MANUAL FOR COMPUTER APPLICATION

(Training Material)

DIRECTORATE OF FORESTS
GOVERNMENT OF WEST BENGAL

PREFACE

Computer science is an integral part of our lives. In the present world of technology, it involves huge interference in the daily work activities including various office procedures, administrative works, travelling and even communication also. Therefore its application becomes a valuable subject to be included in any training course. The subject provides a good grounding in both the theoretical and practical aspects of computer use at workplace.

As part of the JICA project on "Capacity Development for Forest Management and Training Personnel" being implemented by the Forest Department, Govt. of West Bengal, these course materials on Computer Application have been prepared for induction training of the Foresters and Forest Guards.

The details of Computer Application elucidated in this course material can be suitably adapted by the front line forest personnel to improve their efficiency in time management and also ensure the smooth running of total administration at their workplace.

The subject covered in these training materials broadly conform to syllabus laid down in the guidelines issued by the Ministry of Environment of Forests, Govt. of India, vide the Ministry's No 3-17/1999-RT dated 05.03.13.

The contents of the course materials have been prepared and compiled by Project Management Consultant Team of IBRAD. While developing this course material, a number of books, guidelines, literature available in the internet have been consulted.

The efforts that have gone into making this course material will be best rewarded if the frontline staff of the forest department finds it useful in their day-to-day work.

Kolkata, 2016

(N K Pandey, IFS)
Principal Chief Conservator of Forests (General), West Bengal
&
Chairman, State Project Management Unit

SYLLABUS

Computer Application (24 hours)		
1. OS	Basics of OS (Windows)	4 hours
2. Internet	Email and Net Browsing	4 hours
3. Word Processor	MS-Word	8 hours
4. Spread Sheet	MS-Excel	8 hours

Contents

Lesson Plan

Objective :

- To study a basic idea about computer and its peripherals

- To study the use of computer for word processing, documenting, record keeping of information related to forest inventory, growth and yield statistics, forest extent, species diversity etc in soft copy with help of MS-Word.

- To study the procedure of calculation of various required in to accounts work and fund management and by using computer with the help of MS-Excel to avoid human error.

- To learn the use of Computer operating systems to asses extract and work with a large amount of data.

- To learn Internet accessing and its importance in forest activities.

Total Hours Required :

Lesson	Time Alloted
Basics of Computer	1 Hour
Operating System	1 Hour
Internet	2 Hours
Word Processor	1 Hour
Spread sheet	1 Hour
Practical Classes	18 Hours

Methodology/Approach :

- Brainstorming with few questions

- Lectures

- Discussions and interactions

- Small group discussions

- Practical sessions

Session plan

Lesson	Session Plan	Expected outcome

Basics of Computer	• **Session 1**
	  ◆ Overview of Computer
	• **Session 2**
	  ◆ Types of Computer
	• **Session 3**
	  ◆ Parts of Computer and their uses
	• **Session 4**
	  ◆ How to start Computer
		At the end of the session the participants will gain a basic idea about Computer, its various peripherals along with their uses.

Operating System	• **Session 1**
	  ◆ Overview of O.S.
	• **Session 2**
	  ◆ Function of Operating System
	• **Session 3**
	  ◆ Types of O.S.
	    ▪ Microsoft Windows O.S.
	    ▪ Mac O.S.
	    ▪ Linux O.S.
		At the end of the session the participants will learn the details of Operating System, its different types and the procedure of installation of OS in computer.

Internet	• **Session 1**
	  ◆ Overview of Internet
	• **Session 2**
	  ◆ Importance of Internet
	• **Session 3**
	  ◆ How do you connect to the Internet
	• **Session 4**
	  ◆ How to create Email account (i.e., Gmail)
	• **Session 5**
	  ◆ How to send a Email (i.e, Gmail)
		At the end of the session the participants will be able to access internet, searching keywords, sending mail, and also contacting other through social network.

Word Processor	• **Session 1**
	  ◆ Overview of MS-Word
	• **Session 2**
	  ◆ Importance of MS-Word
	• **Session 3**
	  ◆ How to Start ?
		At the end of the session the participants should be create a word document which is contain text, table , imager and font style, also they should be able to get their document in print.

Lesson	Session Plan	Expected outcome
	● **Session 4** 　◆ Basic guidelines for using tools ● **Session 5** 　◆ Using table in document ● **Session 6** 　◆ Inserting picture in document ● **Session 7** 　◆ Printing your document	
Spread sheet	● **Session 1** 　◆ Overview on MS-Excel ● **Session 2** 　◆ Importance of MS-Excel ● **Session 3** 　◆ Navigation your MS-Excel work area ● **Session 4** 　◆ Create a new worksheet ● **Session 5** 　◆ Entering data ● **Session 6** 　◆ Formating Data ● **Session 7** 　◆ Editing Cell ● **Session 8** 　◆ Creating simple formulas and functions ● **Session 9** 　◆ Copy and Move data and formulas ● **Session 10** 　◆ Marge contents and multiple cells together ● **Session 11** 　◆ Prepare a worksheet for printing	At the end of the session the participants should be create a Excel document and they should be able to get their document in print.
Practical Classes	● **Session 1** 　◆ Basic of Computer ● **Session 2** 　◆ Operating System ● **Session 3** 　◆ Internet ● **Session 4** 　◆ Word Processor ● **Session 5** 　◆ Spread Sheet	In support to the theoretical classes, practical classes will help the participants to get a better idea about the various functioning of computer.

Backward linkage : It is necessary to have basic understanding of computer knowledge, like how to start / shutdown computer and how to open file etc.

Forward Linkage : Post training assignment is to be provided with more practical classes that enhance knowledge of Computer.

Training Materials required : A Computer for each participant, Kits for Power Points Presentation, and note book and pen.

Lesson 1

BASICS OF COMPUTER

1.1   What is a computer?

Computer is an electronic device designed to accept data, perform prescribed mathematical and logical operation at high speed, and display the result.

1.2   Types of computers :

(i)   Desktop computer

(ii) Laptop computer

(iii) Tablet computer

| Desktop Computer | Laptop Computer | Tablet Computer |

1.3   Parts of computer :

There are five parts in computer mentioned below.

(a) Monitor

(b) Keyboard

(c) Mouse

(d) CPU

(e) UPS

(a) Monitor :

Monitor, are the main output device of a computer. It forms images from tiny dots, called pixels that are arranged in a rectangular form. The sharpness of the image depends upon the number of pixels.

There are three types of computer monitors :

    i. CRT

    ii. LCD & LED

CRT Monitor

LCD & LED Monitor

(b) Keyboard :

Keyboard is the most common and very popular input device which helps in inputting data to the computer. The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing additional functions.

Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.

Keyboard

Mouse

(c) Mouse :

Mouse is most popular pointing device. It is a very famous cursor-control device having a small palm size box with a round ball at its base which senses the movement of mouse and sends corresponding signals to CPU when the mouse buttons are pressed.

Generally it has two buttons called left and right button and a wheel is present between the buttons. Mouse can be used to control the position of cursor on screen, but it cannot be used to enter text into the computer

(d) CPU (Central Processing Unit):

     1. CPU is considered as the brain of the computer.

     2. CPU performs all types of data processing operations

     3. It controls the operation of all parts of computer

CPU (Central Processing Unit)   UPS (Uninterrupted power supply)

(e) UPS (Uninterrupted power supply) :

An **uninterruptible power supply,** or **battery** is an electrical apparatus that provides emergency power to a load when the input power source, typically mains power fails.

A UPS is typically used to protect hardware such as computer, data center telecommunication equipment or other electrical equipment where an unexpected power disruption could cause injuries, fatalities, serious business disruption or data loss.

1.3   How to start a computer ?

Step 1 :

     ✓ Make sure all the cords of the monitor, CPU, Keyboard, and mouse are connected in the right place.
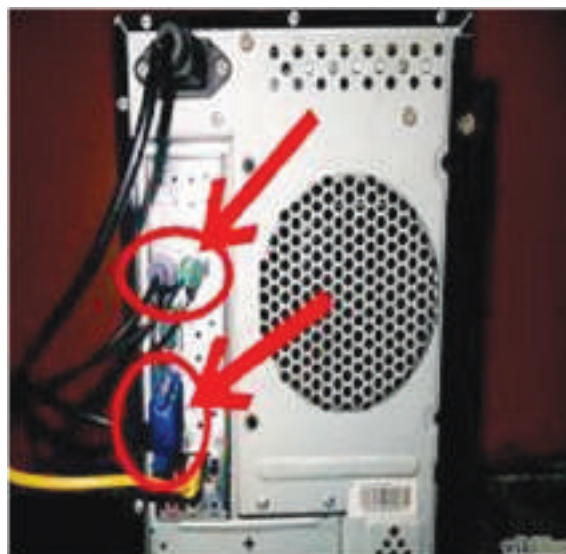
Step 2 :

✓ Plug the power cords of the monitor and CPU to the UPS.

Step 3 :

✓ Switch on the UPS
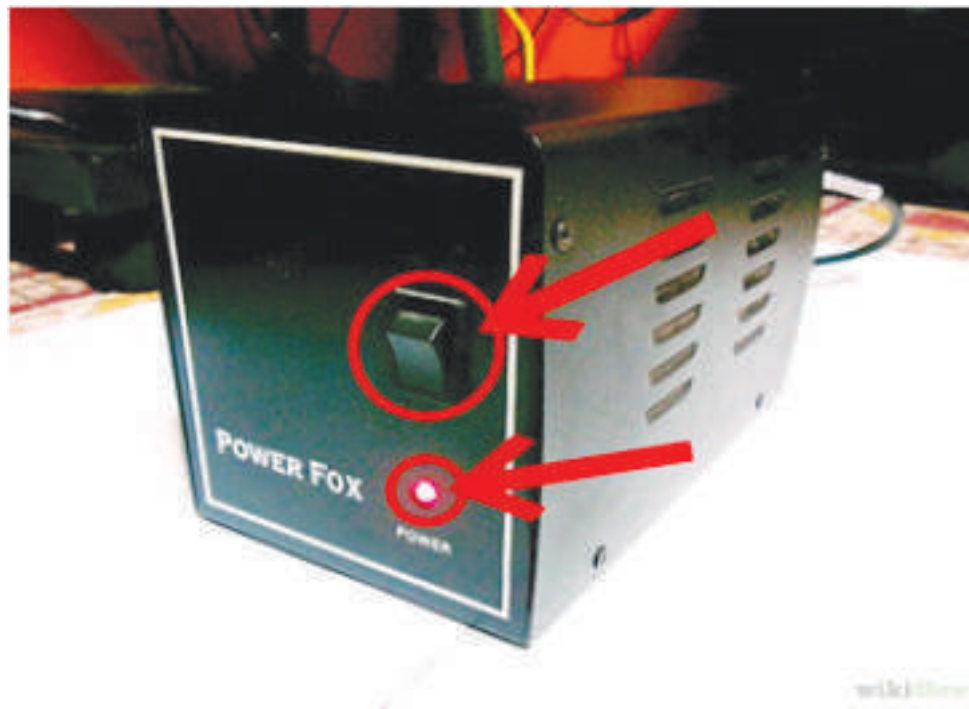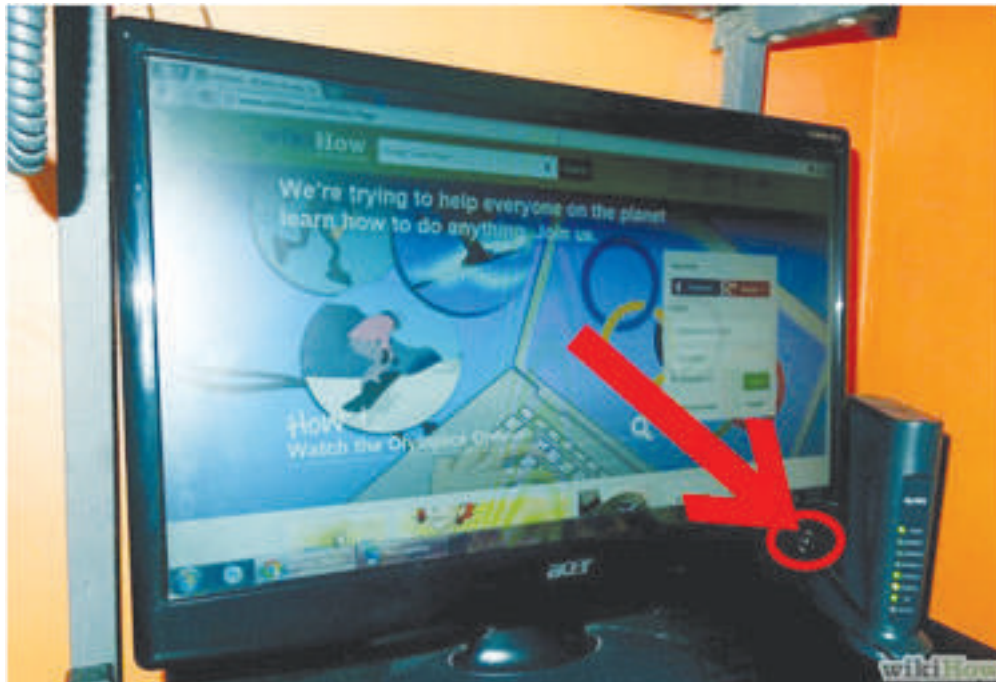
Step 4 :

    ✓ Switch on the computer.

Step 5 :

    ✓ Switch on the monitor

Lesson 2

OS (Operating System)

2.1. OS (Operating System) :

An operating system is the most important software that run on a computer. It manages the computer's memory, processes, and all of its software and hardware.

It also allows you to communicate with the computer without knowing how to speak the computer's language. Without an operating system, a computer is useless.

2.2. The operating system's job

Your computer's operating system manages all of the software and hardware on the computer. Most of the time, there are many different computer program running at the same time, and they all need to access your computer's central processing unit   , memory, and storage.

The operating system coordinates all of this to make sure each program gets what it needs.

2.3   Types of Operating System :

The three most common operating system for personal computers are **Microsoft WINDOWS, Apple Mac X, and Linux.**

Each operating system Graphics User Interface has a different look and feel, so if you switch to a different operating system are designed to be easy to use, and most of the basic principles are the same.

(i) Microsoft Windows Graphics User Interface :

Microsoft Windows (O.S.)

Microsoft created the windows operating system in the mid -1980s. Over the years, there have been many different versions of Windows, but the most recent ones are Windows 8 (released in 2012),

Windows 7 (2009), and Windows Vista (2007). Windows comes preloaded on most new PCs, which helps to make it the most popular operating system in the world.
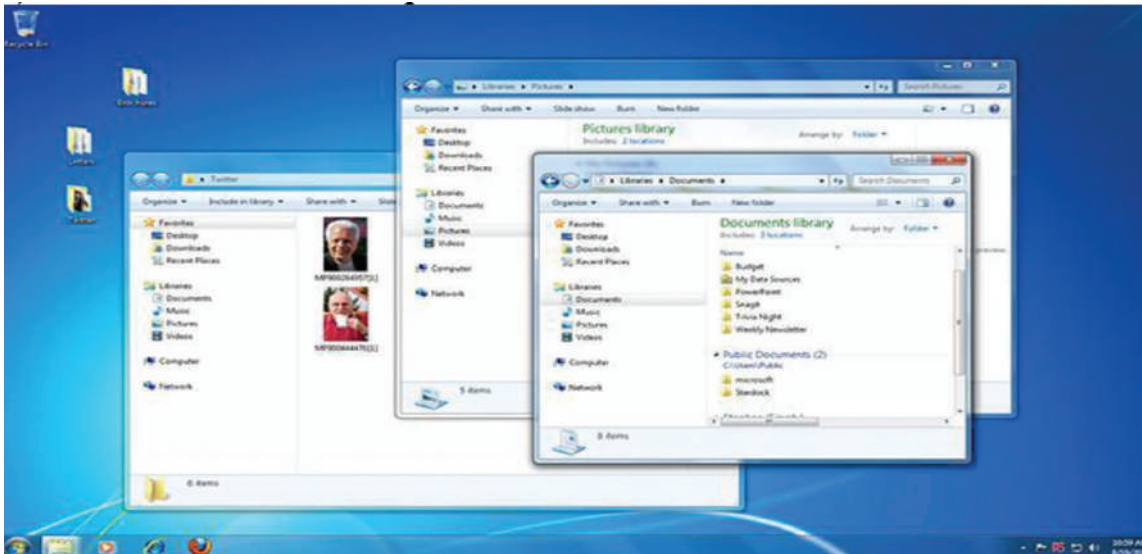
(ii) Apple Mac X, Graphics User Interface :

Mac X (O.S.)

Mac X (O.S.) is a line of operating system created by Apple. It comes preloaded on all new Macintosh computer, or Mac. All of the recent versions are known as OS X, and the specific versions include Yosemite (2014), Mavericks (2013), Mountain Line (2012), Lion (2011), and Snow Leopard (2009).
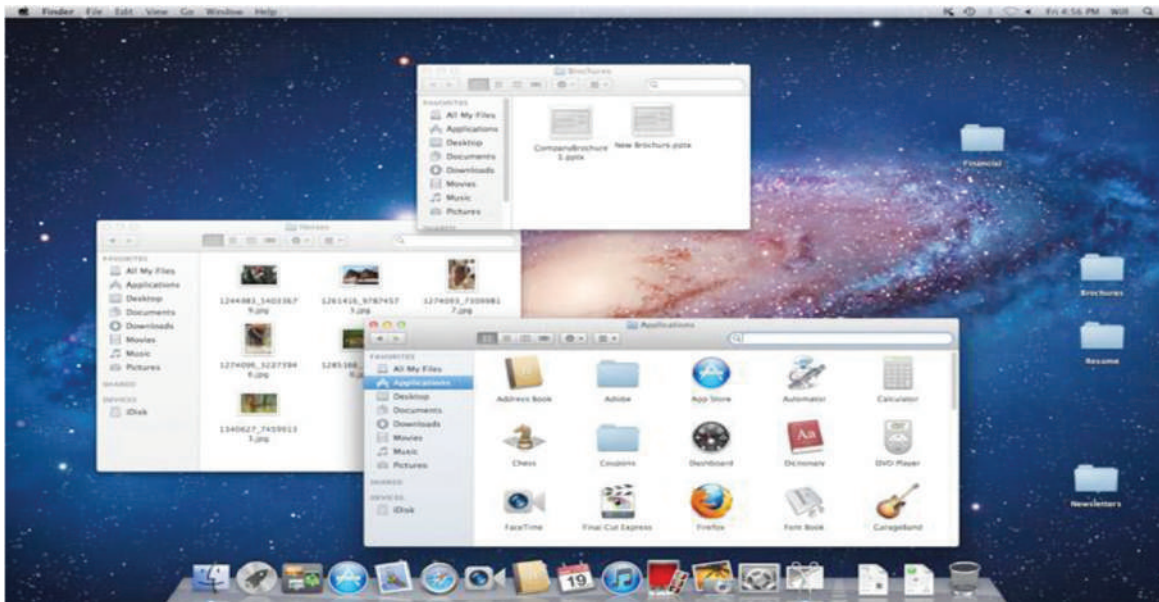
According to **State Counter Global Stats,** Mac OS X user account for 9.5% of the operating system market as of September 2014 much lower than the percentage of windows users almost 90% of one reason for this is that Apple computer tend to be more expensive.

However, many people prefer the look and feel of Mac OS X.

(iii) Linux Graphics User Interface :

Linux (O.S.)

Linux is a family of open-source operating system, which means they can be modified and distributed by anyone around the world. This is different from Windows which can only be modified by the company that owns it (Microsoft). The advantage of Linux are that it is free, and there are many different distributions. The most popular Linux version are **Ubuntu, Mint, and Fedora**.
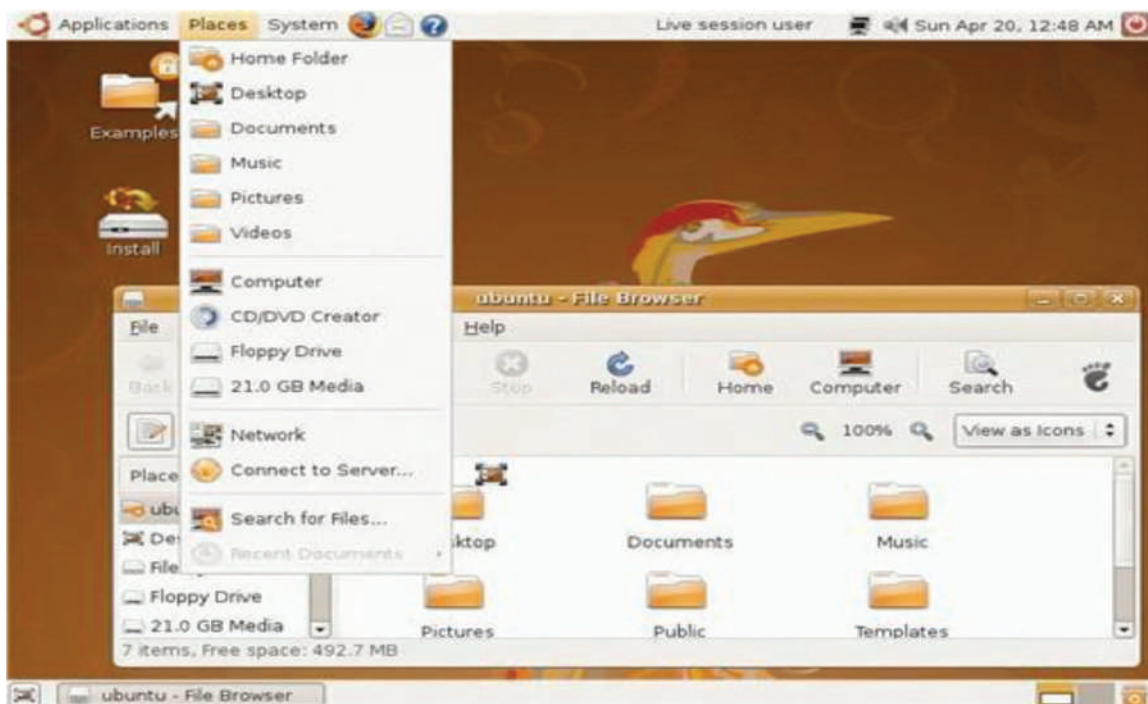
According to **State Counter Global Stats,** Linux user account for less than 2% of the operating system market. However, most servers run Linux because it's relatively easy to customize.

Lesson 3

INTERNET

3.1 Introduction :

The internet is a vast, ever changing medium-some would say the most powerful tool ever created.

The internet is a way to share and express information and ideas in a simple way that is accessible to nearly 2.2 billion people all over the world.

3.2 What is internet?

The internet is a massive "network of networks", a networking infrastructure. It connects millions of computers together globally. The computer you are sitting at can communicate with the computer across the street, down the block, or even around the world so long as the computer on the other end is connected to the internet as well.

3.3 What is the internet used for?

A lot of different things people use the internet to apply for job, play games, do research, watch movies, listen to music stay in contact with friend, family, and co-worker, run a small business, exchange information, buy or sell products, and much more.

3.4 Importance of Internet

The Internet has had an enormous impact on education, streamlining access to information and making it easier for individuals to engage in online learning. Distance education programs make it easier for students from a variety of backgrounds to attend classes remotely, cutting down the need for travel and reducing the resources required for education. The Internet has also made access to information and communication far easier. Rather than searching the library, users can access vast amounts of information from home computers. Internet access has a huge impact on businesses, allowing employees to work remotely from home and communicate more efficiently. Healthcare is another field greatly affected by the advent of the Internet. Improvements in online connectivity and communication technology allow physicians much greater access to medical resources. Doctors in rural areas can also use the Internet to communicate with experts all over the world, improving the quality of patients' diagnoses and treatments.

Politics and government are another area in which the Internet is important. Government organizations use the Internet to improve organization and communication, and voters can go online to gain more information about current issues. According to Web Junction, 54 percent of adults went online to get information about the 2010 U.S. midterm elections.

3.5 How do you connect to the internet?

There are many different way to connect to the internet from your personal computer the most popular ways are listed below.

- **Dial-up :** with a dial-up connection, the internet user can connect to the internet via Telephone line and an internet service provider (ISP). This method is inexpensive, yet obsolete. It provides the user with the slowest overall connection speed. However, it may suit the purposes of the occasional internet user without a need for a fast or consistent connection.

- **Broadband :** cableand DSL are in this category. With a cable connection, the user must subscribe to a cable –television /internet service. These connections offer speeds up to 70 time faster than dial-up. They also allow the user to stay connected to the internet at all times.

- **Wi-Fi :** It's even possible to connect to the internet wirelessly from home or while you are out and about. Wireless technology allows users to have mobile connections, accessing the web where and when they need to Wi-Fi network can be found at many businesses, restaurant, and public area (parks, schools, libraries) or a home connection can be set up through your ISP. These technology vary in terms of connectivity, reliability and cost, but they all allow users to connect whether they are at home school, work or on the road.

A web browser is the computer program you use to retrieve and view webpages. On most computers, including those at the library, the browser you will use is called Internet Explorer (IE).

| Internet Explorer | Firefox | Google Chrome | Safari | Opera |
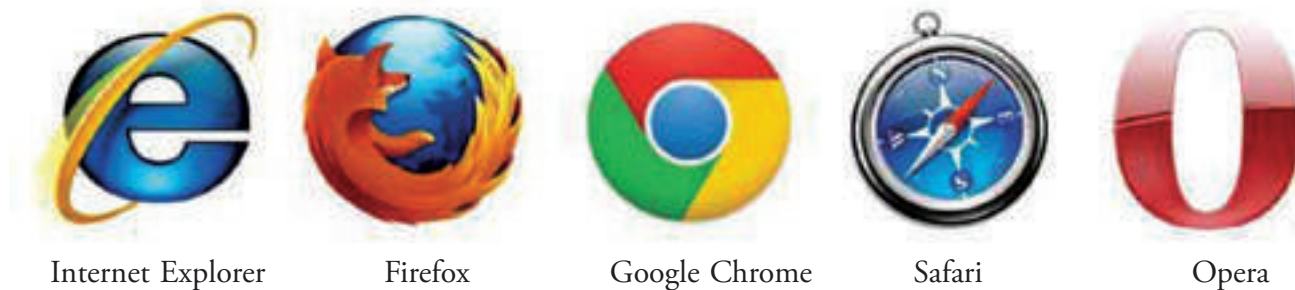
There are dozens of other web browsers (Firefox, Google Chrome, safari, & Opera are some of the most popular). They may look different, but same basic elements will be there and they all take you to the same place the internet.

3.6 Opening up the browser :

One thing you will notice about the computer as you become more comfortable with it-there are usually at least three way to do everything. For example, on most computers there will be an icon on the desktop for your internet browser. Typically it will be the brand name of the browser for example the icon will usually say "Internet Explorer ".

(i) By double click on this icon, you browser should automatically open up and take you to your home page. The home page is the first webpage that is displayed when you open your internet browser. If you don't see the icon on the desktop for Internet Explorer,

(ii) try clicking on the start button on the lower left corner of the screen. Often right there on the start button menu.

(iii) You will see an option for Internet Explorer. A single click of the mouse will take you to the internet.

(iv) If you click on the browser option. Sometimes on a home computer you might even have a little logo.

(v) Next to the start button on your desktop taskbar. If you have IE on your computer, it will probably look like a lowercase blue "e" with a yellow ring around it. this is the logo for Internet Explorer.

(vi) Clicking on it will open the browser.
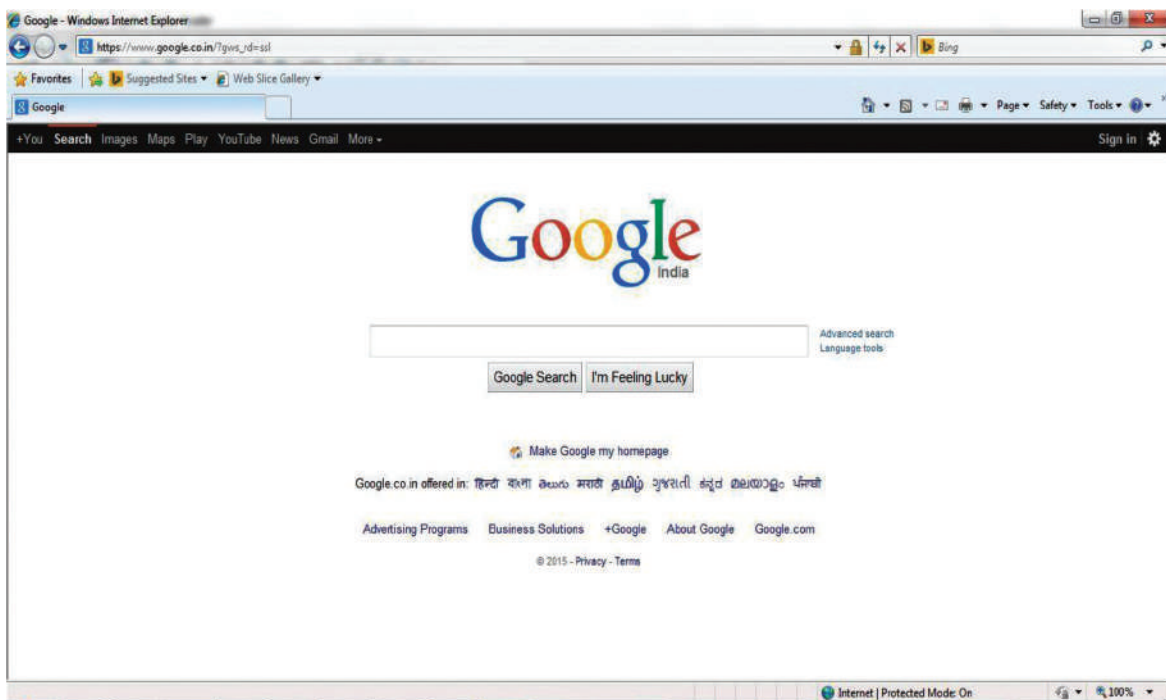
[Homepage of browser (IE)]

3.7   Basic parts of the browser :

The address bar is where the web address of the page you are currently on is displayed. It's the white bar at the very top of your page. If you want to go to a new website and know the Uniform Resource

locator(URL), or web address, of the site you'd like to go to , you can click in the address bar and type in the URL followed by the enter button to go directly to that page.
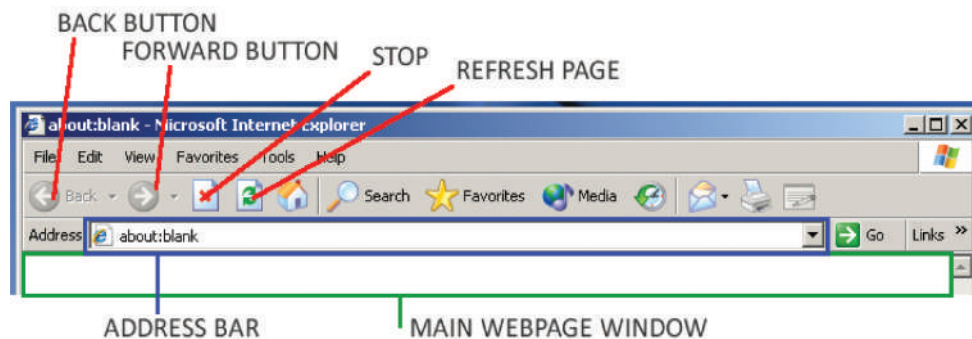
There are typically four main parts to a URL or web address. Lets look at the example below

http://www.gmail.com

(a) The http:// stands for Hypertext Transfer Protocol. This help your web browser locate the webpage or website, and to display it for you to see. Most browsers will automatically add this prefix, so you don't have to worry about typing it every time.

(b) The www stands for World Wide Web. This means that the page you're looking for is somewhere on the World Wide Web. For some websites, it's not even necessary to type in the "WWW" part.

(c) The next section, which is "gmail" in this example, is the name of the webpage or website. It is flanked by dot (.) on either side which separate it from other sections of the web address.

(d) The .com here is the top level domain name. this tells you where the webpages is registered and often tells you what kind of website that it is. For instance , .com usually means that you're looking at a commercial site, or a site that some has paid to us. Some other common domain names are.

.edu (sites for educational institute)

.org (sites belonging to organizations)

.gov (sites sponsored by local, state, or federal governments).

3.8. Email :

Short for *electronic mail*, email (or e-mail) is defined as the transmission   of   messages over communications networks. Typically the messages are notes entered from the keyboard or electronic files stored on disk. Most mainframes, minicomputers, and computer networks have an email system.

Some electronic mail systems are confined to a single computer system or network, but others have gateways to other computer systems, enabling users to send electronic mail anywhere in the world. Companies that are fully computerized make extensive use of e-mail because it is fast, flexible, and reliable.

● Here some popular email service provider is : **Gmail, Yahoo, AOL, Hotmail etc.**

● **Follow these step-by-step instructions to create a Gmail account**

Step 1 : Open up your internet browser and go the Google home page : http://www.google.co.uk.

**Step 2 :** Click on **Gmail** at the top right corner of the page.

Step 3 : You'll now be in the "Sign in section". As you don't have a Google account yet, you need to create one. **Click Create an account**.

Step 4 : To set up your new account, Google needs some information about you – first, your first and last names. The "choose your username" is the unique email address that you wish to use, which will be placed before "@gmail.com". Because it needs to be unique, Google may have to check the availability of any name that you decide on to make sure that no one already has it. Type an email name into the "choose your username" box and then fill out the rest of your information. You will need to ensure that the "I agree to the Google terms of service and Privacy Policy" is ticked. Then click **next step**.

Step 5 : If the email name that you requested in is not available, you'll get a message saying that somebody already has that username and offering you some alternatives. You can decide to accept one of the alternatives or type in another name and check its availability once more. You will have to

complete some of the other boxes again. You may have to do this a few times. Once you finalise your email address, it's a good idea to make a note of it so that you can refer to it until you remember it.
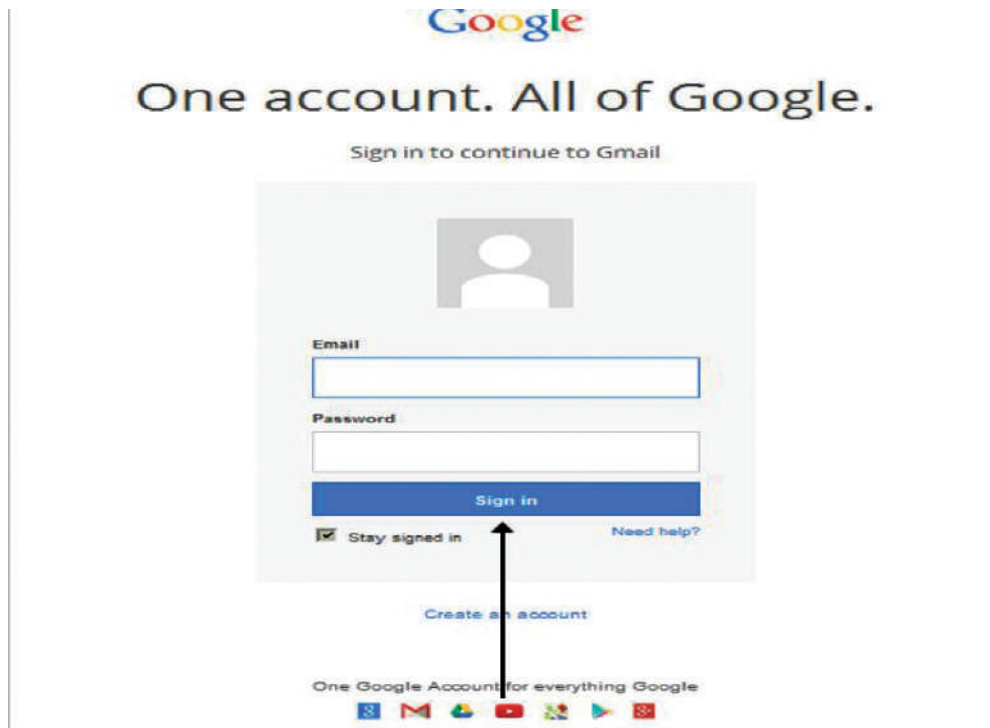
Step 6 : You'll need to come up with a password so that you can log in securely to your account. Google may explain that you should try one with at least 8 characters long to be secure. Use letters and numbers
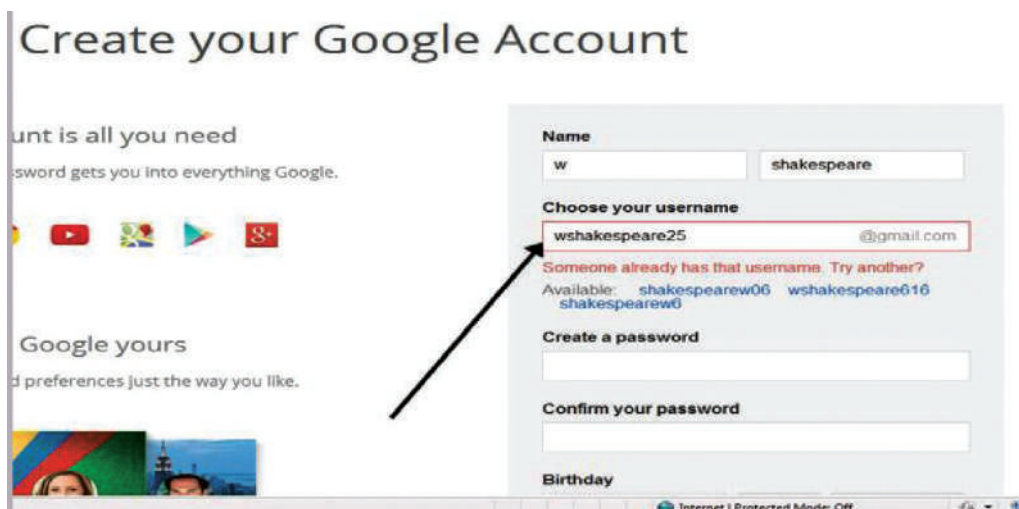
to make the password more secure and difficult to guess. You'll need to re-enter your password to ensure that it's you choosing it and not a hacker's (ro)bot. This is why it also asks you to insert two random words at the bottom of the page – this is a CAPTCHA code. You can skip this step if you don't want to type in the CAPTCHA code but you will need to verify via a mobile phone if you don't.

Step 7 : Once you have completed this page fully, clicking **Next Step** will take you to the Create Profile Page. If you don't wish to have a picture on the web, click Next Step to complete setting up your email. If you do, Click on **Add Profile Photo** and find a photo to add. Then click **Next Step**.

Step 8 : You will now have set up your account. You can go straight to your inbox and get started, or you can set up a photo to show as your profile picture.
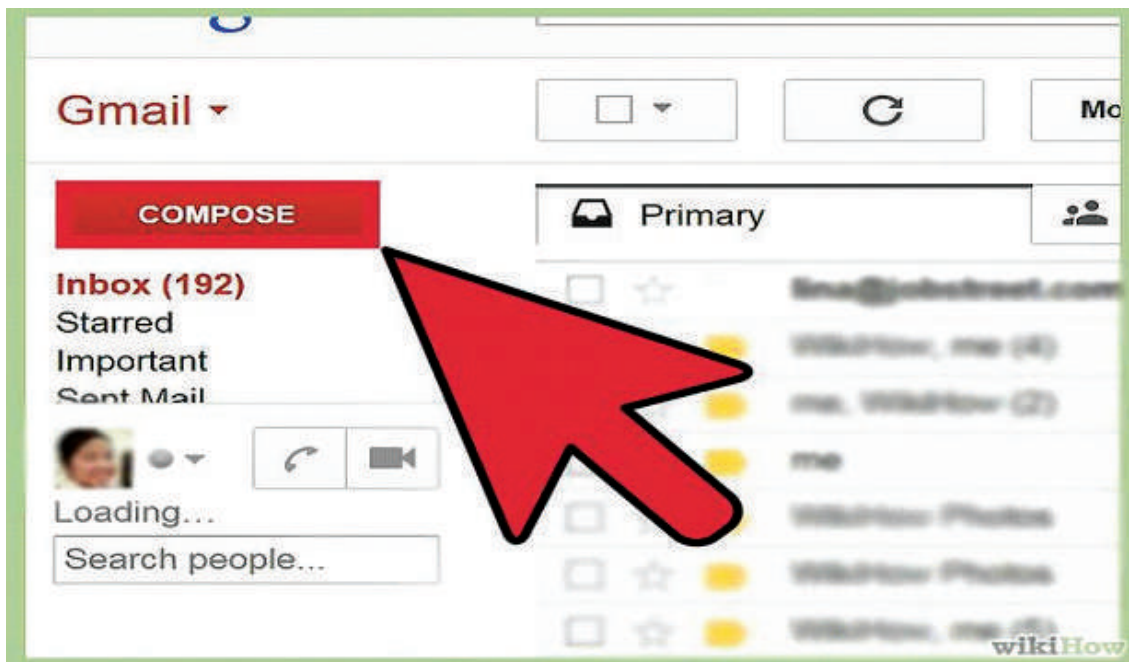
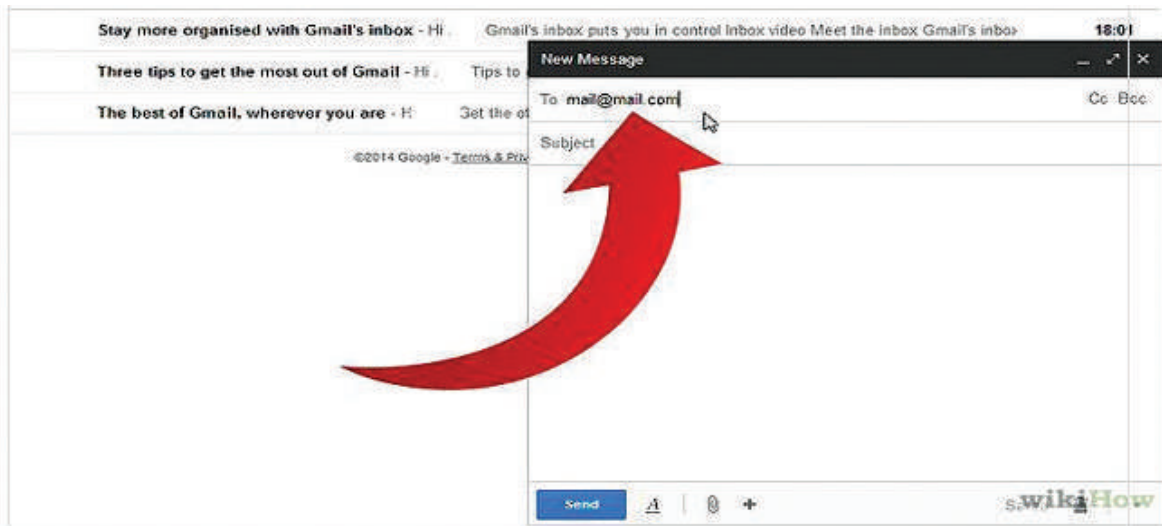Click on Add a photo to upload a photo and select a photo.
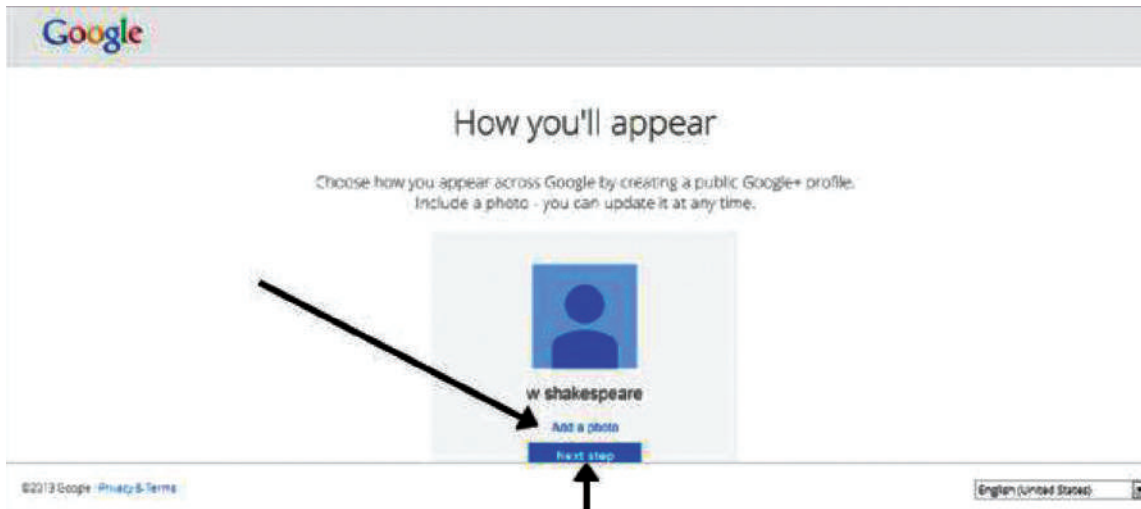
Or click on **Next Step** to go to your inbox and get started.

3.9 How to send mail to other :

Step 1 : Login into your gmail account using your user ID and Password. After click on login button the below screen will appear.
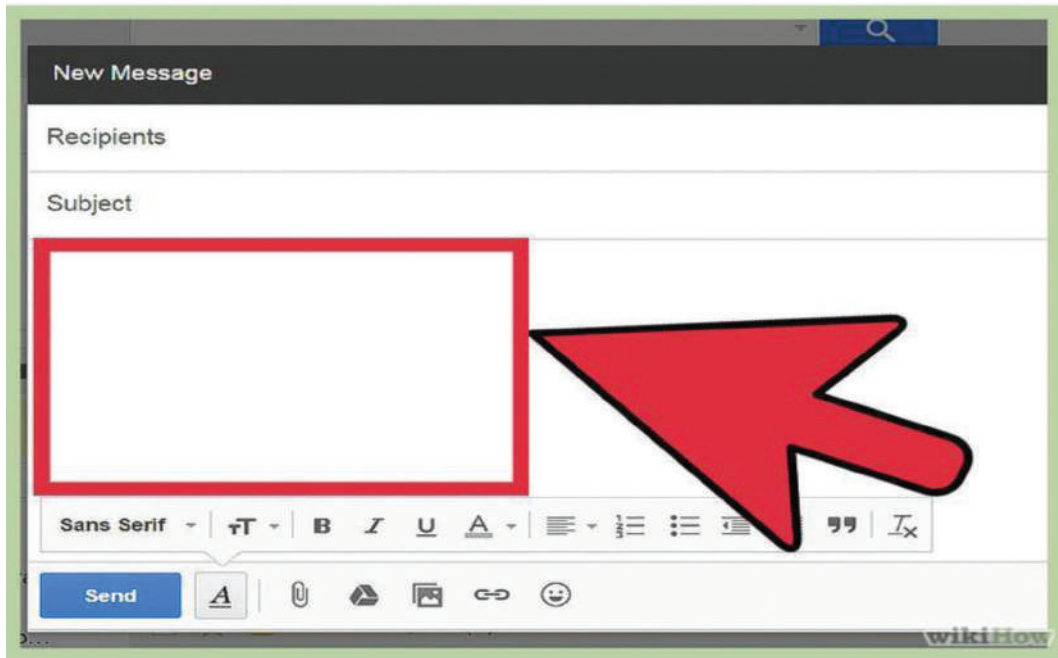
Step 2 : Click on COMPOSE button

3

Go to the To : box. In the **To** : box type in the email address of the person you would like to send an email to. If there are multiple people you want to send it to, click on the **Add**
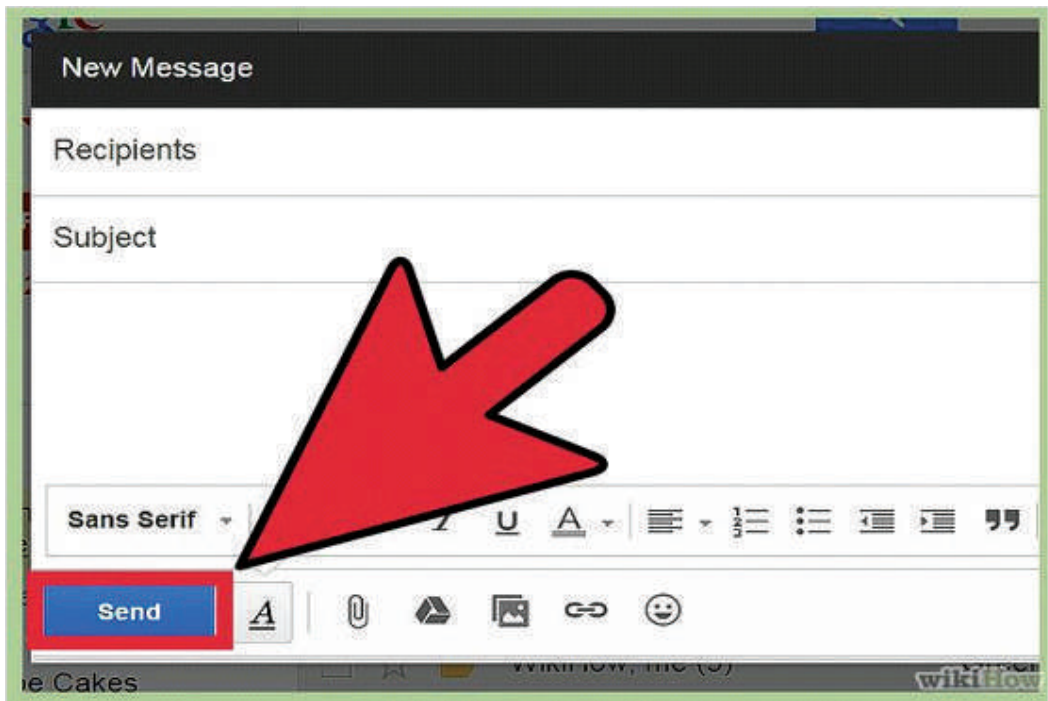
Cc and **Add Bcc** buttons.
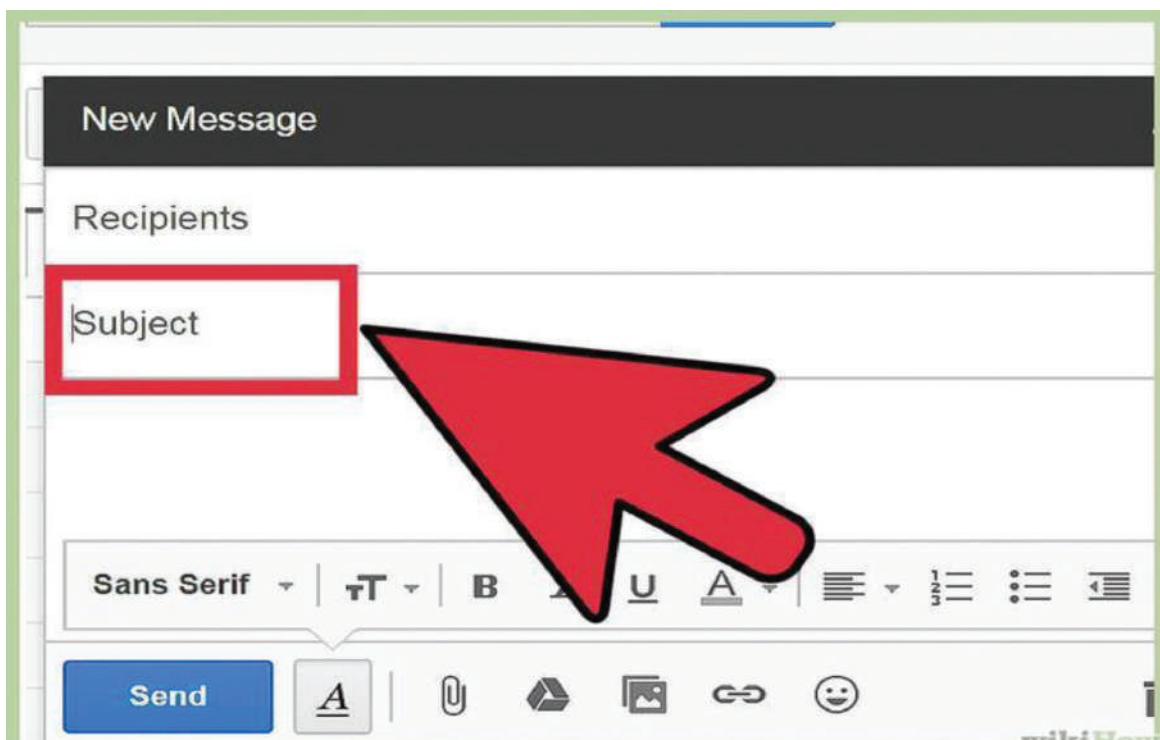
4

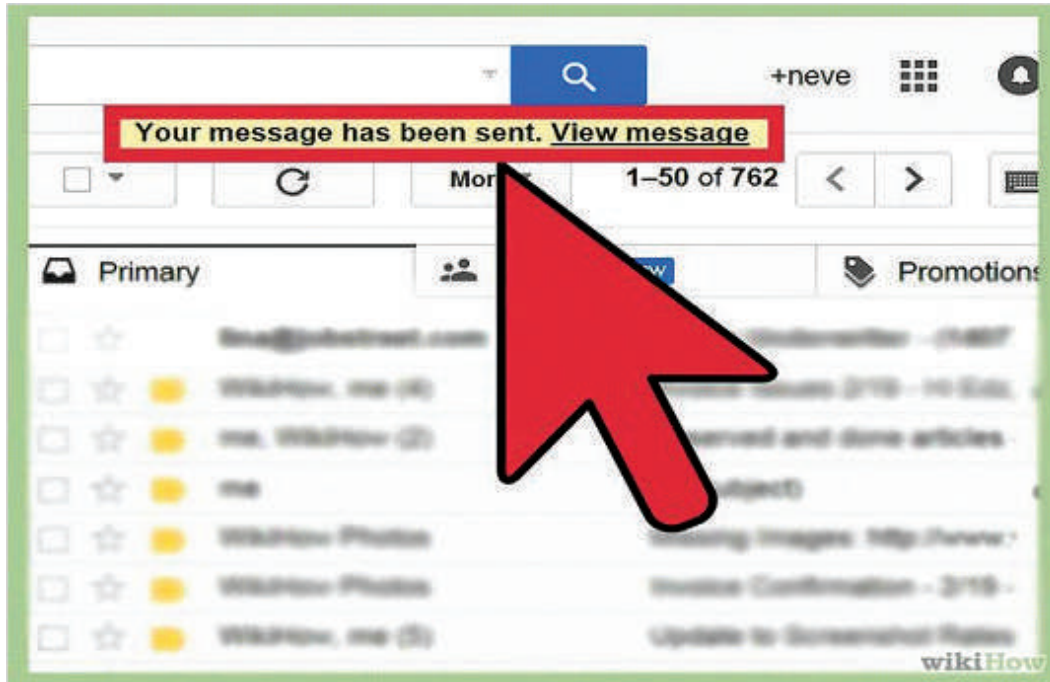**Type the email subject :** The subject lets people know what the email is going to be about.

5

Type your message in the big box below the subject box.

MANNUAL FOR COMPUTER APPLICATION

6

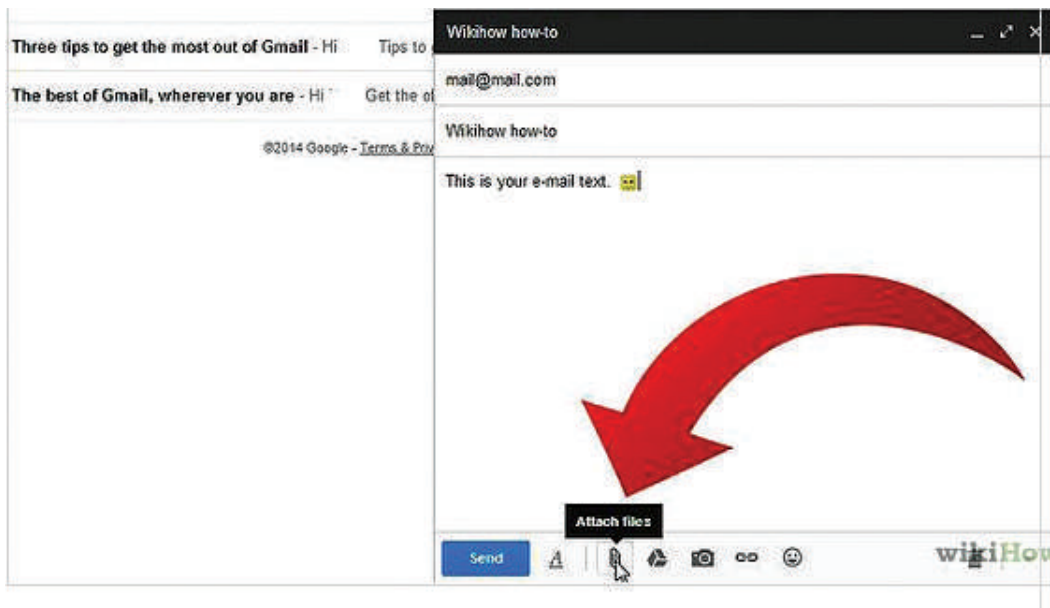**Click the send bottom below the message box.**

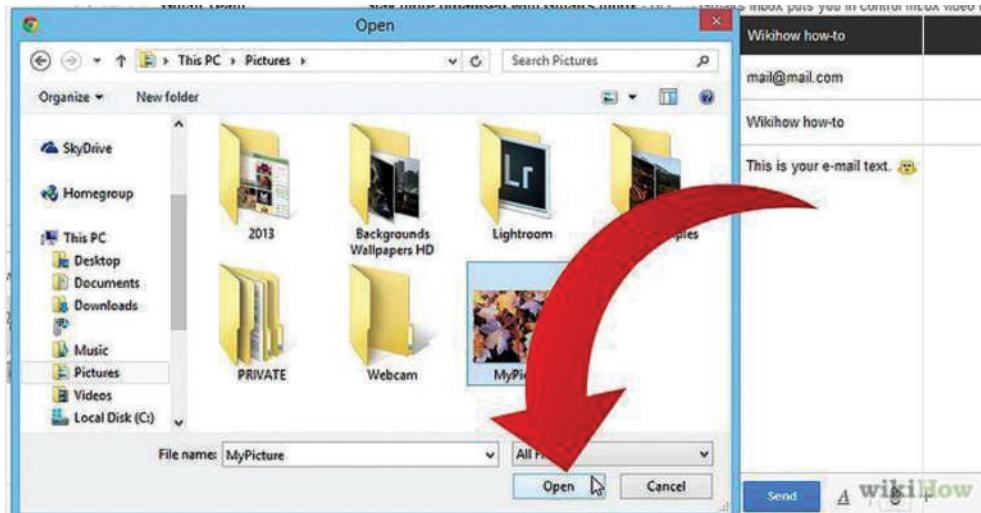- Wait until the person you sent the email replies.

7

Have fun sending lots of emails to all of your friends !

Include a Document or File in Your Email

1

Look under the Subject box : You should find a link that says **Attach a File**. Click this.

2

It will take you to files on your computer.

Lesson 4

WORD PROCESSOR

4.1 Word processing

Word processing is an application where a document is created, edited, and printed by using a computer. Of all computer applications, word processing is the most common. To perform word processing, you need a computer, a special program called a word processor, and a printer. A word processor enables you to create a document, store it electronically on a disk, display it on a screen, modify it by entering commands and characters from the keyboard, and print it on a printer.

4.2 What is MS-Word ?

MS-Word or Microsoft Word is a computer program. Computer is an electronic toolbox for working with information. The tools inside the toolbox are called programs. Different programs can be useful for creating different kinds of documents. The program MS-Word is very useful for creating text documents, from a simple letter to a complete book with pictures.

Examples of simple text documents are letters, leaflets, timetables, pricelists, questionnaires, examinations, These documents are usually only one or two pages in size and are quite easy to create. With this part of Computers you will learn the basic functions to create any simple document.

Examples of complex text documents are project proposals, reports, books, etc. Such documents consist of many pages and require page numbers, chapters and paragraphs, a table of contents, etc. MS Word

also provides these functions. Just start and find out later as you go along Look through the menu's, click on buttons and see what happens. There is nothing you can do wrong, that you cannot 'Undo' with a few clicks.

That is enough to create professional documents like this letter, schedule and leaflet :

4.3 What is the importance of MS-Word ?

In the past, desktop processing software was complex. Most programs separated the content of the document from its formatting, which made creating the document a two-step process. Microsoft Word was one of the first programs to combine text processing and formatting, and its early popularity endures today.

The Microsoft Word document format is complex, and many believe that it was created to be difficult to implement in other programs. Even though Microsoft has moved to a newer file format, compatibility issues still remain. Because of this, some governments are mandating that documents be created with other file formats.

Even the business world is slowly moving away form Microsoft Word files. HTML can provide much of the same formatting that Word provides, and it makes files easier to read over the Internet. The PDF file format is becoming more popular for printed documents. While creating a PDF file is more challenging than creating a file with Microsoft Word, the file format is designed specifically for printing and gives authors more options. Despite these changes, Microsoft Word is likely to remain the most popular word processor.

4.4 Getting started :

Before starting your first document, do the following :

1. Create a folder for yourself in 'My documents'
2. Start the program called 'MS-Word'
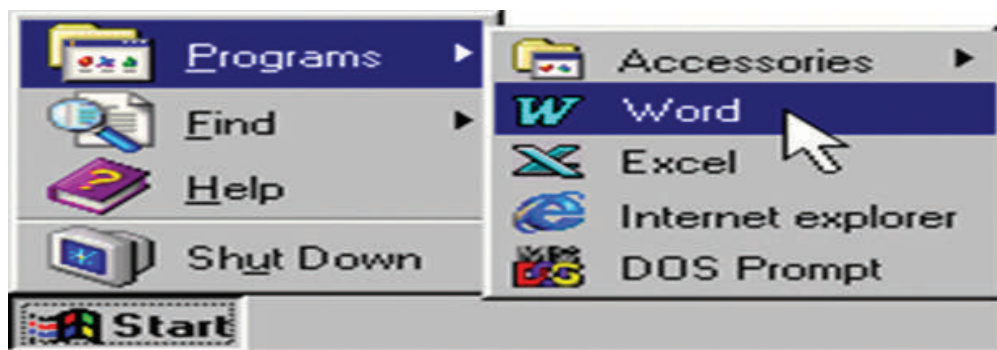
3. Save the new document in your folder and remember to save frequently while you work.

4. Turn this page and take a good look at the letter you are about to create.

4.5 Where to start ?

You looked at the Letter and nowyou want to make one yourself . Start by typing all the text: the address, the date, etc. Only type the text and use the Enter-key to type on a new line. When you finish typing, all text is atthe left of the page, including the date. Then go through Step to Step change the letter's appearance.
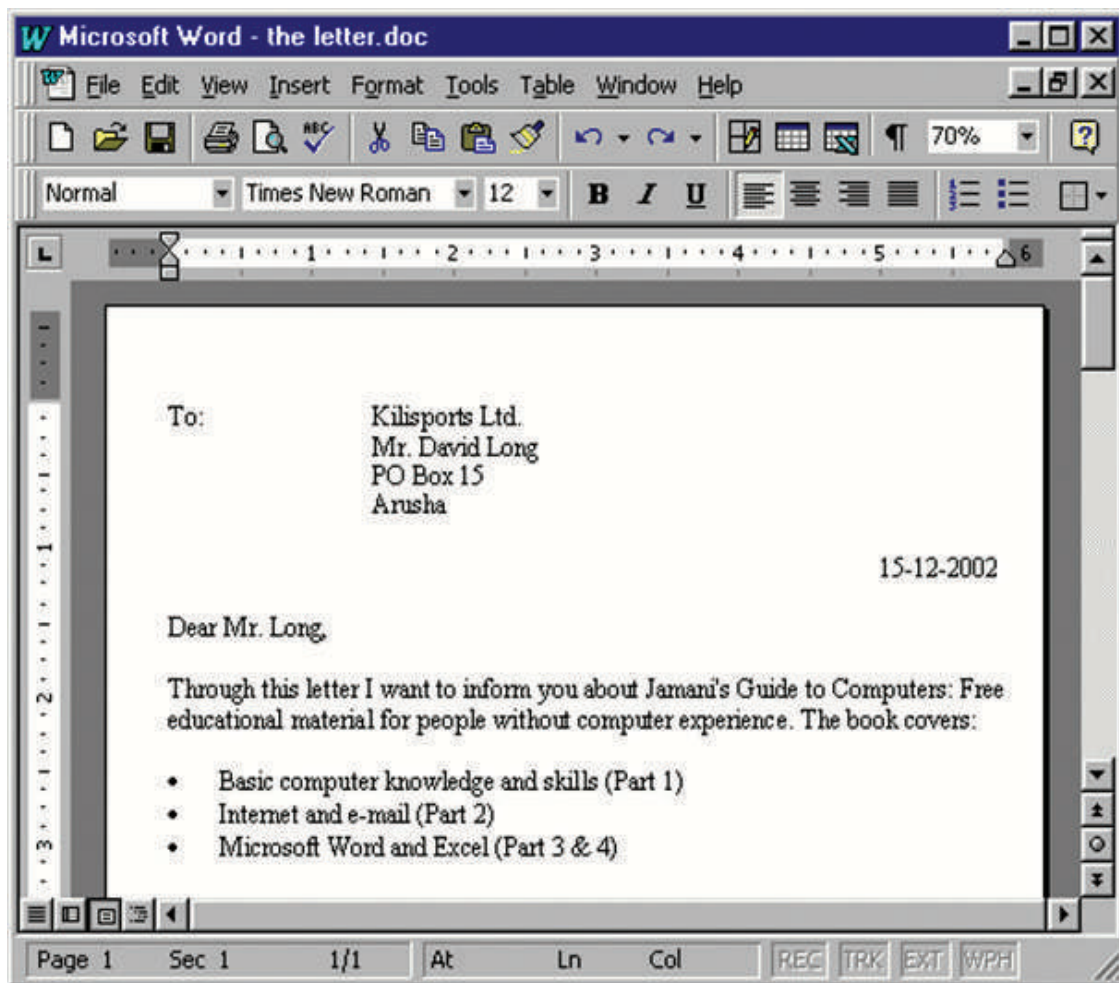
You need basic functions of word the picture shows that what function you need for what step.

Just try and use 'Undo' if you make a mistake.

Using Tabs to create spaces
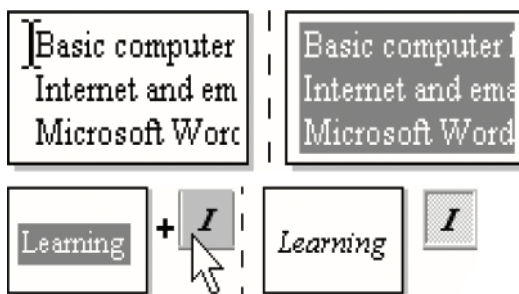
1. Click the cursor in front of the first word : 'Kilisports'
2. Press the Tab-key on your keyboard two times
3. Put the cursor in front of 'Mr. David Long'
4. Press the Tab-key on your keyboard twice
5. Repeat this for 'PO Box' and 'Arusha'

Creating a list

First type and select the text lines you want in your list :

1. Click in front of the first line and hold the mouse button down.
2. Drag the cursor down to select all text and release the button.
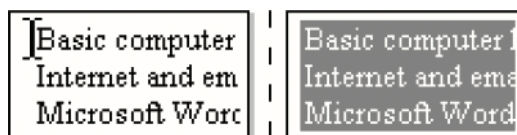
To make a list with 'Bullets' :
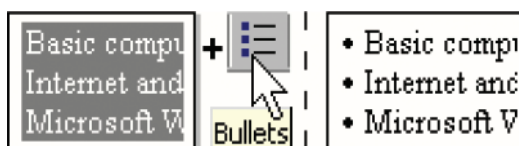
1. Move the cursor to the 'Bullets'-button: a label appears 'Bullets'
2. Click the button and click on the page to un-select the text.

To make a list with numbers :

1. Select the text and click the button 'Numbering'
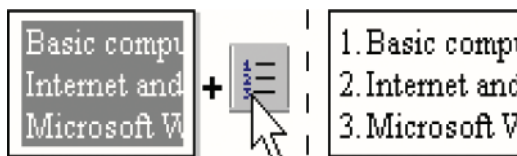
Making text bold, underlined & Italic.

To change the appearance or 'format' of text :

1. Select the text and click the button 'B' to make the text Bold.
2. Click on the page to un-select the text

1. Select the text and click the button 'U' text Underlined
2. Click both buttons to make the text Bold and Underlined

To make text beng to the right

1. Select the text and click the button 'I' to make the text Italic.

MANNUAL FOR COMPUTER APPLICATION

Changing the Font and Font Siz :

To make text smaller or bigger :

1. Select the text and click on the arrow next to the size : '12'

2. In the list that appears, go to '14' and click: the text is bigger

To change different text format :

1. Select the text and click next to the name of the font: 'Times'

2. In the list that appears, select 'Arial Black'

Aligning text Right and Center :

To pur text on the right side of the page :

1. Click the cursor in the text or select the text

2. Press the button 'Align Right'

To put text in the centre of the page :

1. Select the text and click the button 'Align Center'

2. Click the button 'Align Left' to put the text back to normal
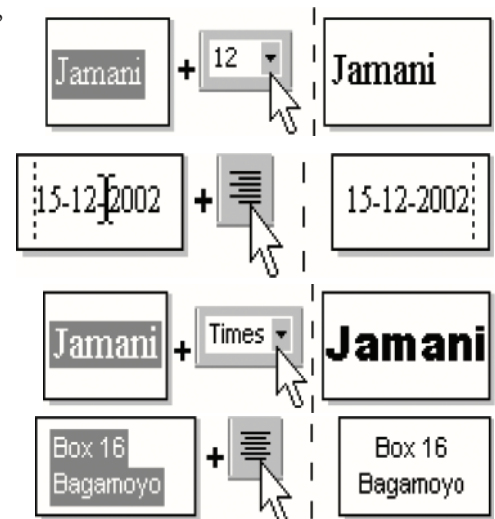
Changing Left and Right Margin :

To adjust the amount of white space left and right on the page.

1. Move the cursor to the left margin on the top ruler

2. 2. Wait until the cursor changes shape and 'Left Margin' appears

3. Click and hold down the left mouse button

4. Slowly move the mouse to the left or right and release

5. Repeat this for the right margin on the right side of the top

Changing Top and Bottom Margin :

To adjust the amount of white space on the top and at the bottom of the page.

1. Move the cursor to the top margin on the left ruler

2. Wait until the cursor changes shape and 'Top Margin' appears

3. Click and hold down the left mouse button

4. Slowly move the mouse up or down and release

5. Repeat this for the bottom margin on the lower side of the ruler
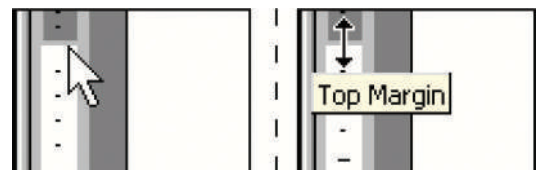
4.6   Using tables in your document

To insert a table into your document :
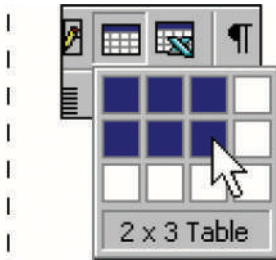
1. Click the cursor on your page where you want the table
2. Click and hold down the button 'Insert Table'
3. Drag the cursor; see that the text specifies the size of   the table.
4. Choose the right size and release the button to insert the table.

For a table with 16 rows and 6 columns ('16 x 6 Tab le') :

1. Hold the button down and drag until you read : '16 x 6 Table'
2. Release the mouse button to insert the table
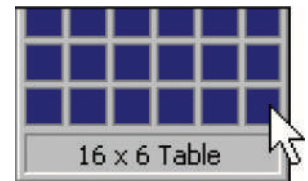
To put text into a table :

1. Click the cursor inside a cell and start typing as usual.

To put text into another cell :

Click the cursor inside the new cell and start typing

1. Or Use the Tab-key for going to the next cell
2. Use the "Cursor"-keys to move from cell to cell

To change the format of text in a cell, first select the text :

1. Select the text or click 3 times in the cell
2. Now you can change the format: Font, Font Size

To put text on the right side, first select the text or column :

1. Put your cursor in one cell and drag down to select more cells
2. Now you can use the buttons "Align Right" or "Align Center"

Changing border lines

1. Select one cell or a whole column (Choose "Select Column" in the Table-menu)
2. Press the small arrow next to the button "Outside Border": A new menu appears.
3. In the menu that appears, choose the button "No borders".
4. Try other buttons in the menu to create the look you want.

Changing cell and column size

1. Move the cursor on a border and wait until it changes shape
2. Click and drag until the cell is the size you want and release

Merging cells

1. Select cells or a row (Choose "Select Row" in the Table-menu)
2. Choose "Merge Cells" in the Table-menu

Adding and deleting cells

1. Select a column (or row)
2. From the Table-menu choose "Insert Column" (or Delete) The same goes for rows!

INSERTING PICTURES

To put a picture in your document :

1. Put the cursor where you want the picture
2. From the Insert-menu, choose "Picture" and "From File"
3. Select a picture and click the "Insert" button

To put symbols in your text :

1. Put the cursor in the text where you want the symbol
2. From the Insert-menu, choose„ Symbol…
3. In the dialogue, click on a symbol to see it bigger or move through the symbols with the cursor-keys
4. Click the "Insert" button and then the "Close" button
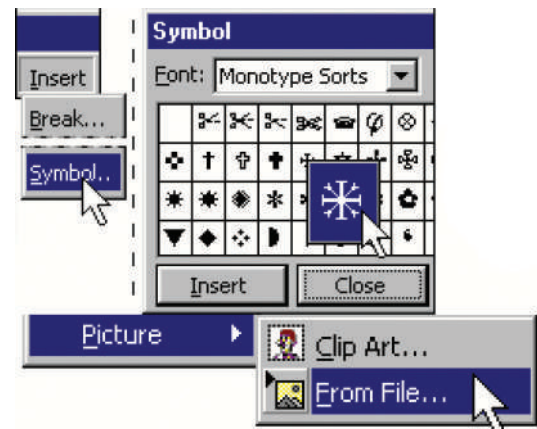
Changing the size of pictures :
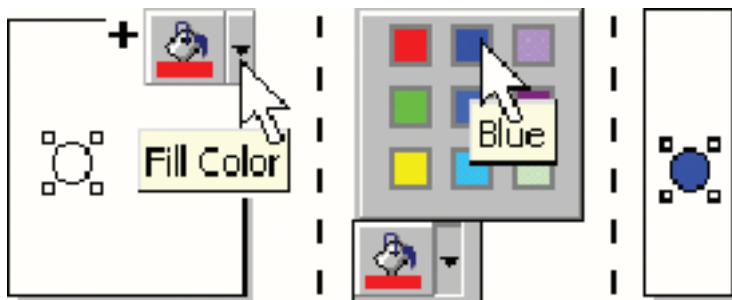
1. Click on the picture to select it : the "handles" appear
2. Put your cursor on one of the "handles" until it changes shape.
3. Click and drag the handle until the picture is the size you want

Drawing lines and circles :
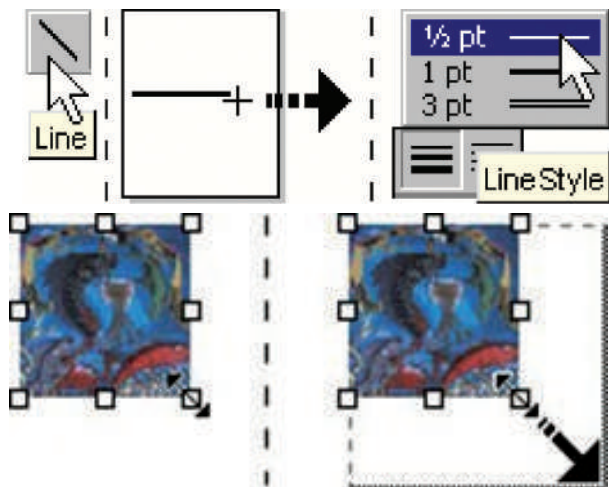
1. Click on the "Line"-button on the bottom of your screen

2. Click and hold to drag a line on the page where you want it

3. Use the "Line Style"-button to make the line thicker orthinner.

4. Try out other buttons and draw circles, rectangles and arrows

Changing colors of objects and text :

1. Draw a circle or rectangle and select it

2. Click the arrow next to the "Fill Color"-button

3. In the color-menu, click on a color to change the circle's color.
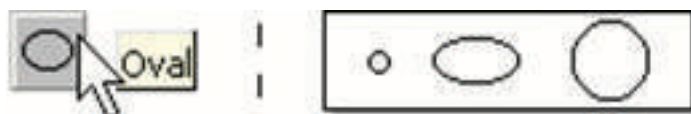
Creating special text effects :

1. Click the„ "Word Art"-button

2. In the dialogue that appears, choose a style and click "OK"

3. In the window that appears, type your text and click "OK"

Printing your document

After creating a document, use a printer to put it on paper. Use the 'Print Preview' function to see on screen how the document will look when it is printed. If you are not satisfied, you make some changes and 'Preview' again. This function will save you a lot of paper and ink!

Open word file which you want to print.

Step 1 : click on "File" this should be located towards top of the windows.
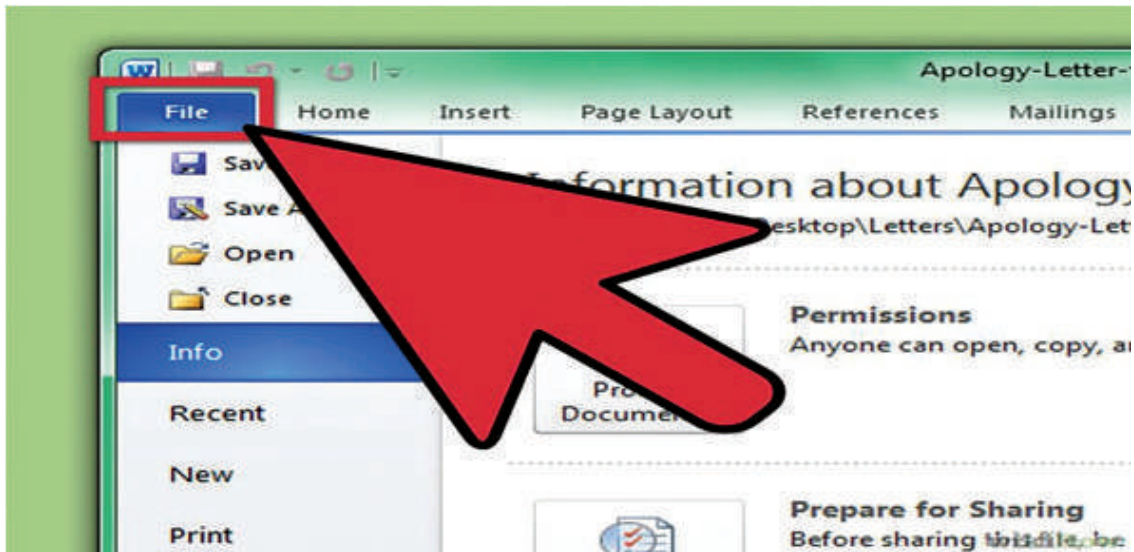
Step 2 : click on "Print" this will bring up the printing menu.
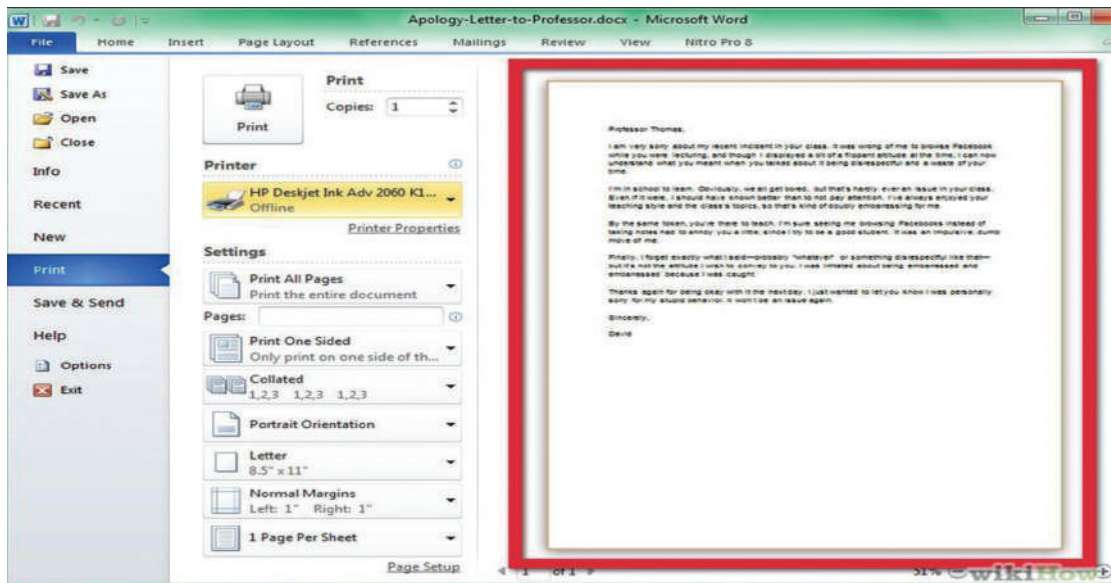
Step 3 : finally click on print button, and you will get it on paper form printer.
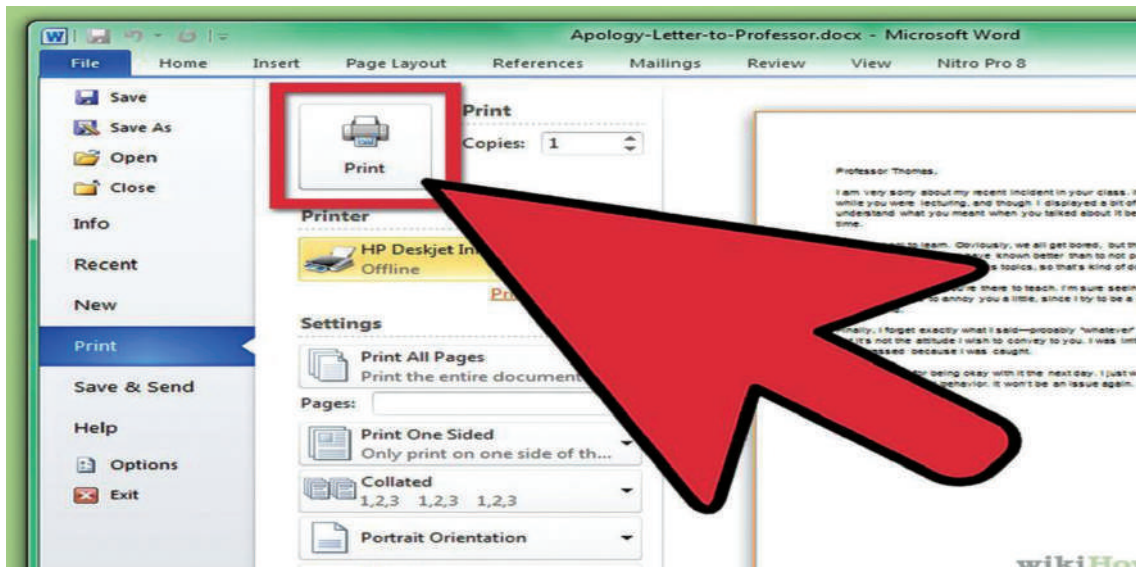
Lesson 5

Spreadsheet

Introduction to MS-Excel

5.1 Spreadsheet

A spreadsheet is a table of values arranged in rows and columns. each value can have a predefined relationship to the other values. If you change one value, therefore, you may need to change other values as well.

MS-Excel Sample Screenshot
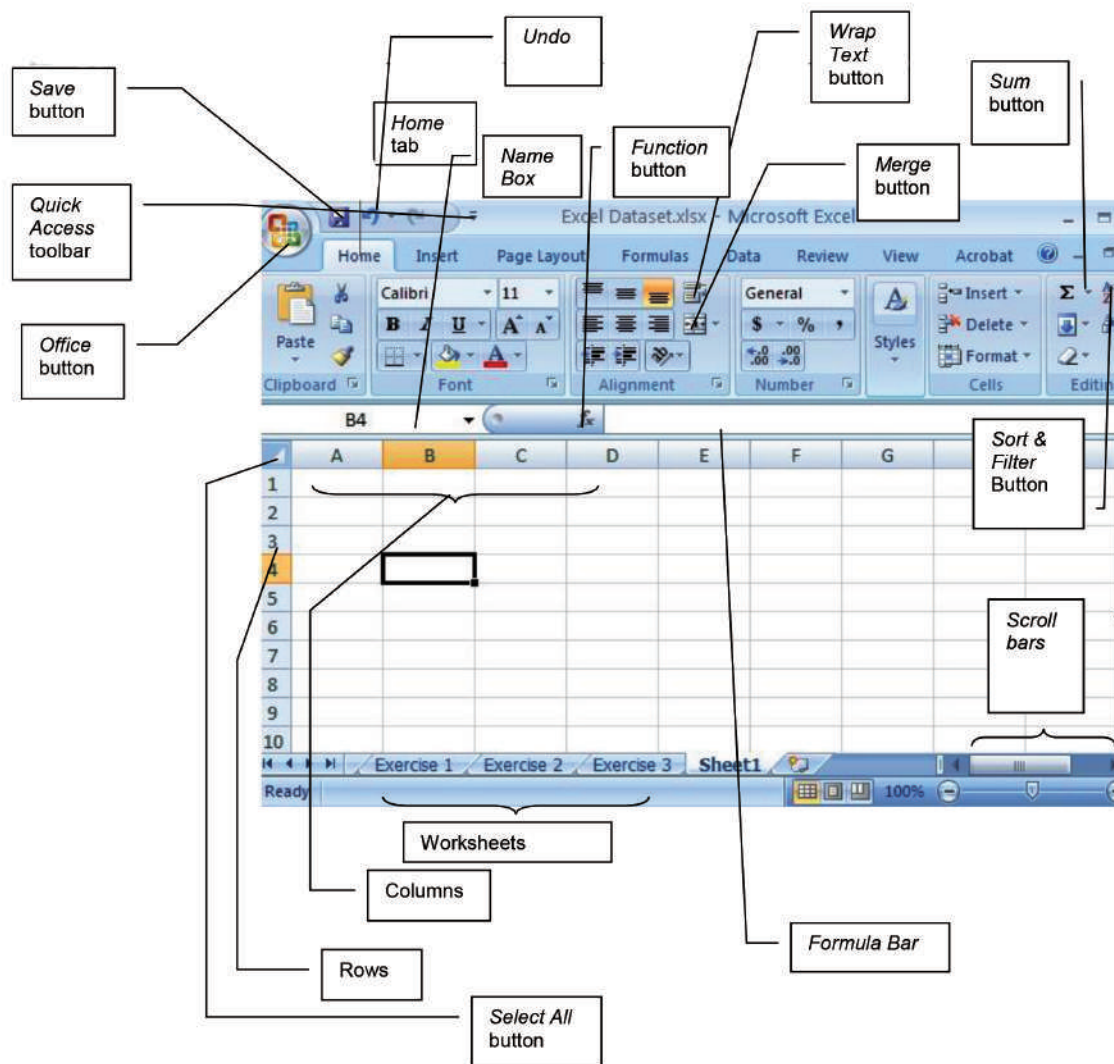
5.2   MS-Excel

Microsoft Excel has the basic features of all spreadsheets, using a grid of *cells* arranged in numbered *rows* and letter-named *columns* to organize data manipulations like arithmetic operations. It has a battery of supplied functions to answer statistical, engineering and financial needs. In addition, it can display data as line graphs, histograms and charts, and with a very limited three-dimensional graphical display. It allows sectioning of data to view its dependencies on various factors for different perspectives. It has a programming aspect, *Visual Basic for Applications*, allowing the user to employ a wide variety of numerical methods, for example, for solving differential equations of mathematical physics, and then reporting the results back to the spreadsheet. It also has a variety of interactive features allowing user interfaces that can completely hide the spreadsheet from the user, so the spreadsheet presents itself as a so-called *application*, or *Decision Support System* (DSS), via a custom-designed user interface, for example, a stock analyzer, or in general, as a design tool that asks the user questions and provides answers and reports. In a more elaborate realization, an Excel application can automatically poll external databases and measuring instruments using an update schedule, analyze the results, make a Word report or Power Point slide show, and e-mail these presentations on a regular basis to a list of participants.

Importance of MS-Excel

Accounting and Finance

Excel is often used in accounting and finance because of its ability to automate calculations and its support for complex formulas. Excel spreadsheets can calculate the accrual of compound interest and net income after adjusting the gross for expenses, for example. Once formulas have been entered in a table, you simply plug in numbers where necessary and Excel does the rest, populating cells with the results of the calculations. This makes Excel an indispensable tool for business accounting.

Data Organization

Even non-financial businesses employ Excel spreadsheets. The ability to organize data in Excel tables and set up tools for updating, organizing, and displaying the data makes the program popular for administrative purposes. Comprehensive, easy-to-reference Excel tables allow administrators to check a single statistic in a process, such as service fault issues in a product, against a report of trends for the same service faults. Through these comparisons, issues can be identified and solutions developed.

Graphing

Excel also produces a variety of charts and graphs for representing income statements and other statistical data visually. You save time by making the charts in the spreadsheet where the data resides. Visual presentation of the data drives home your points more effectively than columns of numbers. Being able to graph within Excel also frees up some capital that otherwise would have to be invested in another graphing program.

Using Your MS-Excel Work Area

Using toolbars

Menu choices and icons mean the same thing throughout all Microsoft products (Word, PowerPoint, etc.).

- For example, the Save icon will always be depicted by a graphic of a disk, and the *Print* icon will be depicted by a printer.

The *Main Menu* provides a variety of tabs : *Home, Insert, Page Layout, Formulas, Data, Review, and View.*
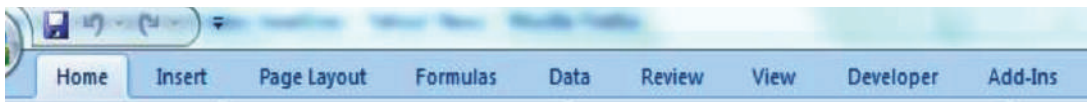
- The *Office* button includes icons for common functions such as new document, saving or printing a file.

- The *Home* tab is where you can find icons for changing font appearance, for example :
  - ◆ Type of font
  - ◆ Special font features such as bold, italicize or underline
  - ◆ Formatting for paragraph or number (alignment, indentions, number of decimals to display, etc.)
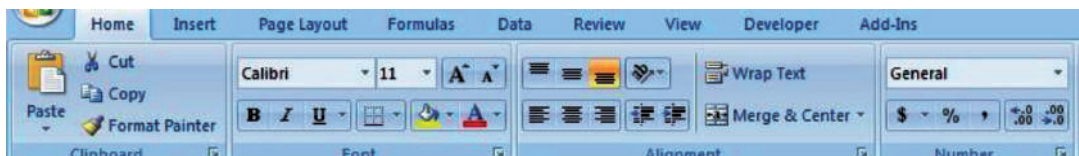
- The *Quick Access* toolbar give you access to frequently used functions such as save, undo and redo no matter what tab you are using.

Navigation Cells within a worksheet

In MS-Excel, the primary document where you store and work with data is referred to as a worksheet. It is also known as a spreadsheet. A worksheet is made up of various horizontal rows and vertical columns. Each row and column contains many cells.

Each white box within the spreadsheet is a cell. The row and column in which a particular cell is located is referred to as the cell address. MS-Excel provides many methods for moving around the worksheet; here are three of the more commonly used methods. Please try each of the methods by following all directions below.
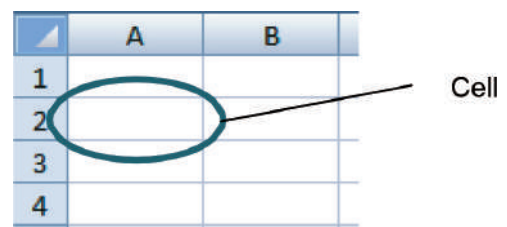
Cell

Method 1 : Click on a specific cell

1. Click on cell B12 (Column B, Row 12).

   When you click on B12, the *Name Box* displays the cell address in the upper left corner of the work-sheet, and the row and column titles are highlighted.
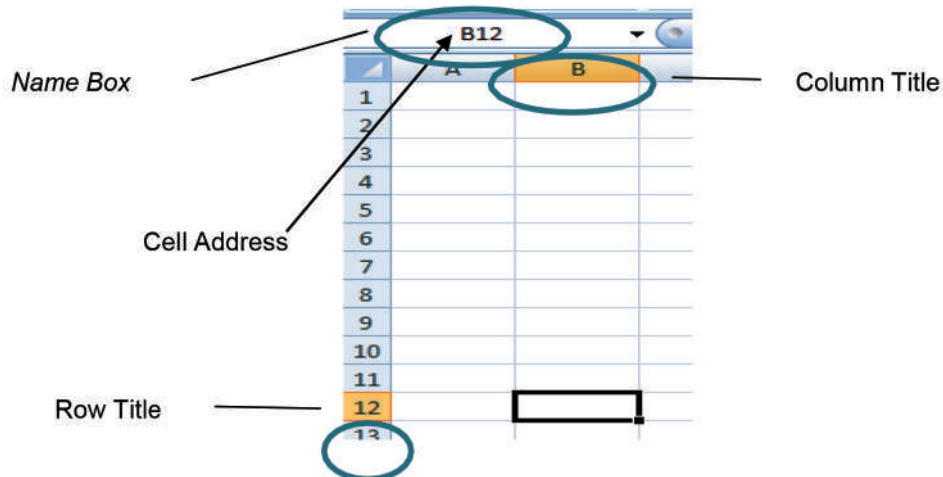
2. Type your name in cell B12.

   As you add contents into the cell, the cell contents display in the Formula Bar, which is located directly above the worksheet.
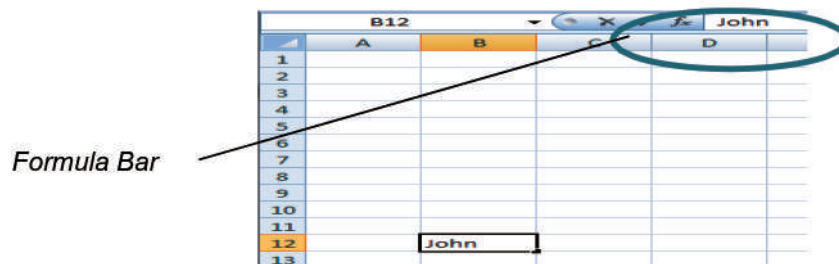
3. Press *Enter*.

■ **Note :** how the cursor now moves to the following row of the worksheet.
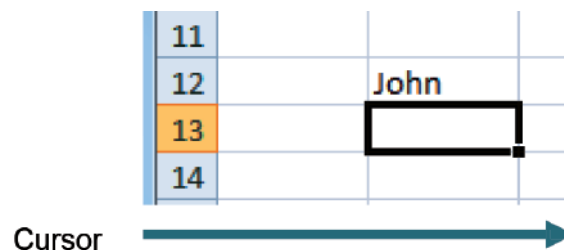
Method 2 : Use arrow keys to move to the next cell

1. Using the arrow keys on your keyboard, move to cell C15.

Method 3 : Enter the cell address in the Name Box

The Name Box displays the cell reference of the active cell (format: column letter, followed by the row number, e.g., B12).

1. Click inside the Name Box.

   The current cell name (C15) will be highlighted.
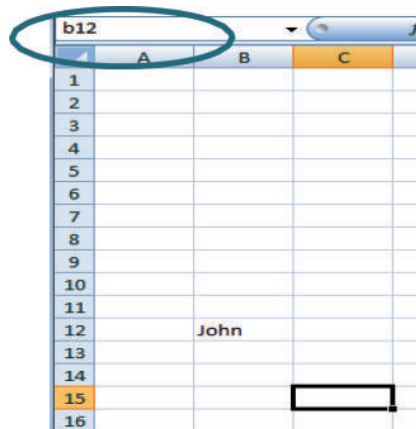
2. Type B12 into the Name Box.
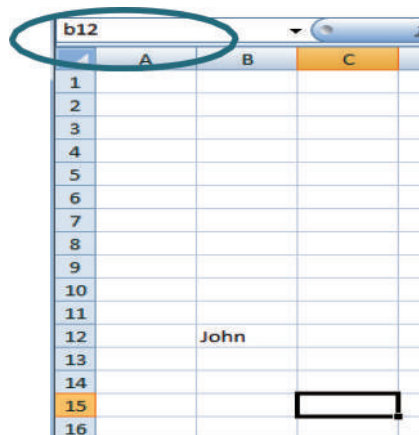
3. Press Enter.

You should notice your cursor jump from cell C15 back to B12, the location you specified in the Name Box. Cell address (or cell name) is always listed with the column letter followed by the row number.
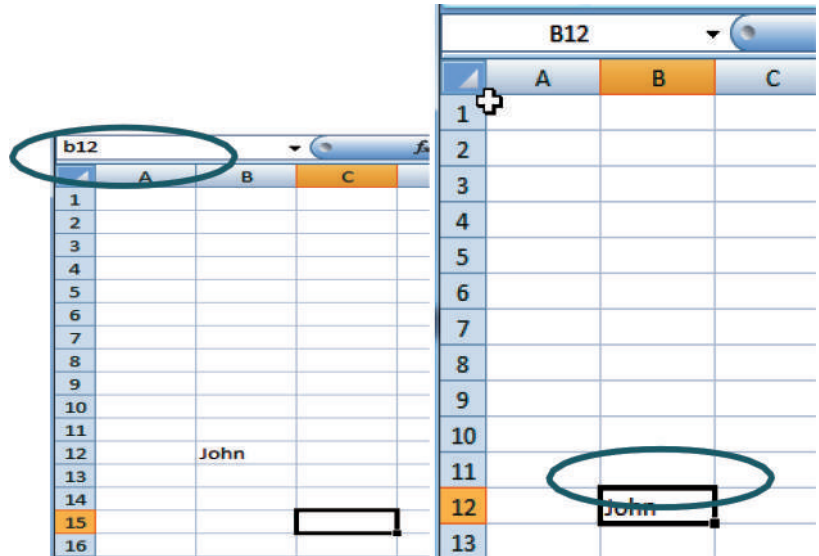
Creating a Worksheet

As previously mentioned, the main work area of MS Excel is called a worksheet. You can create a new worksheet to store information, or to add on to an existing worksheet.

These four buttons allow you to access worksheets that are not currently visible.

One file can contain multiple worksheets. When considered together, they are called a workbook.

Insert Worksheet
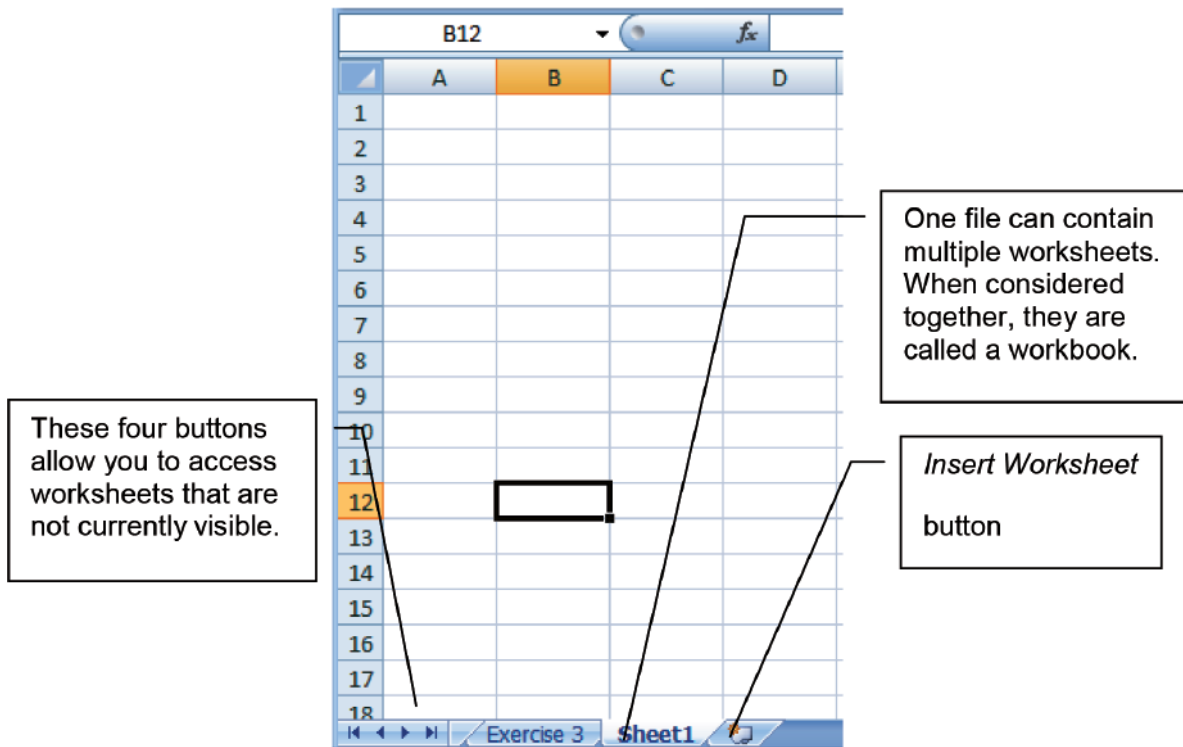
button

Creating a New Worksheet

You can create a new worksheet either by using the *Insert Worksheet* button at the bottom of the screen or by right clicking.

Using the *Insert Worksheet* button

1. Click the Insert Worksheet button.
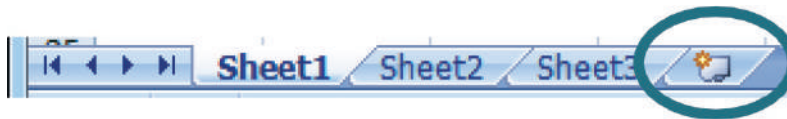
2. A new worksheet will display.
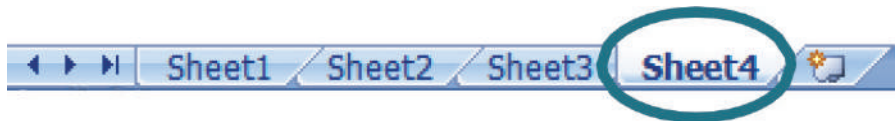
Right-clicking :

1. On your current worksheet tab, right-click.

2. Select *Insert* from the menu.
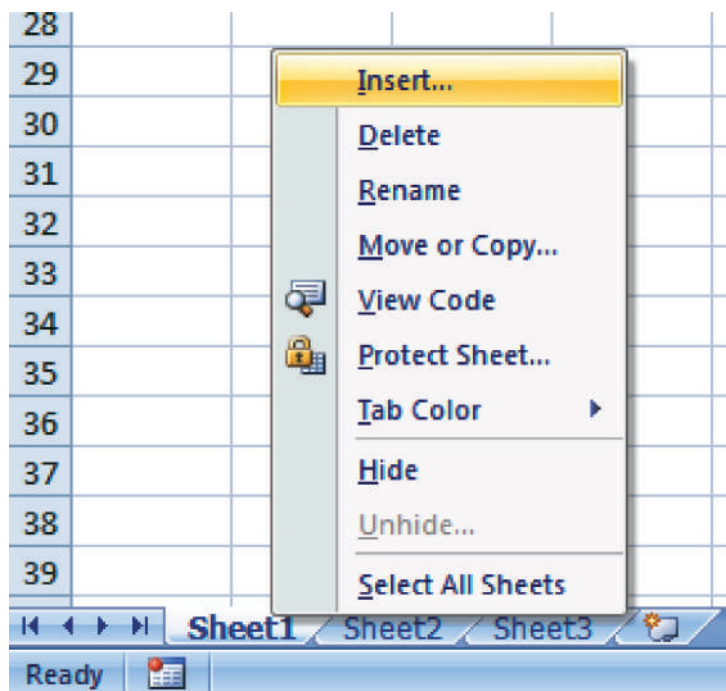
3. Choose **Worksheet.**
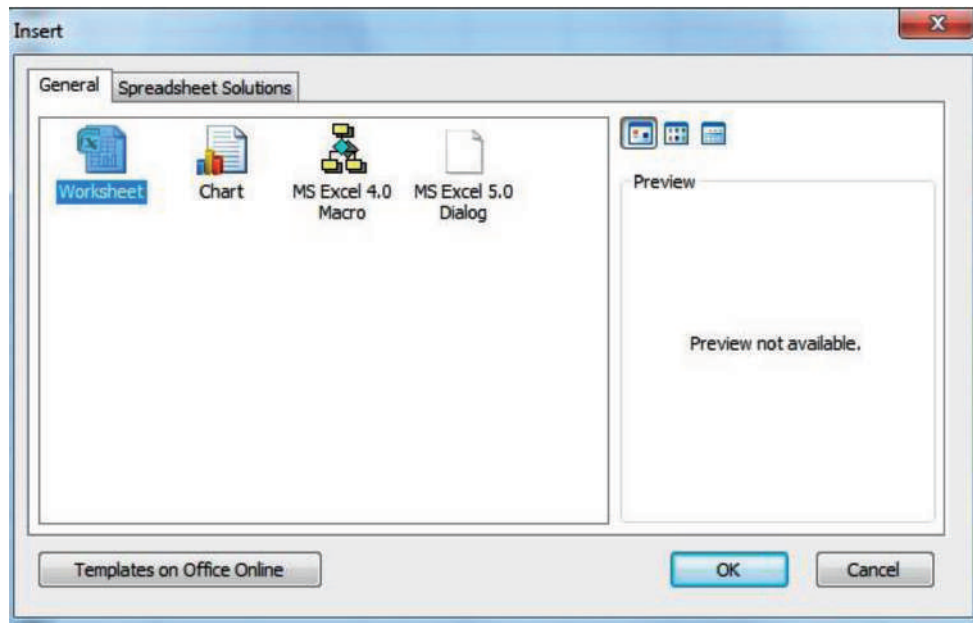
4. A new worksheet will display.
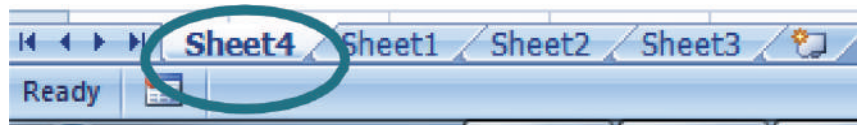
Renaming a Worksheet

If you want to specify a name for your worksheet other than "Sheet --", use the rename feature to change the worksheet title to a name that is easily identifiable. To rename a worksheet :

1. Right click on the worksheet tab located on the lower left corner of your screen.

2. Select **Rename**.

   The current worksheet name will display highlighted.
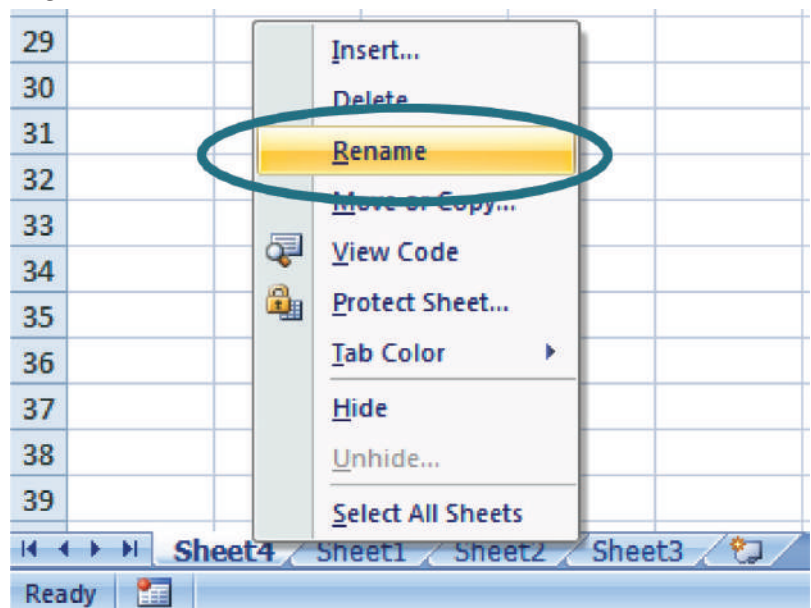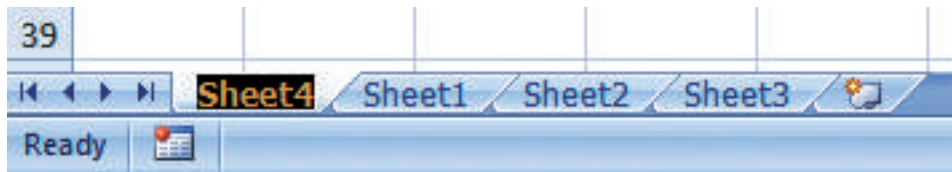
3. Type the name of the new worksheet directly in the tab.
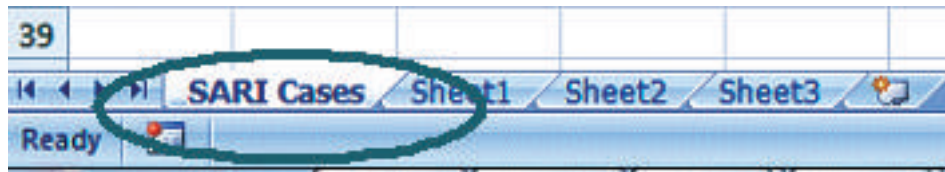
Entering Data

MS-Excel allows you to enter data, both numerical and text, into the cells which make up the rows or columns of a spreadsheet. You can enter data in one cell or in several cells at the same time. In this section we will learn how to enter data, and format and edit the data we have entered. Lets explore how to enter data.

1. We enter the following numbers into cells D5-D9 : 5, 2, 3, 2, 1

2. Next, in cell D4, we enter the title **Numbers** formatted in bold and italics, by typing the word into the cell, highlighting the word or selecting the cell the word is in, and clicking on the *Bold and Italics* buttons on the *Home* tab.

Now that you have entered data, we can now assign unique identification (ID) numbers to cells D5-D9. We can do this by either typing numbers in manually or by using the auto fill feature, sometimes referred to as the drag and drop method. Use the auto fill feature to fill cells with data that follow a pattern (e.g., consecutive numbers, odd and even numbers, months).
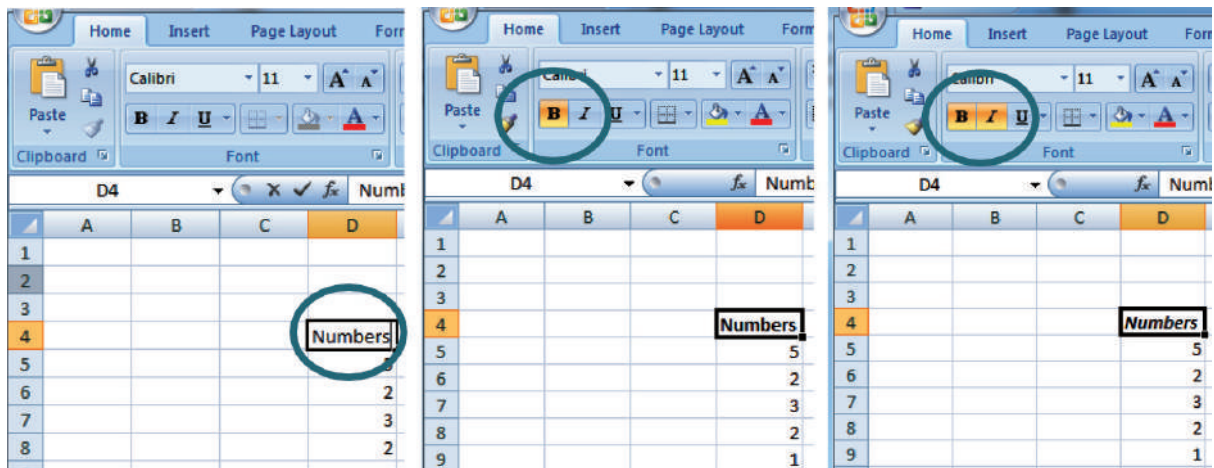
Let's see how this works in column C of the current worksheet by assigning an ID number for each row in your Numbers column.

Auto Fill/Drag and drop method

1. Enter the title *ID* into cell C4, using bold and italics (Reminder : The *Bold* and *Italics* buttons can be found on the *Home* tab).

2. Next enter the number "1" into C5 and number "2" into C6. This will define and establish the pattern, which is to number each row consecutively starting from 1.

3. Highlight the two numbers entered into cells C5 and C6.Start by clicking on the first cell, C5; the cell will be outlined in black and a thick plus sign should display.

Small Square

If the plus sign does not display, move the mouse over the cell until it does. When it displays, hold down the left button of the mouse and drag the cursor down to cell C6.

4. Next, move the mouse over the small square in the bottom right corner of the selected cells until you see a thin black plus sign.

5. When you see the thin black plus sign, click and hold the left button of your mouse and drag the selection to all of the cells that still need to be numbered consecutively, in this case C7, C8, C9.

The cells will display highlighted in a grey patterned box.

	A	B	C	D
1				
2				
3				
4			ID	Numbers
5			1	5
6			2	2
7				3
8				2
9				1

6. Release the mouse button, to generate or drop the pattern into place.

7. Check to make sure your pattern copied correctly. If it did, cells C7-C9 will show the following consecutive numbers: 3, 4, and 5.

	A	B	C	D
1				
2				
3				
4			ID	Numbers
5			1	5
6			2	2
7			3	3
8			4	2
9			5	1

Formatting Data

MS-Excel provides a simple way to change the appearance and layout, or format, of your spreadsheet and the data within it. To format cells in MS-Excel, use the *Format Cells* menu.

Using right-click

1. Select the cells you would like to format.
2. Right-click, and select *Format Cells* from the menu.
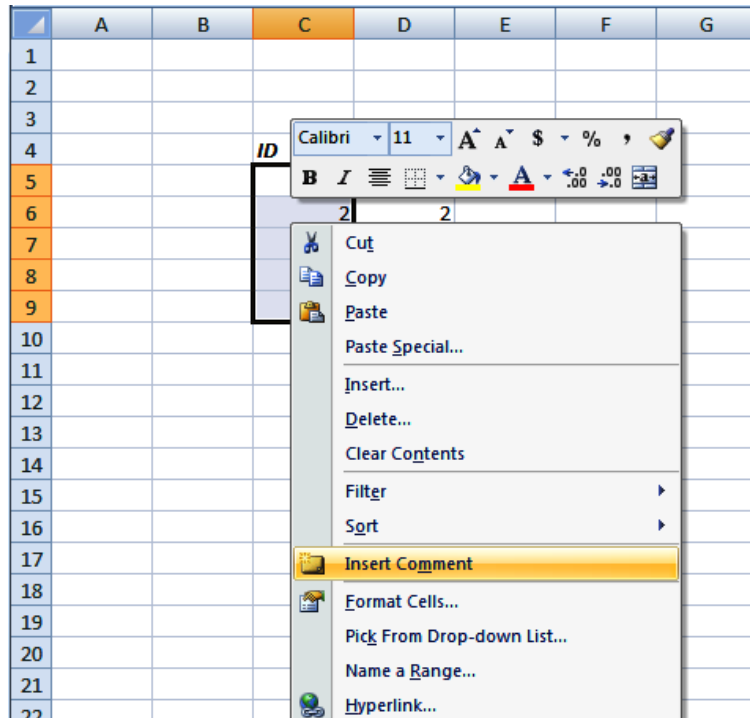
Selecting *Format Cells* brings up a box which contains various tabs.
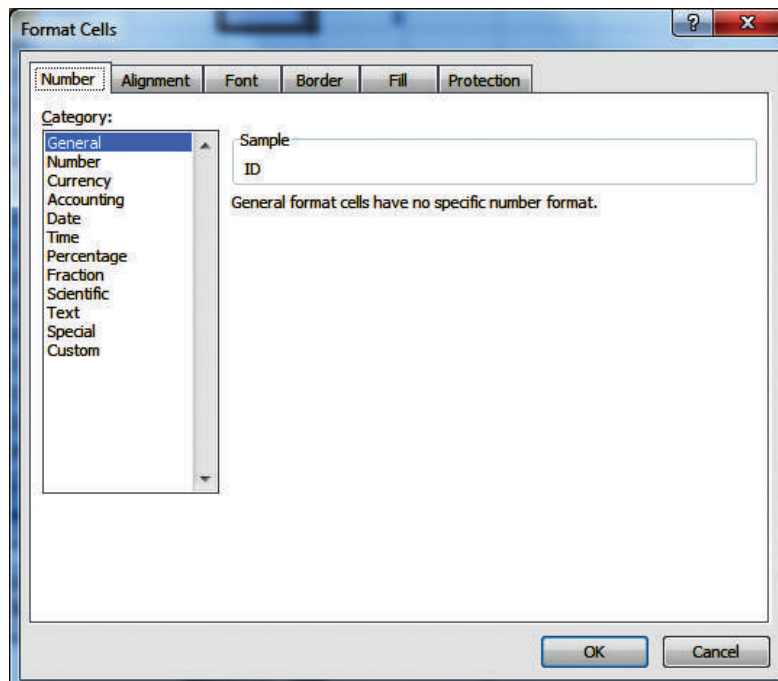
Tabs offer various functions and formatting options related to *Number*, *Alignment*, *Font*, *Border*, *Fill*, and *Protection*.

Many of these same features are also available on the *Home* tab at the top of your screen.
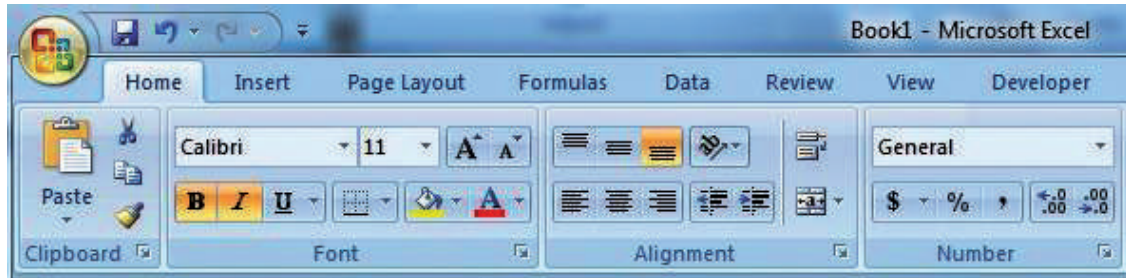
Accessing the *Format Cells* box simply allows you to see all of the options in one location.

Font

Lets see how it works by changing the column titles *Font* to *Consolas*, changing the *Font Style* from *bold italics* to **bold** only and then **underlining** the titles.

1. Highlight the cells you want to format.

2. Access the *Format Cells* box and click the *Font* tab.

It shows the current format which is :

Font : Arial

Font style : ***Bold Italic***

Underline : None

3. To change the font formatting :

   a. From Arial to Consolas : Click on the down arrow on the scroll bar of the *Font* menu until you locate **Consolas**. Be sure to select it from the menu.

   b. From Bold Italic to Bold : Select **Bold** from the *Font Style* menu.

   c. From no underline to underline: Select **Single** from the *Underline* drop-down menu.
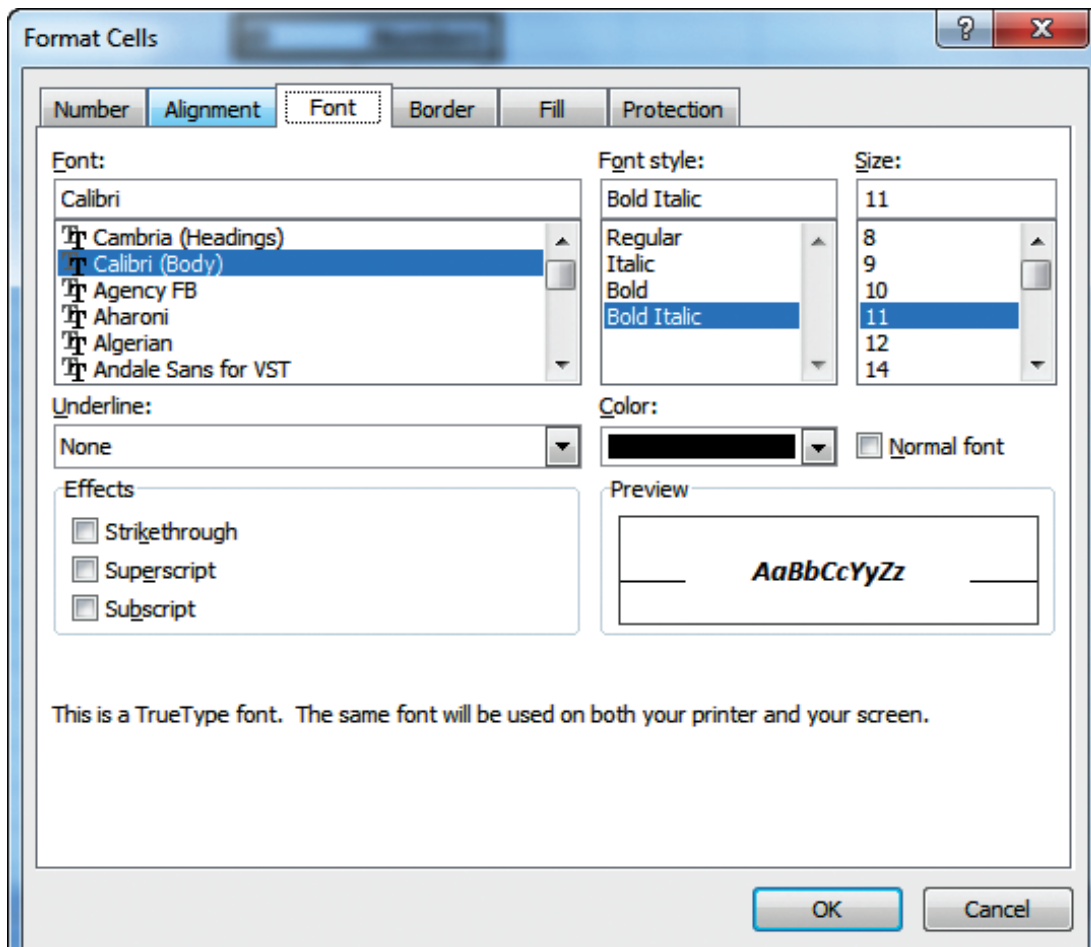
■ **Note :** That you can also change the font color, size and other font effects.

4. Once you have selected all these options, click the OK button.
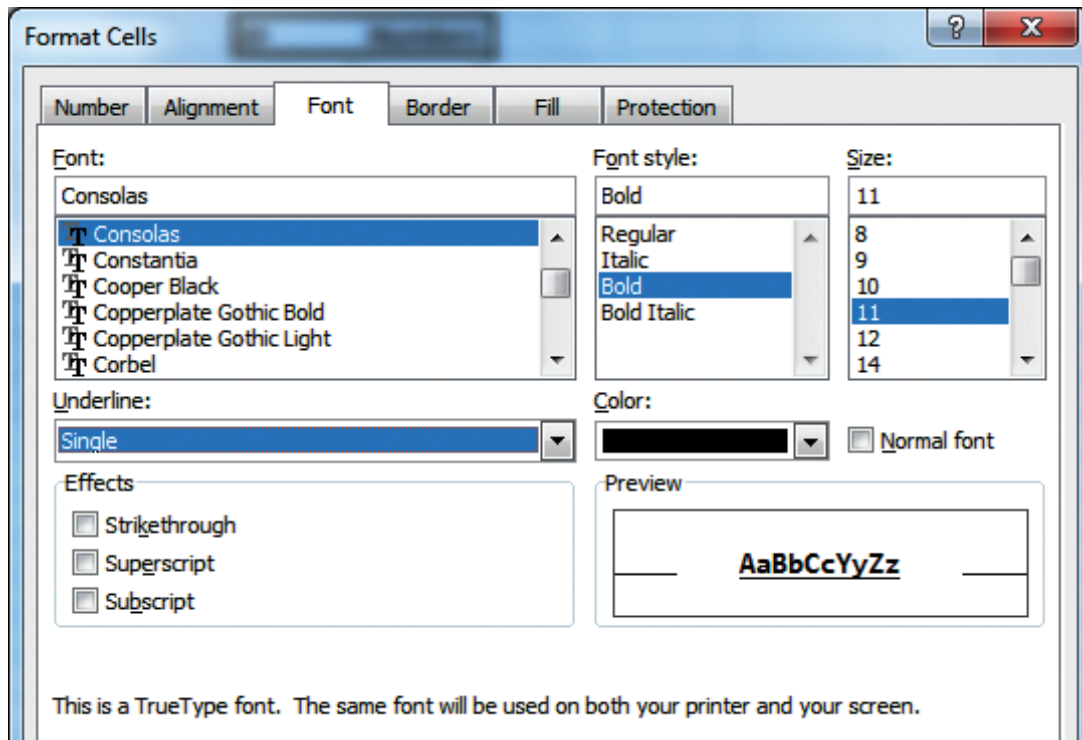
Here's how it looks.

ID	Numbers
1	5
2	2
3	3
4	2
5	1

Alignment

Next, we'll explore the *Alignment* tab, which affects the position of numbers or text within the cell.

1. Highlight the cells we want to format (cells D5-D9).

2. Using either right-click or the *Format* menu, access the *Format* Cells box.

3. Click the *Alignment* tab.

4. From the drop-down menu under *Horizontal*, choose *Center*.
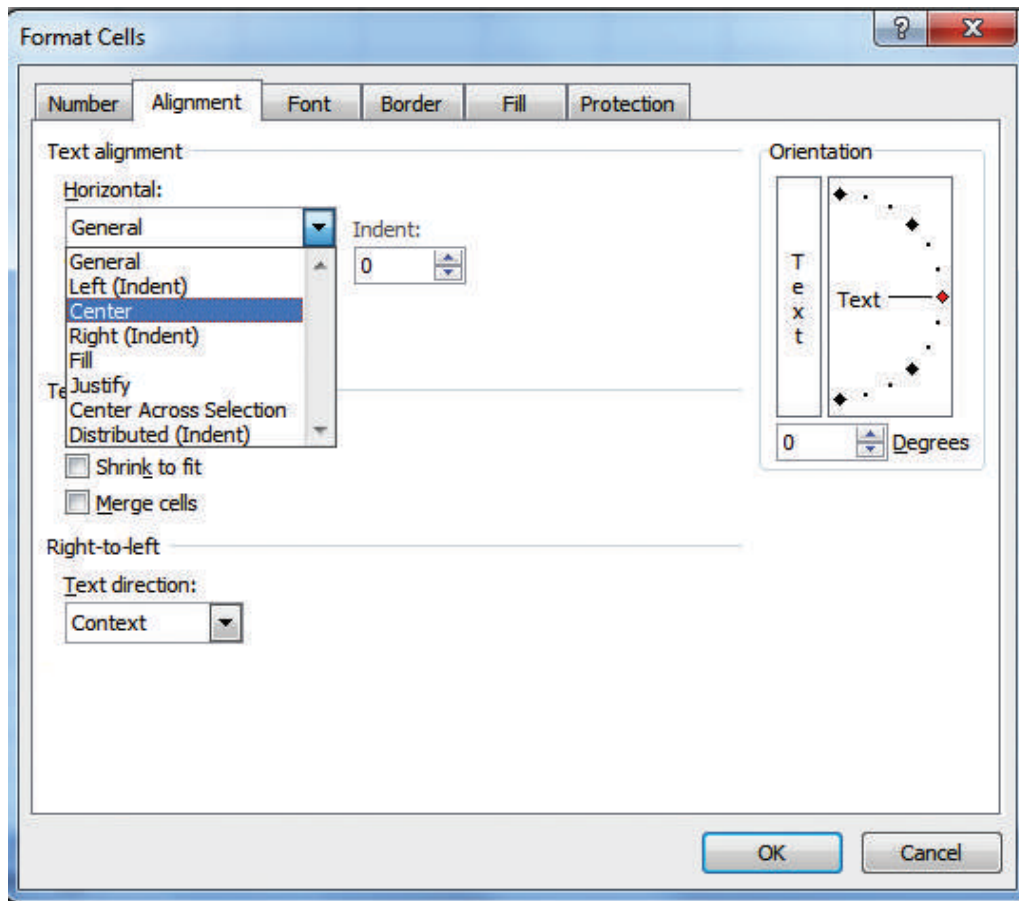
■ **Note :** That you can also adjust the vertical alignment and merge multiple cells together in the *Alignment* tab.

Numbers

Now let's take a quick look at how the *Numbers* tab in the *Format Cells* box works by changing the number of decimal places for the values in our *Numbers* column.

1. Highlight the cells we want to format (cells D5-D9).

2. Using either right-click or the *Format* menu, access the *Format Cells* box.

3. Click the *Number* tab.

Notice the multiple categories available to you in the *Category* list. When you have a moment you should familiarize yourself with the other options in the *Category* list.
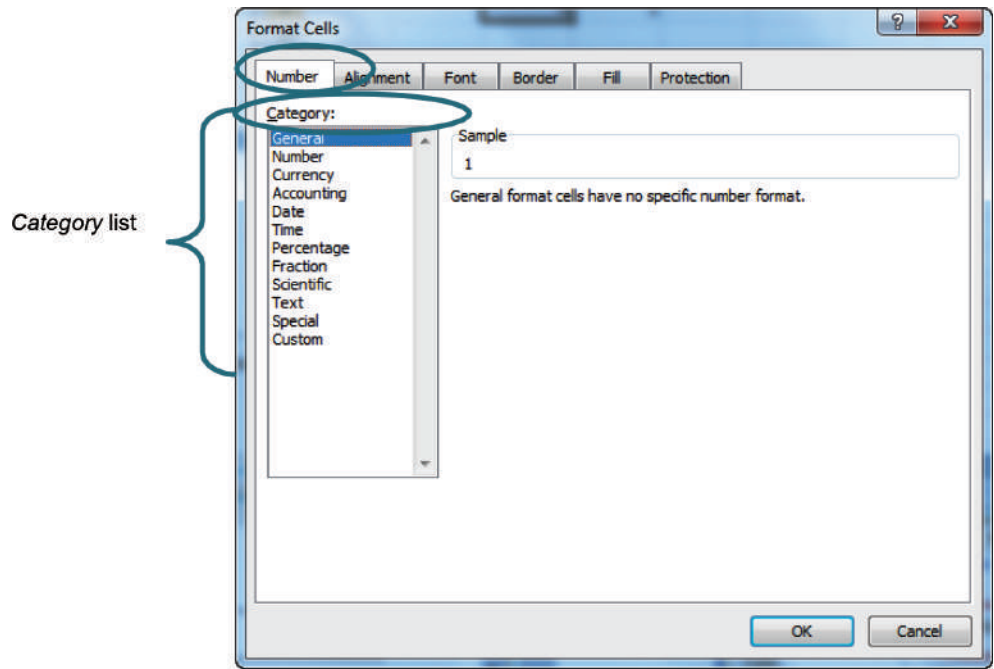
4. From the *Category* list we select *Number*. In *Decimal* Places, we change the number to 2 either by entering the number manually or using the scroll bar to manipulate the numbers.
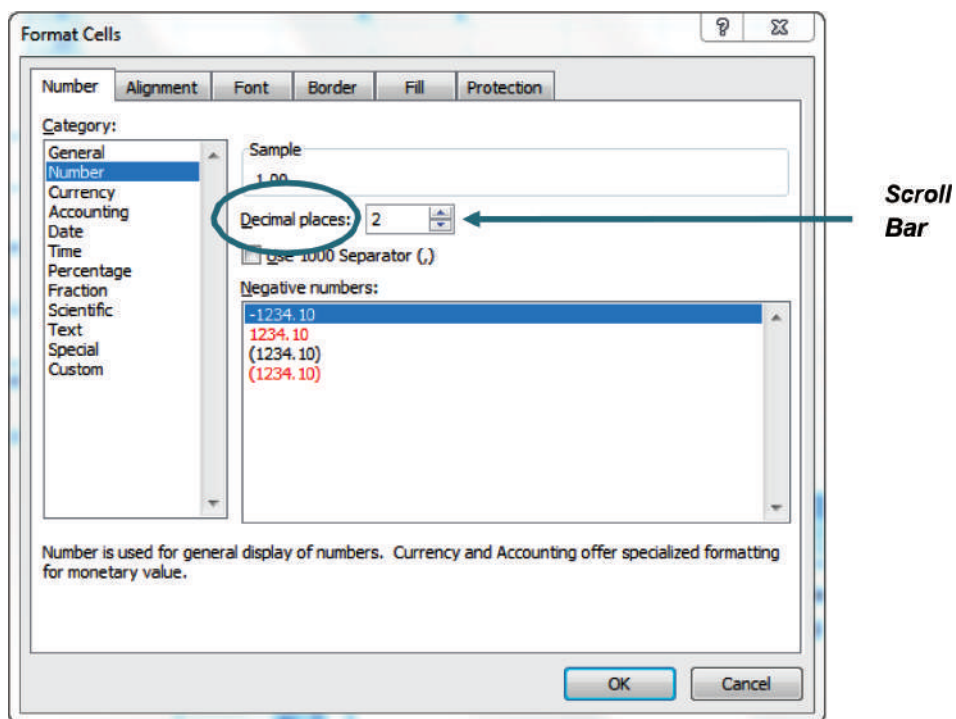
5. Once you have selected all these options, click the OK button. Here's how it looks.

Editing Cells

Once you have entered data into a cell, you may want to edit it. There are several ways that you can edit data in MS-Excel. Here are two :

1. Double click on the cell to make edits directly in the worksheet, or

2. Click on the cell and then make changes in the *Formula* bar.

Now that you have entered information in your worksheet, it is important to save it. To Save a file, you can either click on the *Office* button at the top of your screen and select *Save*, OR you can click on the *Save* button on the *Quick Access* menu.

Creating a Simple Database

Now that you know how to enter and edit data in an MS-Excel Worksheet, you can create a database. A database is simply a file that stores data so that it can be analyzed later. You will often hear this referred to as a "dataset" in public health settings.

MS-Excel is a great data management package for beginners. Other more advanced options exist for larger amounts of data and/or advanced statistical analysis, such as SAS, STATA, SPSS, or Epi Info. If later on you become proficient in one of these programs, the good news is that even if you created your database in MS-Excel, you can upload the file to any of these advanced statistics packages to run your analysis.

The key points for creating a database are as follows :

- Each column represents a variable.

  - Be sure to add a descriptive title for each variable (e.g., ID, name, sex, age, race, disease status, exposure status).

  - Always include units (if applicable).

  - Be sure to include a column for a unique identification (ID) number for each row in your database.

- Each row represents a separate record or person in your database.

- Enter all data for each record before moving on to the next one.

  - Leave cells with missing data completely empty. Do not enter "0," "unknown" or "none" for missing data.

  - Be sure that each record has a unique ID number that ties the data to its original file.

  - For variables with character data (i.e., not numbers), use the same format when recording this data in the database.

For example, patient blood types A, B, A/B, or O could be recorded by assigning numeric values to each type (0=A, 1=B, 2=A/B, and 3=O), or using the same spelling, symbols, and pattern of upper/lower case letters when you enter the text.

- Make variables with many possible formats standardized (e.g., all dates should be formatted as 01/01/11, all numbers should be formatted to two decimal places, 0.00).

- Before beginning analysis, check and clean your database for errors and inconsistencies.

- Always save new copies of the database with a new name each time you make changes.

  - This allows you to return to the original data file if necessary and start analysis again.

- Ask yourself :

  - Did you use a standard format for all fields?

  - Are any fields missing data that are provided in the data record?

  - Are there any typos ?

Creating Formulas and Functions

Creating Simple Formulas

Besides storing text or numbers in a cell, you can also store formulas, which will display the result of a calculation. MS Excel is useful for simple mathematic operations such as for adding (+), subtracting (-), multiplying (*), dividing (/), and exponentiation (^). It can also be used for more complex functions such as statistics or finance calculations.

To create a simple formula, follow the steps below:

1. Click on the cell where you are placing the formula

2. Signal that you are creating a formula by typing an equal (=) sign.

3. Enter your formula by adding numbers or cell addresses and mathematical **operators** (the symbol or *sign* that represents an arithmetic operation in an MS-Excel spreadsheet formula, i.e. +, -, *, /, ^)

4. Click *Enter*, and the numeric value you calculated will display.

Examples

1. To add cells A1 and A2 together, enter the formula below into an empty cell, by typing an equal sign (=), then clicking on cell A1, typing a plus sign (+) and clicking on cell A2 :

$$= A1 + A2$$

2. To divide the value of E5 by 2, enter the formula below into an empty cell :

$$= E5/2$$

Practice

Let's give it a try. Using the sample data file you created, class1.xls, let's multiply the first two numbers in your list.

1. Click on the cell where you are placing the formula (an empty cell a few spaces below your column of numbers)
2. Signal that you are creating a formula by typing an equal sign. =
3. Enter your formula by adding numbers or cell addresses and operators.

   For this example, use the asterisk to multiply the first two numbers in your list located in cells D5 and D6.

   a. Type D5 or click on the first cell of the equation (D5)
   b. Insert the multiplication sign*
   c. Type D6 or click on the next cell in your equation (D6) The formula bar should now read = D5 * D6
4. Click *Enter*, and the numeric value you calculated will display The correct response is 10.

Order of operations

More complex formulas usually include more than one calculation. MS Excel calculates the results of complex formulas in the following order. Add parentheses or brackets around part of your formula to overcome the natural order of operations.

Order of Operations

Instructions :

1. Using the current MS Excel worksheet class1.xls,
   Enter =D5 + D6 * D7 in the cell beneath the last formula entered.
2. In the next cell down, enter = (D5 + D6) * D7.
3. Compare the results of both formulas.
4. When you have finished, return to the workbook and compare your work in MS-Excel to the screenshots below.

In the first formula you entered, the computer will first multiply cells D6 and D7 and then add D5, which equals 11.

ID	Numbers
1	5.00
2	2.00
3	3.00
4	2.00
5	1.00
	10
	=D5+D6*D7

ID	Numbers
1	5.00
2	2.00
3	3.00
4	2.00
5	1.00
	10
	11

The second formula you entered will first add cells D5 and D6, since they were in in parentheses, and then multiply the sum by D7, which equals 21.

ID	Numbers		ID	Numbers
1	5.00		1	5.00
2	2.00		2	2.00
3	3.00		3	3.00
4	2.00		4	2.00
5	1.00		5	1.00
	10			10
	11			11

Functions

Functions are simply built-in formulas that can save you time. Some of the most common functions are shown below.

■ AVERAGE – takes the arithmetic mean of the cells within its range.

■ COUNTIF – counts the number of times specific criteria are met within its range.

■ MAX – displays the largest value in the cell range.

■ MEDIAN – produces the median of the cells within its range.

■ MIN – displays the smallest value in the cell range.

■ SUM – adds the values of each cell within its range.

There are several ways to access and create these and other functions. Below we review three methods.

Type function in *Formula* bar

You can simply type the function formula into the *Formula* bar, as you would with any other formula (for example: =SUM(A1:A3))

Let's practice using the COUNTIF function. For example, if you want to count the number of times "2" appears in the *Numbers* column, select an empty cell and complete the following steps. Do not include any spaces in the formula.

1. Enter the following in the formula bar: = COUNTIF (D5 : D9, "2")

2. Highlight the data range you would like to use: = COUNTIF(D5 : D9, "2")

3. Type a comma and specify the counting criteria surrounded in quotation marks :
   = COUNTIF (D5 : D9,"2")

4. Close the command with a parenthesis : = COUNTIF(D5:D9,"2")
5. Click *Enter*.

How many cells in the range are equal to the number 2 ?
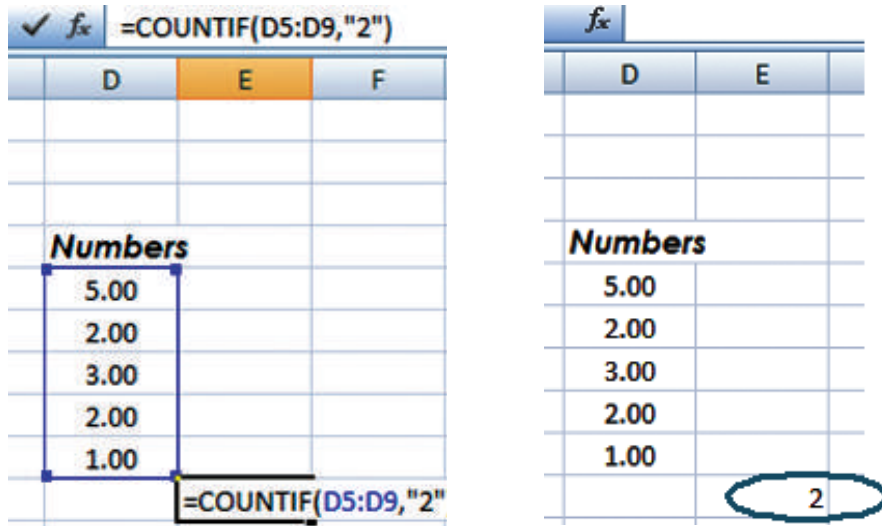
Click on the *Function* button

When you click the Function button, you will see the *Insert Function* box. You can then find a function in two ways :

1. Type a description of what you want to do and click Go. This is useful if you are not sure of the function name.

2. MS Excel organizes functions into different categories such as *Financial, Date & Time, Math & Trig, Statistical*, etc. You can select a category by clicking on the drop down *Category* menu.
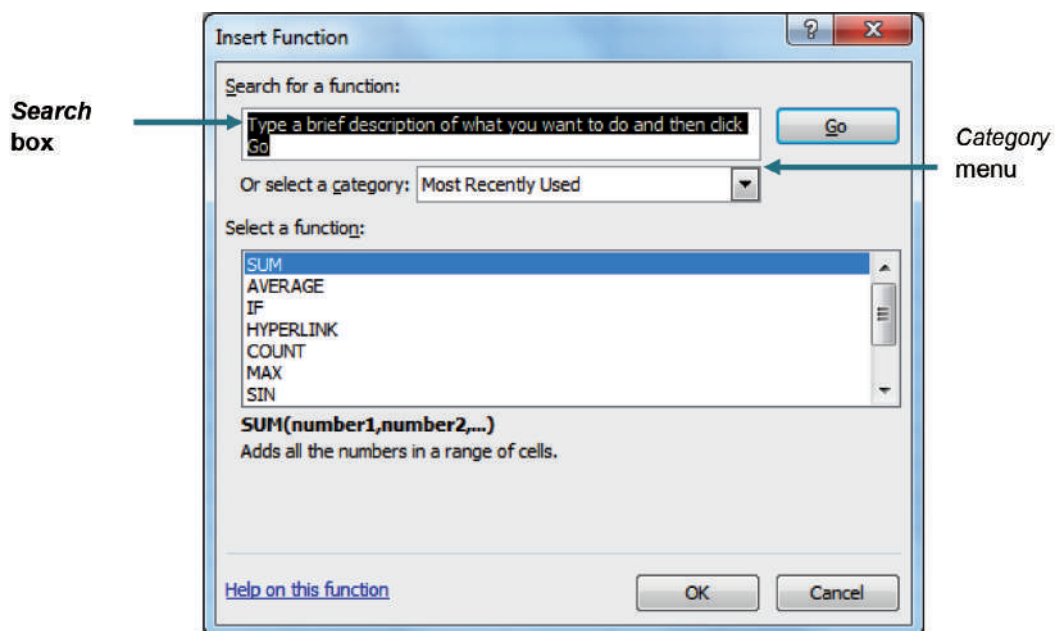
Click on the arrow next to the *Sum* button on the *Standard* toolbar.

This method shows several common functions like Sum and Average.

Lets practice using the *Sum* button.

Arrow
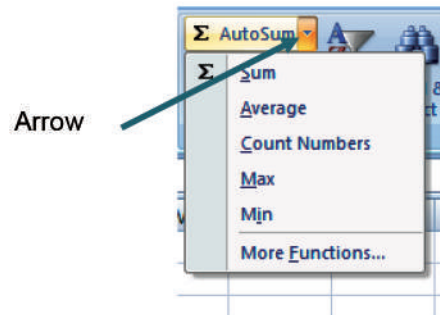
1. Click on an empty cell.
2. Click the Σ icon (*AutoSum* button).

■ **Note** that MS-Excel suggests the values you want to total by highlighting them with a patterned line

3. If this is the correct range of numbers that you want to sum, press *Enter*.

4. If it is incorrect and you would like use to a different set of numbers, you can resize the dotted line.
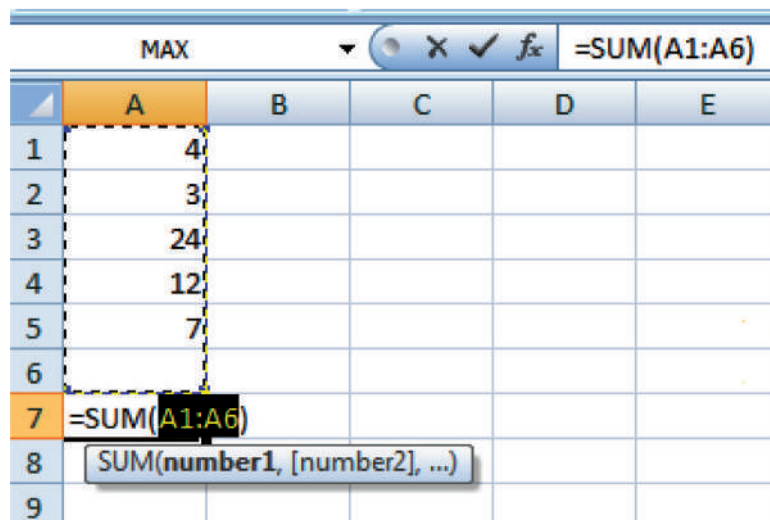
Using the double-sided arrow ↔ that displays when you place your cursor on the right hand corner of box highlighting the cells, click and hold the mouse button while you move the box around the cells

you want included in the calculation.

5. Once correct, press *Enter*.

You should also know how to edit formulas or functions. The same two options that we learned to use for editing data also apply when you want to change a formula or function.

1. Double-click a cell to make changes directly in the worksheet.

2. Click in the cell, and then edit your formula or function in the *Formula* bar.

Changing Layout and Sorting data

There are a number of ways to change the layout of your worksheet in MS-Excel.

Copy and Move Data and Formulas

It is important to understand the difference between copying and moving data. When you copy data, it can be pasted multiple times in multiple places. For this reason, the dotted line will display around the cell(s) copied until you double click inside another cell. When you move/cut data, the data can only be pasted one time and will be permanently removed from its original location. Copying cells with a

formula takes that formula and applies it to a different set of cells in addition to its current location. You may want to do this if you would like to calculate the mean, median, and mode for one variable and then apply the same calculations to other variables. Cutting a formula takes the formula exactly as it is entered in the original cell and moves this entry to a new location.

To copy and paste a single cell

1. Click on the cell containing the data that you want to copy.

2. Next, you can copy by either :

   a. Right-clicking and then selecting Copy from the drop-down menu that displays

   b. Holding down the control key (Ctrl) and the letter "C" on your keyboard

   c. Clicking the *Copy* icon on the *Home* tab
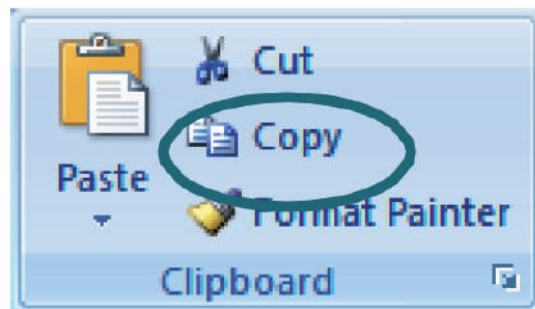
3. Notice that a dotted line surrounds the cells that you are copying.

4. Paste the copied data where you would like it to go by either :

   a. Right-clicking on the desired cell and selecting Paste from the drop- down menu

   b. Holding down Ctrl + V after selecting the desired cell

   c. Clicking the *Paste* icon on the *Home* tab

To copy and paste *multiple cells*

1. Highlight the cell range that you want to copy.

2. Copy the cells using any of the methods described above.

3. Highlight the cell range into which you want to paste. (Note: They must be the same number of cells that you copied)

4. Paste.
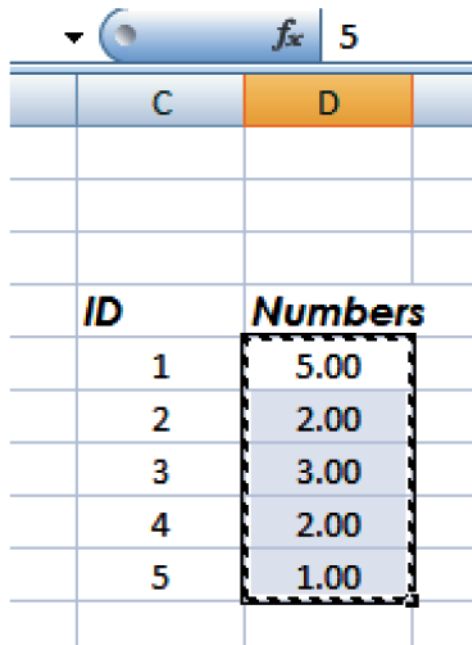
Once you have pasted single or multiple cells, press *Enter* on your keyboard.
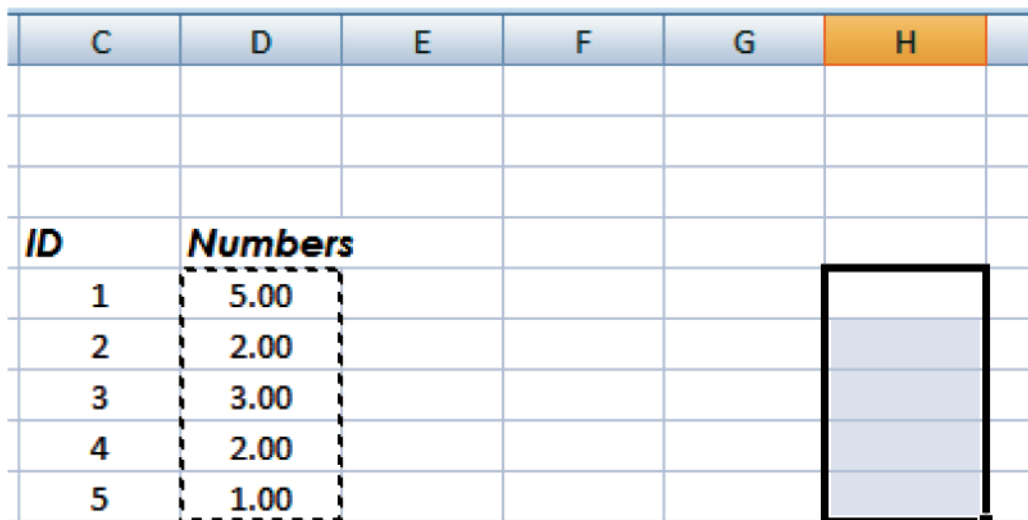
Copying and Pasting Multiple Cells

Instructions : In your class1.xls file :

1. Select cells D5-D9.
2. Copy cells.
3. Highlight cells H5-H9.
4. Paste cells.
5. When you have finished, return to the workbook and compare your work in MS Excel to the screenshots below.

To copy and paste a formula

1. Select the cell that contains the formula you want

2. Copy using any of the options described above

Now let's copy and paste the formula you used to sum up the cells in D5-D9.

ID	Numbers				
1	5.00				5.00
2	2.00				2.00
3	3.00				3.00
4	2.00				2.00
5	1.00				1.00

Copying and Pasting a Formula

Instructions : In your class1.xls file:

1. Select cell D11.

2. Copy cell.

3. Select cell H11, just below where you copy and pasted the multiple cells.

4. Paste.

5. When you have finished, return to the workbook and compare your work in MS Excel to the screen-shots below.

	f_x	=SUM(D
C	**D**	

ID	Numbers
1	5.00
2	2.00
3	3.00
4	2.00
5	1.00
	13.00

fx =SUM(H5:H9)

C	D	E	F	G	H
ID	Numbers				
1	5.00				5.00
2	2.00				2.00
3	3.00				3.00
4	2.00				2.00
5	1.00				1.00
		2			

fx =SUM(H5:H9)

C	D	E	F	G	H
ID	Numbers				
1	5.00				5.00
2	2.00				2.00
3	3.00				3.00
4	2.00				2.00
5	1.00				1.00
		2			
	13.00				13.00

To move data from one cell to another cell

1. Use the *Cut* feature by clicking on the cell containing the data that you want to move and then either:

   a. Right-click and select *Cut* from the drop-down menu that displays.

   b. Type Ctrl + X.

   c. Select *Cut* icon from the *Home* tab.
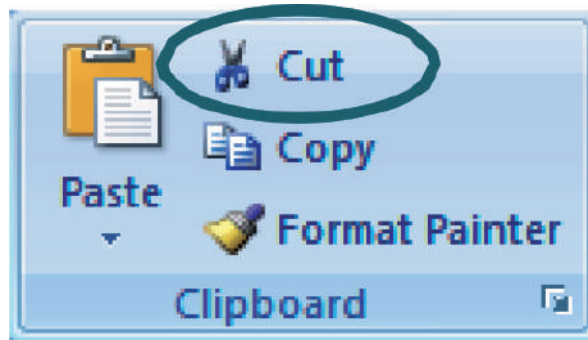
2. Paste the data in the desired location.

To copy functions and formulas down a column or across a row using auto fill/drag and drop method

1. Highlight the cell with the formula to copy.

2. Put your mouse over the small square.

3. When you see the thin plus sign, drag and drop it to the entire cell range.

Copying a Formula Using Auto Fill/Drag and Drop Method

Instructions : In your class1.xls file :

1. Add a new heading entitled Numbers/10 to cell E4, using the same font : Century Gothic ; font style: bold and italics ; and font size : 11 as the other two headings.

2. Add the formula = D5/10 to cell E5.

3. Highlight cell E5.

4. Using Autofill, drop and drag the formula through cell E9.

5. When you have finished, return to the workbook and compare your work in MS Excel to the screenshots below.

C	D	E	F
ID	*Number.*	*Numbers/10*	
1	5.00		
2	2.00		
3	3.00		
4	2.00		
5	1.00		
	13.00		

C	D	E	F
ID	*Number.*	*Numbers/10*	
1	5.00	=D5/10	
2	2.00		
3	3.00		
4	2.00		
5	1.00		
	13.00		

C	D	E	F
ID	*Number.*	*Numbers/10*	
1	5.00	0.5	
2	2.00		
3	3.00		
4	2.00		
5	1.00		
	13.00		

C	D	E	F
ID	*Number.*	*Numbers/10*	
1	5.00	0.5	
2	2.00	0.2	
3	3.00	0.3	
4	2.00	0.2	
5	1.00	0.1	
	13.00		

Adjust Column Width and Row Height

In some cases, you may want to change the width of a column or height of a row in order to adequately accommodate cell contents.

To adjust column width

1. Dragging the border :

    a. Select the column you want to change.

    b. Move your cursor to the border between two columns.

    c. When you see the mouse symbol change to a vertical bar with arrows pointing both left and right, click and drag the column to the desired width.

2. Auto-fit column width to data :

    a. Select the column you want to change.

    b. Move your cursor to the border between two columns.

    c. When you see the mouse symbol change to a vertical bar with arrows pointing both left and right, double-click.

3. Using right-click :

    a. Select the column that you want to change by clicking on the corresponding letter at the top of the worksheet. To select multiple columns, continue to hold down the left mouse button and drag to select all columns you want change.

    b. Right-click.

    c. Select **Column Width.**

    d. Type in a value.

    e. Select OK.

To adjust row height

1. Select the row or rows that you would like to change.

2. Follow one of the first two procedures that are used to change column widths.
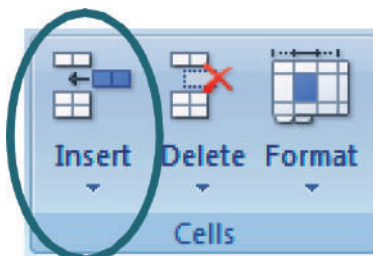
Insert or Delete Rows, Columns, and Cells

When working in MS Excel, you may encounter the need to insert or delete a row or column in your worksheet.

To insert a row

1. Using the *Home* tab
   - ■ Click on the row directly below where you would like the new row to display.
   - ■ Click the *Insert* icon on the *Home* tab.

2. Using right-click
   - ■ Click on the row directly below where you would like the new row to display.
   - ■ Right click.
   - ■ Select Insert.

To insert a column

1. Highlight the column directly to the right of where you would like the new column to display.

2. Next, either :
   - ■ Right-click and choose *Insert*, or
   - ■ Click the *Insert* icon on the *Home* tab

To delete a row or column

1. Select the row(s) or column(s) that you would like to delete.

2. Right-click and select *Delete*, or

3. Click the *Delete* icon on the *Home* tab.
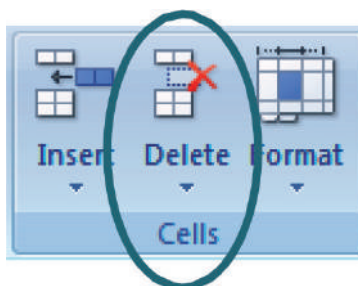
If you select a single cell to delete instead of a whole column or row, a small box will display asking you if you would like to shift cells up or down, or whether you would like to delete an entire row or entire column. Choose accordingly, to execute the deletion.

Merge Contents of Multiple Cells Together

MS-Excel also allows you to merge multiple adjacent cells together. When you merge two or more adjacent cells, the cells become one merged cell, and the contents of the upper-left cell are displayed in the center of the merged cell. If there was any information stored in the other cells that you merged, these entries would be deleted.

To merge cells

1. Select the cells that you want to merge.
2. On the *Home* tab, click the *Merge* and *Center* icon.
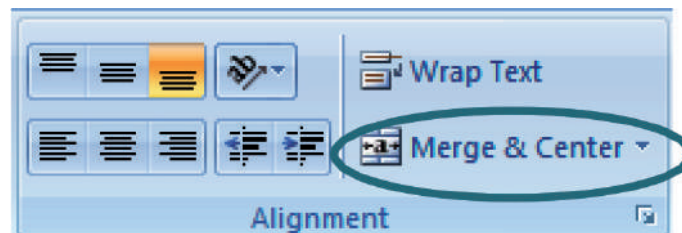
Sort Data

Sorting data is another useful feature available in MS-Excel. It allows you to arrange your worksheet data into a particular order, such as ascending or descending. It is always a good idea to save a new copy of your file before you begin sorting.

Using the class1.xls file, let's learn how to sort.

To sort using the *Data* tab

1. On the *Data* tab, select the Sort icon.

A pop-up box will display with options for sorting.
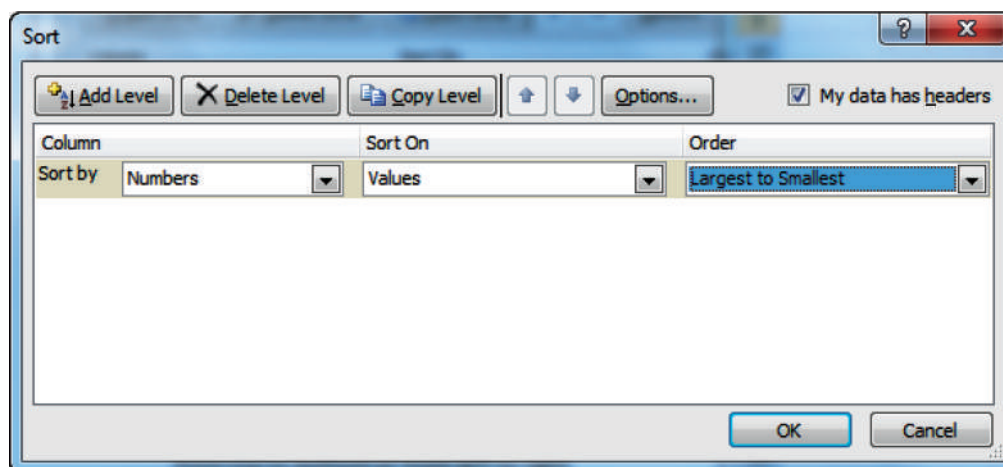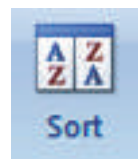
2. On the upper-right hand corner of the *Sort* pop-up box, check the box next to **My data has headers**.

3. Then in the *Sort* By drop-down menu, select Column D Header : **Numbers.**

4. Next in the *Order* drops-down menu, select **Largest to Smallest** and then click **OK**.

5. Note that the order of the numbers has changed; they are now sorted from largest to smallest.

	C	D	E	F
ID		Number.	Numbers/10	
	1	5.00	0.5	
	3	3.00	0.3	
	2	2.00	0.2	
	4	2.00	0.2	
	5	1.00	0.1	

To sort using the *Sort* buttons

1. Click on a cell in the column you would like to sort by.

ID		Number.	Numbers/10
	1	5.00	0.5
	2	2.00	0.2
	3	3.00	0.3
	4	2.00	0.2
	5	1.00	0.1

2. On the *Home* tab, click the *Sort & Filter* button.

MANNUAL FOR COMPUTER APPLICATION
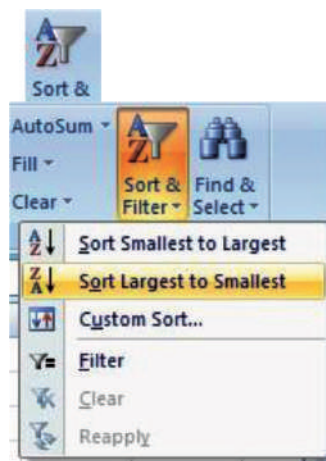
3. From the drop-down menu, select **Sort Largest to Smallest** since we want the data to be sorted in descending order

To sort by multiple criteria

Sorting by multiple criteria can help you manage and find the data you need when working with a large worksheet. This option allows you to tell MS Excel what criteria to sort by first and how you would like to further sort that data.

1. Select the *Sort* icon from the *Data* tab. The *Sort* box will display.

2. As we did before, select how you want to initially sort the data in the "Sort by" section using the drop down menus under *Column*, *Sort On*, and *Order*.
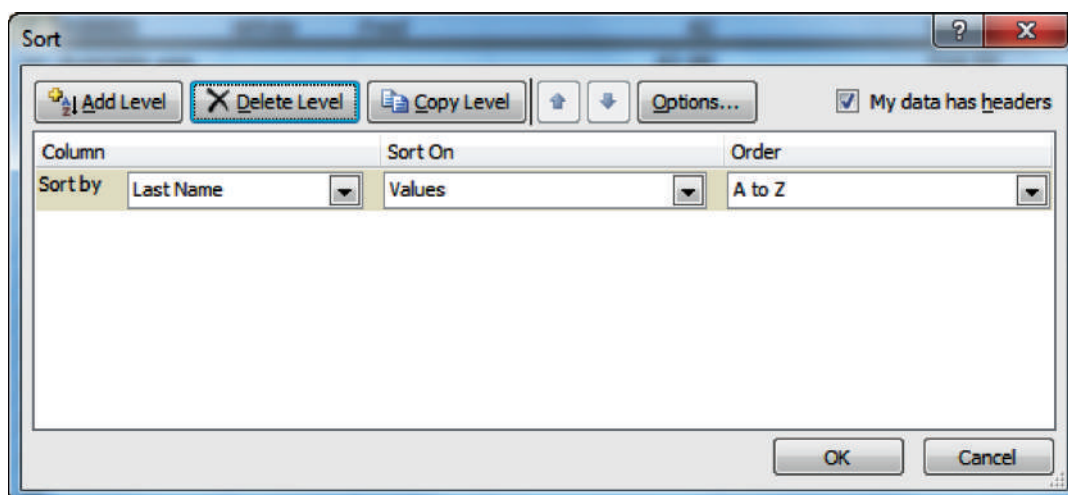
3. To sort by multiple criteria, simply click the *Add Level* and add another column which will then appear labeled "Then by"

4. Now select the next column to sort by in the "Then by" section.
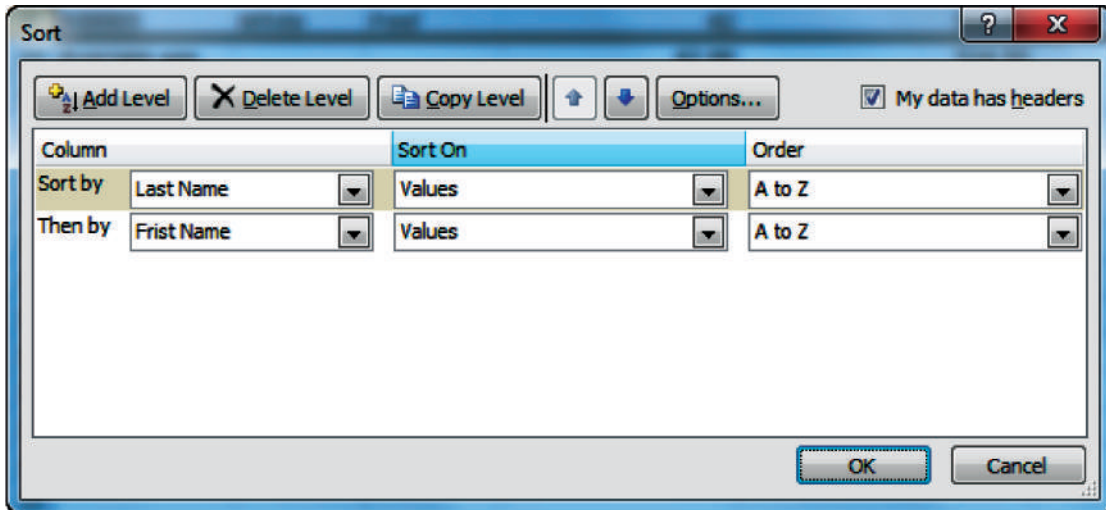
Your data will now be sorted by one variable, and within each value of the first variable, it will be sorted by the second variable. This is especially helpful if you have things like names separated into two columns, and you would like to sort by last names and then by first names.

Let's look at an example.

1. Highlight the data you would like to sort.

	A	B	C	D	E
1	ID	Age	Gender	Risk Factors	
2	1	2	F	N	
3	2	1	M	N	
4	3	22	F	N	
5	4	68	M	Y	
6	5	5	F	N	
7	6	14	M	Y	
8	7	56	F	N	
9	8	34	F	Y	
10					

2. On the *Data* tab, select *Sort*.

3. Once the *Sort* box opens :

    a. If the data you have selected has a header row, make sure to select **Header row** in the *My data range has* section.

    b. Select the column you want to first sort by in the *Sort by* drop-down menu, in this case Risk Factors. *Sorting by Descending order (Z to A) places the "Y" (those with risk factors) before the "N" (those without risk factors).*

    c. Then select the column you want to next sort by in the *Then* by drop-down menu, in this case Gender

4. Click the OK button.

Sort				
Add Level	Delete Level	Copy Level ⬆ ⬇ Options...		☑ My data has headers
Column		**Sort On**		**Order**
Sort by	Risk Factors	Values		Z to A
Then by	Gender	Values		A to Z

OK   Cancel
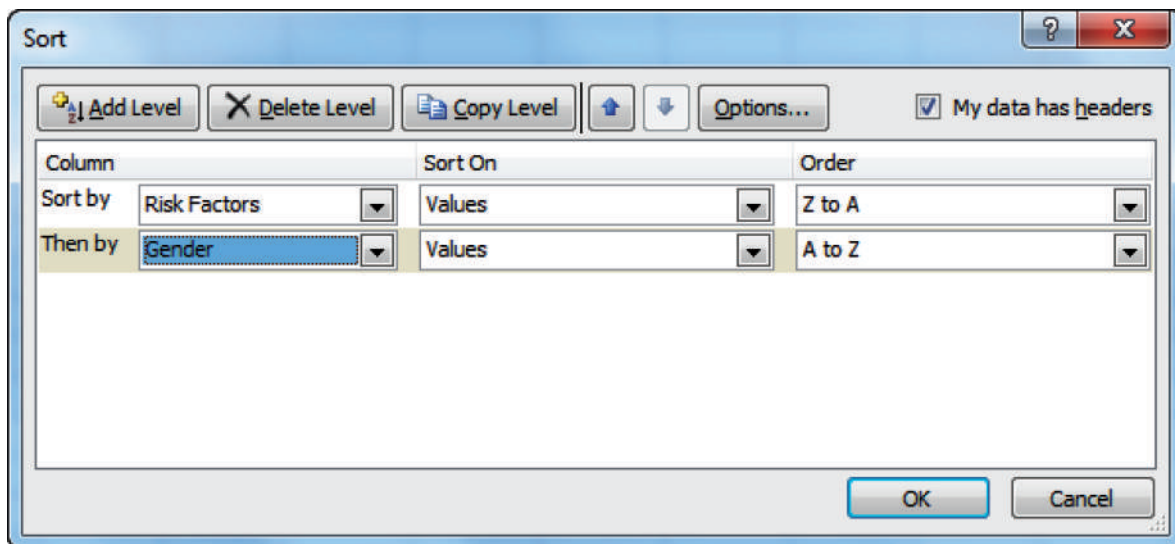
■ **Note :** the change in order. In the Risk Factors Column, all the Ys and Ns are grouped together. In the Gender column, females and males are grouped separately within each Risk Factors group.

|	A	B	C	D
1	ID	Age	Gender	Risk Factors
2	8	34	F	Y
3	6	14	M	Y
4	4	68	M	Y
5	1	2	F	N
6	5	5	F	N
7	3	22	F	N
8	7	56	F	N
9	2	1	M	N
10				

To sort one or more columns without affecting others (USE WITH CAUTION)

Occasionally, you may encounter a situation when you would like to sort one or more columns in your worksheet without changing the order in other columns. You must be very careful using this feature, since it can produce unwanted results such as mixing up records.

To sort one column (or a section of columns) :

1. Click on the column headings of the columns that you want to sort.

2. On the *Data tab*, select *Sort*.

3. Once the *Sort* box opens, choose the column you want to sort by and whether you want to sort in ascending or descending order.

4. Indicate whether your data have a header row. Click *OK*.

A **Sort Warning** box will display to ask whether we want to sort all associated data in the spreadsheet or just the cells selected.
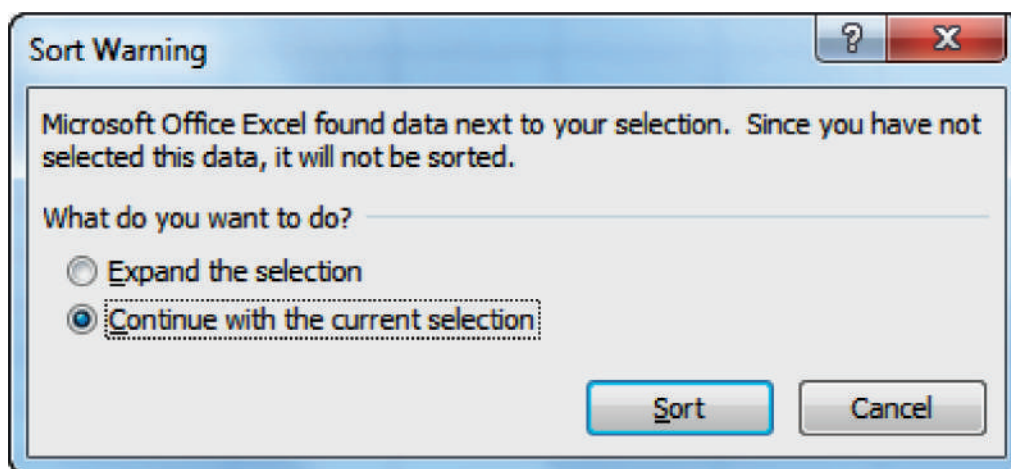
5. Click *Continue with the current selection*, then click *Sort*.
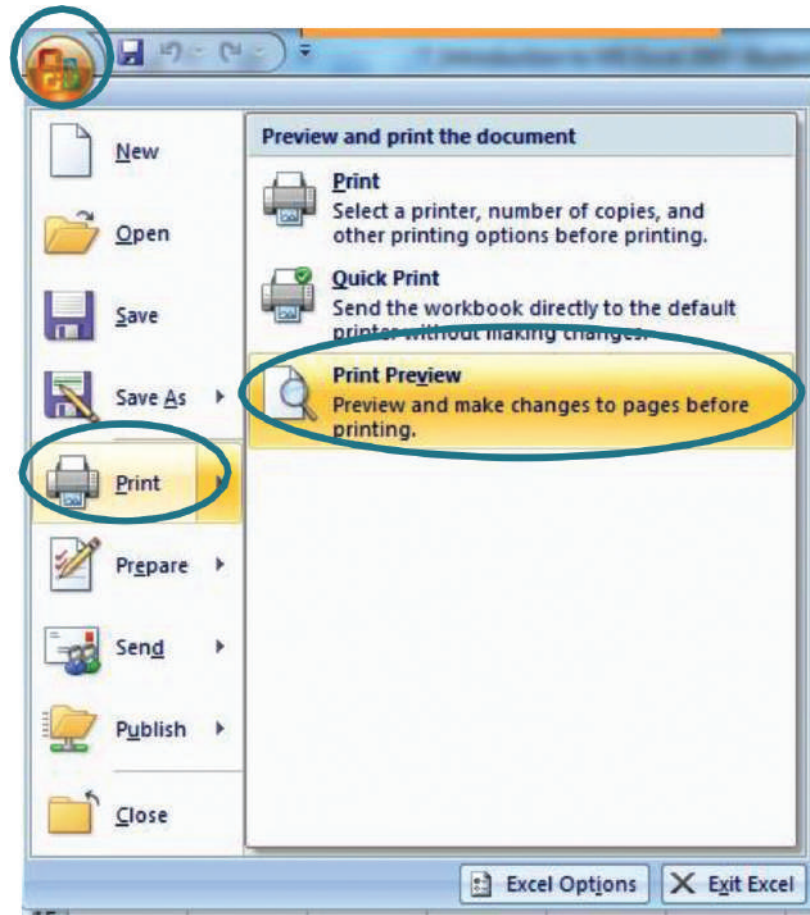
Preparing a Worksheet for Printing

You can use **Print Preview** to see how your page will print. Let's look at class1.xls in the **Print Preview** mode.
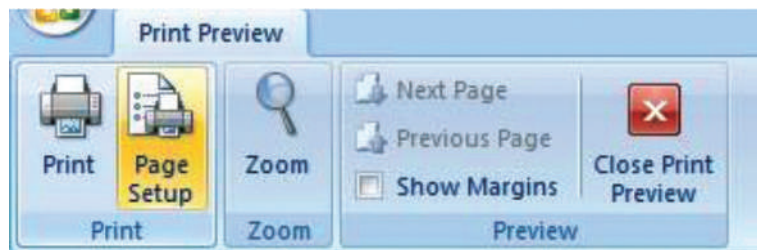
Print Preview

To access this mode :

1. Go to the *Office* button
2. In the drop-down menu, select *Print* and then *Print* Preview
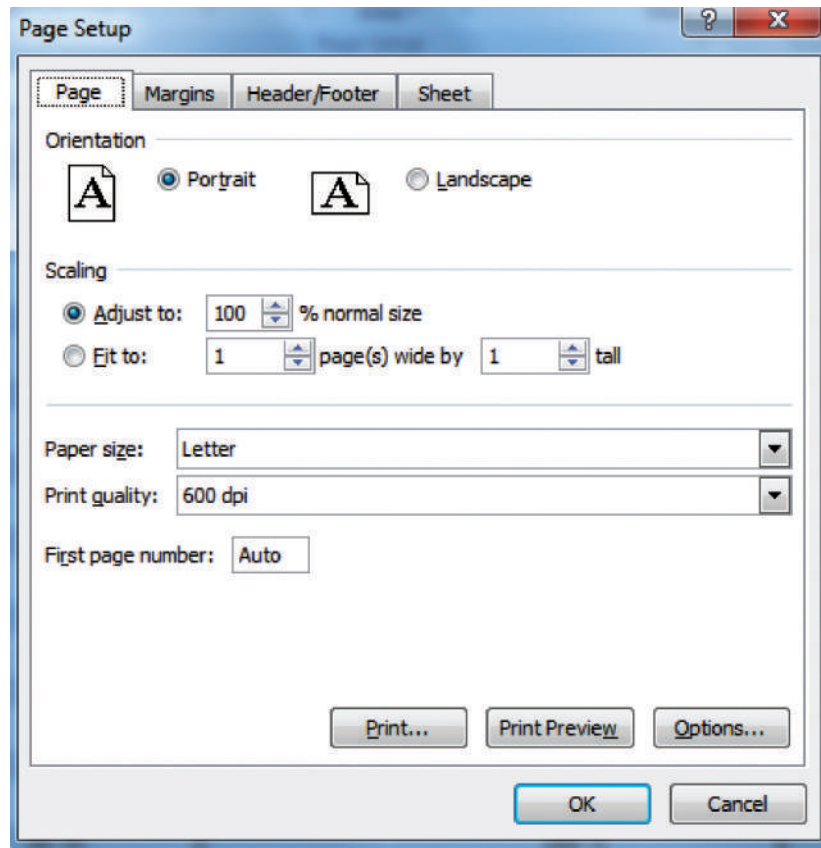

When viewing your file in *Print Preview*, click on the *Page Setup* button to use the *Page Setup* feature in order to customize print features, such as headers, footers, page orientation and size.

You can also insert a standard and/or custom header or footer into your worksheet. The headers and footers that you specify will automatically display on every printed page.

To insert a header or footer :

1. Click on the *Header/Footer* tab in *Page Setup* box.

2. Select a standard header or footer (*e.g.,* date, page number) from the drop down menu labeled header or footer **or**

3. Create your own custom header or footer by clicking on the *Custom Header* or *Custom Footer* buttons.

Once you are done with the page setup, click the *OK* button. To print your worksheet, click the Print button.

To exit the **Print Preview** without printing, click the *Close Print Preview* button.

You can also access the *Page Setup menu* while editing data without accessing *Print* through the *Office* button. Go to the *Page Layout* tab and select the small arrow in the bottom left corner of the *Page Setup* section.
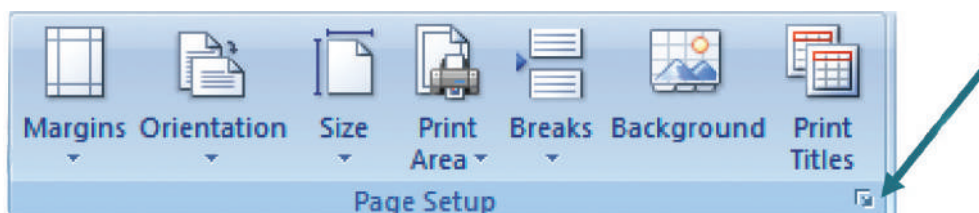
Print Titles

MS-Excel also has a function referred to as *Print titles*. If a worksheet spans more than one page, using the *Print titles* function allows you to print row and column headings or labels on every page of the worksheet to ensure that the data contained within the worksheet are properly labeled.

To insert *Print titles* :

1. Click the Page Layout tab and click on the *Print Titles* icon.

2. Go to the *Sheet* tab.
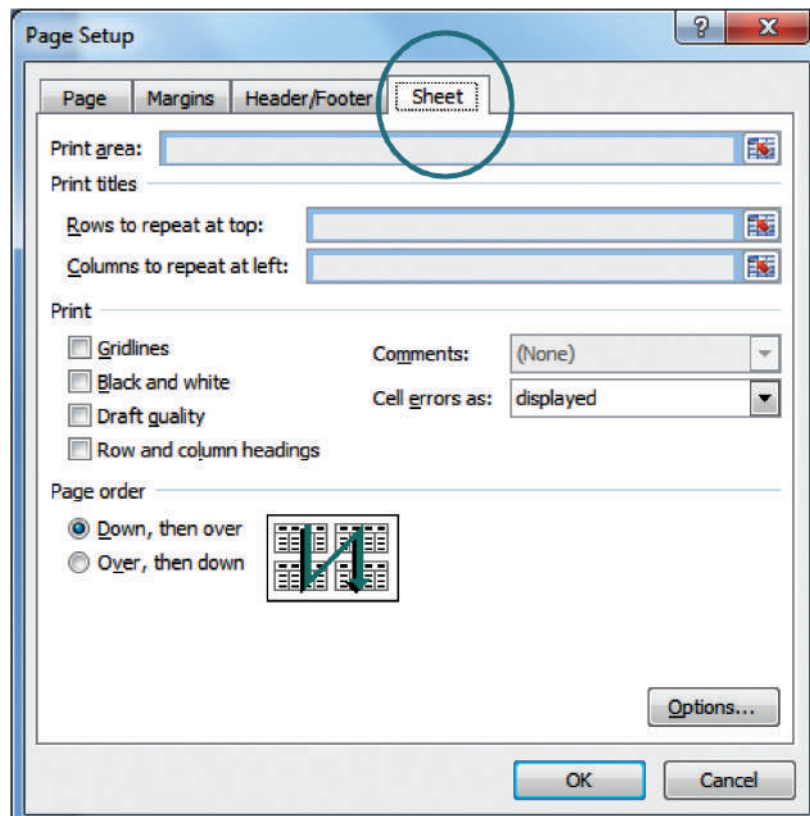
3. Next to the "Rows to repeat at top" box and "Columns to repeat at left" box, you will find an icon.
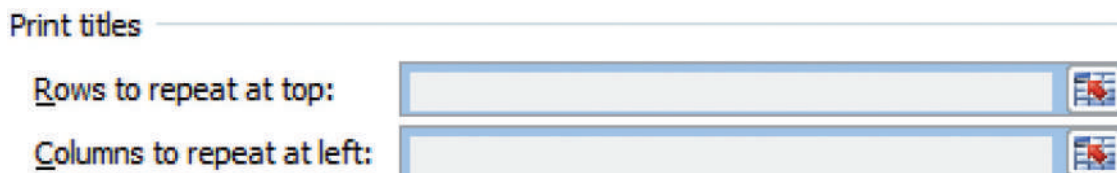
4. When you click on this icon, you are able to select the headings from the rows or columns of your worksheet that you would like to repeat on each page.

On the *Sheet* tab, you can also choose to print gridlines by checking the box labeled Gridlines in the Print area. You can also select a specific area to print by clicking on the icon next to the "Print area" box and selecting the cells you want to print and Layout.

Class 1

ID	Numbers	Numbers/10		
1	5.00	0.5		5.00
3	3.00	0.3		3.00
2	2.00	0.2		2.00
4	2.00	0.2		2.00
5	1.00	0.1		1.00
	13.00			13.00
	15			
	11			
	16			

Box and seelecting the cells you want to print.

Print and Layout

	A	B	C	D	E	F	G
1	Unique ID	Last Name	First Name	Current Age (years)	Current Age (in months)	Sex (M/F)	Risk Factor
2	A00006	Allen	Elizabeth	7	84	F	Y
3	A00001	Fowler	Monica	42	504	F	Y
4	A00007	Frank	Katie	2	24	F	N
5	A00004	Green	Joey	22	264	M	N
6	A00002	Jones	Ross	1	12	M	N
7	A00008	Moss	John	44	528	M	Y
8	A00003	Smith	Rachel	68	816	F	N
9	A00005	White	Fred	64	768	M	Y
10							
11	Average Age			31.25	375.00		
12	Median Age			32.00	384.00		
13	Minimum Age			1.00	12.00		
14	Maximum Age			68.00	816.00		
15	Females					4.00	
16	Males					4.00	
17	With Risk Factors						
18	Without Risk Factors						
19							
20	Percent SARI Cases with Risk Factors	50.00%					

Prepare worksheet for printing