

ExcelTM for Clinical Governance

Alan Gillies

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Alan Gillies

*Professor in Information Management
University of Central Lancashire*



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Supplementary Resources Disclaimer

Additional resources were previously made available for this title on CD. However, as CD has become a less accessible format, all resources have been moved to a more convenient online download option.

You can find these resources available here: <https://www.routledge.com/9781857754681>

Please note: Where this title mentions the associated disc, please use the downloadable resources instead.

Preface

This book has been designed to help all healthcare professionals trying to implement clinical governance. It is based upon the belief that in order to make clinical governance work, it is necessary to have good quality information and be able to manage it effectively. The book provides a series of governance scenarios drawn from a range of healthcare situations – they’re supposed to make you feel at home.

As with most of my books, it tries to do at least six impossible things:

- 1 Talk about information in an interesting way.
- 2 Show how computers can actually be useful.
- 3 Explain how to get you to love statistics.
- 4 Make clinical governance work.
- 5 Improve the quality of patient care.
- 6 Make you smile while reading a book about governance.

The book assumes a basic knowledge of computers and Windows95™ or Windows98™. The book does not assume any prior knowledge of Excel2000™. A typical reader might have used computers for word processing or used a clinical system.

The book assumes that you the reader are a healthcare professional, probably based in the NHS. However, the scenarios are also relevant to private healthcare and the occupational health sector.

Each section starts with a description of the scenario, and a list of the tasks and Excel™ functions covered within that section. Each concludes with a set of exercises designed to reinforce the learning outcomes from that scenario.

Crucially, the book includes an appendix on how to extract data from the closed proprietary systems so often found in the NHS. This deals in detail with systems from primary care. However, general principles are also given for other sectors and systems.

There is a website associated with this book at:
www.primarycareonline.co.uk/imit/excel.

While it will be advantageous to have access to this, the book is designed to be largely accessible without web access. For example, where possible, alternative sources are given for every resource identified as being available over the web.

An accompanying CD is also available which provides access to data sheets. It also has other resources, particularly ScreenCam Movies which provide model answers for the scenarios.

The book is based upon Windows98™ and Excel2000™. Users of Windows95™ will notice little, if any, difference. Users of Excel™ for Windows95™ or Excel97™ should also notice little difference. For a full discussion of these issues see the website. Non-surfing readers, please contact the author for more information.

The book was fun to write. I hope it's fun to read.

Alan Gillies
October 2000

professor@alangillies.co.uk

How to use the book

The book is organised into a series of scenarios. Broadly speaking, it is probably best if you read them in order. However, you may well find some material surplus to requirements. In particular, the *Before we start* section will be old hat to some readers.

There are a number of common elements that recur throughout the book. At the start of each chapter there is an **In this chapter** box which includes details of the tasks covered and the Excel functions covered for the first time. The different points are distinguished by their respective bullets:

In this chapter

This chapter will tell you:

- what tasks the chapter covers



what Excel functions are covered

Each **governance scenario** is described at the start of the section:

Governance scenario I

Each scenario ends with **exercises** that are designed to reinforce the learning outcomes from that section:

Exercise



The answers to the exercises are found on the website, as are any data sheets required within the chapters. For non-surfers, an accompanying CD is available which also includes extra resources such as ScreenCam Movies.

The text contains practical hints to help you – these are shown by the **Hint** icon and a box:

Hint



Web references in the text are indicated by a web icon within a box:

A gray rectangular box containing the text "WWW" in a bold, black, sans-serif font.

Other features of the text are **think boxes** which raise issues for further thought. They are designed for discussion, and would really benefit from the chance to discuss the answers with colleagues, either in a group situation or in a series of one-to-one encounters.



Think box

Before we leave this, think about the following questions:

Principles of good practice are key practical issues. They represent an action that is good or best practice.



Principle of good practice


Health warnings are provided as messages to prevent common errors or confusion:



Health warning

In order to make your life easier instructions in the text are bulleted and distinguished as either mouse or keyboard actions:

 This is a keyboard action.

 This is a mouse action.

Before we start

In this chapter

This chapter will tell you:

- more about conventions used in this book
- about your computer
- about Windows95 and Windows98



what Excel2000 looks like



how to move around in Excel



how to identify or 'highlight' areas of the sheet

OK, so this is the bit that everyone misses out. I know that. All I ask is that you read the first bit. After that, if you know your way around Windows and Excel you can skip the introduction, but please read the bit at the end of the chapter where I deal with some more conventions used in the book. We shall begin with a few health warnings.



Health warning

This is not a statistics book. It is not even written by someone who claims to be a statistician. All I offer is that I know what I don't know, and that I gave the text to a statistician to read and remove the gravest errors.

The moral is, if you are going to use any of the more complex stuff in anger, go and talk to a statistician. Failing that go and read a real statistics book such as *Practical Statistics for Medical Research* by Douglas Altman, and then go and find a statistician to explain the bits you don't understand.

I have tried to ensure that this book is relatively rigorous and also simple to understand. This is clearly impossible, or in statistical terms very, very improbable!

To get started, we will introduce Windows, and for those still reading against your better judgement, thank you. If you know all about Windows, skip to the end of this chapter for the summary of the conventions used in the book to represent mouse and keyboard actions in the main text.

An introduction to Windows

Windows is the system that brought computers to the masses. Odd really, because when it was first introduced in 1990, it was neither new (the idea was at least 15 years old), the best around (everyone said that the Apple system was better) or in the early days, even particularly reliable. However, it has made Bill Gates the richest man in the world, so it must do something right!

Windows uses what is known as WIMPs: windows, icons, mice and pointers. The screen is supposed to represent a desktop. Work currently on the desktop is displayed in windows which can be re-arranged on the desktop in much the same way as papers and files can be re-arranged on a desk. Items not currently open on the desktop may be shown as icons. These are small images that indicate the availability of items and display their type by the particular item in use.

An essential item for ease of use is a graphical user interface (known as a GUI, for those who need polite conversation at a computer geek's cocktail party). In the Windows environment this is the mouse, which can drive a variety of pointers

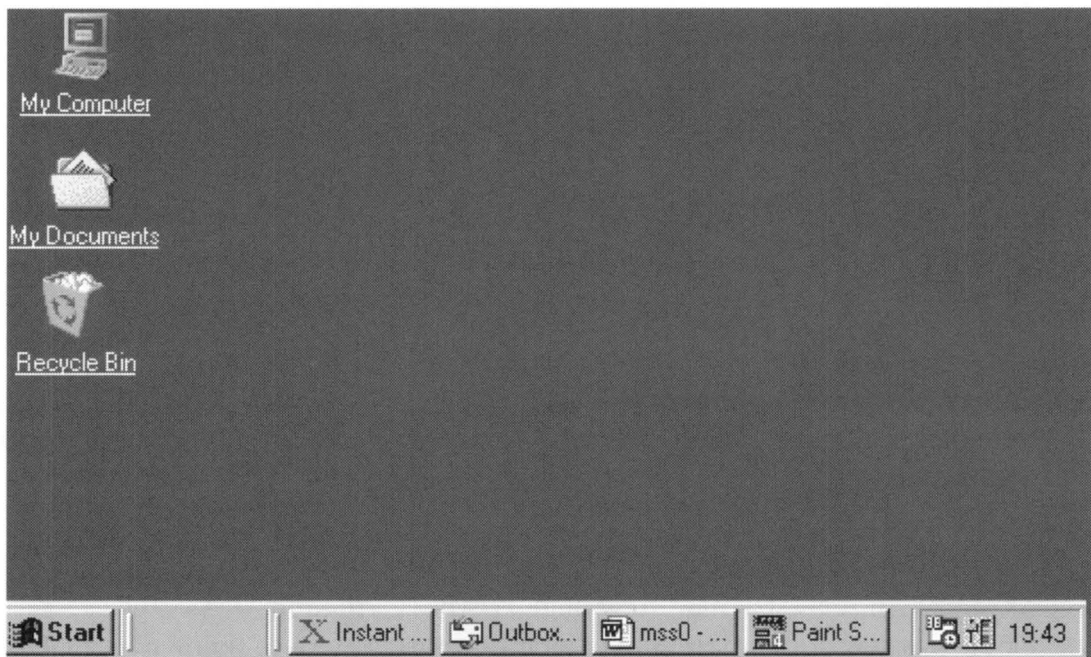
(principally arrows and crosses) around the screen. The use of the mouse and the associated screen pointer also facilitates the selection of items from pop-up and pull-down menus.

The most important feature of Windows is its standardisation. This means that almost all Windows applications work in the same way. This considerably reduces learning time for any one application and allows one to 'guess' how many of the operations in an application might work from the experience of another. Crucially for us, if you are already familiar with Word then many of the operations in Excel will, in part, already be familiar to you. For example, using Cut and Paste in Edit is the same in Excel and Word. It also means that, if you are using an application for the first time then, having followed this text, you should be well on the way to understanding other Windows applications.

The next section provides an introduction to the Windows environment.

Finding Excel in Windows

Most computers when switched on produce an opening screen that looks something like this:



To start:

☞ Click on **Start**.

The Start menu should appear.

From this menu:

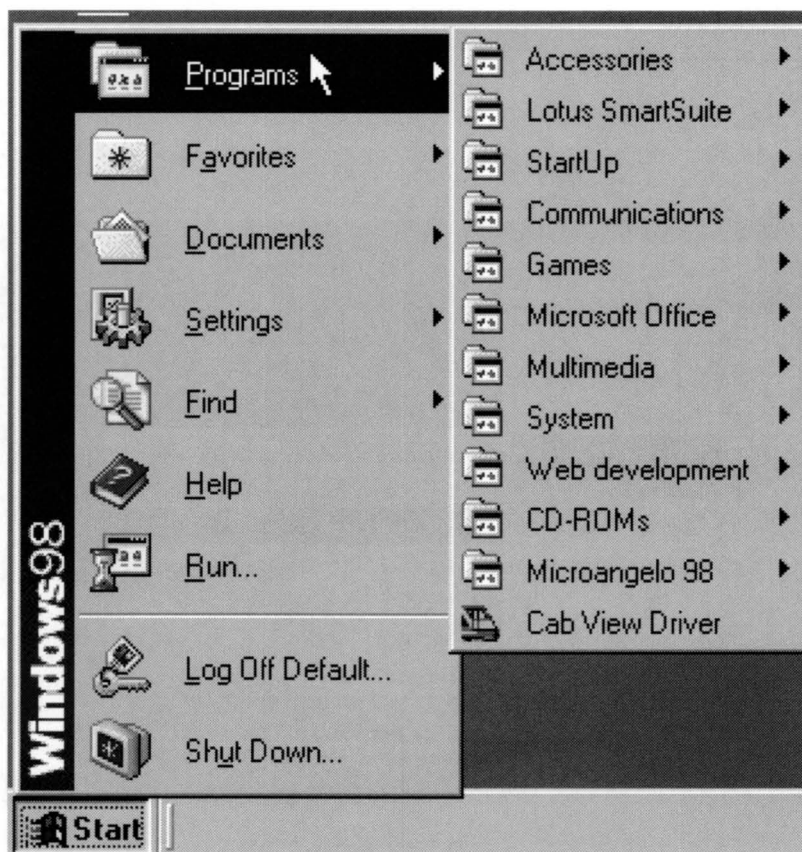
☞ Click on Programs.

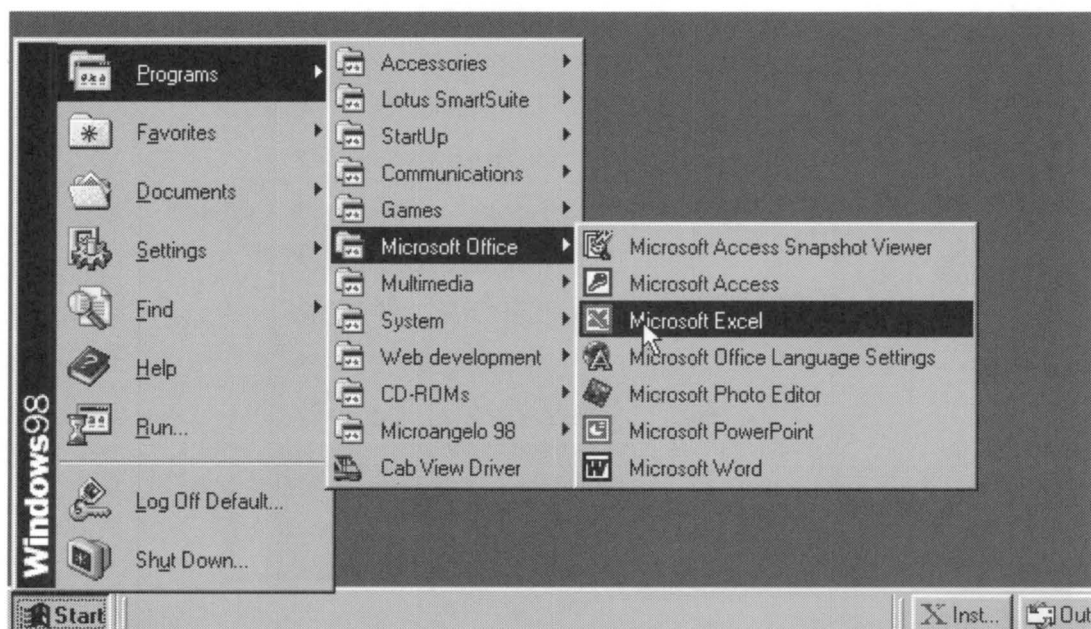
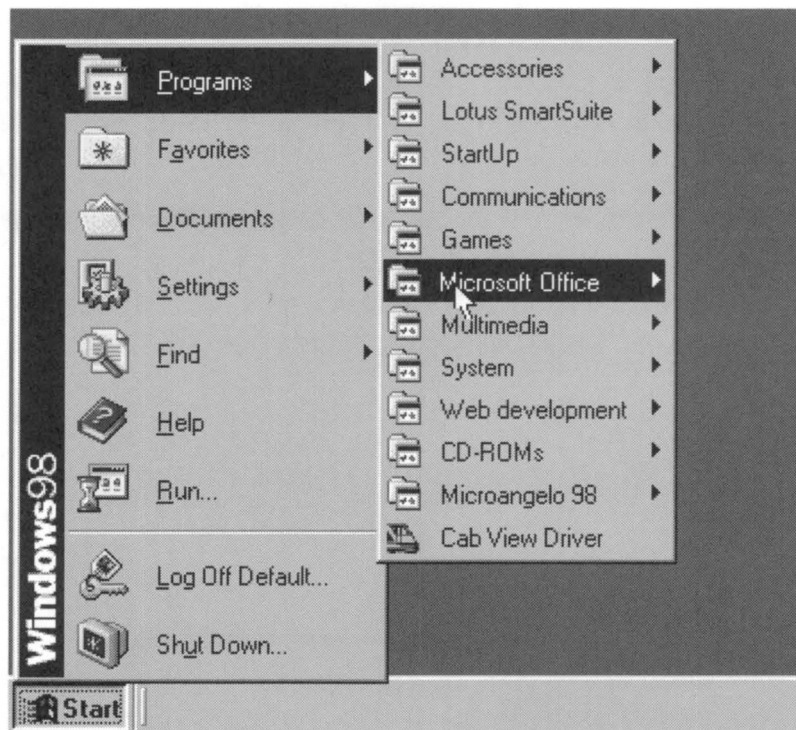
From this menu:

☞ Click on Microsoft Office.

From this menu:

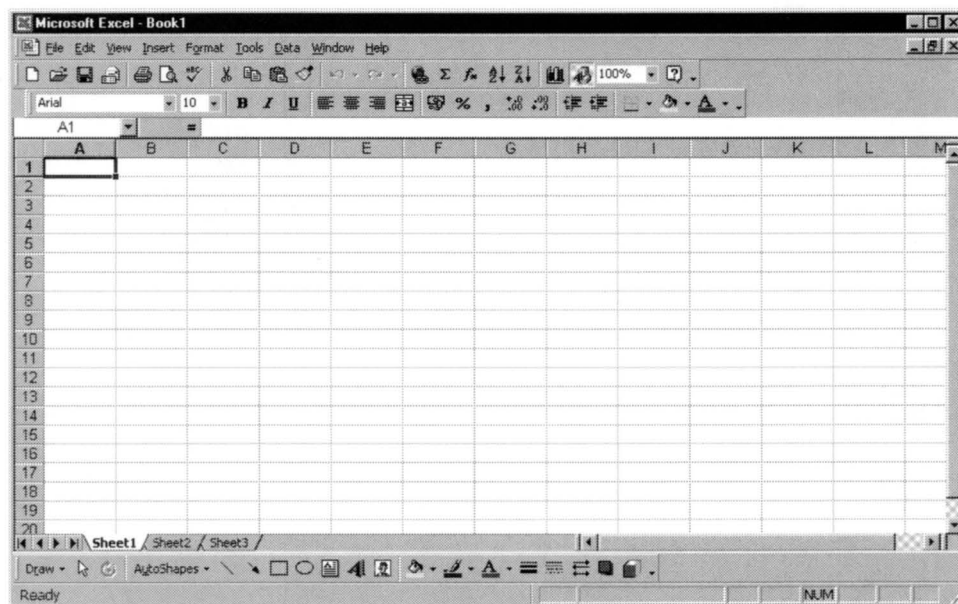
☞ Click on Microsoft Excel.





For those who want to know more about Windows, there are some excel-lent texts around such as *Windows98 for Dummies*. Do not be put off by the title or the bright yellow cover. This kind of book can be really helpful.

For us, we shall consider the opening Excel screen. It should look something like this:



Excel is a spreadsheet. Essentially, a spreadsheet is an electronic piece of paper divided into rows and columns. The intersection of a row and column forms a cell.

Each cell is identified by the row and column that it occupies:

	A	B	C
1	<i>cell A1</i>	<i>cell B1</i>	<i>cell C1</i>
2	<i>cell A2</i>	<i>cell B2</i>	<i>cell C2</i>
3	<i>cell A3</i>	<i>cell B3</i>	<i>cell C3</i>

Schematic representation of rows, columns and cells.

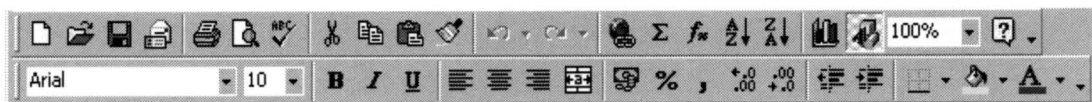
Unlike a piece of paper, each cell can contain more than just text or a number; most importantly, it can contain a formula detailing how the value displayed in that cell is calculated.

Excel operates in the Windows environment making full use of windows, icons, the mouse and pointers. It is controlled largely by using the mouse to point at objects and 'clicking' the mouse to activate the object, rather than typing in commands.

Excel uses a lot of toolbars. These are a set of 'buttons' which, when clicked on, perform an operation. They provide shortcuts to a number of standard operations covering functions such as drawing, macros, charting and so on.

Toolbars

At this stage we shall start with the main toolbar. The toolbar buttons in the upper row, from left to right are:



- New workbook
- Open workbook
- Save workbook
- Email
- Print
- Print preview
- Spell checker
- Cut
- Copy
- Paste
- Format painter
- Undo
- Redo
- Insert hyperLink
- Internet
- Autosum
- Autofunction
- Sort (ascending)
- Sort (descending)
- Chart wizard
- Drawing


- Zoom
- Help.

The second row is known as the formatting toolbar, and includes, from left to right, buttons for:

- Font
- Font size
- Bold
- Italic
- Underline
- Left align
- Centre align
- Right align
- Align across multiple cells
- Currency
- Percentage
- Comma style
- Increase decimal
- Decrease decimal
- Decrease indent
- Increase indent
- Borders
- Fill colour
- Text colour.

Rather than give you indigestion at this point, we shall delay explanation of each function until later in the text. The toolbar is simply a shortcut way of entering commands into the computer.

For example:

- ☞ **Click** on the  button
- ☞ **Select** 'File' from the menu bar
- ☞ **Select** 'New' from the 'File' menu.

In fact, the above is just one of several toolbars which are designed to help us use Excel more quickly and easily. In what follows we shall make use of the toolbars as much as possible.

If you're not sure which button does what, then simply move the mouse so that the pointer on the screen lies over the required toolbar button. After a short pause, a message will appear:



Movement around the sheet

Vertical and horizontal movement works as for any other application. Place the arrow in the scroll bar and click on the square down arrow screen button to achieve single cell movement, or hold down for multi-cell movement. To move selectively up or down (right or left), hold the left mouse button down on the scroll bar button (i.e. the blank button which is situated within the scroll bar) and drag it gently down the bar (or rightward along the bar). Notice the highlight (the faint square outline) move. When the mouse button is released the scroll button will move to the highlight and movement in the spreadsheet will be effected.

Highlighting areas of the sheet

Highlighting areas of the sheet is a fundamental operation that will allow us to copy, move, format or otherwise edit areas of the sheet.

Take the blank sheet on the screen in front of you:

- ☞ Place the arrow in cell B3, hold down the left-hand button and 'drag' the mouse across the sheet to cell F8.

Hint





Please note that later in the text, we shall simply record this instruction as:

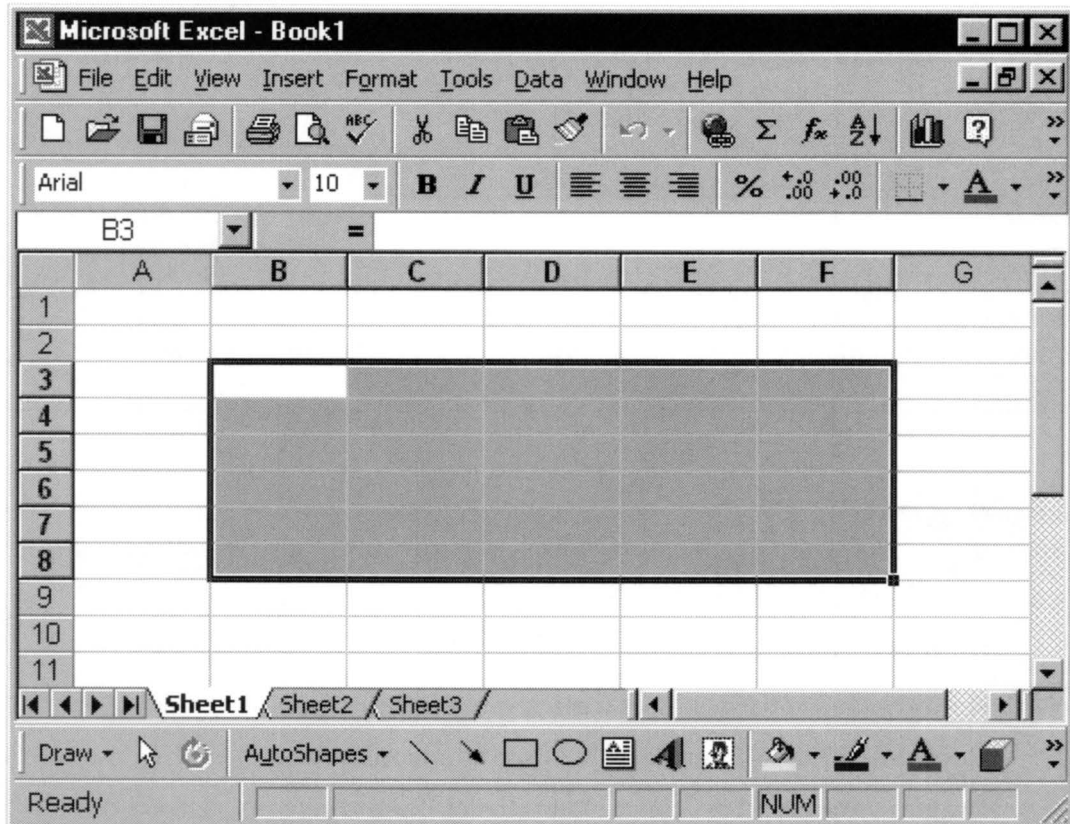
☞ **Highlight B3 to F8.**

The end result of highlighting this region of the sheet is shown below.

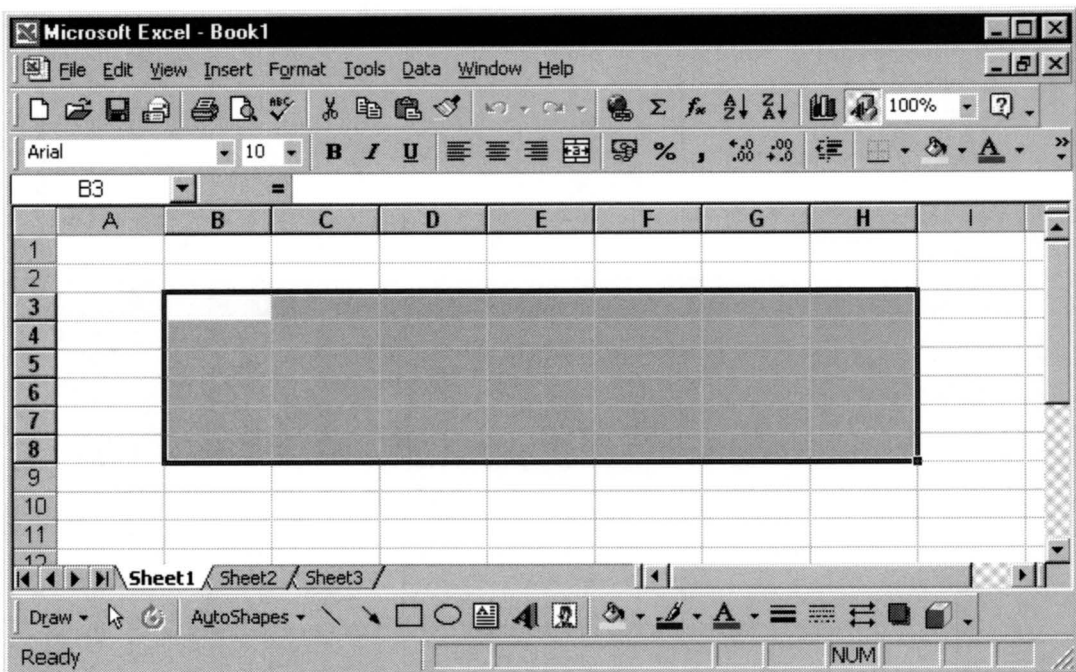
To extend the highlighted area:

-   **Hold** down the [↑] key and **hold** down the left mouse button simultaneously and **drag** the mouse across the tabletop to cell H8 and release.

There should now be a highlighted area extending from B3 down to H8.



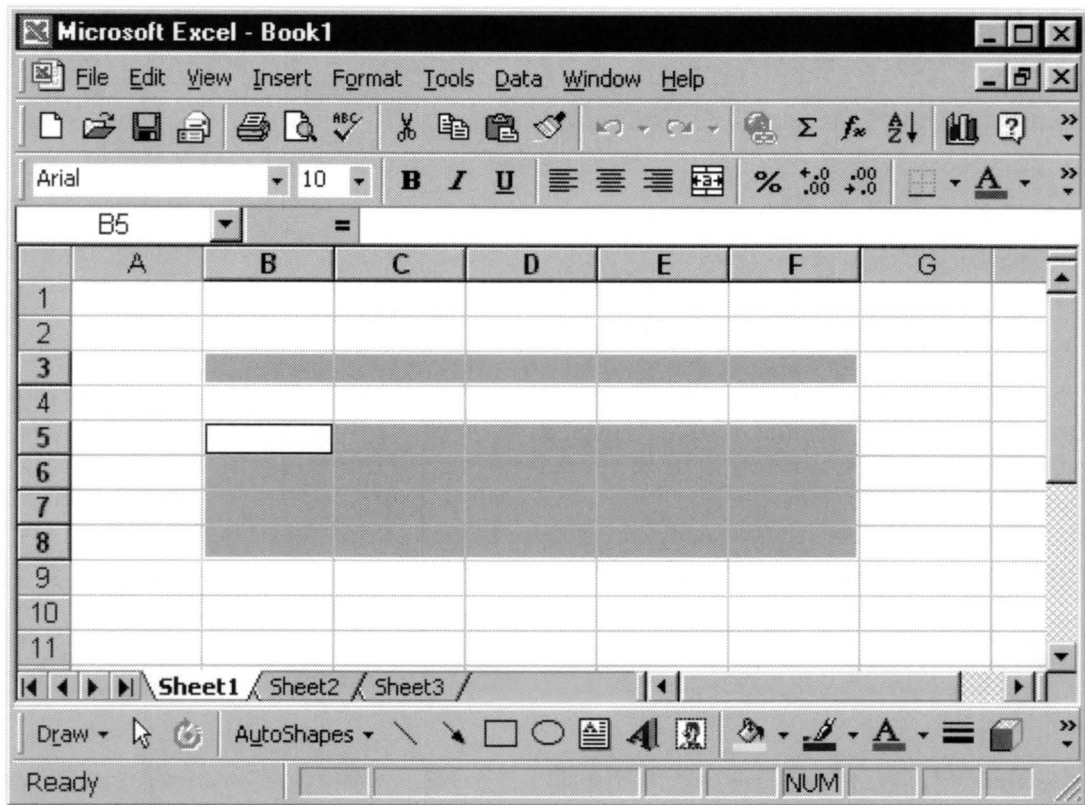
Empty sheet with highlighted area from B3 to H8.



Highlighted area extended to H8.

Alternatively, you may wish to highlight two or more separate areas. This commonly occurs when you want to select data together with labels. For example, to highlight the areas B3 to F3 and B5 to F8:


- ☞ **Highlight** the cells B3 to F3, as above
- ☞ **Hold down** the [Ctrl] key and **click** on B5
- ☞ **Hold down** the left mouse button simultaneously, and
- ☞ **Drag** the mouse across the tabletop to cell F8 and release.




There should now be two highlighted areas extending from B3 to F3 and down from B5 to F8.

Hint



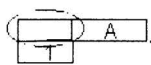
The key with the  symbol on it is the tab key. For simplicity, we shall refer to it in future as the **[tab]** key.

Pressing the [tab] or ↵ key moves you through cells in a highlighted area:

 **Press [tab]** for horizontal movement

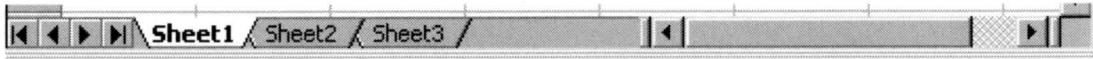
 **Press ↵** for vertical movement.

You can highlight the entire sheet by selecting the square grey button at the top left-hand corner of the sheet:

 **Click on** 

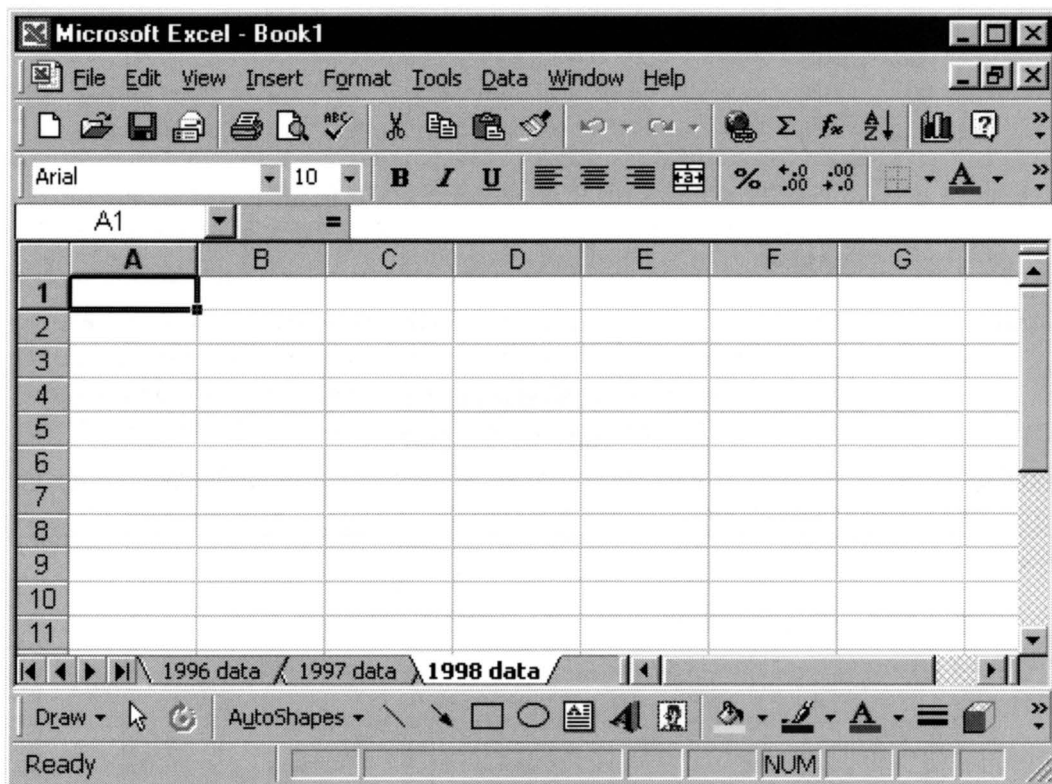
Using more than one sheet in a book

At the bottom of the sheet is a set of tabs:



The tabs displayed at the bottom of the sheet.

The sheet you see is simply the first of a large number available to you. A typical use of this facility might involve annual data on prescribing costs. On the top sheet one would have data relating to the current year. On the sheets beneath, one could have data from previous years. This would allow comparison over time. This facility is often referred to as using multidimensional spreadsheets. In such a case, time becomes the third dimension:









Use of tabs in multidimensional spreadsheets.



Exercise



Click on each of the menus in turn to familiarise yourself with what's there. By the time you get to the end of the book, hopefully you'll know what most options do.

Summary of mouse and keyboard action conventions used in this book

<i>Mouse action</i>	<i>Explanation</i>
 Move	Requires you to move the whole mouse around physically on the desk. The action is mimicked on the screen.
 Click	Requires you to press once on the left-hand button of the mouse to highlight a specific object or cell.
 Right-click	Requires you to press once on the right-hand button of the mouse to highlight a specific object or cell.
 Double-click	Requires you to press twice in quick succession (almost like an involuntary twitch!) on the left-hand button of the mouse without moving the mouse in between.
 Drag	Requires you to move to an object, press down the left-hand button of the mouse and without releasing the button, move the mouse to the location required on the screen. Once at the destination, release the mouse button. This operation is used to 'highlight' areas in Excel see next entry.
 Highlight	Requires you to highlight a range of cells by dragging the mouse over the required range.

<i>Keyboard action</i>	<i>Explanation</i>
 Type	Requires you to type whatever follows.
 Press	Requires you to press a single key or in some cases a combination of keys.

Governance scenario 1

My first governance exercise with Excel

In this chapter

This chapter will tell you how to:

- monitor levels of attendance at a health promotion clinic
- manage basic data required for the above
- present results in graphical form



enter data into an Excel sheet



copy and move data within the sheet



use the AutoFill to copy formulae and save work



use pre-defined functions, and the Autosum facility



format: data types, fonts, presentation



save and print the sheet



produce simple graphs.

Introduction

The Sony Corporation has brought us much: the Walkman, the Trinitron television tube. But one of their neatest ideas is the *My First Sony* concept.

My First Sony is a range of toys aimed at introducing the young potential Sony consumer to the company. As such, they are toy versions of adult products that allow the user to familiarise themselves with the basic concepts.

This first governance scenario is simplified to provide a way of introducing basic concepts. The scenarios which follow are more realistic, but necessarily more complex.

So here it is – my first governance exercise with Excel – with apologies to the Sony Corporation of Japan.

The scenario

A practice has introduced a well-woman clinic. During the first year of operation, the level of activity has been monitored to assist in resource management and to investigate how many of the target population of 2000 women have used the facility within a 12 month period.

Getting started: opening a sheet

When you first open Excel, you get a blank workbook on the screen.

The attendance data for the well-woman clinic is shown below:

1998	Attendees
Jan	52
Feb	71
Mar	96
Apr	124
May	150
Jun	168
Jul	117
Aug	78
Sep	121
Oct	134
Nov	152
Dec	117