

What is a Spreadsheet

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A spreadsheet is a three dimensional table or matrix consisting of rows, columns and pages (sheets). Collectively these may be called a workbook. Popular spreadsheets include Excel, Quattro and Lotus 123. Computer based spreadsheet packages were originally designed to emulate the kind of paper based task an accountant or financial clerk might wish to perform, such as adding up columns of figures and balancing accounts.

Spreadsheets are useful tools for organising and analysing data from many sources.

Features of spreadsheets

- Manipulate data, calculate and recalculate derived information.
- Present information graphically.
- Be programmed to carry out a sequence of instructions (this called a Macro).
- Sort data and provide simple database capabilities.

A worksheet contains:

- Horizontal ROWS are numbered 1, 2, 3 etc. (maximum 65536).
- Vertical COLUMNS are lettered A, B, C etc. (maximum IV = 256 columns).
- Pages (Worksheets) are labelled Sheet1, Sheet2, Sheet3etc. (maximum Sheet256, which is limited by memory).

The intersection of a column and a row is called a *cell*. Each cell has its own unique reference similar to a map reference. Any individual cell can be addressed by its Column, Row and Sheet value to give its CO-ORDINATE, or ADDRESS, e.g. Sheet1!A1, Sheet!6B5, Sheet16!IV65536.

For the current worksheet we often use D3 to reference a cell and omit the reference to the sheet. For simple calculations people often work with a single sheet. *One worksheet can contain 16,777,216 cells.*

Each cell can hold either: a constant, a formula, a macro command or a graph.

Constants are data entered by the keyboard. They may be either:

- Numerical e.g. 1.0, 256, 26.20.
- Text e.g. 'Temperature', used to label rows/columns.
- Dates e.g. 11/12/96, 21-3-95, 3-Sep-96.

If the first character entered is a digit then this is treated as numeric data.

If the first character entered is a letter it is treated as text.

Dates are identified from the digits and characters entered.

Formulae are used to derive the value for the cell containing the formula from other cells containing numerical constants or other formulae.

A formula is designated by preceding it by an equals sign (=) in Excel (other spreadsheets may use a plus sign (+) to denote a formula).

e.g. =B2+D2+F2 places the result of adding the contents of the three cells (B2, D2 and F2) together into the cell currently highlighted by the Cursor, this is called the active cell.

It is the ability to insert formulae into cells, which is the most powerful feature of the spreadsheet.

Screen layout

The Excel screen has numerous features. The diagram on the next page identifies many of them. Some features such as the Menu Bar, Minimise/Maximise/Restore buttons, Scroll bars and Control Box Menus are common to all windows applications. Other features are specific to Excel.

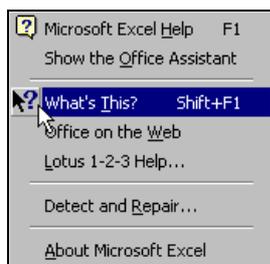
Standard Tool Bar

Actions that are used frequently are presented as icons on the standard tool bar. These are described on page 1-5. About half of the icons are found also in other packages, providing features to Open and Close documents, Preview and Print a document, Cut, Copy and Paste and Undo or Redo the last action.

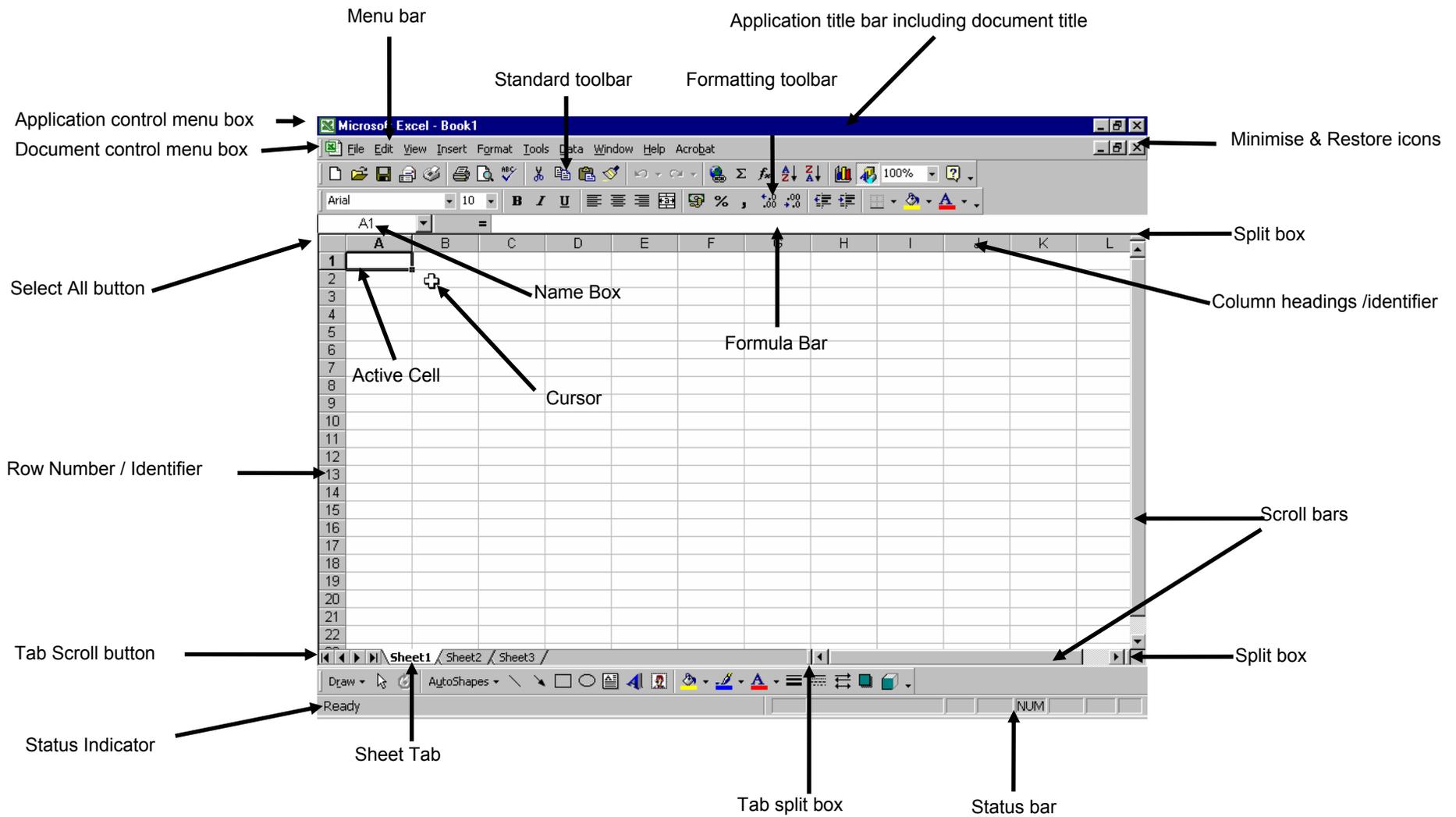
What does each icon do? As you move the cursor over an icon, its name is displayed in a yellow box below the cursor

Help

Help is provided by the Office Assistant, who provides help and tips. The help menu offers several forms of help



To find out what each icon does you can either move the cursor over the icon and its name is displayed in a box below the cursor. To get more information about an area of the screen select 'What's this?' or press the Shift & F1 keys. The cursor changes shape, , position the cursor over an item, click on it, more information is given.



Excel Screen Layout

Button on the Excel Standard Toolbar

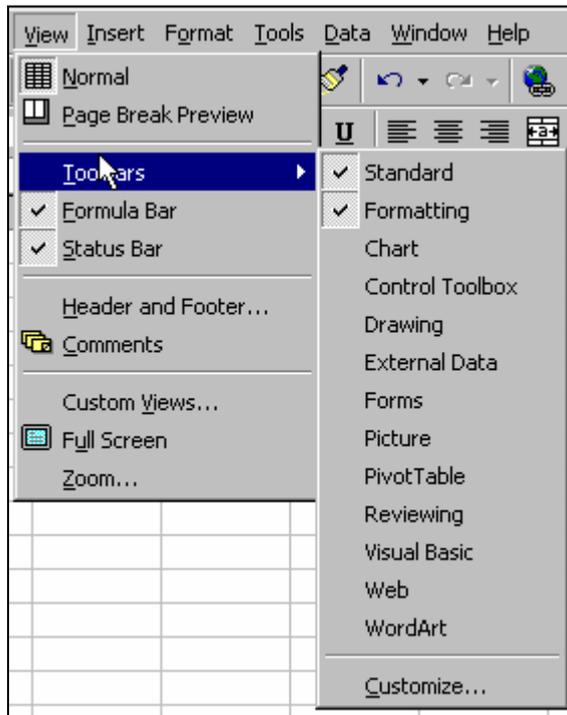
Button (tool)	Action
	Create a new worksheet
	Open an existing worksheet
	Save the worksheet
	Print worksheet
	Print Preview
	Spelling Checker
	Cut
	Copy
	Paste
	Format painter
	Undo last action
	Redo action just undone
	Insert Hyperlink
	Web Toolbar
	AutoSum
	Function Wizard
	Sort Ascending
	Sort Descending
	Chart Wizard
	Map
	Drawing Tool
	Zoom Control
	Office Assistant

Buttons on the Excel Formatting Toolbar

Button (tool)	Action
	Font
	Font Size
	Bold text
	Italic text
	Underline text
	Left justify text
	Centre justify text
	Right justify text
	Align text across selected cells
	Currency style
	Percentage style
	Comma style
	Increase decimal places
	Decrease decimal places
	Decrease Indent
	Increase Indent
	Apply Border styles
	Apply Colour style
	Apply Font colours

Other Toolbars

Excel has thirteen toolbars that can be displayed on the screen. By default only the Standard Toolbar and Formatting Toolbar, which is used to control the format and alignment of text and numbers, are shown. The others can be displayed by selecting **View | Toolbars** and checking the boxes

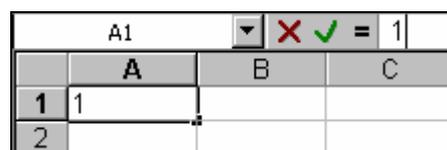


Note If you 'lose' the standard and formatting toolbars from the screen, use **View | Toolbars** to redisplay them

You can also customise any toolbar to meet your own needs but adding in icons for actions that you frequently perform and removing icons for those actions that you do not use.

Entering Data into Excel

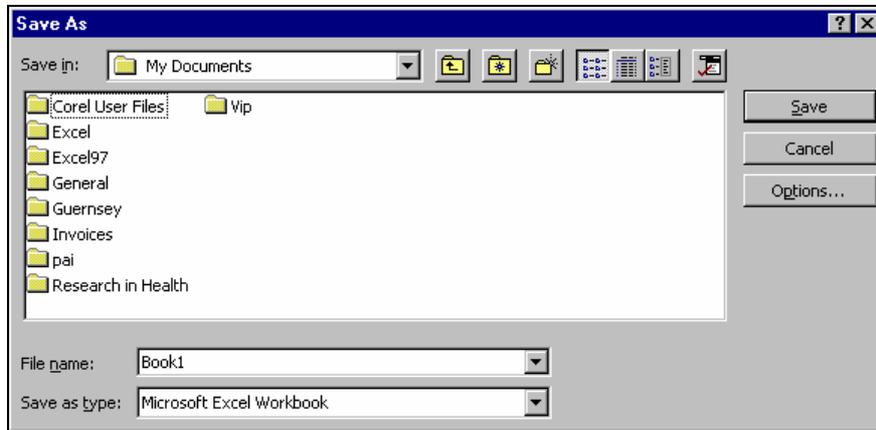
To enter data into Excel, click on the cell where you want to place the data and type it in. The cell is called the *active cell*. It is identified in the Formula Bar, which displays the cell reference and its contents.



To complete the entry of the value press <Enter> or click on the green tick icon.
To abandon the entry, press <Esc> or click on the red cross icon.

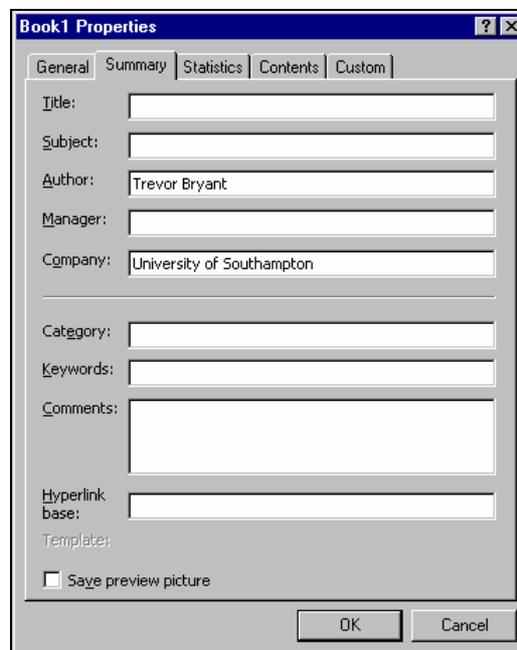
Saving a Workbook

To save your workbook, click on  or select **File | Save**. Enter a name for the workbook.. Change the drive and folder if necessary, by clicking on the Save in: panel or by clicking the Up One Level icon 



Note: If you ever need to transfer the data to another application, such as a database, the Save as Type drop down list box provides this capability.

Before you save the workbook, you may wish to add summary information to the document. Click on **File | Properties** a Book Properties window is displayed with the Summary tabbed option. Enter any additional information. Click on OK



The Title, Subject, Author, Keywords and Comments boxes can be filled in (maximum 255 characters) or left empty. This summary information is used by Excel to locate workbooks via the File | Find option.

Closing a Workbook

To Close a workbook, click on the Close Window icon , Select **File | Close**, or double click on the Document control menu.

Exiting Excel

To exit from Excel, click on the Close Application icon , select **File | Exit**, or double click on the Application control menu box. If the latest changes to the workbook have not been saved, Excel will ask if it should save these changes before Exiting.

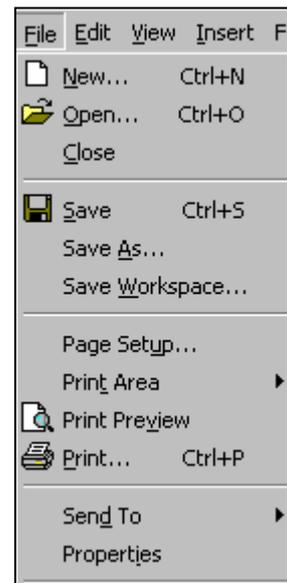
Opening a Workbook

There are three ways to do this:

1. Click on the Open icon .
2. Select **File | Open**.
3. Select File and Click on the file in the list of recently used files.

Opening a New Workbook

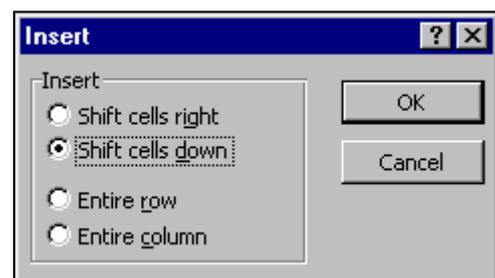
Either Click on the New icon , or select **File | New**.



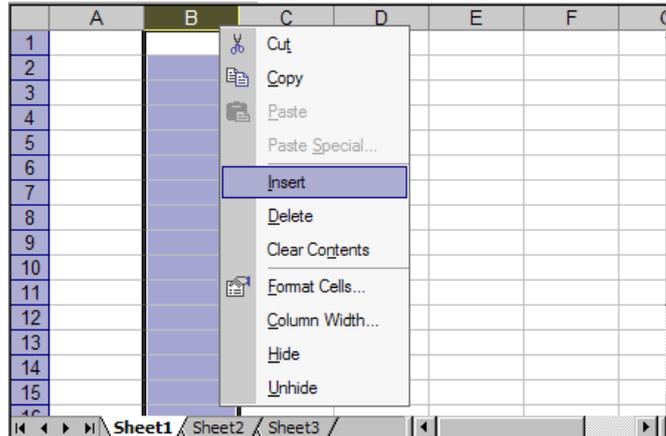
Inserting Cells

Excel provides several ways of adding in data, you may need to add in a single cell, several cells, or new rows or columns into your worksheet. To add more than one cell, row or column, highlight the same number of rows or columns that you want to add.

Either select **Insert | Cells** (or Rows, Columns) from the menu or Click the Right mouse button and select **Insert**. The following window will be displayed. This allows cells within a single row or column to be moved, or entire rows or columns inserted. New cells are always inserted **before** the active cell.

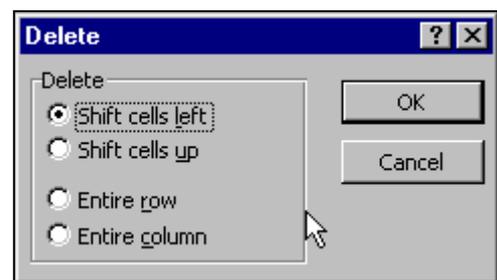


An alternative method for inserting rows and columns is to highlight the row number(s) or column header(s), click the right mouse button and select **Insert**. New rows or columns are automatically inserted.



Deleting Cells

The delete cells option is the reverse of the Insert option. Selected cells, entire rows or columns can be removed. Highlight the items to be deleted and select either **Edit | Delete**, or click the right mouse button and select **Delete**.



Deleting Cell Contents

If you wish to clear the contents of a cell(s), highlight the cell(s) and select either **Edit | Clear | All**, or click the Right mouse button and select **Clear**.

Undo / Redo

Excel has the ability to reverse or repeat the previous sixteen actions. So if you make a mistake when deleting some cells either click on the Undo icon  or select Edit | Undo Delete. Clicking on the Redo icon  or selecting Edit | Repeat Delete will repeat the previous action.

Note: The Undo  and  Repeat menu options are followed by different words depending on the last action.

Validating Data

Excel allows you to validate the data entered into any cell(s)

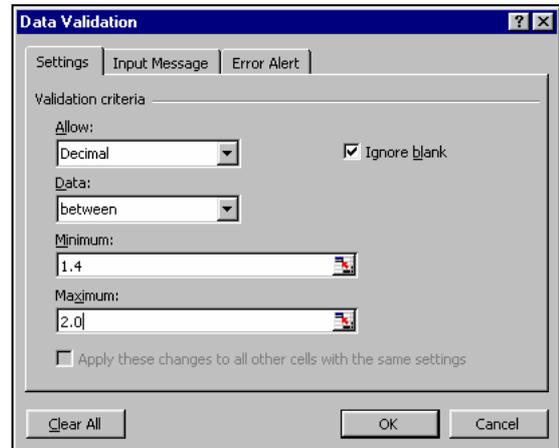
Highlight the cells of interest.

From the menu bar select **Data | Validation**.

The **Allow** drop down list box specifies what type of information can be entered, for example Decimal, Date.

The **Data** drop down list box specifies the condition (e.g., between, greater than etc.).

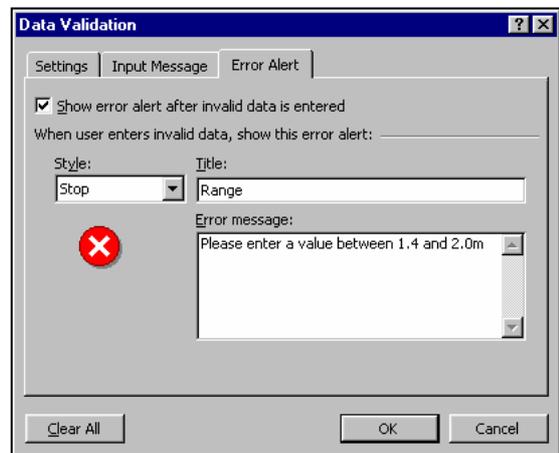
Minimum and **Maximum** are the limits of the values.



The **Input Message** option is used to supply a prompt when information is entered into the cell(s).

The **Error Alert** is for messages that appear when the value entered fails the data validation.

*Note: Data Validation can be cleared by selecting **Edit | Clear All**. To find which cells have data validation select **Edit | Goto | Special**, choose **Data Validation** – All or Same to show all cells with validation or only those with identical validation properties.*



One approach to setting up data validation is to set up the labels for columns on row 1. Then select the whole column by clicking on the Column letter **E**, and set the validation. Excel only applies the validation rules to new data, not existing data. Thus labels in row 1 are unaffected by validation, unless you try to update the label.