Menu**.

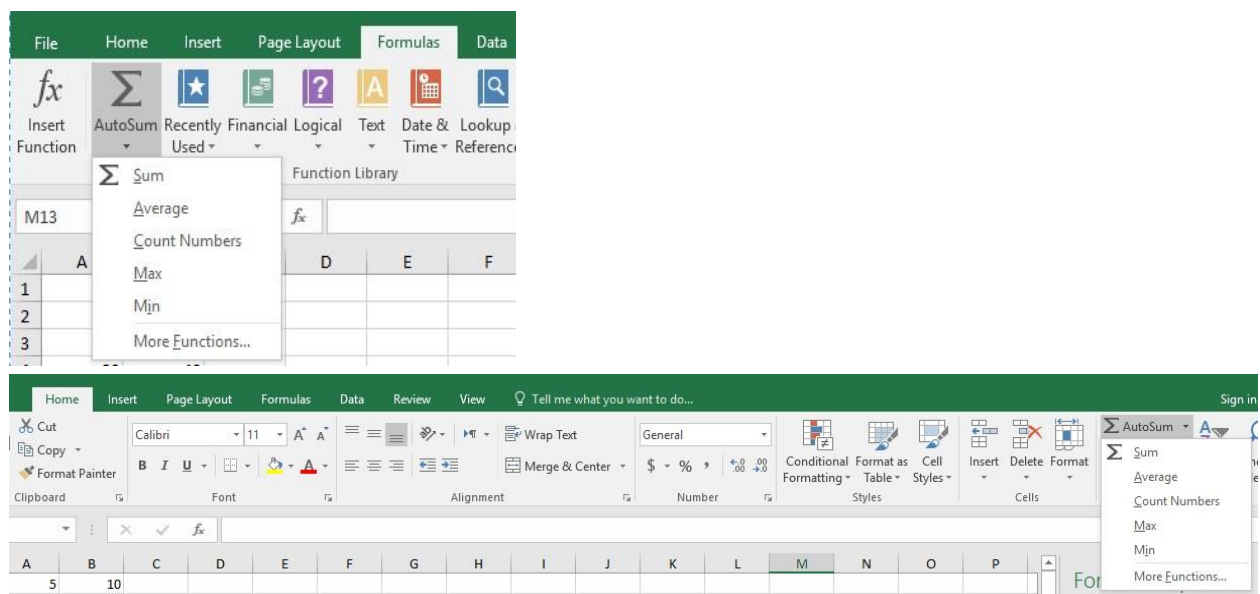
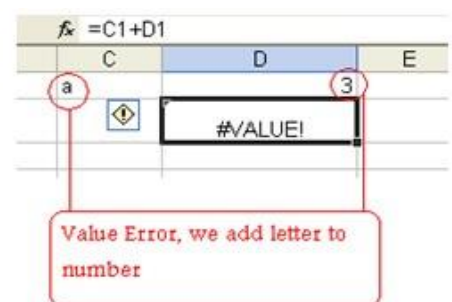


Figure 3. 19 Auto Sum Menu

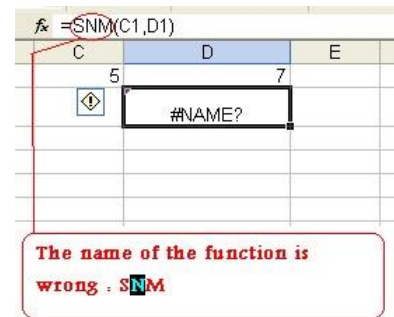
Error types:

Most common Errors:

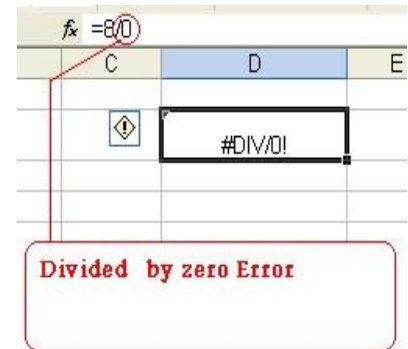
- **#VALUE!** : You add a letter to number



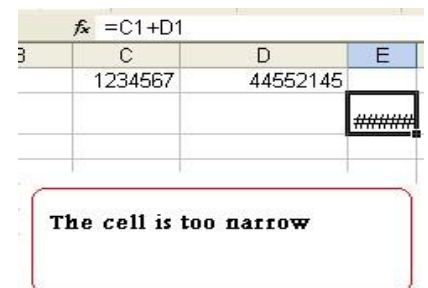
- **#NAME?** : You write a wrong function name.



- **#DIV/0!** : when a number is divided by zero



- **#####** : the width column is too narrow



3.3 Activities

1. Insert the following data into an excel sheet. Note the following formatting:

- Font type: Ariel

- Font size: 14

Book Store	Item	Quantity	Price
	Book	30	\$ 20.00
	A4 Paper	16	\$ 11.00
	Pens	45	\$ 8.00
	Stapler	5	\$ 35.00
	Paper Punch	5	\$ 18.00
	Ruler	20	\$ 5.00
	Marker	6	\$ 6.00
	Notebook	14	\$ 65.00

2. Set the width and height of the table to “AutoFit”
3. Recolor the cells, using Cell Styles.
4. Merge the first column as shown in the table
5. Change the text direction for the first column and first row as shown in the table.
6. Change the format of the numbers in the column “Price” to Accounting.
7. In a separate sheet do the following using Auto Fill:
 - a. Make a list the names of the days of the week
 - b. Make a list the names of the months of the year
 - c. Make a list of even numbers.
8. How can we use excel to make simple calculations, like addition (+), subtraction (-), multiplication (*), and division (/)?
9. How do we name
 - a. Individual cells?
 - b. Cells in a row?
 - c. An entire row?
 - d. Cells in a column?
 - e. An entire column?
 - f. A group of cells?
10. Add a new column, call is “Total Price”, and calculate the values in it as follows:
Total Price = Quantity * Price
11. How can we use Auto Fill to make this task easier?
12. Insert a row called “Max”, and calculate the maximum value in the “Quantity” and “Price” columns.
13. Insert a row called “Min”, and calculate the minimum value in the “Quantity” and “Price” columns.
14. Insert a row called “Sum”, and calculate the summation of values in the “Quantity” and “Price” columns.
15. Hide the “Item” column, and unhide it again.

16. Sort the data ascending according to the “Item” name.
17. Use conditional formatting to highlight the numbers in the column “Total Price” as follows:
 - a. The numbers that are below average should be highlighted in Red.
 - b. The numbers that are above average should be highlighted in Green.
18. Draw a column chart that shows the total price of each item.
19. Draw a pie chart that shows each item’s price.
20. Draw a line chart that shows the quantity of each item.

Experiment 4: Numbering Systems

4.1 Objectives

- To be familiar with known numbering systems including decimal
- To be familiar with converting integers between different numbering systems
- To be familiar with converting fractions between different numbering systems
- To perform Addition and subtraction of binary numbers using 2's complement.
- To gain the ability to represent different data types in memory.

4.2 Context

There are many ways to represent the same numeric value. Long ago, humans used sticks to count, and later learned how to draw pictures of sticks in the ground and eventually on paper. So, the number 5 was first represented as: | | | | | (for five sticks).

Later on, the Romans began using different symbols for multiple numbers of sticks: | | | still meant three sticks, but a **V** now meant five sticks, and an **X** was used to represent ten of them!

Using sticks to count was a great idea for its time. And using symbols instead of real sticks was much better. One of the best ways to represent a number today is by using the modern decimal system. Why? Because it includes the major breakthrough of using a symbol to represent the idea of counting **nothing**. About 1500 years ago in India, **zero (0)** was first used as a number! It was later used in the Middle East as the Arabic, sifr. And was finally introduced to the West as the Latin, zero. Soon you'll see just how valuable an idea this is for all modern number systems.

Decimal System

Most people today use decimal representation to count. In the decimal system there are 10 digits:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9

These digits can represent any value, for example:

754.

The value is formed by the sum of each digit multiplied by the base (in this case it is 10 because there are 10 digits in decimal system) in power of digit position (**counting from zero**):

$$7 \cdot 10^2 + 5 \cdot 10^1 + 4 \cdot 10^0 = 700 + 50 + 4 = 754$$

Position of each digit is very important! for example if you place "7" to the end:

547

it will be another value:

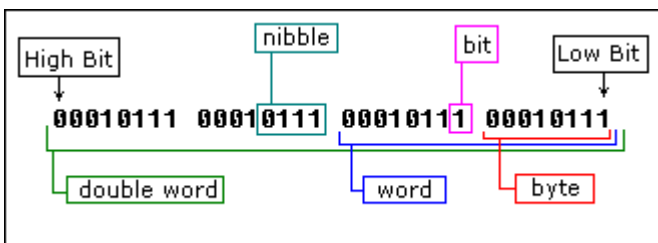
Binary System

Computers are not as smart as humans are (or not yet), it's easy to make an electronic machine with two states: on and off, or 1 and 0.

Computers use binary system, binary system uses 2 digits:

0, 1 And thus the base is 2.

Each digit in a binary number is called a **BIT**, 4 bits form a **NIBBLE**, 8 bits form a **BYTE**, two bytes form a **WORD**, and two words form a **DOUBLE WORD** (rarely used):



There is a convention to add "b" in the end of a binary number, this way we can determine that 101b is a binary number with decimal value of 5.

The binary number 10100101b equals to decimal value of 165:

$$\begin{aligned} 10100101b &= \\ &= 1 \cdot 2^7 + 0 \cdot 2^6 + 1 \cdot 2^5 + 0 \cdot 2^4 + 0 \cdot 2^3 + 1 \cdot 2^2 + 0 \cdot 2^1 + 1 \cdot 2^0 \\ &= 128 + 0 + 32 + 0 + 0 + 4 + 0 + 1 = 165 \end{aligned}$$

(decimal value)

The diagram includes two annotations: a red box labeled 'base' with an arrow pointing to the '2' in the first term of the equation, and a green box labeled 'digit position' with an arrow pointing to the '3' in the fifth term of the equation.

Hexadecimal System

Hexadecimal System uses 16 digits:

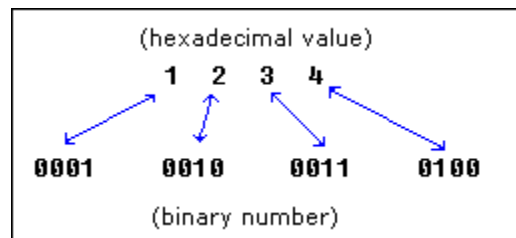
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F

And thus the base is 16.

Hexadecimal numbers are compact and easy to read.

It is very easy to convert numbers from binary system to hexadecimal system and vice-versa, every **nibble** (4 bits) can be converted to a hexadecimal digit using this table:

Decimal (base 10)	Binary (base 2)	Hexadecimal (base 16)
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
10	1010	A
11	1011	B
12	1100	C
13	1101	D
14	1110	E
15	1111	F



There is a convention to add "h" in the end of a hexadecimal number, this way we can determine that 5Fh is a hexadecimal number with decimal value of 95.

We also add "0" (zero) in the beginning of hexadecimal numbers that begin with a letter (A..F), forexample 0E120h.

The hexadecimal number 1234h is equal to decimal value of 4660:

$$1 \cdot 16^3 + 2 \cdot 16^2 + 3 \cdot 16^1 + 4 \cdot 16^0 = 4096 + 512 + 48 + 4 = 4660$$

(decimal value)

4.3 Activities

Activity 1: Convert the following 8-bit numbers from binary to decimal.

- a. 00010101_2
- b. 10110101_2
- c. 11010011_2
- d. 01101000_2

Activity 2: Determine whether the following statements are true or false.

- e. $1001_2 < 5_{10}$
- f. $0111_2 = 111_{10}$
- g. $0011_2 > 2_{10}$
- h. $1001_2 > 1101_2$
- i. $1011_2 = 11_{10}$
- j. $1111_2 = 15_{10}$
- k. $0000_2 < 0_{10}$
- l. $1101_2 > 1010_2$

Activity 3: Convert the following numbers to their binary equivalents.

- a. 27_{10}
- b. 33_{10}
- c. 54_{10}
- d. 200_{10}
- e. 549_{10}

Activity 4: Convert the following numbers to their binary equivalents.

- a. 27.375_{10}
- b. 33.75_{10}
- c. 54.125_{10}
- d. 47.875_{10}
- e. 78.625_{10}

Activity 5: Use the 32-bit floating representation to represent the binary numbers you have got from the previous question.

Activity 6: Convert the following decimal numbers to binary. Work until you are sure your binary answer is repeating.

- a) 0.2_{10} b) 0.3_{10} c) 0.4_{10}

Activity 7: Add the following 8-bit binary numbers.

- a. $01001110_2 + 00111100_2$
- b. $10011101_2 + 10001111_2$
- c. $11010011_2 + 01010110_2$
- d. $10010011_2 + 10111001_2$
- e. $11111110_2 + 10110101_2$

Activity 8: Convert the following decimal numbers to binary using 8-bit 2's complement representation.

- 1. -16_{10}
- 2. 13_{10}
- 3. -3_{10}
- 4. -10_{10}
- 5. 26_{10}
- 6. -31_{10}

Activity 9: Solve each of the following 8-bit subtraction problems using 2's complement representation.

- a. $01111111_2 - 78_{10}$
- b. $00110010_2 - 123_{10}$
- c. $01001001_2 - 111_{10}$
- d. $00000111_2 - 35_{10}$

Activity 10: Convert the following numbers to decimal.

- a. 71_8
- b. 71_{16}
- c. $DE0_{16}$
- d. 11011_8
- e. ABC_{16}
- f. 1001_{16}
- g. 70.7_8
- h. $A1.F_{16}$

Activity 11: Using the odd parity bit to represent the following sentence in memory (Hexadecimal)?

My Name Is -write your first name-

Experiment 5: Microsoft Office PowerPoint

5.1 Objectives

- What is a presentation, its types and what should contain.
- To introduce the PowerPoint main functions.
- To be able to create a PowerPoint presentation document, add text animation, Slide transition.
- To add sounds, videos, pictures in addition to text in the presentation.
- To control the slides during the presentation.
- To use different views and printing options.

5.2 Context

PowerPoint is one of Microsoft Office applications; it is used to create the presentation slides with text, graphics and sounds. Slides are the individual parts of a presentation, they are similar to the individual pages in a print document, and they can contain text, graphics, and/or animation.

PowerPoint has features enable the slides, text and the graphics to be animated. When you play a PowerPoint presentation slides and the other objects can move automatically or with your mouse click, these movements called special effects (Slide Transition and Animation Effects).

What is a Presentation?

A presentation is a means of communication, which can be adapted to various speaking situations, such as talking to a group, addressing a meeting or briefing a team. To be effective, step by step preparation and the method and means of presenting the information should be carefully considered.

Types of presentations

1. Quick 1-minute “what I do” talk.
2. 25-minute conference paper presentation.
3. Project presentation.
4. Thesis defense.
5. Job talk.

What they have in common:

1. Never enough time to talk about everything.
2. All of them reflect on you & need practice/polish.
3. Focus on a clear goal and message.

Top 10 pointers for a good talk

1. Be neat.
2. Avoid trying to cram too much into one slide, do not be a slave to your slides.
3. Be brief, use keywords rather than long sentences.
4. Avoid covering up slides.
5. Use a large font.
6. Use color to emphasize.
7. Use illustrations to get across key concepts, may include limited animation.
8. Make eye contact.
9. Be ready to skip slides if time is short.
10. Practice!!

What should my presentation contain?

1. Who am I?
2. What is the problem?
3. Why is it important?
4. What have others done?
5. What is my approach?
6. Summary, future work, backup slides.

Getting Started with Microsoft power point 2016

Click on the **start button**, point to **All programs** then **Microsoft office** and click on **Microsoft office power point 2016** .the window appears and your screen looks similar to the one shown below.

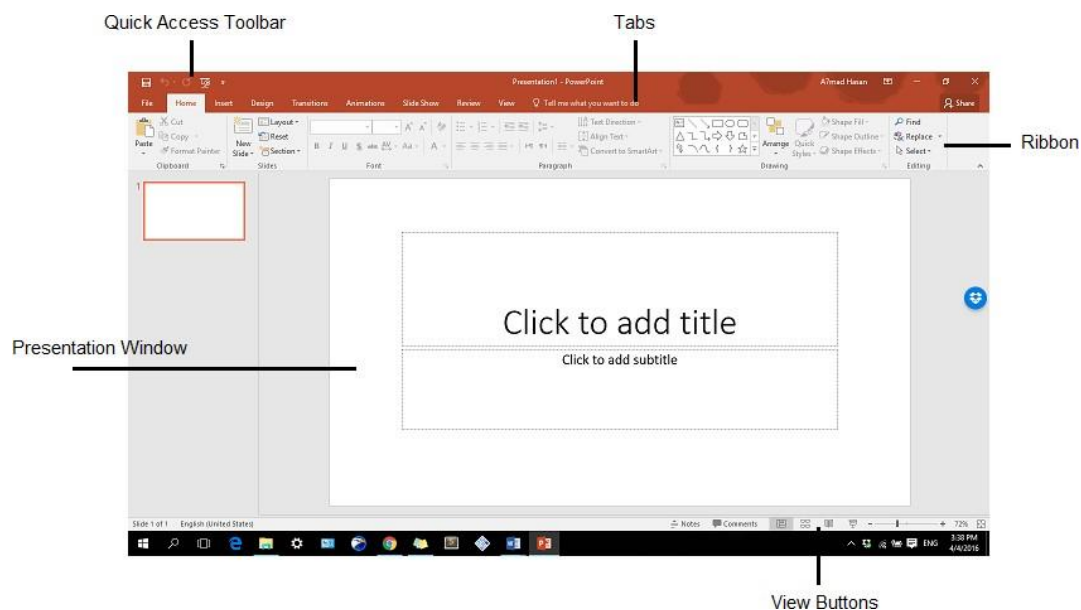


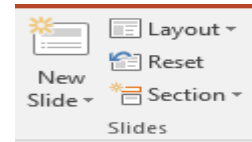
Figure 5. 1PowerPoint 2016 Window

Creating a New Presentation

Any presentation will consist of slides; these slides with their "**Types**" specify the way of data arrangements.

The first time you start the PowerPoint a slide of type "**Title Slide**" is created, then you can create more slides by:

- Go to **Home** in the **ribbon**, then to the **Slides** group, and then



Normal slide:

Usually the first slide in a presentation is a "**Title Slide**", this slide type looks like the following figure:



Figure 5. 2Title slide

It is used to introduce the presentation, click in the space labeled "**Click to add title**" and type a title for the presentation, for example type your favorite book title, do the same thing for the space labeled "**Click to add subtitle**" and you can type the author name.

Adding Bullets Slides

You can use bulleted or numbered lists to help organize your text or show a sequential process in your PowerPoint presentation.

1. Create a new slide (as described previously in this experiment).
2. A new slide will appear and a second slide will appear on the left screen, it should look like the one below:



Figure 5. 3Adding Bullets

Formatting Bullets:

Go to the "Home" tab, then to the "Paragraph group" and click on "Bullets" , then choose "Bullets and Numbering" a dialog like the following figure enables you to choose your bullets and customizing it.

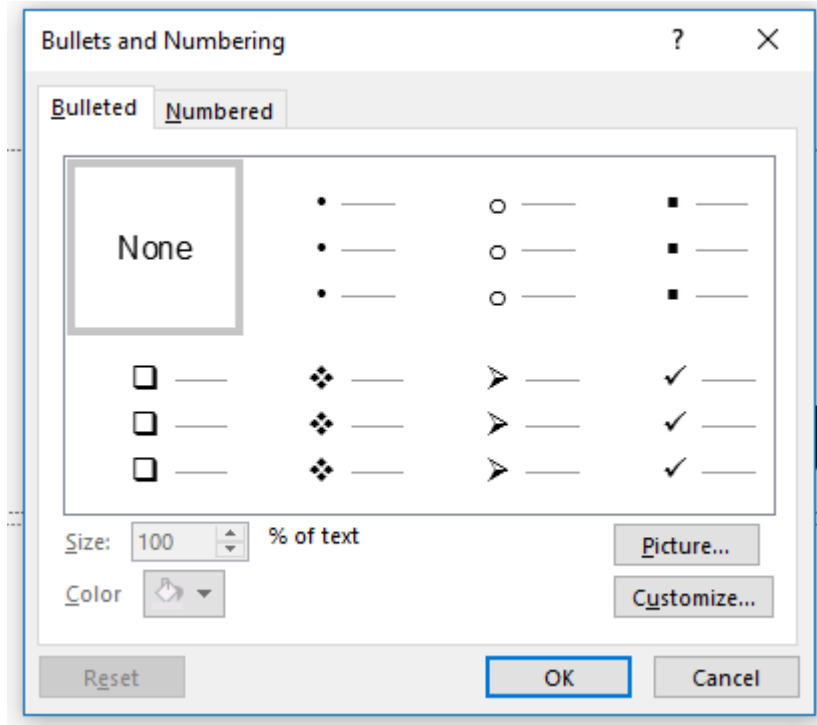
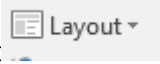
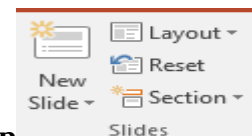


Figure 5. 4 Formatting Bullets

Changing Slide Layout:

When you create a new slide, you can change slide layout by:

- Go to **Home** in the **ribbon**, then to the **Slides group** , and then click on **Layout** , now you can select the layout you need and change the layout of selected slide.



9.1.2. Adding a ClipArt and Picture Slide:

Pictures not only add visual interest but also assist in getting your message across. Clipart is used to add pictures to your presentations.

PowerPoint 2016 offers you a number of different ways to add **clip Art and pictures** to your presentation.

- One of them is to select a slide layout that contains a placeholder for content such as

clip art and pictures as shown below

Click to add title

- Click to add text



Figure 5. 5 Adding a ClipArt and Picture

- Go to **Insert** tab on **ribbon**, then to **Illustrations and Images** group, then click picture if you need to download picture from file or click on clip art to select one of Microsoft pictures

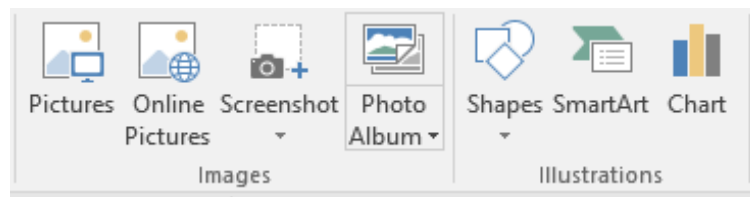


Figure 5. 6 Illustrations and Images

Adding a WordArt Slide

WordArt is used to create special effects on the text; you can create curves, angles, waves, 3-D effects and many more.

- Create a new slide.
- Change the slide layout; choose the “**Blank**” layout. You should now have a slide that is completely blank.
- Go to **Insert** tab on the ribbon, then to **Text** group now select **word Art**

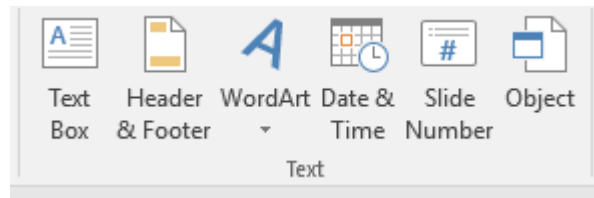


Figure 5. 7 Text group

- Choose a text layout and then click OK.
- From **format** tab, you can choose formatting options and type your text then click OK. The WordArt will appear in the center of your slide.
- You can drag text to move it from one place to another, also you can rotate text, there are many things you can perform on your text as you needed.

Changing the text after formatting it using the WordArt:

Double click the text, and then you can write your new text.

Moving through presentation slides

Moving can be done by clicking its thumbnail on the left of the screen, also you can move between slides by using the **[Page up]** and **[Page Down]** Keyboard keys.

Advanced Option: You can move a selected object by pressing the arrow keys on the keyboard. This can help with precise positioning since each time you press the key, the object will move only a small amount. Holding down the **[Ctrl]** key at the same time will move in even smaller amounts.

Formatting Slides

Using Slide Templates

PowerPoint has a number of built-in design templates. These are intended to make it quick and easy to design a presentation that has a neat, consistent look on each slide. It can format all of the slides in even a very large presentation.

To use a design template in your presentation, do the following:

- Go to the **Design tab**, then **Themes** group, and then click the more button  in the **Theme** group. A menu of themes appears. Click the theme you want.

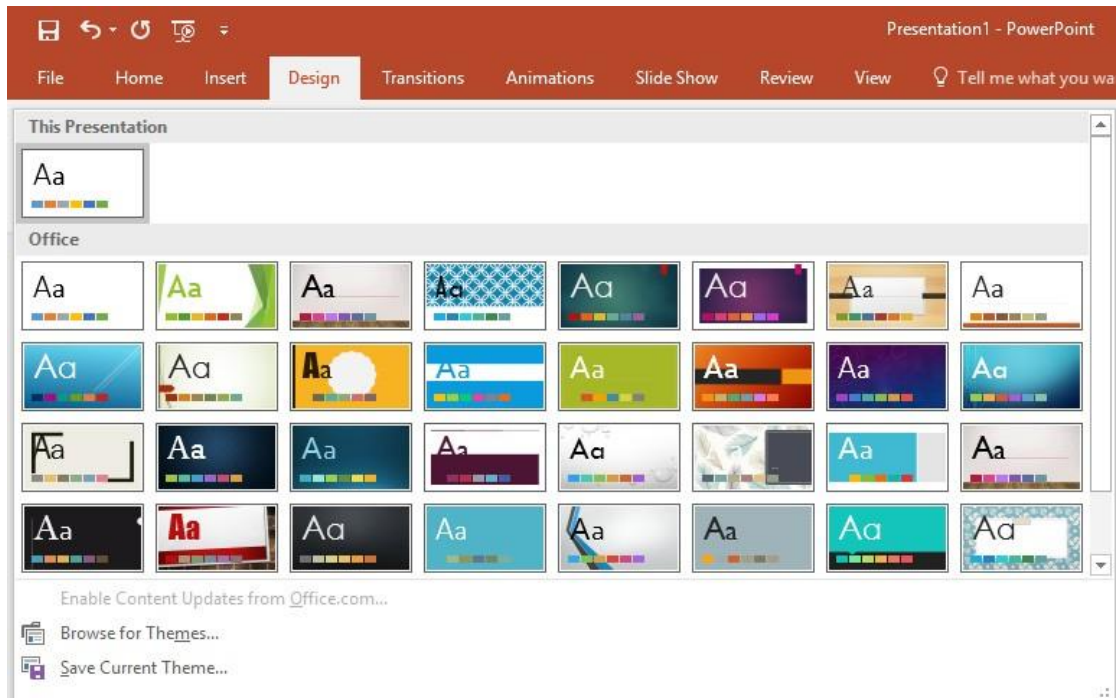


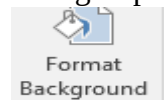
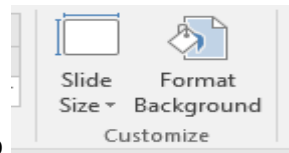
Figure 5. 8 Slide Templates

Note: Using a design template will replace most of the formatting that you may have already applied. You can always continue to modifying the formatting after applying a template but formatting changes before using the template will mostly be lost.

Add Background

You can add dramatic effect to your theme by applying a background

- Go to **Design** tab, then to **Customize** group



click format background button, if you need apply selected background to all slides just click on “**Apply to All**” button.

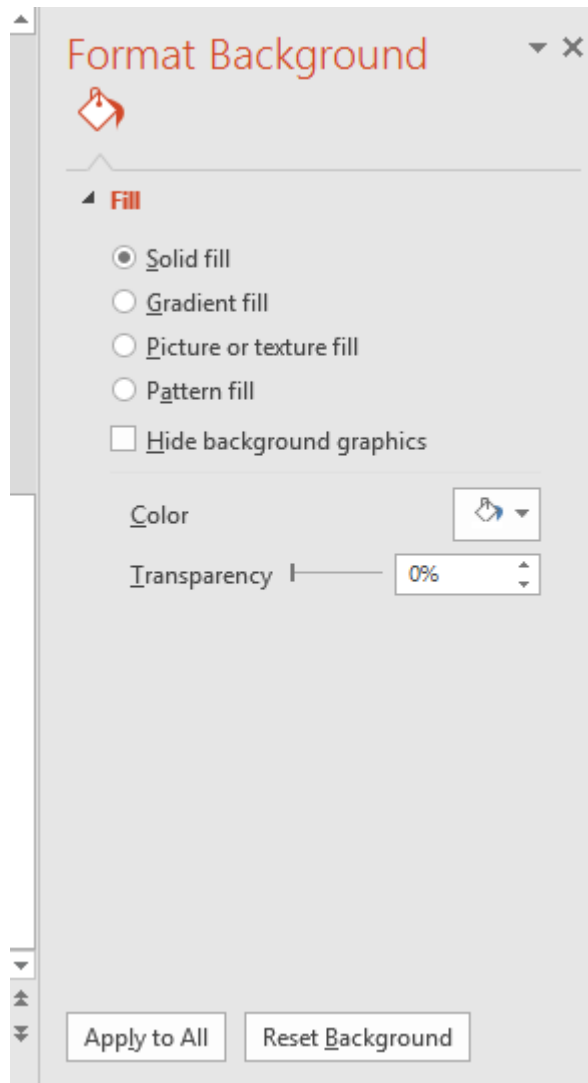


Figure 5. 9 Format background

Special Effects on Slides:

One of the main features of the PowerPoint is to create animated text such as sound and motion (Transition) for the text and the slides.

Slide Transitions

Transitions determine how your presentation moves from one slide to the next. For example, a slide can move up onto the screen and replace the previous slide.

- Choosing the slides:

Before you can apply a transition, you must select the slides to apply the transition to; this can be done using one of the following ways:

- Selecting slides in a group - Click on the first slide. Hold down **[Shift]** and click on the third slide. Those slides and any in between will be selected. Click in the blank space between the slides to de-select them all

-Selecting separate slides – click on the second slide. Hold down **[Ctrl]** and click on the fourth slide. Each time you click on a slide while holding **[Ctrl]** you will select the slide if it's not already selected, and deselect it if it is already selected. Deselect all slides.

-Selecting all slides – Click on one slide then press **[Ctrl][A]**. All slides will be selected.

- Add Transition -Go to **Transitions** tab, and then to the “**Transition to This Slide**” group, then click the more button  in the “**Transition to this Slide**” group. A menu of transitions appears. To apply selected transition to all slides click the **Apply to All** button .

-To add a sound to a transition

Go to **Animations** tab, then click the down arrow next to the **Transition Sound** field and then click the sound you want.

-To set the speed of transition

Go to **Animations** tab, then click the down arrow next to the **Transition Speed** field and then click the speed you want.

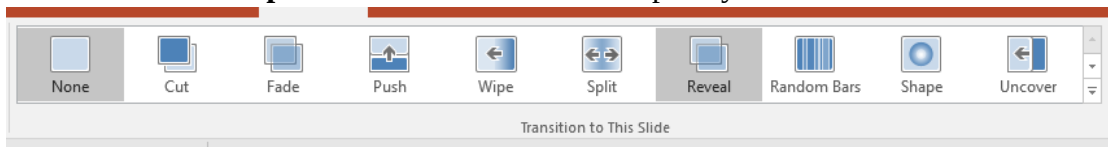
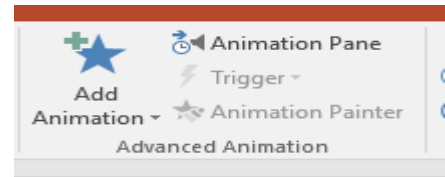
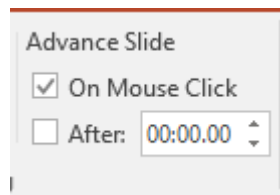


Figure5.10 Transitions

You can choose the appearance way of the slide (Automatic after



a specified period or after a mouse click).

Animation Effects

Not only can whole slides have transition effects, but the individual objects on a presentation can also have animation effects. Many of these effects allow you to have certain objects hidden until you require them to be displayed. This can be especially useful for drawing attention to items in a bulleted list one at a time.

- Choose one of the presentation slides then choose the text/picture/chart etc., the object you want to give a motion (Transition).
- Go to **Animations** tab, then **Advanced Animation** group, then choose "Add Animation", to get the following figure

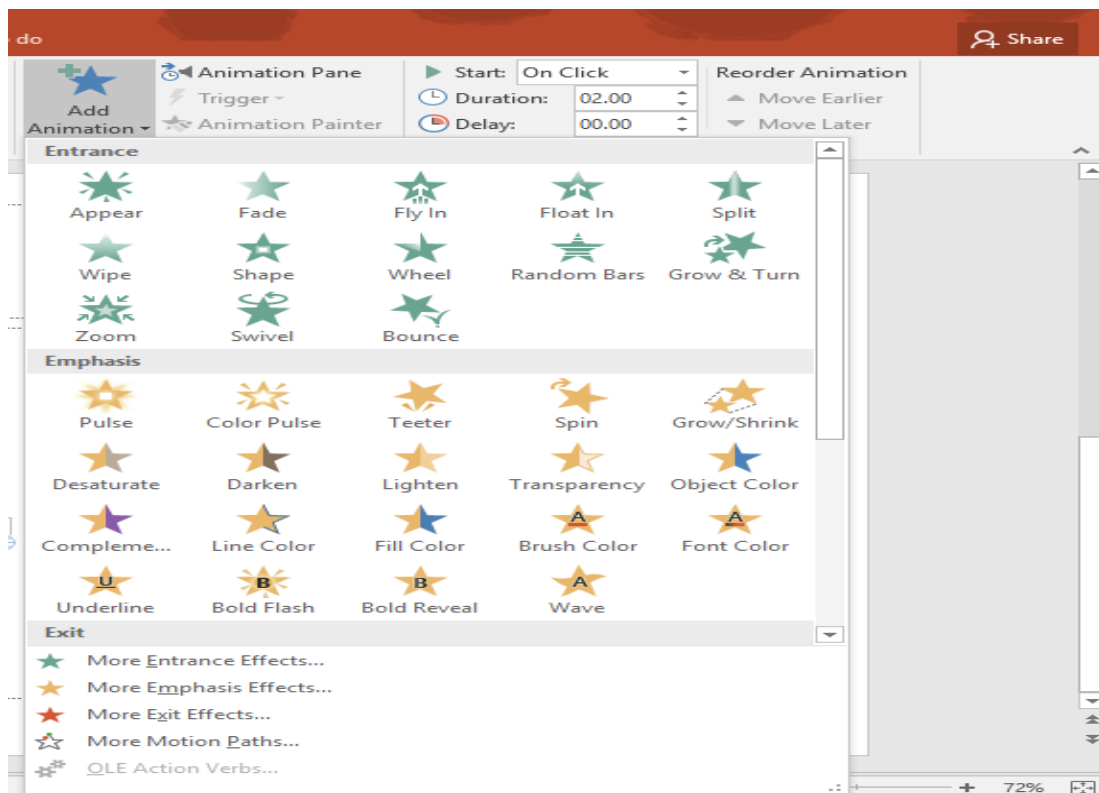


Figure 5.11 Animations

Try to choose some of these effects; once you did all the objects, some numbers should appear to the left of each object on the slide. These indicate the order each object will appear in the presentation.

Note the "**Add Animation**", now it has a description for the animations you chose, it might look like the following figure:

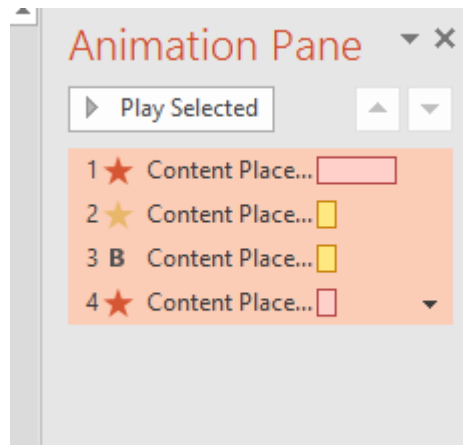


Figure 5.12 Animation pane

This enables you to reorder the objects order of appearance by dragging and dropping any animation description, also you can choose when the animation can start and the speed of its motion.

Note: you can apply more than one animation effects on one object, but too many animation effects can make a very long and very tedious presentation. Use them for adding emphasis. Donot use them just because you know how.

Adding Sound to Slides

The PowerPoint helps you to add sounds to the presentation, from the **Insert** tab, go to **Media group**, and then choose **Audio** to get the following figure.

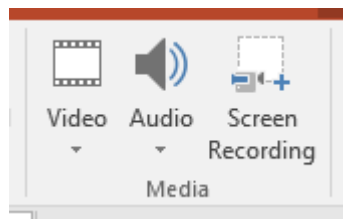


Figure 5.13 Media

- Select **Audio from My PC** to Navigate to the folder or disk drive where the sound is stored and then click to select the sound you want to insert and click **ok**.

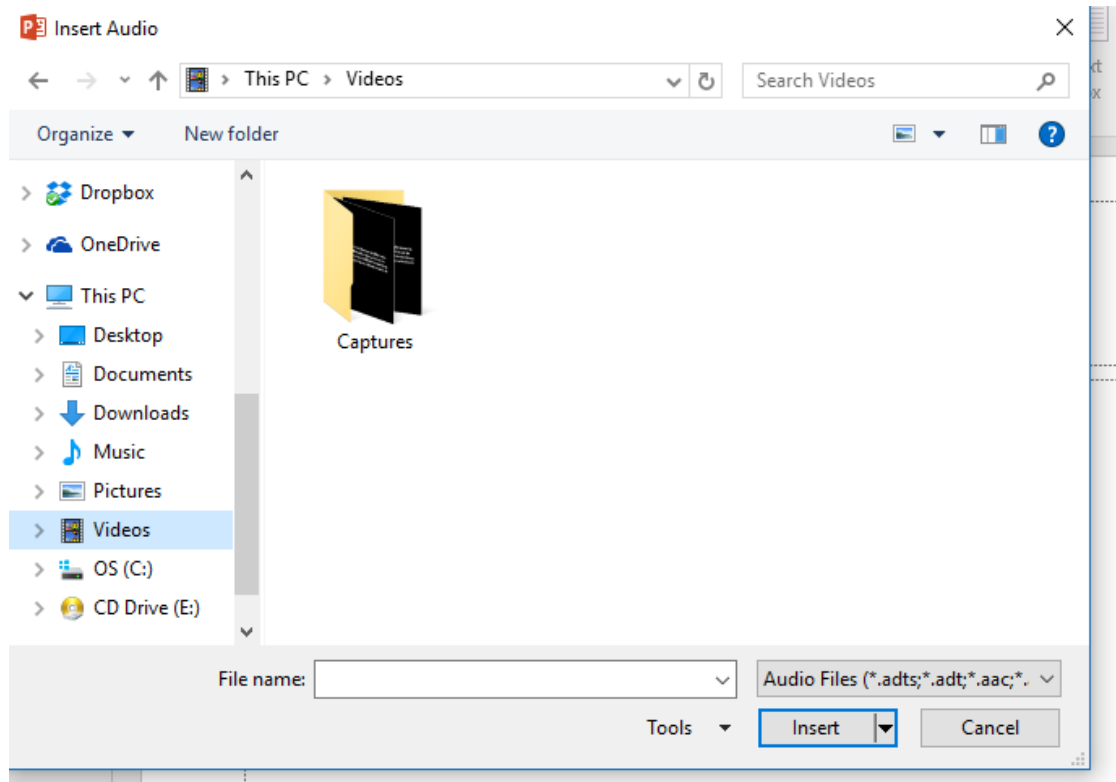


Figure 5.14 insert media

You will be asked whether you want the sound to play automatically or when you click on the icon if you click "**Automatically**" this will mean that the sound will play as soon as that slide appears in your presentation, the other option "**When Clicked**" means the sound will play when you click on the sound icon that appears 🔊.

A sound icon will appear on the slide. While the presentation is playing, you can click on this icon to play the sound whenever you choose. When you are designing your slide, you can drag this icon to change where it is positioned on your slide (same as the animation it has an order in the presentation).

Viewing Presentations

Once the presentation is all ready, how can you show it?

- Choose the first slide, or the slide you want to start with.
- Click the icon in the bottom left corner of the PowerPoint window



or press the **[F5]** key.

- You can end the presentation at any time, press **[Esc]**. You can then press **[F5]** again to return to the presentation. Your presentation will also end once you have passed the final slide.
- During the slide show click your left mouse button or press the spacebar to advance to the next slide.
- If you want to move to the previous slide again, you can right-click on the screen and choose **Previous**. An even easier way to go backwards and forwards through the slides is to press the **[Page up]** key (for next slide) and the **[Page down]** key (for previous slide).
- If you would like to quickly get to a particular slide number, you can simply press the number of the slide you want to go to and then press **[Enter]**. For example, pressing **[1]** and **[Enter]** on your keyboard while in slideshow view will take you straight to the third slide. It doesn't matter if you have already passed the slide. If you have a lot of slides in a presentation it still works.

Changing the view

You can change the way the PowerPoint displays the slides, go to "**View**" tab and choose:

- Normal View to get same as the previous diagram.
- Slide Sorter View to see all your slides in a small with a more functional page.
- Slide Show to plays your presentation from the current selected slide.

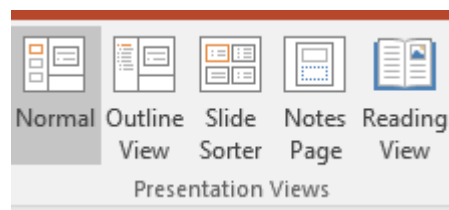


Figure 5. 15 presentation views

Printing Slides

If you are doing a presentation using PowerPoint, your listeners may appreciate having some notes to follow on with. It may even benefit you as a presenter to have a copy of your presentation printed out in front of you so you can remember what is next in the presentation.

- While your presentation is open, Select **Print** from the **File** menu or press **[Ctrl][P]**.
- Options similar to the following will appear.

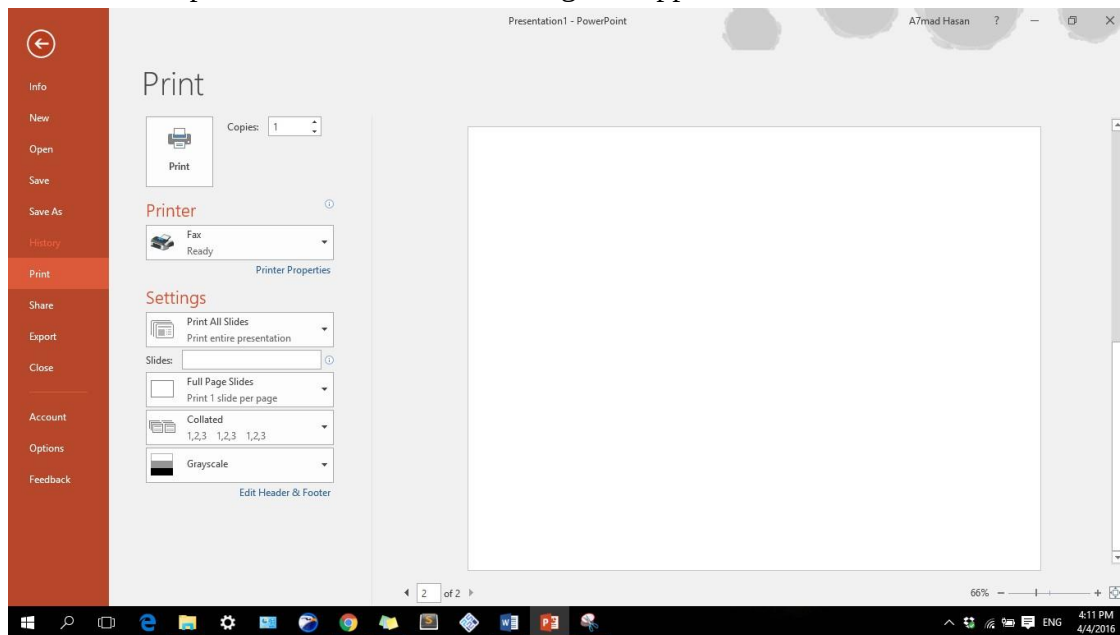


Figure 5.16 print your presentation

Under **Print what**, click the list and select **all slides**.

Slide Master

- a. What is this?
The slide that stores information about the design template applied, including font styles, placeholder sizes and positions, background design, and color schemes.
- b. Create your own slide master
 - i. On the ribbon, select the View tab > in the Master Views group > Click Slide Master

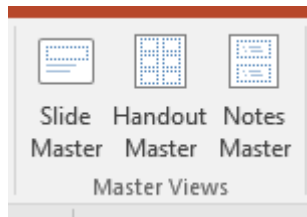


Figure 5.17 master views

- ii. On the left of your screen you will now see a column with slide master thumbnails
 1. The top slide thumbnail is your main slide master.
 2. The rest only apply to slides using the corresponding slide layout.

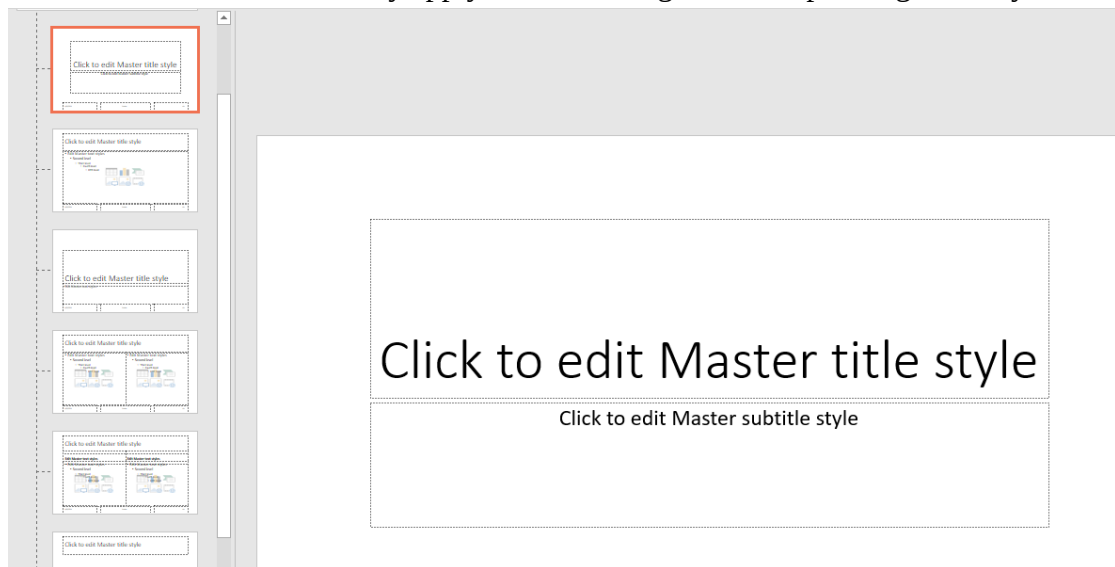


Figure 5.18 slide master

- iii. Work with main slide master
 1. Select the slide thumbnail at the top of the column (there is a 1 to the left of the thumbnail)
 2. Changing this slide will affect every other slide in your presentation.
- iv. Text format on master slide
 1. The master title style is the text formatting that is used for the title created on any slide
 2. The main text style changes the look and feel of text in the main area of the slide.

5.3 Activities

Activity 1:

You should make a presentation that takes all the explained pointers above in consideration. Chose any topic and make your presentation about this chosen topic.

Activity 2:

Answer the following questions

- a. How can we add new slide?
- b. What is the difference between clicking on the icon that is on the New Slide button and the text part ?  
- c. How can we Change the slide's layout. What are the different available?
- d. How do you apply the background to the slide you are at? How do you apply it to the rest of the slide show?
- e. What is the difference between Transition and Animation?
- f. From where can we start the slide show?

Experiment 6: Algorithm 1

6.1 Objectives

- To be familiar with pseudocode using different logic
- To be familiar with sequential logic
- To be familiar with selection logic using IF and CASE structures

6.2 Context

Algorithm definition

An Algorithm is a sequence of computational steps that transform the input into the output.

There are many ways in which an algorithm can be expressed. Describing an algorithm requires a notation for expressing a sequence of steps to be performed. The four common options are as follows:

1- Pseudocode

2- Flowchart

3- Normal Language (English)

4- A real programming Language

In this context pseudocode will be considered and other options can be considered as different forms of pseudocode. For example, flowcharts can be considered as a graphical form of pseudocode.

Pseudocode

Pseudocode (derived from pseudo and code) is a description of a computer programming algorithm that uses the structural conventions of programming language, but omits detailed subroutines or language specific syntax.

Pseudocode standard

Pseudocode is a kind of structured English for describing algorithm. It allows the designer to focus on the logic of the algorithm without being distracted by details of language syntax. At the same time, the pseudocode needs to be complete. It describes the entire logic of the algorithm so that implementation becomes a rote mechanical task of translating line by line into source code.

In general, the vocabulary used in the pseudocode should be the vocabulary of the problem domain, not of the implementation domain. The pseudocode is a narrative for someone who knows the requirements (problem domain) and is trying to learn how the solution is organized. E.g

Extract the next word from the line (good)

Set word to get the next token (poor)

Append the file extension to the name (good)

name = name+extension (poor)

Let x equals the addition of a to b (good)

x=a+b (poor)

Note that the logic must be decomposed to the level of a single loop or decision. Thus “search the list and find the customer with higher balance is too vague because it takes a loop and a nested decision to implement it. It’s okay to use “Find” or “Lookup” if there’s a predefined function for it such as `String.indexOf()`.

Different structures could be used such as SEQUENCE, IF-THEN-ELSE and CASE structures in this experiment. In Experiment number 8 both FOR and WHILE structures will be introduced.

Each designer may have their own personal style of pseudocode. Pseudocode is not a rigorous notation since it is read by other people, not by the computer. There is no universal standard for the industry, but for instructional purposes it is helpful if we all follow a similar style. For example, the keywords below are often used to indicate common input, output and processing operations:

Input: READ, OBTAIN, GET

Output: PRINT, DISPLAY, SHOW

Compute: LET, CALCULATE, COMPUTE, DETERMINE.

Initialize: SET, INIT

Add one: INCREMENT

Subtract one: DECREMENT

Pseudocode is made up of the following logic structures that have been proved to be sufficient for writing any computer program.

1. Sequential Logic:

It is used to perform instructions in a sequence, i.e. one after another. Thus for sequence logic, pseudocode instructions are written in an order in which they are to be performed. The logic flow of pseudocode is from top to bottom.

Example1:

Write an Algorithm (Pseudocode) to find the sum of two numbers

1. Ask the user to enter the first number.
2. Read the first number and save it as x
3. Ask the user to enter the second number.
4. Read the second number and save it as y
5. Compute z as x added by y.
6. print z.

Example 2:

Write an Algorithm (Pseudocode) to find the area of rectangle

1. Ask the user to enter the height of rectangle
2. Read the height and save it as h
3. Ask the user to enter the width.
4. Read the width and save it as w

5. Compute area as h multiplied by w.

6. print area.

2. Selection Logic:

It is also known as decision logic. It is used for making decisions and for selecting the proper path out of two or more alternative paths in program logic. Selection logic is depicted as either an IF...THEN...ENDIF or an IF...THEN...ELSE...ENDIF structure. The general form is:

IF condition THEN

SEQUENCE 1

ELSE

SEQUENCE 2

ENDIF

The ELSE keyword and “SEQUENCE 2” are optional. If the condition is true SEQUENCE 1 is performed, otherwise SEQUENCE 2 is performed.

A CASE structure indicates a multi way branch based on conditions that are mutually exclusive. The general form is:

CASE expression of

Condition1: SEQUENCE 1

Condition2: SEQUENCE 2

...

Condition n: SEQUENCE n

DEFAULT: other SEQUENCE

ENDCASE

Example 1:

Write an Algorithm (Pseudocode) to determine whether a student pass or fail a certain course at BZU.

1. Ask user to enter the grade
2. Read the grade and save it as g
3. IF g is greater than sixty THEN
 Print “Pass”
ELSE
 Print “Fail”
ENDIF

Example 2:

Write an Algorithm (Pseudocode) to determine whether a given integer is odd or even.

1. Ask user to enter the number
2. Read the number and save it as n
3. Let r equals the remainder of integer division for n by two.

```

4. IF r is equal zero THEN
    Print "Even"
ELSE
    Print "Odd"
ENDIF

```

Example 3:

Write an Algorithm (Pseudocode) to translate a given title into corresponding word

e.g Mr to Mister, Ms to Mizz ..etc

```

1. Ask the user to enter the title
2. Read the title and save it as T
3. CASE T of
    Mr: print "Mister"
    Mrs: print "Missus"
    Miss: print "Miss"
    Ms: print "Mizzr"
    Dr: print "Doctor"
ENDCASE

```

Example 4:

Write an Algorithm (Pseudocode) to translate a given grade into corresponding points

e.g A to 4, B to 3 ..etc

```

1. Ask the user to enter the letter grade.
2. Read the grade and save it as G
3. CASE G of
    A: let points equal 4
    B: let points equal 3
    C: let points equal 2
    D: let points equal 1
    F: let points equal 0
ENDCASE
4. print points

```

6.3 Activities

Activity 1:

Write an Algorithm (pseudocode) to find the following for a given 3 digits' integer

A) sum of the digits

B) print a number that considered as the reverse value for e.g if the given integer is 412. The reverse is 214

C) sort the digits in ascending order and print them. for e.g if the given integer is 412. The output is 124

Activity 2:

Write a Write an Algorithm (pseudocode) to simulate a simple calculator for two numbers with +, -, *, / operations.

Activity 3:

Write an Algorithm (pseudocode) to find the largest element between 5 given integers

Experiment 7: Algorithm 2

7.1 Objectives

- To be familiar with iteration logic using WHILE and FOR structures

7.2 Context

Iteration logic: it is used to produce loop when one or more instructions may be executed several times depending on some of the conditions. Two famous structures will be explained in this experiment:

1) While structure with the form below:

WHILE condition

SEQUENCE

ENDWHILE

2) For structure with the form below

FOR iteration bounds

SEQUENCE

ENDFOR

Example 1:

Write an Algorithm (Pseudocode) to print all the integers between zero and one hundred inclusively

1. For I equals zero to One hundred

1.1 Print I

1.2 Add one to I

ENDFOR

Example 2:

Write an Algorithm (Pseudocode) to find the average of 10 grades

1. Set sum equal zero

2. For I equals one to ten

2.1 Ask the user to enter the grade

2.2 Read the grade and save it as g

2.3 Let sum equals the old sum added to g

2.4 Add one to I

ENDFOR

3. Let average equals sum divided by ten

4. Print average

Example 3:

Write an Algorithm (Pseudocode) to find the average of unknown number of grades. Your algorithm should stop when -1 grade is entered.

```
1. Set counter equal zero
2. Set sum equal zero
3. Ask the user to enter the first grade
4. Read the grade and save it as g
5. While grade is not equal minus one
    5.1 Let sum equal the old sum added to g
    5.2 Add one to counter
    5.3 Ask the user to enter the next grade
    5.4 Read the grade and save it as g
ENDWHILE
6. IF counter is not equal zero THEN
    Let average equal sum divided by counter
    Print average
Else
    Print "No grades "
ENDIF
```

Example 4:

Write an Algorithm (Pseudocode) to count the number of evens and the number of odds for unknown number of integers. Your algorithm should stop when zero number is entered.

```
1. Set counter even equal zero
2. Set counter odd equal zero
3. Ask the user to enter the first number.
4. Read the number and save it as x
5. While x is not equal zero
    5.1 Let R equal the remainder of integer division for x by two
    5.2 IF R is equal zero THEN
        Add one to counter even
    ELSE
        Add one to counter odd
    ENDIF
    1. Ask the user to enter the next number
    2. Read the number and save it as x
```

ENDWHILE

6. Print counter even

7. Print counter odd

7.3 Activities

Activity 1: Write an Algorithm (pseudocode) that asks the user to enter 3 different integers and sort them in ascending order.

Activity 2: Write an Algorithm (pseudocode) to find the following for any given integer

A) Sum of the digits

B) Maximum digit value.

C) Minimum digit value.

Activity 3: Write an Algorithm (pseudocode) to decide whether a given number is perfect or not. A perfect number is that which equals the sum of all its divisors excluding itself (e.g. 6 is a perfect since it is equal to $1+2+3$ while 9 is not perfect)

Experiment 8: Programming using C

8.1 Objectives

- To write a simple C program.
- To perform Arithmetic calculation in C language. .
- To be familiar with variables. Constant and Escape characters.
- To be familiar with input/output operations using standard input/output library.

8.2 Context

In any language there are certain building blocks:

- Constants
- Variables
- Operators
- Methods to get input from user (scanf(), getch() etc.)
- Methods to display output (Format Specifiers, Escape Sequences etc.) etc.

Format Specifiers

Format Specifiers tell the **printf** statement where to put the text and how to display the text.

The various format specifiers are:

%d => integer

%c => character

%f => float

...

Variables and Constants

If the value of an item is to be changed in the program then it is a variable. If it will not change then that item is a constant. The various variable types (also called data type) in C are: **int**, **float**, **char**, **long**, **double**, ... they are also of the type **signed or unsigned**.

Escape Sequences

Escape Sequence causes the program to escape from the normal interpretation of a string, so that the next character is recognized as having a special meaning. The back slash “\” character is called the **Escape Character**. The escape sequence includes the following:

\n => new line
\t => tab
\b => back space
\r => carriage return
\" => double quotations
\\ => back slash etc.

Taking Input from the User

The input from the user can be taken by the following techniques: **scanf(), getch(),**

Operators

There are various types of operators that may be placed in three categories:

Basic: +, -, *, /, %

Assignment: =, +=, -=, *=, /=, %=

Relational: <, >, <=, >=, ==, !=

Logical: &&, ||, !

8.3 Activities

Activity 1: Write a C program that print your name, your id, your section number and your instructor on separate lines.

Activity 2: Convert the following arithmetic expressions into a C programs

A) $r = b^2 - 4ac$

B) $k = \frac{4.2(x+y)5/z - 0.52x/(y+z)}{(x+y)^2}$

Activity 3: Explain the output of the following

```
float a,b;
```

```
a=5/9;
```

```
b=5.0/9;
```

```
printf("%f,%f",a,b);
```

Activity 4: Write a C program which accepts an integer that contains 3 digits and prints the reverse value of the integer.

Example input: 324 →

Output:423

Experiment 9: Functions

9.1 Objectives

- To distinguish between standard and user defined function.\
- To use standard function in C Library
- To write a user defined function.
- To be familiar with types of functions depending on the return type and arguments.

9.2 Context

Functions are used normally in those programs where some specific work is required to be done repeatedly and looping fails to do the same.

Three things are necessary while using a function.

i. Declaring a function or prototype:

The general structure of a function declaration is as follows:

```
return_type function_name(arguments);
```

Before defining a function, it is required to declare the function i.e. to specify the function prototype.

A function declaration is followed by a semicolon ‘;’. Unlike the function definition only data type need to be mentioned for arguments in the function declaration.

ii. Calling a function:

The function call is made as follows:

```
variable = function_name(arguments);
```

ii. Defining a function:

All the statements or the operations to be performed by a function are given in the function definition which is normally given at the end of the program outside the main.

Function is defined as follows

```
return_type function_name(arguments)
{
    Statements;
}
```

There are certain functions that you have already used e.g:

clrscr(), printf(), scanf() etc.

There are four types of functions depending on the return type and arguments:

- Functions that take nothing as arguments and return nothing.
- Functions that take arguments but return nothing.

- Functions that do not take arguments but return something.
- Functions that take arguments and return something.

A function that returns nothing must have the return type “void”. **If nothing is specified then the return type is considered as “int”.**

9.3 Activities

Activity 1: A manufacturer wishes to determine the cost of producing an open-top cylindrical container. The surface area (المساحة الكلية) of the container is the sum of the area of the circular base plus the area of the outside ($\pi r^2 + 2\pi rh$).

Write a program to read the radius of the base r , the height of the container h , the cost per square centimeter of the material (cost) and the number of containers to be produced (Quantity) from the user. You should calculate the cost of each container and the total cost of producing all the containers and print the results on screen.

Activity 2: The distance from the center of the earth to the center of the moon is 343711 km as shown in the figure below.

The moon's orbit around the earth is completely circular. The moon takes one whole month to finish a complete rotation around the earth.

Write a C program that finds and prints the distance and speed explained below using the following functions:

Function called `dist_thous_yrs` that receives the distance from the center of the earth to the center of the moon and returns the distance (in km) the moon covers orbiting around the earth for a thousand consecutive years.

Function called `day_speed` that receives the distance resulting from the first function (`dist_thous_yrs`) and returns the speed (in km/sec) needed to cover the same distance in a single day.

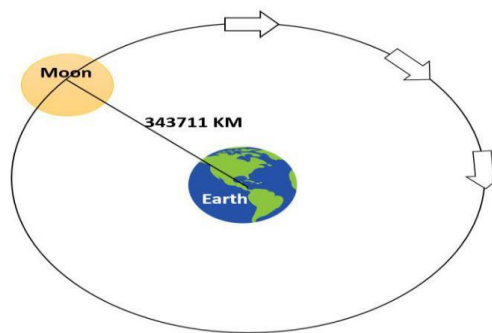


Figure 9.1: the moon orbit around the earth

Experiment 10: If and Switch statement

10.1 Objectives

- To Understand the usage of if statement.
- To use the logical operations to combiner logical expressions
- To Understand of nested if and the usage of if-else if statement
- To be familiar with the usage of the switch statement

10.2 Context

Normally, your program flows along line by line in the order in which it appears in your source code. But, it is sometimes required to execute a particular portion of code only if certain condition is true; or false i.e. you have to make decision in your program. There are three major decision making structures. The 'if' statement, the if-else statement, and the switch statement. Another less commonly used structure is the conditional operator.

The if statement

The if statement enables you to test for a condition (such as whether two variables are equal) and branch to different parts of your code, depending on the result or the conditions with relational and logical operators are also included.

The simplest form of an if statement is:

```
if (expression)
    statement;
```

The if-else statement

Often your program will want to take one branch if your condition is true, another if it is false. If only one statement is to be followed by the if or else condition, then there is no need of parenthesis. The keyword else can be used to perform this functionality:

```
if (expression)
{
    statement/s;
}
else
```

```
{  
    statement/s;  
}
```

Nested if statements

An if statement can be inside another if statement to form a nested if statement.

switch Statements

A *switch* statement executes statements based on the value of a variable or an expression.

Here is the full syntax for the *switch* statement:

```
switch (switch-expression) {  
    case value1: statement(s)1;  
    break;  
    case value2: statement(s)2;  
    break;  
    ...  
    case valueN: statement(s)N;  
    break;  
    default: statement(s)-for-default;  
}
```

10.3 Activities

Activity 1: Write a C program to distinguish between A) **odd or even for integers**

B) **negative or positive for doubles** C) **Consonant or vowel for characters**

Activity 2: Write a C program which takes three sides a, b and c of a triangle as input and calculates its area if these conditions are satisfied $a+b>c$, $b+c>a$, and $a+c>b$ (Help $a = \sqrt{s(s-a)(s-b)(s-c)}$, where $s=(a+b+c)/2$)

Activity 3: Write a C program to make a simple calculator which should be able to do +, -, *, / , % Operations.

Activity 4: Write a C program which takes 5 integers as input and prints the largest one.

Experiment 11: Loop 1

11.1 Objectives

- To implement the iteration logic using for statement
- To implement the iteration logic using while statement
- To implement the iteration logic using do-while statement

11.2 Context

Types of Loops

- 1) for Loop
- 2) while Loop
- 3) do-while

The for Loop

```
for (initialize(optional) ; condition(compulsory) ; increment(optional))  
{  
    Body of the Loop;  
}
```

This loop runs as long as the condition in the center is true. Note that there is no semicolon after the “for” statement. If there is only one statement in the “for” loop, then the braces may be removed. If we put a semicolon after the for loop instruction, then that loop will not work for any statements.

The while Loop

```
while ( condition is true )  
{  
    Body of the Loop;  
}
```

This loop runs as long as the condition in the parenthesis is true. Note that there is no semicolon after the “while” statement. If there is only one statement in the “while” loop then the braces may be removed.

The do-while Loop

```
do  
{  
    Body of the Loop;  
} while ( condition is true);
```

This loop runs as long as the condition in the parenthesis is true. Note that there is a semicolon after the “while” statement. The difference between the “while” and the “do-while” statements is that in the “while” loop the test condition is evaluated before the loop is executed, while in the “do” loop the test condition is evaluated after the loop is executed. This implies that statements in a “do” loop are executed at least once. However, the statements in the “while” loop are not executed if the condition is not satisfied.

11.3 Activities

Activity 1: Write a C program to print the number of passes and the number of failures in a class of n students, also let the program print the failure percentage.

Activity 2: Write a C program that will prompt for and receive prices of several items. After the last price is entered, the sentinel amount of -1 is entered. The algorithm should calculate the number of items purchased, total cost of the purchase before tax and with the tax of 7.5%, and display the results on the screen.

Activity 3: Write a C program which will read pairs of integers in a Loop. Each time it reads a new pair it checks if the first integer divides the second integer i.e (second%first = 0) when a program read such a pair it will exit the loop.

Activity 4: Write a C Program which takes an integer and check whether it is prime or not.

Activity 5: Write a C program that prints the following pattern up to Z

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P
Q	R	S	T
U	V	W	X
Y	Z		

Experiment 12: Loop 2

12.1 Objectives

- To write programs using nested loop
- To be familiar with break and continue

12.2 Context

The Nested for Loop

```
for (initialize ; condition ; increment)
{
    Body of the loop;
    for (initialize ; condition ; increment)
    {
        Body of the loop;
    }
    Body of the loop;
}
```

The inner loop runs as many times as there is the limit of the condition of the external loop. This loop runs as long as the condition in the parenthesis is true. We can nest many loops inside as needed.

The nested while Loop

```
while (condition is true)
{
    while (condition is true)
    {
        Body of the loop;
    }
    Body of the loop;
}
```

The inner loop runs as many times as there is the limit of the condition of the external loop. This loop runs as long as the condition in the parenthesis is true. We can nest many loops inside as needed.

break

The usage of break is simply to exit a certain loop base on a certain condition

Continue

The usage of continue is simply to skip all the statements after in the loop and begin a new iteration

12.3 Activities

Activity 1: What is the output for the following segments

A) int i;

```
For(i =0; i<=5;i++){  
    If(i==3) break;  
    Printf("%d\n",i);  
}
```

B) int i;

```
For(i =0; i<=5;i++){  
    If(i==3) continue;  
    Printf("%d\n",i);  
}
```

C)int x,y,a;

```
For(x =1, a=1;x<=5;x++)  
    For(y=1;y<=5;y++)  
        Printf("%d\n",a++);
```

Activity 2: Write a C program to print the following pattern up to ten lines

```
0  
1 1 1  
2 2 2 2  
3 3 3 3 3 3
```

Activity 3: Write a C program to print a series of the first 50 prime numbers.

Experiment 13: Internet

13.1 Objectives

- What we mean by Internet?
- Define what Ritaj is? And what are the main functionality the student can do on Ritaj?
- What is search engines?
- Identify the main services Google provides.
- Knowing some of the famous social networking websites.
- Identify some online applications.
- Know how to set a strong password.

13.2 Context

Now a day we almost cannot find a house without this technology that has the name “Internet” which made our whole world a small country. Some computer scientists define Internet as the network of networks, we can imagine connecting two personal computers which give a simple network that can be expand with other 28 computers to provide our lab network (the one you are taking this lab in) this lab also connected with all other labs in Birzeit University to provide us the university network, our university connected with one of the Internet Service Providers (ISP’s) in Palestine, which also connected with other networks in the whole world to provide us the internet.

There are some core technologies that enable the Internet to work:

- **TCP/IP:** Transmission Control Protocol / Internet Protocol
- **IP Addresses:**
 - Computers are identified by their ‘IP addresses.
 - The format is nnn.nnn.nnn.nnn (Each of these numbers falls in the range 0 – 255 e.g. 127.0.0.1).
 - Hardware devices known as ‘routers’ glue all the different networks together.
- **The Domain Name System (DNS):** Most website hosts use domain names rather than actual IP addresses.

In this experiment we will talk about some important websites, internet related applications and we will learn some techniques with using them.

Google (www.google.ps)

A web search engine is designed to search for information on the *World Wide Web* (WWW) and FTP servers. The search results are generally presented in a list of results and are often called *hits*. The information may consist of web pages, images, information and other types of files.

Typically, a search engine software works by sending out spiders to fetch as many documents as possible. Another program, called an **indexer**, reads these documents and creates an **index** based on the words contained in each document. Each search engine uses a **proprietary algorithm** to create its indices such that, ideally, only meaningful results are returned for each **query** the searcher types into a search engine.

Search is always *case insensitive*. A search for [university] is the same as a search for [University] and general the punctuation is ignored, including @#\$\$%^&*()=+[]\ and other special characters.

There are many examples on search engines, the most popular one is **Google** and there are Bing, Yahoo, Ask.com, Aol.com, etc. in the rest of this activity we will focus on Google search engine:

1. Each blue underlined line is a search result (see Figure 16) that the Google search engine found for your search terms. The first item is the most relevant match we found, the second is the next most relevant, and so on down the list. If you click the title of any result, you will be taken to that webpage.
2. Figure 13.1 shows the main page of Google.ps:



Figure 13. 1 GOOGLE MAIN PAGE

3. Figure 13.2 shows the results for the query introduction to computer, comp121, Birzeit university:

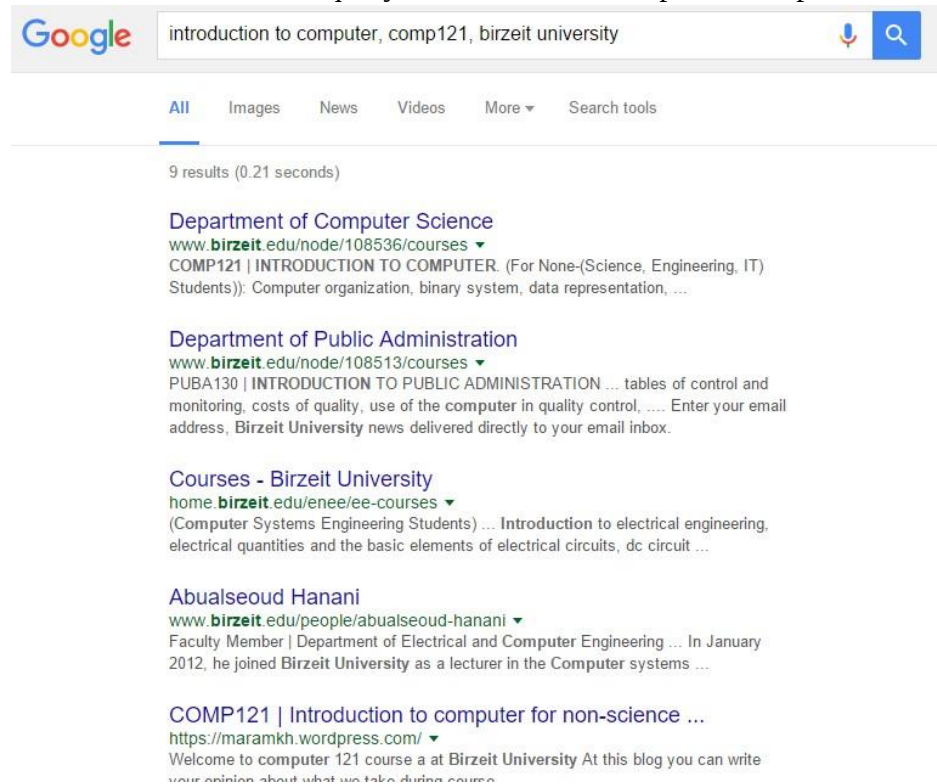


Figure 13. 2 SEARCH RESULTS

4. The following are some search helping phrases:

- Phrase search (""): By putting double quotes around a set of words, you are telling Google to consider the exact words in that exact order without any change. **"tallest building"**.
- Search within a specific website (site:): Google allows you to specify that your search results must come from a given website. **Birzeit.edu: Ahmed**
- Terms you want to exclude (-): Attaching a minus sign immediately before a word indicates that you do not want pages that contain this word to appear in your results. **jaguar speed -car**
- The OR operator: Google's default behavior is to consider all the words in a search. If you want to specifically allow either one of several words, you can use the OR operator (note that you have to type 'OR' in ALL CAPS or you can use the symbol "[]"). **marathon OR race**.

(Remember, don't add a space when you using site: -)

Google provides many other applications beside the search engine:

- I. Google Gmail: A google mail or in other word the google account. Which we encourage all internet users to have one. And you can simply build one by visiting the following link: <https://accounts.google.com/SignUp>. Figure 13.3 shows the signup page:

Create your Google Account

One account is all you need
One free account gets you into everything Google.

Take it all with you
Switch between devices, and pick up wherever you left off.



Name

First Last

Choose your username

@gmail.com

[I prefer to use my current email address](#)

Create a password

Confirm your password

Birthday

Month Day Year

Gender

I am...

Mobile phone

+970

Figure 13. 3 GOOGL SIGNUP PAGE

- II. Google translate: Which is an online dictionary from any language to other language in the world!
- III. Google+: A social network website that you can add people on it and work like other social network websites (e.g. Facebook).
- IV. Google calendar: An online-shared calendar that can manage time between individuals and groups.
- V. Google Scholar: Provides a simple way to broadly search for scholarly literature. From one place, you can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites.
- VI. Google Drive is a free service from Google that allows you to store files online and access them anywhere using the cloud. Google Drive also gives you access to free web-based applications for creating documents, spreadsheets, slides and more.

A social networking service (also social networking site or SNS) is a platform to build social networks or social relations among people who share similar interests, activities, backgrounds or real-life connections. A social network service consists of a representation of each user (often a profile), his or her social links, and a variety of additional services such as career services.

1. Facebook: General social networking that can share photos, videos, blogs and applications.
2. Twitter: General social networking that is Microblogging, RSS and updates.
3. LinkedIn: Business and professional networking (online CV). We highly recommending each student to have an account in this website. The following link is a tutorial on how to create an account on LinkedIn and how to make improve it:



4. Instagram: A photo and video sharing site.
5. Ask.fm: Users create profiles and can send each other anonymous and non-anonymous questions.

It is not a necessary anymore to install many applications on your personal computer. Now you can just search online for what you want to do, and there are many websites specialized on do your work for you. We mention some useful online applications (Please use google to search for them):



1. Dropbox (www.dropbox.com): A storage space on the cloud starting with 2 GB, you can simply registered in this website by entering the website and enter your email address and setting a password. The application let you drag and drop or copy and paste your files to a virtual folder, which will synchronize your files in all places you open your account.
2. Currency converter: Which provides you with the ability to select two currencies and convert from one to another. Just search for “Currency converter” on google.
3. Online calculator: Just type your equation as query on google and it will provides you with scientific calculator with the result of your equation. For e.g. $(25*2)+(8/2)$.
4. Photo editing: If you search via google for photo editor, you will find a variety of web applications provide you with this service.
5. YouTube to MP3: A website that download a given YouTube video link as a sound file (MP3 file).
6. YouTube to MP4: A website that download a given YouTube video link as a video file (MP4 file).
7. JPG to PDF: A website that takes multi-images and sort them in one pdf file.

8. Shrink PDF size: A website that takes a pdf file and compress its size as much as possible without effecting its quality.
9. PDF to word: Converting a PDF file to doc/docx file.

Password

A password is a secret word or phrase that must be used to gain admission to a place. Do not ever give your password to anyone, do not put the same password for more than one account and do not write it on a paper and put it under the keyboard or the screen. Be fully aware that there is no site asks its users for their passwords under any circumstances. In this section, we will provide some tips in order to create a strong and remembered password:



1. Think of a sentence that have more or equal to 8 words. It can be a verse, piece of a song, a saying that touched you or anything you like, as an example I will use that sentence maybe each of our English teachers use: One apple a day keeps the doctor away.
2. Now take the first letter of each word so the password would be "Oaadtka".
3. Let us try to convert the letters that looks like numbers to numbers (e.g. O looks like zero "0") the new password: "0aadtka".
4. Convert letters to special characters (e.g. the "a" letter looks like "@") so the password: "0@@@dk1d@".
5. We can make it even harder by having a mix of capital letters and small letters.

The final password: "0@@@dk1d@". This password will never be guessing by the cracking tools and it also easy to regenerate by you.

13.3 Activities

1. Create a strong password for each account you have.
2. Create a google account and sign-in to google chrome browser.
3. Could you differentiate between social networking and search engines?
4. Identify the valid IP addresses in the following:
 - a. 8.8.8.8
 - b. 192.168.0.1.1
 - c. 172.15.256.255
 - d. 255.255.255.251