

Guided Computer Tutorials

Learning Microsoft[®] Excel[®] 2010

Module 2

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Learning Microsoft Excel 2010

Module 2 Contents

Chapter 11: Making Predictions With Excel

The Motel Template	11-1
Loading the Template	11-1
Calculating the Income From Rooms	11-1
Calculating the Income From Food.....	11-2
Calculating the Total Daily Income.....	11-3
Using the Spreadsheet to Make Predictions	11-3
Adjusting the Motel Template	11-5
The Goal Seek Command	11-8
Applying the Goal Seek Command	11-10
Spreadsheets Exercise 11-1	11-11
Spreadsheets Assignment 11.....	11-12

Chapter 12: Making Decisions With Excel

The IF Command	12-2
Greater Than or Equal To.....	12-5
Exercise 12-1	12-6
Completing the Template.....	12-6
Displaying the Formulas Used	12-8
AND and OR	12-10
AND (a,b)	12-10
OR (a,b)	12-12
Exercise 12-2	12-14
Conditional Formatting.....	12-16
Setting a Conditional Format	12-16
Changing Values.....	12-17
Adding Another Conditional Format	12-18
Removing Conditional Formats.....	12-18
Spreadsheets Assignment 12.....	12-19

Chapter 13: Lookup Commands

Interest Rate Calculations	13-1
Loading the Template	13-1
Calculating the Interest Due.....	13-2
Income Tax Calculations	13-4
Loading the Template	13-4
The Base Tax Calculation	13-5
The On Income Calculation	13-5
The Extra Income Calculation.....	13-6
The Tax Rate Calculation	13-6
The Extra Tax Calculation.....	13-7
The Total Tax Calculation	13-7
The Net Income Calculation.....	13-8
Using the Tax Table.....	13-8
The Equation Dump	13-9
Spreadsheets Assignment 13.....	13-11

Chapter 14: Creating Sales Invoices

Entering the Labels of the Invoice.....	14-1
Adding Borders	14-2
Shading the Table Headings.....	14-3
Creating the Company Title	14-3
Entering the Calculations.....	14-5
Initial Settings.....	14-5
Calculating the Amount.....	14-5
Turning Zero Values Off	14-6
Calculating the Sub-Total	14-7
Calculating the GST.....	14-8
Calculating the Overall Total.....	14-8
Inserting Today's Date	14-9
Checking the Invoice	14-10
Using the Invoice.....	14-10

Adding an Inventory to the Invoice	14-10
Loading the Template	14-10
Looking up the Description.....	14-11
Looking up the Unit Price.....	14-12
Setting the Blank Invoice	14-13
Setting the Print Area	14-14
Saving as a Read-Only File	14-14
Using the Stock Inventory.....	14-15
Exercise 14-1	14-16
Loading the Invoice	14-16
Naming the Stock Table	14-16
Looking up the Description.....	14-17
Looking up the Unit Price.....	14-18
Turning Off Zero Values	14-19
Calculating the Amount and Sub-Total	14-19
Calculating the GST.....	14-21
Calculating the Total.....	14-22
Setting the Print Area	14-22
Data Validation.....	14-23
Saving as a Read-only File.....	14-26
Using the Invoice.....	14-27
Displaying the Formulas	14-27
Spreadsheets Assignment 14.....	14-29

Chapter 15: Sharing Data Between Files

Naming Single Cells	15-1
Entering Formulas Using Names	15-3
Naming Groups of Cells	15-4
Loading the Template	15-4
Naming the Cells.....	15-4
Entering the Formula	15-6
Another Advantage of Named Cells	15-7
Deleting Names	15-7

Linking Spreadsheets	15-8
Loading the Outdoors Template	15-9
Entering the Formulas.....	15-9
Naming the Cells.....	15-11
Setting up the Home Department File	15-12
Setting up the Electrical Department File.....	15-13
The Dependent Spreadsheet	15-14
Loading the Office Template.....	15-14
The Net Profit Formula	15-14
The Percentage Profit Formula.....	15-15
The Totals Formula	15-16
Linking the Spreadsheets	15-16
Changing Values in a Support Spreadsheet	15-18
Looking at all the Files.....	15-19
Spreadsheets Assignment 15.....	15-21

Chapter 16: Using Macros and Buttons

Using a Simple Discount Table	16-1
Opening a Sample File.....	16-1
Setting a 5% Discount Macro	16-1
Setting a 10% Discount Macro	16-4
Setting a No Discount Macro	16-5
Using the Macros	16-6
Saving the File as a Macro-Enabled File.....	16-7
Assigning Buttons to Represent Macros	16-8
Drawing the Shape	16-8
Formatting the Shape	16-8
Setting the Button Properties	16-9
Assigning a Macro to the Shape.....	16-10
Adding Buttons for the Other Macros	16-11
Other Macros and Buttons.....	16-14
The New Items Macro and Button.....	16-14
The Sort Items Macro and Button.....	16-19
Looking at the Macro Steps.....	16-23
Deleting a Macro	16-24
The Developer Tab	16-25
Spreadsheets Assignment 16.....	16-27

Chapter 17: Payroll Systems

Loading the Payroll Template	17-1
Completing the Payroll Worksheet.....	17-1
The Tax Calculation	17-3
Calculating the Net Pay	17-4
Printing the Payroll	17-4
The Pay Advice Worksheet.....	17-5
Naming the Payroll Cells.....	17-5
Sorting The Payroll	17-6
Completing the Name Section of the Pay Advice.....	17-7
Completing the Pay Advice Table	17-9
Completing the Superannuation Section.....	17-11
Printing the First Pay Advice.....	17-12
Printing the Pay Advice for Other Employees	17-12
Using the Payroll System	17-13
Adding Macros and Buttons	17-14
The first Employee Macro	17-14
Setting a Button	17-15
Creating Buttons for the Other 3 Employees	17-17
The 3 Remaining Employee Macros	17-18
Saving the File as a Macro-Enabled Workbook	17-18
Spreadsheets Assignment 17.....	17-19

Chapter 18: Financial Applications

An Electronic Cheque Book	18-1
Opening the Prepared Template	18-1
Completing the Formulas	18-1
Using the Cheque Book.....	18-3
The Home Loan Simulator	18-3
Opening the Prepared Template	18-4
Entering the Initial Values	18-4
Naming the Cells.....	18-5
Calculating the Monthly Interest	18-5
Calculating the Number of Repayments	18-6
Setting the Monthly Repayment	18-6
Completing the Months Column.....	18-8
The Start Balance Column	18-9
The End Balance Column	18-10
Turning Zero Values Off	18-11
The Monthly Payment Column.....	18-11
The Principal Remaining Column.....	18-12
The Total Paid Column	18-12
Completing the Start Balance Column	18-13
Adding a Border After Each Year.....	18-15
Using the Simulator	18-16
Spreadsheets Assignment 18.....	18-17

Chapter 19: Date Calculations

Creating a Library Book Overdue System	19-1
Opening the Prepared Template	19-1
Naming the Book List.....	19-2
Looking up the Book Title and Author	19-3
Calculating the Return Date	19-4
The Overdue Calculation	19-5
Filling the Formulas	19-6
Using the Library System	19-7
Creating the Equation Dump	19-8
Spreadsheets Assignment 19.....	19-9

Chapter 20: Pivot Tables

Loading the Prepared Data	20-1
Creating a Pivot Table.....	20-2
Setting Up the Pivot Table.....	20-2
Inserting the Rows, Columns and Data	20-3
Formatting Pivot Tables.....	20-5
Pivot Table Styles.....	20-5
General Formatting	20-6
Editing the Pivot Table.....	20-9
Adding Extra Fields	20-9
The Field Options.....	20-10
Turning Sub-Totals Off.....	20-12
Changing the Calculation	20-13
Spreadsheets Assignment 20.....	20-15

Chapter 21: Useful Tools

Help Features	21-1
The Save Options.....	21-2
Conditional Formatting.....	21-5
Data Bars	21-5
Conditional Formatting Rules.....	21-6
Style and Table Formats.....	21-10
Custom Styles.....	21-13
The Currency Button	21-16
Spell Checking	21-18
Setting the Enter Key	21-18

Module 2 Project

Quantum Electronics.....	P2-1
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Making Predictions With Excel

One of the many advantages of using a spreadsheet is that it allows you to make predictions about possible outcomes; for example, predicting profits, wages bills or sales. In this chapter you will use a spreadsheet to predict the possible profits for a motel.

The Motel Template

You are the manager of a seaside motel which does most of its business during the summer months. It has 20 single rooms and 30 doubles. Prices must be set to ensure enough profit is made in the holiday season to stay in business through the leaner winter months.

You know from past experience that single room occupants will spend an average of \$15 a day on food, whilst double room occupants will spend \$20.

A Loading the Template

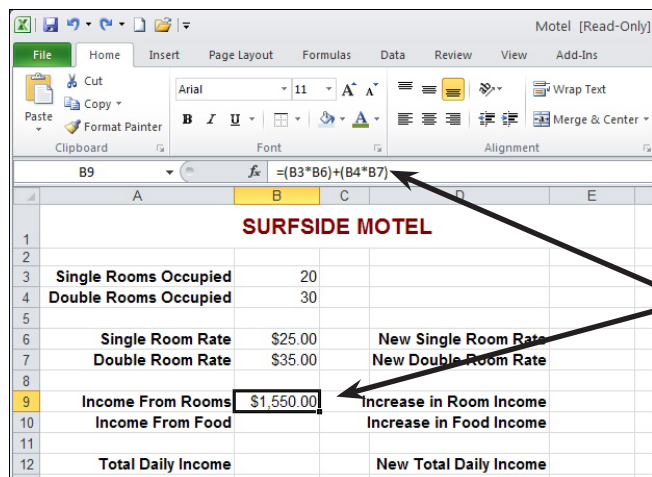
- 1 Load Microsoft Excel 2010 and click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab.
- 2 Access the EXCEL 2010 SUPPORT FILES folder and open the CHAPTER 11 folder.
- 3 Open the MOTEL template, selecting YES to the READ-ONLY dialogue box.

B Calculating the Income From Rooms

You will now be working with longer formulas. The INCOME FROM ROOMS is found by:

- Multiplying the SINGLE ROOMS OCCUPIED by the SINGLE ROOM RATE, that is:
 $B3 * B6$
- Multiplying the DOUBLE ROOMS OCCUPIED by the DOUBLE ROOM RATE, that is:
 $B4 * B7$
- Combining the two parts into a single formula we have:

$$= (B3 * B6) + (B4 * B7)$$



	A	B	C	D	E
1	SURFSIDE MOTEL				
2					
3	Single Rooms Occupied	20			
4	Double Rooms Occupied	30			
5					
6	Single Room Rate	\$25.00		New Single Room Rate	
7	Double Room Rate	\$35.00		New Double Room Rate	
8					
9	Income From Rooms	\$1,550.00		Increase in Room Income	
10	Income From Food			Increase in Food Income	
11					
12	Total Daily Income			New Total Daily Income	

Click in cell B9 and enter the formula:

$$= (B3 * B6) + (B4 * B7)$$

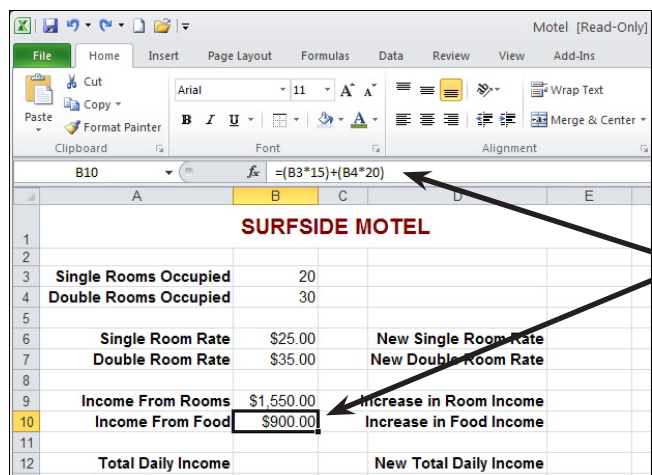
NOTE: The brackets in the formula are not essential, but they do help to show clearly the two sections of the formula (income from single rooms and income from double rooms).

C Calculating the Income From Food

The INCOME FROM FOOD is calculated by:

- Multiplying SINGLE ROOMS OCCUPIED by \$15 which is the average amount spent on food by single room occupants, that is: $B3 * 15$
- Multiplying DOUBLE ROOMS OCCUPIED by \$20, that is: $B4 * 20$
- Combining the two parts of the formula together we have:

$$= (B3 * 15) + (B4 * 20)$$



	A	B	C	D	E
1	SURFSIDE MOTEL				
2					
3	Single Rooms Occupied	20			
4	Double Rooms Occupied	30			
5					
6	Single Room Rate	\$25.00		New Single Room Rate	
7	Double Room Rate	\$35.00		New Double Room Rate	
8					
9	Income From Rooms	\$1,550.00		Increase in Room Income	
10	Income From Food	\$900.00		Increase in Food Income	
11					
12	Total Daily Income			New Total Daily Income	

Click in cell B10 and enter the formula:

$$= (B3 * 15) + (B4 * 20)$$

D Calculating the Total Daily Income

The TOTAL DAILY INCOME is simply the sum of the TOTAL INCOME FROM ROOMS and the TOTAL INCOME FROM FOOD.

	A	B	C	D	E
1	SURFSIDE MOTEL				
2					
3	Single Rooms Occupied	20			
4	Double Rooms Occupied	30			
5					
6	Single Room Rate	\$25.00	New Single Room Rate		
7	Double Room Rate	\$35.00	New Double Room Rate		
8					
9	Income From Rooms	\$1,550.00	Increase in Room Income		
10	Income From Food	\$900.00	Increase in Food Income		
11					
12	Total Daily Income	\$2,450.00	New Total Daily Income		

Position the cursor at cell B12 and enter:

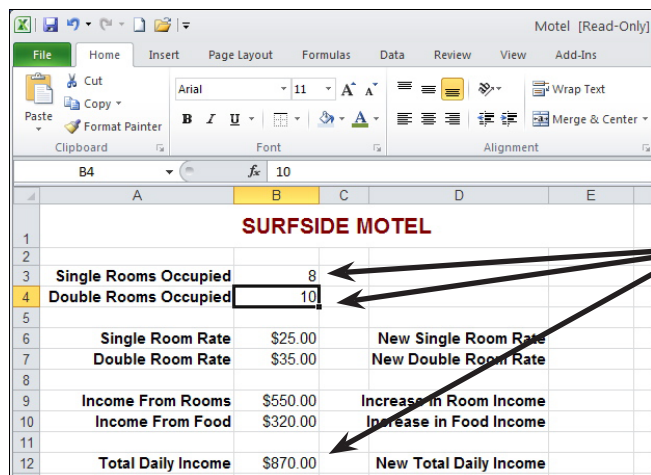
= B9 + B10

E Using the Spreadsheet to Make Predictions

At the moment, with all rooms occupied, the numbers produce a TOTAL DAILY INCOME of \$2450. Let's experiment with some other values.

	A	B	C	D	E
1	SURFSIDE MOTEL				
2					
3	Single Rooms Occupied	12			
4	Double Rooms Occupied	30			
5					
6	Single Room Rate	\$25.00	New Single Room Rate		
7	Double Room Rate	\$35.00	New Double Room Rate		
8					
9	Income From Rooms	\$1,350.00	Increase in Room Income		
10	Income From Food	\$780.00	Increase in Food Income		
11					
12	Total Daily Income	\$2,130.00	New Total Daily Income		

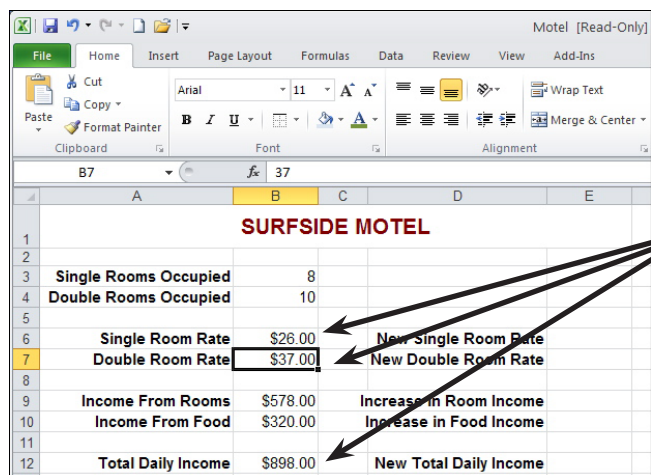
1 Change the SINGLE ROOMS OCCUPIED (B3) to 12. Watch what happens to the contents of the other cells (the total should equal \$2130).



SURFSIDE MOTEL			
Single Rooms Occupied	8		
Double Rooms Occupied	10		
Single Room Rate	\$25.00	New Single Room Rate	
Double Room Rate	\$35.00	New Double Room Rate	
Income From Rooms	\$550.00	Increase in Room Income	
Income From Food	\$320.00	Increase in Food Income	
Total Daily Income	\$870.00	New Total Daily Income	

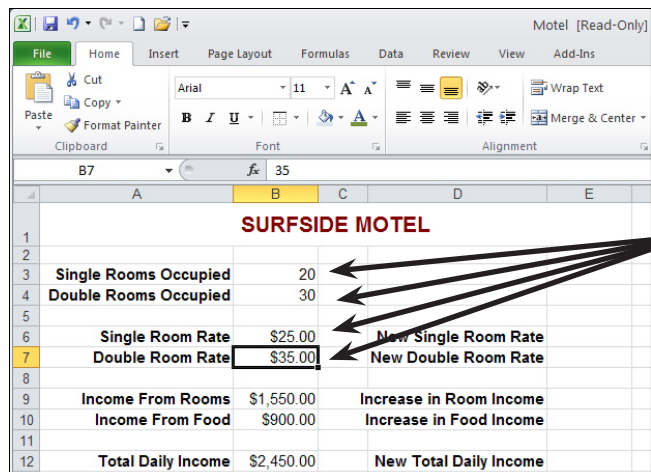
2 Change the SINGLE ROOMS OCCUPIED to 8 and the DOUBLE ROOMS OCCUPIED (B4) to 10. The TOTAL DAILY INCOME should change to \$870. These are the average number of occupants during the winter months.

3 In an effort to raise more money during the winter, it is decided to raise the SINGLE ROOM RATE by \$1 and the DOUBLE ROOM RATE by \$2.



SURFSIDE MOTEL			
Single Rooms Occupied	8		
Double Rooms Occupied	10		
Single Room Rate	\$26.00	New Single Room Rate	
Double Room Rate	\$37.00	New Double Room Rate	
Income From Rooms	\$578.00	Increase in Room Income	
Income From Food	\$320.00	Increase in Food Income	
Total Daily Income	\$898.00	New Total Daily Income	

4 Change the SINGLE ROOM RATE to \$26 and the DOUBLE ROOM RATE to \$37. The TOTAL DAILY INCOME should change to \$898.



SURFSIDE MOTEL			
Single Rooms Occupied	20		
Double Rooms Occupied	30		
Single Room Rate	\$25.00	New Single Room Rate	
Double Room Rate	\$35.00	New Double Room Rate	
Income From Rooms	\$1,550.00	Increase in Room Income	
Income From Food	\$900.00	Increase in Food Income	
Total Daily Income	\$2,450.00	New Total Daily Income	

5 Return the spreadsheet to its initial values: 20, 30, \$25, \$35.

Making Decisions With Excel

We can instruct a spreadsheet to make decisions on entered labels and values. This is achieved by using the IF function, which takes the form:

IF (something is true, do this, otherwise, do something else)

The IF function uses mathematical symbols (operators) to make comparisons:

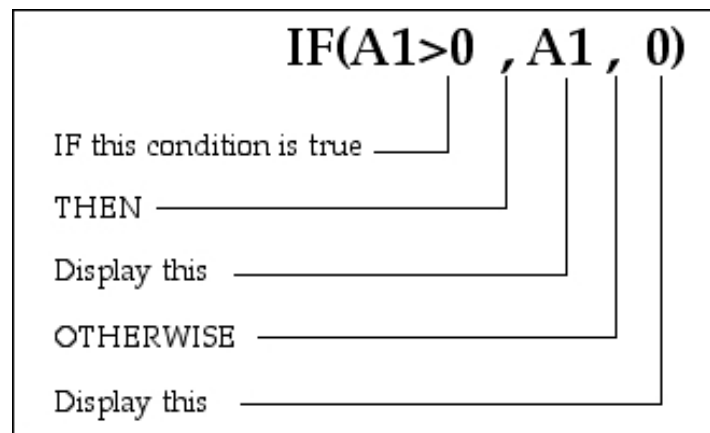
Operator	Meaning
<	less than
>	greater than
<=	less than or equal to
>=	greater than or equal to
=	equal to
<>	is not equal to

For example, look at the following formula:

=IF(A1>0,A1,0)

This formula reads: if the contents of cell A1 is greater than zero then display the contents of A1, otherwise display zero. The sections of an IF statement must be separated by commas. The commas stand for 'then' and 'otherwise'.

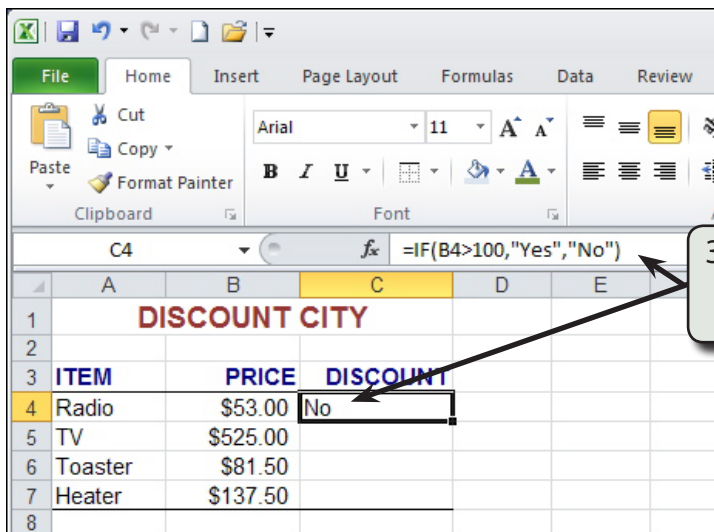
The following diagram shows the sections of the formula:



The IF Command

A template for a company that gives discounts on items priced over \$100 will be used.

- 1 Load Microsoft Excel 2010 and click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab.
- 2 Access the EXCEL 2010 SUPPORT FILES, open the CHAPTER 12 folder and load the CHAPTER 12 file, selecting YES to the READ-ONLY message.

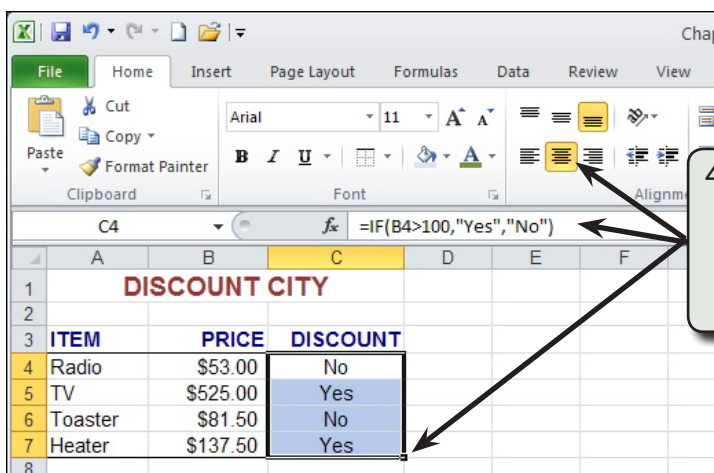


The screenshot shows the Excel 2010 interface. The formula bar displays the formula `=IF(B4>100,"Yes","No")`. The spreadsheet has the following data:

	A	B	C	D	E
1	DISCOUNT CITY				
2					
3	ITEM	PRICE	DISCOUNT		
4	Radio	\$53.00	No		
5	TV	\$525.00			
6	Toaster	\$81.50			
7	Heater	\$137.50			
8					

3 In cell C4 enter the formula:
= IF(B4>100,"Yes","No")

NOTE: The spreadsheet is being told that if the contents of the cell B4 is greater than 100, then display YES, otherwise display NO. Quotation marks are used around YES and NO because they are LABELS.



The screenshot shows the Excel 2010 interface. The formula bar displays the formula `=IF(B4>100,"Yes","No")`. The spreadsheet has the following data:

	A	B	C	D	E	F
1	DISCOUNT CITY					
2						
3	ITEM	PRICE	DISCOUNT			
4	Radio	\$53.00	No			
5	TV	\$525.00	Yes			
6	Toaster	\$81.50	No			
7	Heater	\$137.50	Yes			
8						

4 Autofill the formula down 3 cells and format the 4 labels to CENTRE. You should have a YES displayed next to prices over \$100.

ITEM	PRICE	DISCOUNT
Radio	\$53.00	No
TV	\$525.00	Yes
Toaster	\$81.50	No
Heater	\$95.60	No

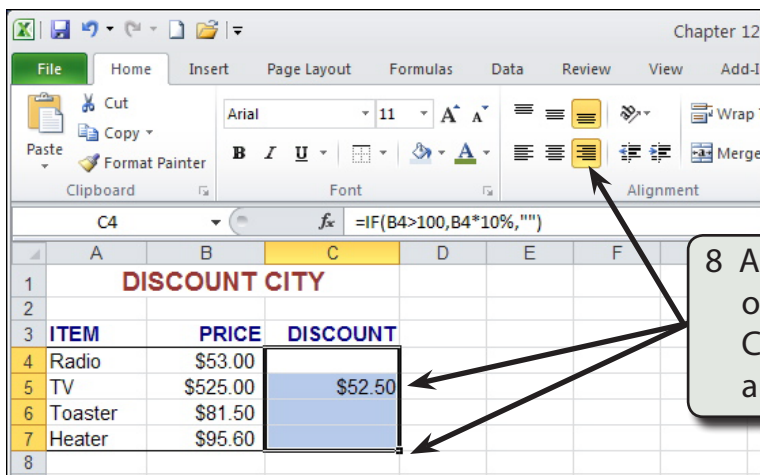
5 Change the cost of the Heater to \$95.60 and observe the change.

6 Mathematical calculations can also be done within IF functions.

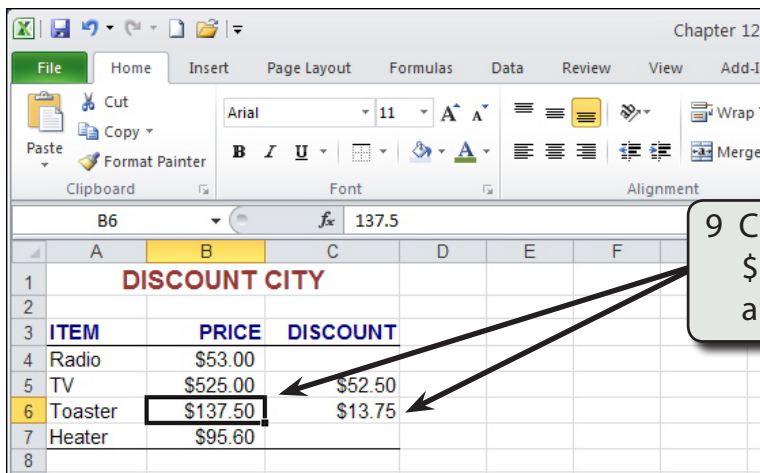
ITEM	PRICE	DISCOUNT
Radio	\$53.00	
TV	\$525.00	Yes
Toaster	\$81.50	No
Heater	\$95.60	No

7 Position the cursor at cell C4, enter:
= IF(B4>100,B4*10%, "")
and press the <enter> key.

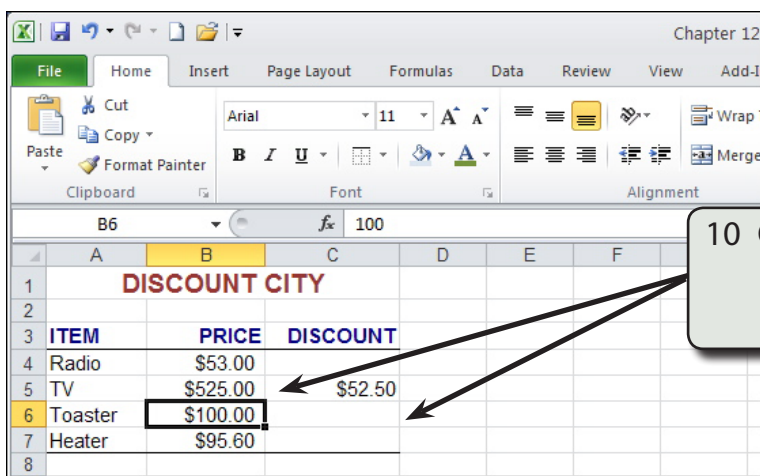
- NOTE:**
- i For the "", press the double quotation key twice.
 - ii The formula reads: if the value in cell B4 is greater than 100, then work out and display B4 times 10%, otherwise display a blank space (two quotes entered next to one another).
 - iii You should receive a blank space in cell C4 as the Radio costs less than \$100.



8 Autofill the formula down for the other 3 cells and format the 4 cells to CURRENCY with two decimal places and RIGHT aligned.



9 Change the price of the Toaster to \$137.50 and a discount should be allocated to it.



10 Change the cost of the Toaster to \$100. A discount is not given because the value is not over \$100.

Lookup Commands

The LOOKUP COMMAND allows you to copy data from a table and insert that data in other parts of the spreadsheet. It saves time re-entering the same data over and over. To look up information from a table you need to use the LOOKUP function.

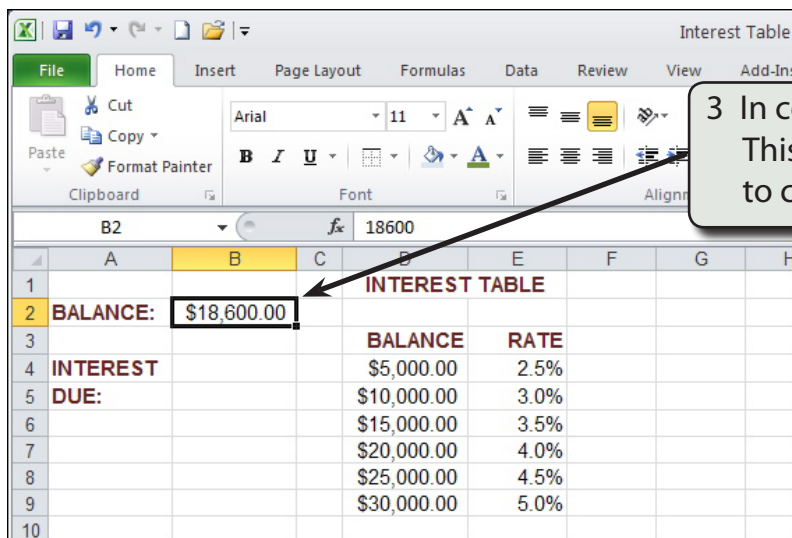
There are two different types of LOOKUP functions, VLOOKUP for searching vertically in columns and HLOOKUP for searching horizontally across rows. We will use the VLOOKUP function in this chapter, but the HLOOKUP function works in the same way.

Interest Rate Calculations

Many banks offer varying degrees of interest depending on the amount deposited in the account. We can use the LOOKUP function to display the correct amount of interest on any entered deposit.

A Loading the Template

- 1 Load Microsoft Excel 2010 and click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab.
- 2 Access the EXCEL 2010 SUPPORT FILES, open the CHAPTER 13 folder and load the INTEREST TABLE file, selecting YES to the READ-ONLY message.



	A	B	C	D	E	F	G	H
1								
2	BALANCE:	\$18,600.00						
3								
4	INTEREST							
5	DUE:							
6								
7								
8								
9								
10								

	BALANCE	RATE
	\$5,000.00	2.5%
	\$10,000.00	3.0%
	\$15,000.00	3.5%
	\$20,000.00	4.0%
	\$25,000.00	4.5%
	\$30,000.00	5.0%

3 In cell B2 enter the value: \$18500.00. This is the balance that we are going to calculate interest on.

B Calculating the Interest Due

We need to use the LOOKUP function to find the interest due on the balance. Microsoft Excel will look up the table and find the EQUAL OR CLOSEST LOWER value to the balance (\$15000).

1 In cell B5 enter the formula:
`=VLOOKUP(B2,D4:E9,2)`

2 In the HOME tab of the RIBBON format the value to PER CENT with 1 decimal place.

		INTEREST TABLE	
		BALANCE	RATE
2	BALANCE: \$18,500.00	\$5,000.00	2.5%
4	INTEREST	\$10,000.00	3.0%
5	DUE: 3.5%	\$15,000.00	3.5%
		\$20,000.00	4.0%
		\$25,000.00	4.5%
		\$30,000.00	5.0%

NOTE: The formula says: look up the value stored in cell B2 then look at the values in the table, find the cell with the EQUAL or CLOSEST VALUE BELOW the B2 value, then display the adjacent value from the second column of the table: the value next to \$15000 (that is, 3.5%).

3 The LOOKUP function has three sections:

=VLOOKUP(B2, D4:E9, 2

Reference Cell

What cell to look up.

Display Column

How many columns across from the first column in the table the value should be taken from.

Range Reference

Indicates the start and end of the data table.

- NOTE:**
- i There should not be any spaces in the LOOKUP formula.
 - ii If we had wanted the **BALANCE (\$15000)** displayed instead of the **RATE**, we would have entered:

= VLOOKUP(B2,D4:E9,1)

the 1 indicates the first column of the table.

	A	B	C	D	E	F	G	H
1				INTEREST TABLE				
2	BALANCE:	\$5,296.00		BALANCE	RATE			
3				\$5,000.00	2.5%			
4	INTEREST			\$10,000.00	3.0%			
5	DUE:	2.5%		\$15,000.00	3.5%			
6				\$20,000.00	4.0%			
7				\$25,000.00	4.5%			
8				\$30,000.00	5.0%			
9								

4 Change the balance in cell B2 to \$5296. The Interest Due should change to 2.5%.

	A	B	C	D	E	F	G	H
1				INTEREST TABLE				
2	BALANCE:	\$4,000.00		BALANCE	RATE			
3				\$5,000.00	2.5%			
4	INTEREST			\$10,000.00	3.0%			
5	DUE:	#N/A		\$15,000.00	3.5%			
6				\$20,000.00	4.0%			
7				\$25,000.00	4.5%			
8				\$30,000.00	5.0%			
9								

5 Enter a balance below \$5000 you will receive the #N/A error message.

NOTE: The error message indicates that Microsoft Excel cannot locate the closest lower value in COLUMN D. If possible it is always better to start a lookup table with zero.

- 6 Experiment with some other balances and try to visualise what the LOOKUP function is doing each time.
- 7 Close the file without saving.

Income Tax Calculations

Income tax is calculated on a sliding rate. Using a table and the LOOKUP command is an efficient way to be able to calculate the income tax paid by any income.

The income tax table will have five cut-off incomes and a TAX RATE column which refers to the tax rate for the amount of income over the cut-off. For example, if a person earns \$25,000, he/she pays \$2,652 base tax on the first \$21,600 of their income, plus 30% of \$3400 (the amount earned over \$21,600).

A Loading the Template

- 1 Select the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab.
- 2 Access the EXCEL 2010 SUPPORT FILES, open the CHAPTER 13 folder and load the TAX TABLE file, selecting YES to the READ-ONLY message.

3 In cell B2, enter the Gross Income: \$25000. This will be the test income for the calculations.

	INCOME	BASE TAX	TAX RATE
	\$0.00	\$0.00	0.0%
	\$6,000.00	\$0.00	17.0%
	\$21,600.00	\$2,652.00	30.0%
	\$63,000.00	\$15,072.00	42.0%
	\$80,000.00	\$22,212.00	47.0%

Creating Sales Invoices

Many businesses create their own invoices (sales documents) and Microsoft Excel provides a medium for creating professional invoices, even linking them to a stock inventory.

Entering the Labels of the Invoice

1 Start a NEW BLANK workbook and set the following initial formats:

- Widen COLUMN C to 26 characters.
- Widen COLUMNS D and E to 14 characters.

	A	B	C	D	E	F	G	H
1								
2								
3								
4								
5	Sold To:			Date:				
6								
7								
8	Qty	Code	Description	Unit Price	Amount			
9								
10								
11								
12								
13								
14								
15								
16				Sub-Total:				
17				GST:				
18				TOTAL:				

2 Enter the labels shown in the indicated cells.

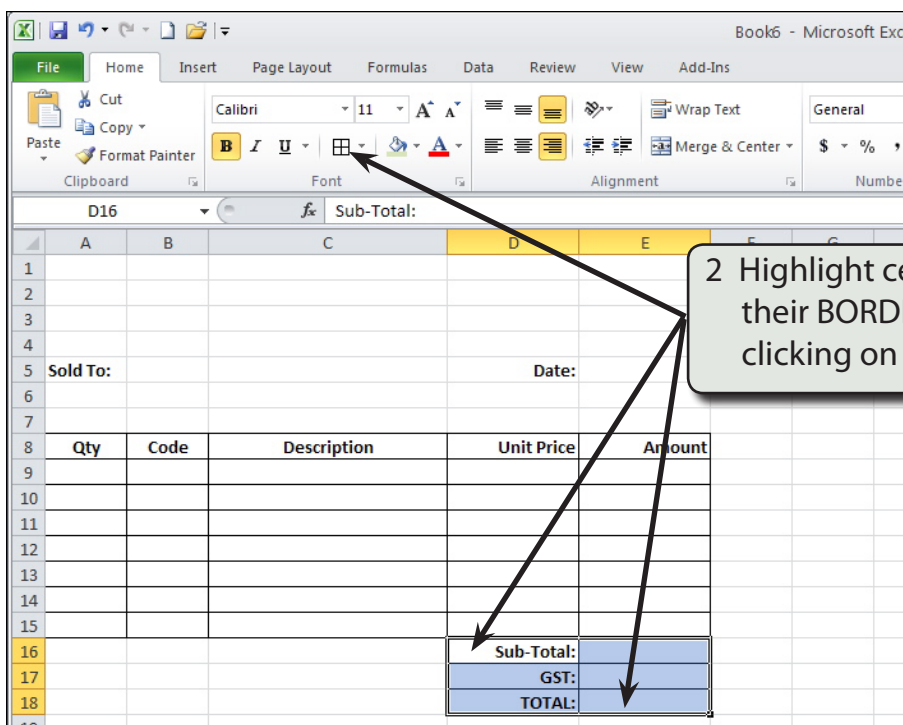
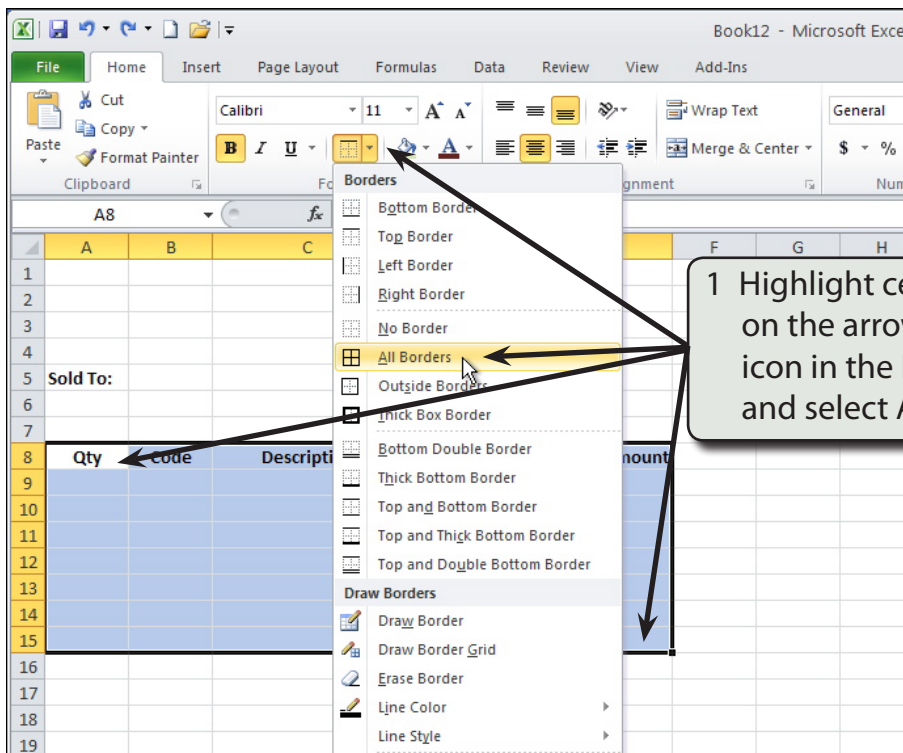
3 Change each heading to BOLD. Remember, you can hold down the CTRL key to select multiple cells.

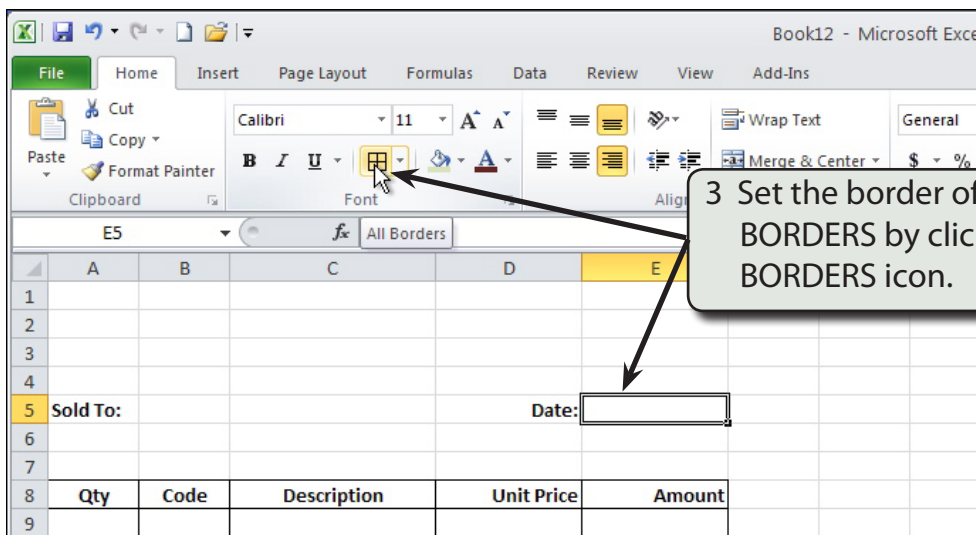
	A	B	C	D	E	F	G	H
1								
2								
3								
4								
5	Sold To:			Date:				
6								
7								
8	Qty	Code	Description	Unit Price	Amount			
9								
10								
11								
12								
13								
14								
15								
16				Sub-Total:				
17				GST:				
18				TOTAL:				

4 CENTRE cells A8 to C8 and RIGHT ALIGN cells D5 to E18.

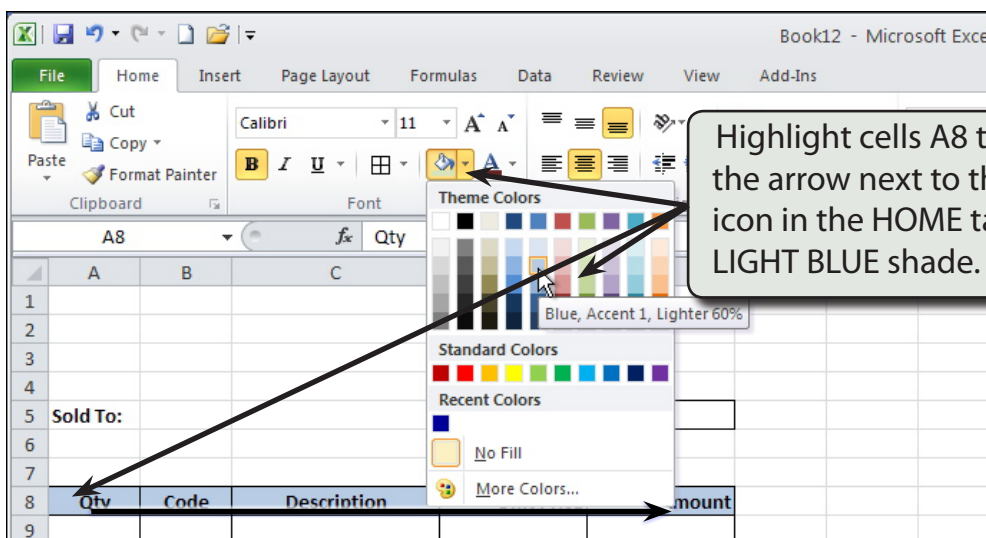
Adding Borders

Borders need to be placed around relevant sections of the invoice.



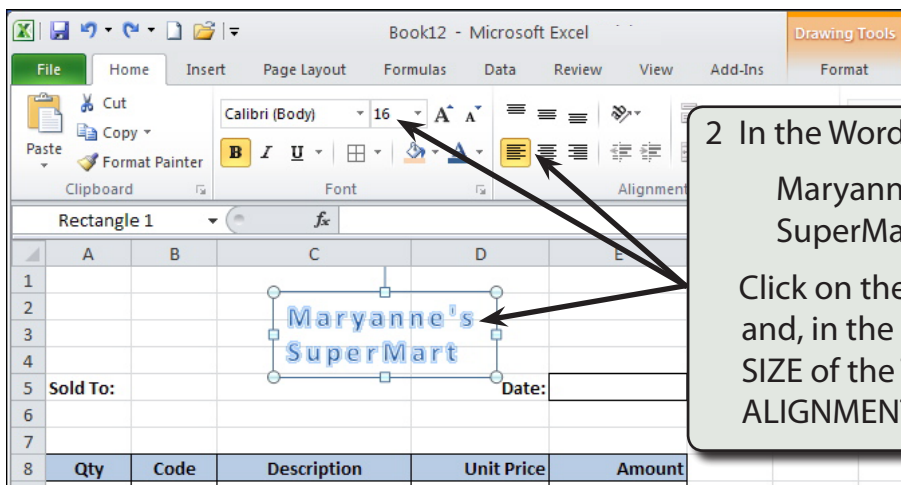
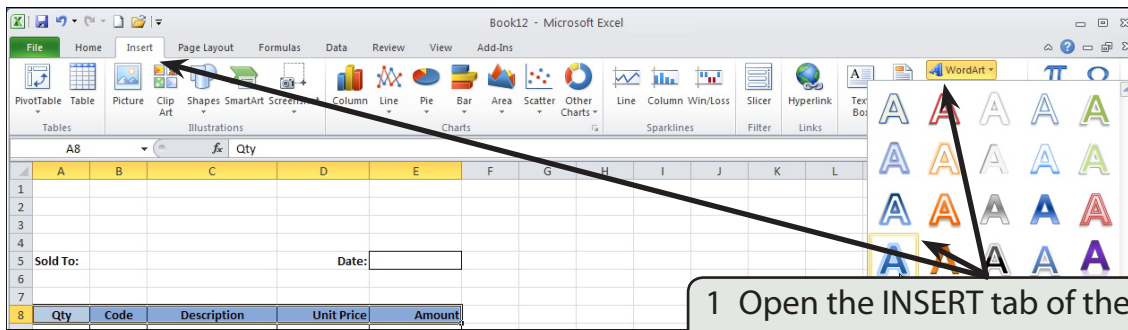


Shading the Table Headings

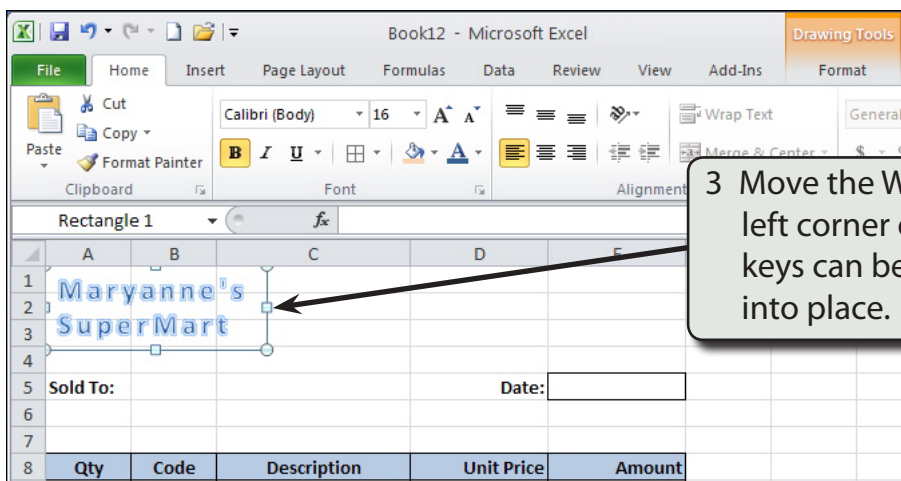


Creating the Company Title

The company's name needs to stand out from the rest of the invoice, although it should not be too overbearing. We will use WordArt in this case. We can also include a graphic or create a company logo.



NOTE: You can add some WordArt Effects and Styles to the text if you wish.



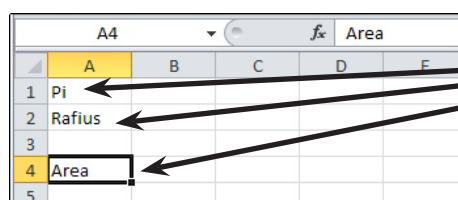
Sharing Data Between Files

In this chapter you will learn how to share information between different workbooks. This is called LINKING. In order to link spreadsheets together you need to know how to name cells. You can also share data between worksheets within a workbook as you will see in Chapter 17.

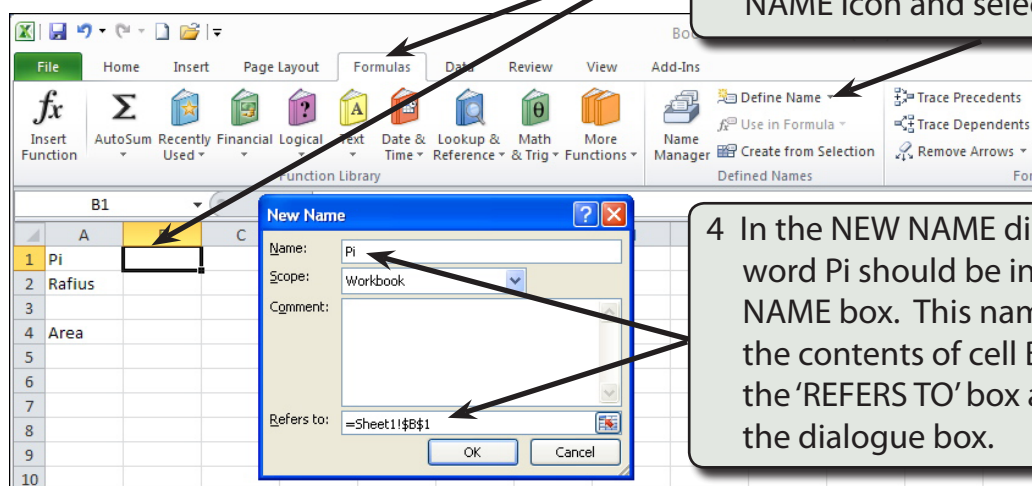
Naming Single Cells

As you saw in the last chapter Microsoft Excel allows you to name cells. This can make formulas easier to understand and allows for quicker movement to cells. Naming cells also permits Microsoft Excel to transfer information from one workbook to another, that is, to LINK workbooks together. Let's use names to calculate the area of a circle.

- 1 Load Microsoft Excel or close the current files and start a NEW BLANK workbook.



- 2 Enter the labels in the indicated cells.

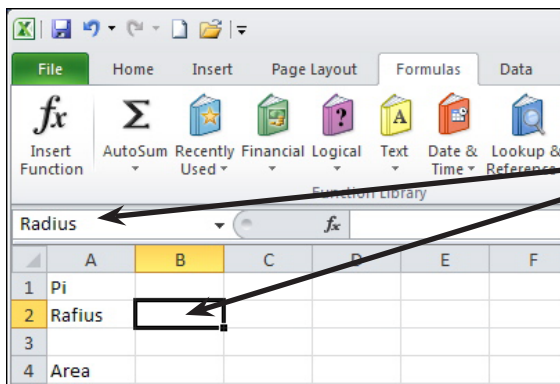


- 3 Move the cursor to cell B1, open the FORMULAS tab in the RIBBON and click on the arrow next to the DEFINE NAME icon and select DEFINE NAME.

- 4 In the NEW NAME dialogue box the word Pi should be inserted in the NAME box. This name will represent the contents of cell B1 as indicated in the 'REFERS TO' box at the bottom of the dialogue box.

- 5 Click on OK and Pi will be added to the name list.

NOTE: You can enter different names to those inserted by the program.



- 6 Move the cursor to cell B2, click in the NAME BOX in the FORMULA BAR, enter:

Radius

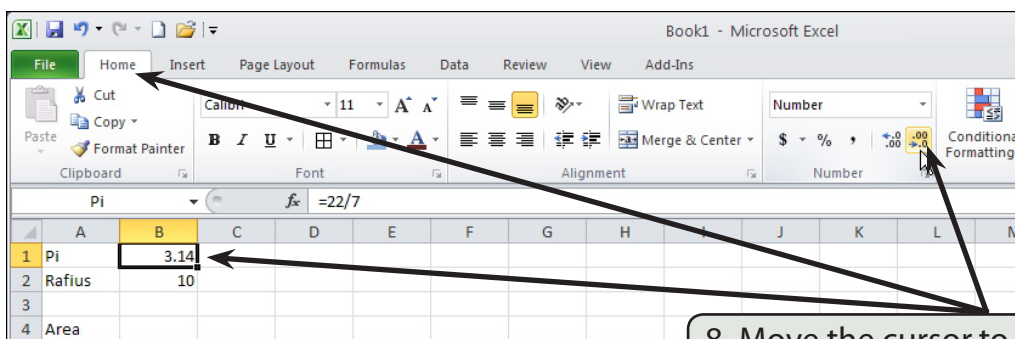
and press the <enter> key.

- NOTE:**
- i Entering the name in the NAME BOX is a shortcut to using the DEFINE NAME icon in the FORMULAS tab.
 - ii We have named the cell next to the label Pi as PI and the cell next to Radius as RADIUS.

- 7 Enter the following items in the indicated cells:

in cell B1: $=22/7$

in cell B2: 10

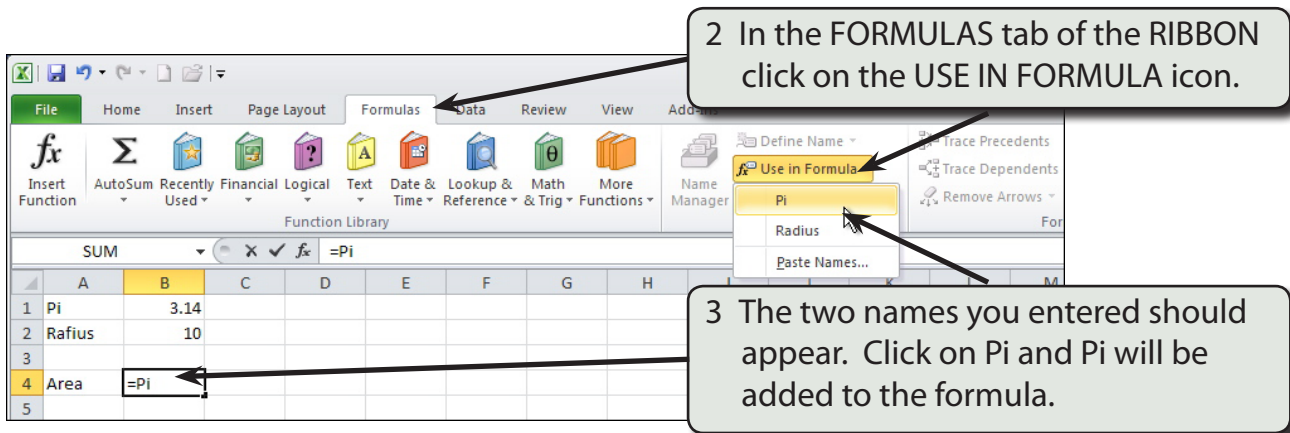


- 8 Move the cursor to cell B1 and use the DECREASE DECIMAL button in the HOME tab of the RIBBON to reduce the decimal places to 2.

Entering Formulas Using Names

We will enter a formula to calculate the area of a circle using cell names, that is: Pi times Radius squared.

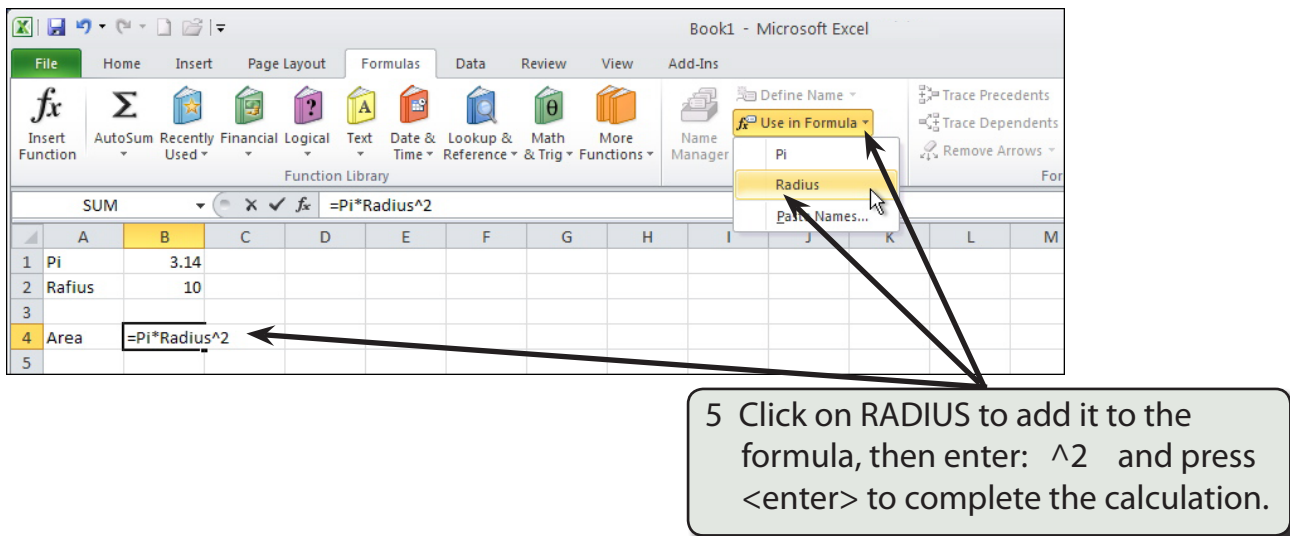
- 1 Position the cursor at cell B4 and press the = key.



2 In the FORMULAS tab of the RIBBON click on the USE IN FORMULA icon.

3 The two names you entered should appear. Click on Pi and Pi will be added to the formula.

- 4 Enter: * then click on the USE IN FORMULA icon again.



5 Click on RADIUS to add it to the formula, then enter: ^2 and press <enter> to complete the calculation.

- NOTE:**
- i The ^ (SHIFT+6) stands for 'raised to the power of'.
 - ii You could have typed in the names directly without using the USE IN FORMULA icon, if you prefer to do things that way.

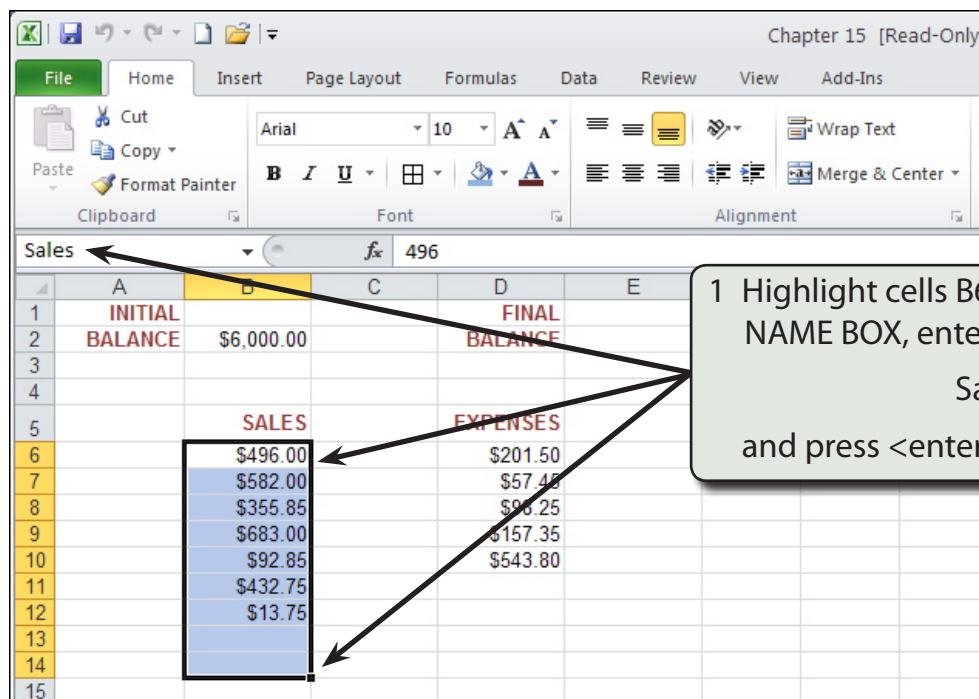
Naming Groups of Cells

Cell names can refer to single cells or to blocks of cells. The following activity will demonstrate how to name groups of cells. It will name all the sales that a company makes along with its expenses, then calculate the balance.

A Loading the Template

- 1 Close the current file and click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab.
- 2 Access the EXCEL 2010 SUPPORT FILES, open the CHAPTER 15 folder and load the CHAPTER 15 file, selecting YES to the READ-ONLY message.

B Naming the Cells



1 Highlight cells B6 to B14, click in the NAME BOX, enter:
Sales
and press <enter>.

NOTE: The two blank cells (B13 and B14) will cater for any additional sales.

Using Macros and Buttons

Microsoft Excel allows you to record the steps that you carry out within a spreadsheet. These recordings are called MACROS and they can be played back as often as required. You can assign a shape to represent a MACRO. In this way the user of the spreadsheet can simply click on the shape (button) to play back the MACRO.

Using a Simple Discount Table

To see how MACROS and BUTTONS work a simple discount system for a retail store will be set up. It offers discounts of 5%, 10% or no discount at all depending on the time of year.

A Opening a Sample File

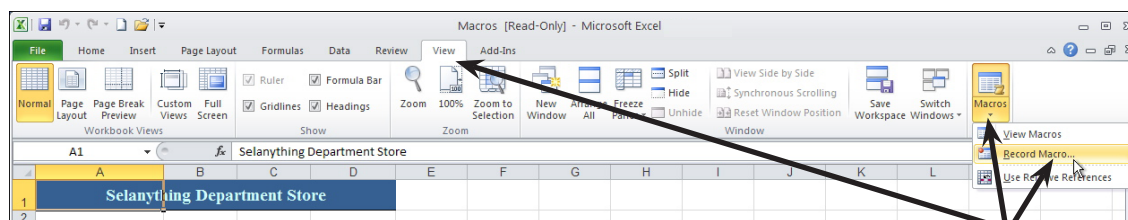
- 1 Load Microsoft Excel or close the current file.
- 2 Click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab, access the CHAPTER 16 folder of the EXCEL 2010 SUPPORT FILES, load the file:

Macros

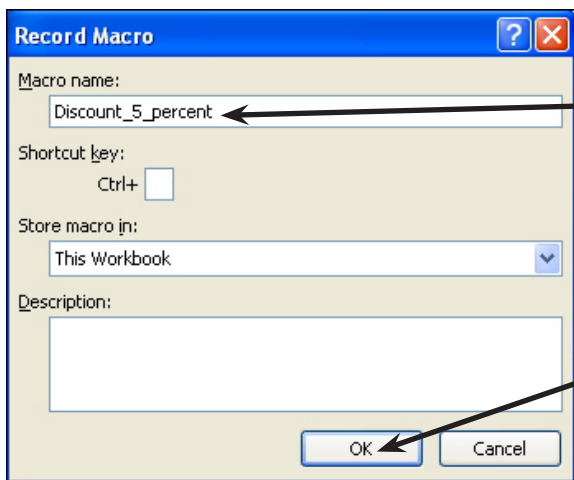
and select YES to the READ-ONLY dialogue box.

B Setting a 5% Discount Macro

The first macro will add 5% discount in the DISCOUNT ALLOWED column.



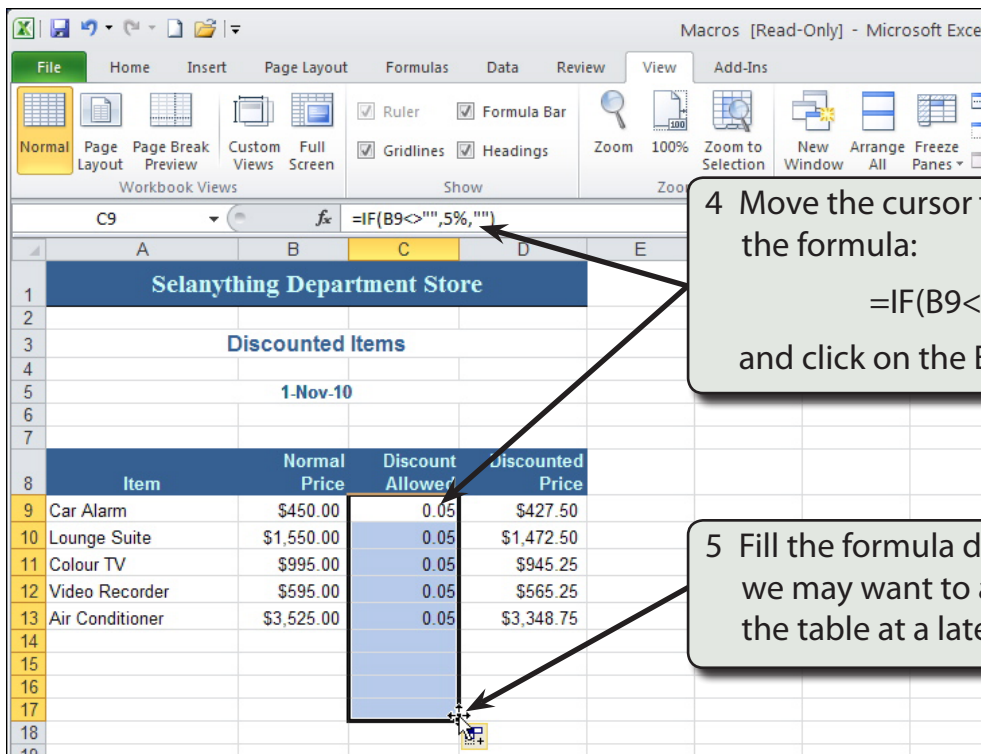
- 1 Open the VIEW tab in the RIBBON, click on the arrow at the base of the MACROS icon and select RECORD MACRO to open the RECORD MACRO dialogue box.



2 In the MACRO NAME box enter:
Discount_5_percent

3 Click on OK and the recording will commence.

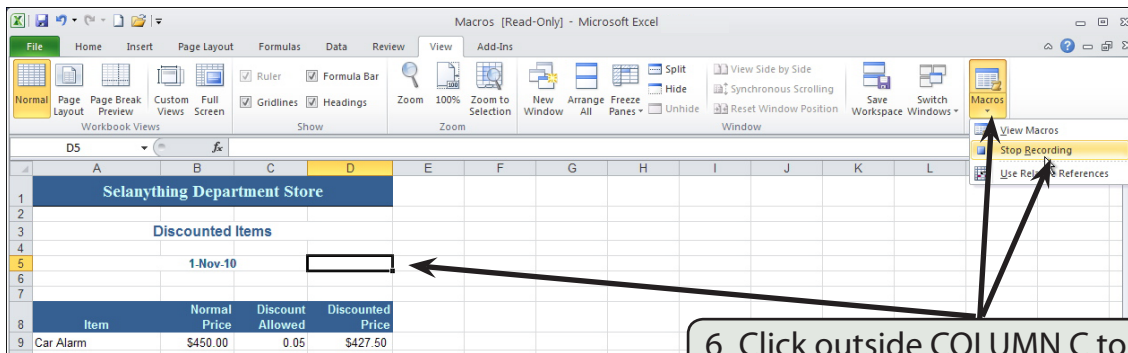
NOTE: MACRO names cannot have spaces or contain mathematical symbols such as %, *, etc.



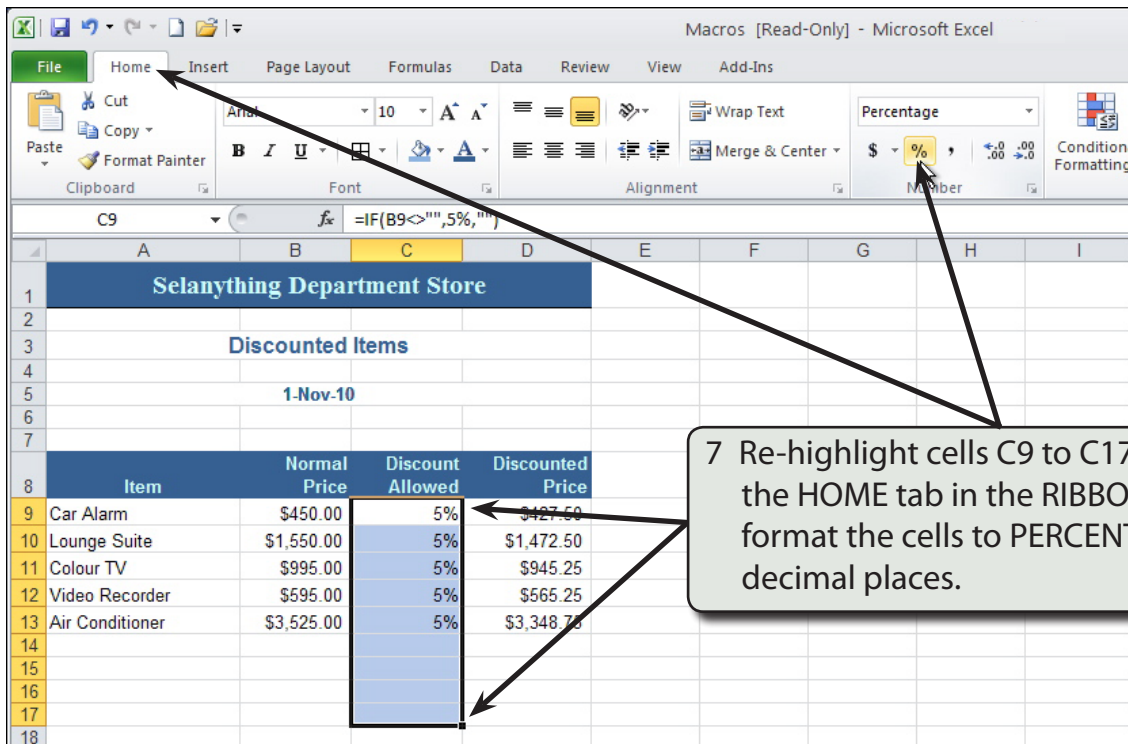
4 Move the cursor to cell C9 and enter the formula:
`=IF(B9<>\"\",5%,\"\"')`
and click on the ENTER button.

5 Fill the formula down to cell C17 as we may want to add more items to the table at a later date.

NOTE: The formula looks to see if there is an entry in the cell to the left of the DISCOUNT ALLOWED column. If there is, 5% is entered, otherwise a blank space is inserted.



6 Click outside COLUMN C to remove the highlight then click on the MACROS icon arrow in the RIBBON and select STOP RECORDING.

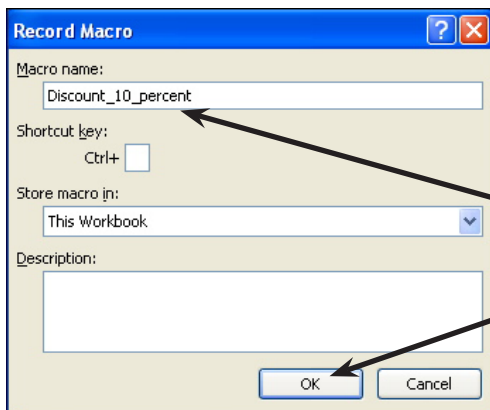


7 Re-highlight cells C9 to C17, open the HOME tab in the RIBBON and format the cells to PERCENT with no decimal places.

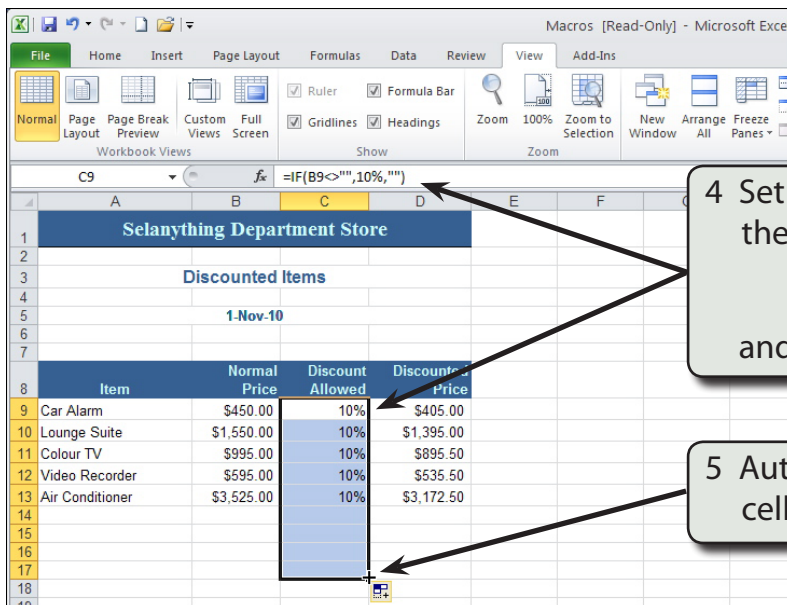
C Setting a 10% Discount Macro

A second macro to set a discount of 10% will be created in the same way as the 5% macro.

- 1 Position the cursor at any cell other than cell C9.
- 2 Open the VIEW tab in the RIBBON, click in the arrow at the base of the MACROS icon and select RECORD MACRO.



- 3 Name the macro:
Discount_10_percent
and select OK to commence the recording.



- 4 Set the cursor at cell C9 and enter the formula:
=IF(B9<>\"\",10%,\"\"')
and click on the ENTER button.

- 5 Autofill the formula from cell C9 to cell C17.

NOTE: A discount of 10% should now be applied to all the items.

Payroll Systems

Companies can use Microsoft Excel to keep pay details. In this activity you will create a company payroll table and pay advice slips for the individual employees. The data for the payroll system has been prepared for you, your task will be to complete the formulas.

Loading the Payroll Template

- 1 Load Microsoft Excel or close the current file.
- 2 Click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab. Access the CHAPTER 17 folder of the EXCEL 2010 SUPPORT FILES and load the template:

Payroll

Selecting YES to the READ-ONLY dialogue box.

- 3 There are two worksheets in the workbook. Look over the PAYROLL sheet which will show the pay details for all employees. Click on the PAY ADVICE sheet. It will display the pay details for an individual employee. The employee would receive the PAY ADVICE printout when they receive their pay.
- 4 Save the workbook in your STORAGE folder under the file name:

Ch17 Evesalon

Remembering to turn off the READ-ONLY RECOMMENDED option.

Completing the Payroll Worksheet

The first sheet is the payroll sheet showing the pay details for all the employees of the company.

- 1 Ensure that the PAYROLL worksheet is on the screen.
- 2 Position the cursor at cell G12. We need to calculate the OVERTIME RATE OF PAY which is 1.5 times the NORMAL PAY RATE.

3 In cell G12 enter the formula:
= E12 * 1.5

4 Autofill the formula down for the other employees.

CODE	EMPLOYEE	OCCUPATION	NORMAL HOURS	NORMAL PAY RATE	OVERTIME HOURS	OVERTIME RATE	GROSS PAY
Mic50	Eve Michaelson	Manager	40	\$18.00	5	\$27.00	
Lom50	Brenda Lomas	Hairdresser	35	\$15.00	0	\$22.50	
Lom51	Julia Lombardi	Hairdresser	35	\$15.00	8	\$22.50	
Kno50	Brian Knowles	Hairdresser (app)	35	\$10.00	2	\$15.00	

- 5 The GROSS PAY is the total weekly pay earned before deductions are taken out. The NORMAL HOURS needs to be multiplied by the NORMAL PAY RATE and the OVERTIME HOURS by the OVERTIME RATE then the two results added together.

6 Move the cursor to cell H12 and enter:
= (D12*E12) + (F12*G12)

7 Autofill the formula down for the other employees.

CODE	EMPLOYEE	OCCUPATION	NORMAL HOURS	NORMAL PAY RATE	OVERTIME HOURS	OVERTIME RATE	GROSS PAY	SUPER-ANNUATION
Mic50	Eve Michaelson	Manager	40	\$18.00	5	\$27.00	\$855.00	
Lom50	Brenda Lomas	Hairdresser	35	\$15.00	0	\$22.50	\$525.00	
Lom51	Julia Lombardi	Hairdresser	35	\$15.00	8	\$22.50	\$705.00	
Kno50	Brian Knowles	Hairdresser (app)	35	\$10.00	2	\$15.00	\$380.00	

NOTE: The brackets in the GROSS PAY formula are not really necessary, but they help to separate the two calculation sections and make the formula easier to understand.

- 8 The SUPERANNUATION is the amount contributed by employees each week to a retirement fund. It is usually a percentage of the employee's Gross Pay. We will use a rate of 5% here.

Ch17 Evesalon - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Add-Ins

Clipboard Font Alignment

Calibri 11

Wrap Text Merge & Center

Clipboard Font Alignment

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

A B C D E F G

EVE'S SALON
Excellence in Hair

Payroll for Week Ending: 20-Apr

CODE	EMPLOYEE	OCCUPATION	NORMAL HOURS	NORMAL PAY RATE	OVERTIME HOURS	OVERTIME RATE	GROSS PAY	SUPER-ANNUATION	TAX	NET PAY
Mic50	Eve Michaelson	Manager	40	\$18.00	5	\$27.00	\$855.00	\$42.75		
Lom50	Brenda Lomas	Hairdresser	35	\$15.00	0	\$22.50	\$525.00	\$26.25		
Lom51	Julia Lombardi	Hairdresser	35	\$15.00	8	\$22.50	\$705.00	\$35.25		
Kno50	Brian Knowles	Hairdresser (app)	35	\$10.00	2	\$15.00	\$380.00	\$19.00		

The Tax Calculation

Normally the TAX is calculated through a series of lookups which you did in an earlier chapter. This could be done at the right of the payroll and set not to print when the payroll is printed. To make things a little easier we will use a base tax rate of 25%.

Ch17 Evesalon - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Add-Ins

Clipboard Font Alignment

Calibri 11

Wrap Text Merge & Center

Clipboard Font Alignment

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

A B C D E F G

EVE'S SALON
Excellence in Hair

Payroll for Week Ending: 20-Apr

CODE	EMPLOYEE	OCCUPATION	NORMAL HOURS	NORMAL PAY RATE	OVERTIME HOURS	OVERTIME RATE	GROSS PAY	SUPER-ANNUATION	TAX	NET PAY
Mic50	Eve Michaelson	Manager	40	\$18.00	5	\$27.00	\$855.00	\$42.75	\$213.75	
Lom50	Brenda Lomas	Hairdresser	35	\$15.00	0	\$22.50	\$525.00	\$26.25	\$131.25	
Lom51	Julia Lombardi	Hairdresser	35	\$15.00	8	\$22.50	\$705.00	\$35.25	\$176.25	
Kno50	Brian Knowles	Hairdresser (app)	35	\$10.00	2	\$15.00	\$380.00	\$19.00	\$95.00	

Calculating the Net Pay

The NET PAY is the GROSS PAY minus the deductions (superannuation and tax),

Set the cursor at cell K12 and enter:

$$=H12 - I12 - J12$$

 then autofill the formula down for the other employees.

	CODE	EMPLOYEE	OCCUPATION	NORMAL HOURS	NORMAL PAY RATE	OVERTIME HOURS	OVERTIME RATE	GROSS PAY	SUPER-ANNUATION	TAX	NET PAY
12	Mic50	Eve Michaelson	Manager	40	\$18.00	5	\$27.00	\$855.00	\$42.75	\$213.75	\$598.50
13	Lom50	Brenda Lomas	Hairdresser	35	\$15.00	0	\$22.50	\$525.00	\$26.25	\$131.25	\$367.50
14	Lom51	Julia Lombardi	Hairdresser	35	\$15.00	8	\$22.50	\$705.00	\$35.25	\$176.25	\$493.50
15	Kno50	Brian Knowles	Hairdresser (app)	35	\$10.00	2	\$15.00	\$380.00	\$19.00	\$95.00	\$266.00

Printing the Payroll

The print area needs to be checked so that the whole payroll fits on one page and the ORIENTATION needs to be set to LANDSCAPE.

1 In the PAGE LAYOUT tab of the RIBBON set the ORIENTATION icon to LANDSCAPE and the SIZE icon to your printer's paper size (it is probably A4).

Financial Applications

This chapter looks at some of the ways banks make use of spreadsheets. It will include an electronic cheque book, a home loan simulator and a calculation of compound interest.

An Electronic Cheque Book

A spreadsheet can be used to allow a person to keep an accurate record of their financial dealings.

A Opening the Prepared Template

- 1 Load Microsoft Excel or close the current file.
- 2 Click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab. Access the CHAPTER 18 folder of the EXCEL 2010 SUPPORT FILES and load the file:

Cheque Book

Selecting YES to the READ-ONLY dialogue box.

B Completing the Formulas

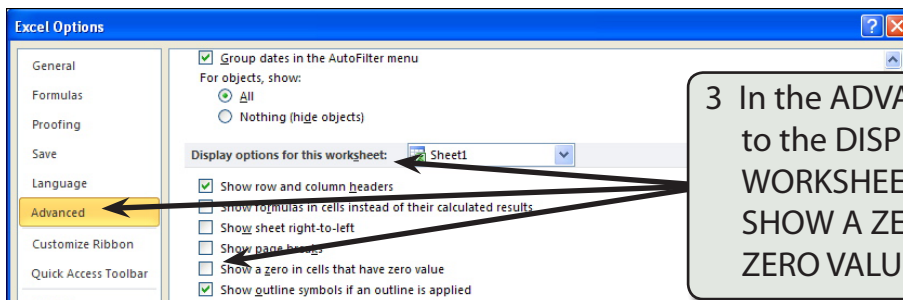
We need a formula that looks to see whether a deposit or withdrawal has been entered. If either has, then the deposit must be added to the balance or the withdrawal subtracted from the balance.

1 Enter the following formula in cell E8:
`= IF(OR(C8<>'',D8<>''),E7 + C8 - D8,0)`

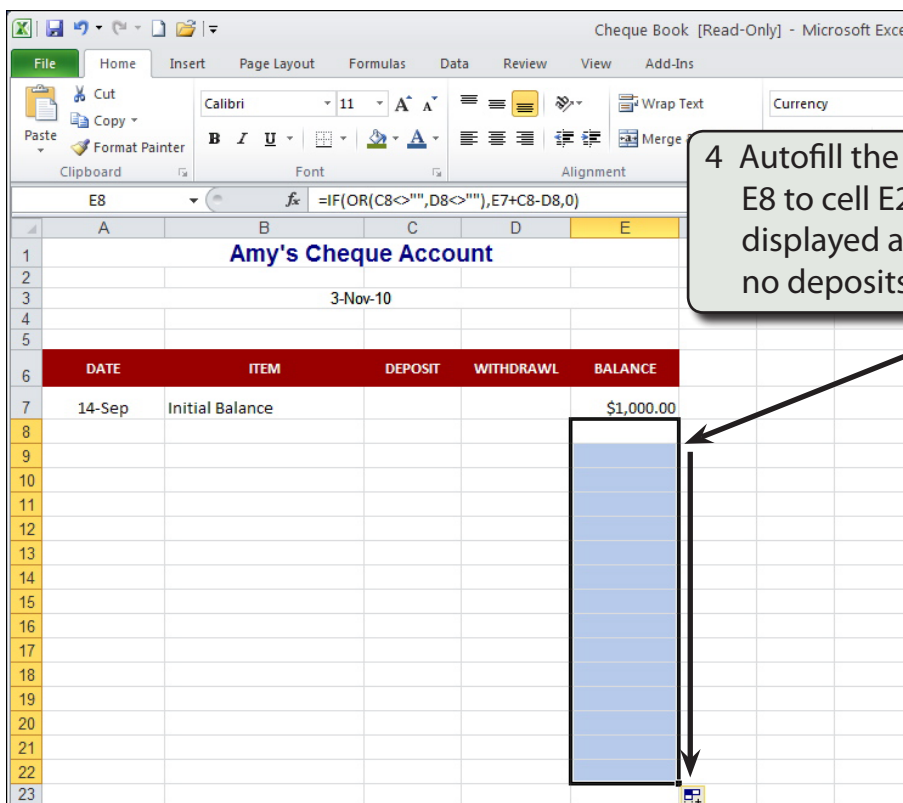
DATE	ITEM	DEPOSIT	WITHDRAWAL	BALANCE
14-Sep	Initial Balance			\$1,000.00
				\$0.00

NOTE: This formula says: "If either a deposit is entered in this row, OR a withdrawal is entered in this row, then display the previous balance (one row up) plus the deposit in this row minus the withdrawal in this row, otherwise display zero."

2 Zero values need to be turned off. Click on the FILE tab and select OPTIONS.



3 In the ADVANCED category scroll to the DISPLAY OPTIONS FOR THIS WORKSHEET section and turn off SHOW A ZERO IN CELLS THAT HAVE ZERO VALUE and select OK.



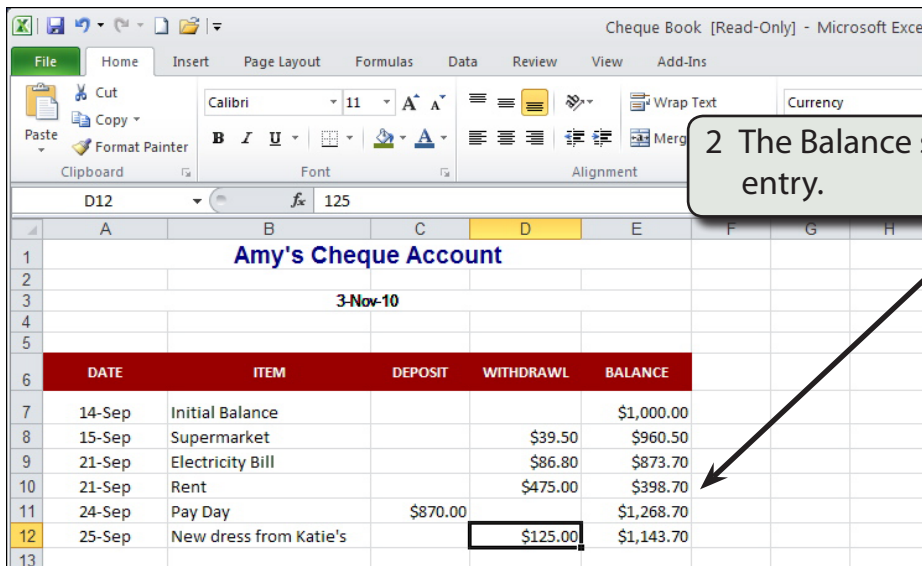
4 Autofill the formula down from cell E8 to cell E22. There will be nothing displayed at this stage as there are no deposits or withdrawals.

C Using the Cheque Book

Now you are ready to use the cheque account.

- 1 Enter the following labels and values into your worksheet (there is 1 deposit and 4 withdrawals):

Date	Item	Deposit	Withdrawal
15 Sep	Supermarket		\$39.50
21 Sep	Electricity Bill		\$86.80
21 Sep	Rent		\$475.00
24 Sep	Pay Day	\$870.00	
25 Sep	New dress from Katie's		\$125.00



DATE	ITEM	DEPOSIT	WITHDRAWAL	BALANCE
14-Sep	Initial Balance			\$1,000.00
15-Sep	Supermarket		\$39.50	\$960.50
21-Sep	Electricity Bill		\$86.80	\$873.70
21-Sep	Rent		\$475.00	\$398.70
24-Sep	Pay Day	\$870.00		\$1,268.70
25-Sep	New dress from Katie's		\$125.00	\$1,143.70

2 The Balance should adjust after each entry.

- 3 Try adding some more withdrawals and deposits of your own.
- 4 Save your workbook and print a copy if you wish.

The Home Loan Simulator

Many banks have home loan tables set up so that prospective borrowers can be shown what their repayments will be. We can use Microsoft Excel to set up a loan simulator of our own. Such tables are called LOAN AMORTIZATION tables. For simplicity we will just create a table for monthly repayments.

A Opening the Prepared Template

- 1 Close the current file and click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab.
- 2 Access the CHAPTER 18 folder of the EXCEL 2010 SUPPORT FILES and load the file:

Home Loan

Selecting YES to the READ-ONLY dialogue box.

B Entering the Initial Values

The values in the PRINCIPAL, INTEREST RATE and YEARS OF LOAN section control the spreadsheet. They are the only values that need to be entered and the table will be set up so that when different values are entered the table automatically adjusts.

1 Move the cursor to cell C4 and enter: \$10000

2 In cell C5 enter: 7% and in cell C6 enter: 2

HOME LOAN SIMULATOR					
PRINCIPAL \$10,000.00 MONTHLY PAYMENT					
INTEREST RATE 7.00% MONTHLY INTEREST					
YEAR OF LOAN 2 NUMBER OF PAYMENT					
MONTH	START BALANCE	END BALANCE	MONTHLY PAYMENT	PRINCIPAL REMAINING	TOTAL PAID

NOTE: For simplicity we will use a 2-year loan. Normally a home loan would be for a much higher Principal than this and be paid back over many more years.

Date Calculations

In this chapter you will look at some spreadsheet applications that involve doing calculations on dates. It will involve more detailed IF statements. You will complete prepared templates for a library book overdues system and a debt collection company.

Creating a Library Book Overdue System

A school library needs a simple overdue books table. It should calculate automatically the return date and any overdue fees that need to be charged. Three weeks is the borrowing period after which 5 cents is charged for each day the book is overdue. All the librarian should need to do is enter the Borrow Date, the book's accession number and the student's name after which the overdue list should complete itself.

Opening the Prepared Template

- 1 Load Microsoft Excel or close the current file.
- 2 Click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab. Access the CHAPTER 19 folder of the EXCEL 2010 SUPPORT FILES and load the file:

Library Overdues

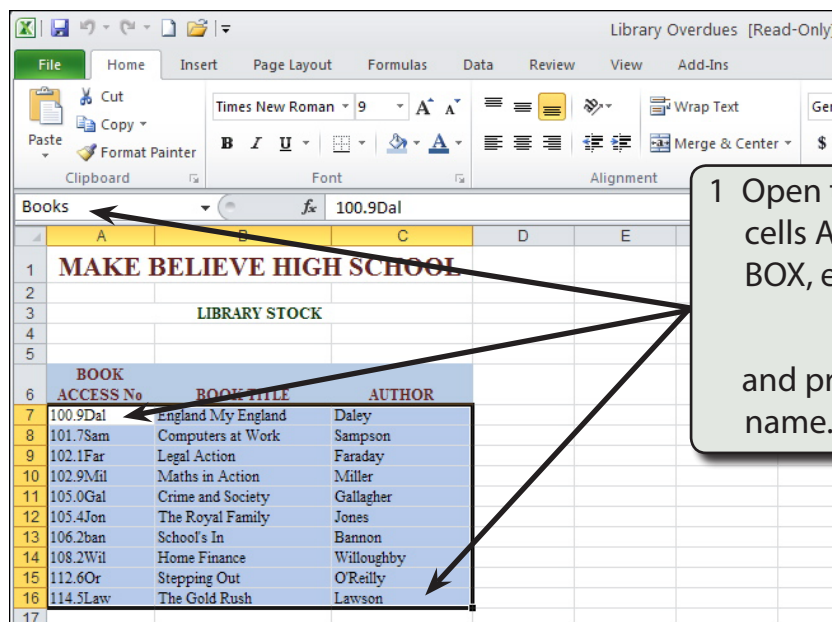
Selecting YES to the READ-ONLY dialogue box.

- 3 The template has two worksheets:
 - the OVERDUES sheet, which will keep track of which books are overdue.
 - The BOOK LIST sheet, which is a list of the books that the school has.

Look at both worksheets.

Naming the Book List

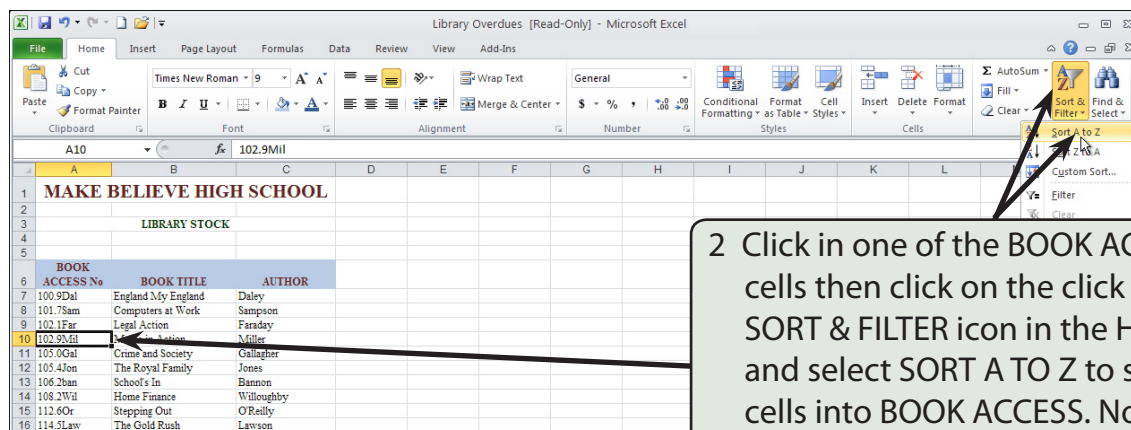
To make the formulas easier to understand the Book List should be named



1 Open the BOOK LIST sheet, highlight cells A7 to C16, click in the NAME BOX, enter:

Books

and press <enter> to complete the name.



2 Click in one of the BOOK ACCESS NO cells then click on the click on the SORT & FILTER icon in the HOME tab and select SORT A TO Z to sort the cells into BOOK ACCESS. No. order so that lookup formulas can be used on the table.

3 Save the file in your STORAGE folder as:

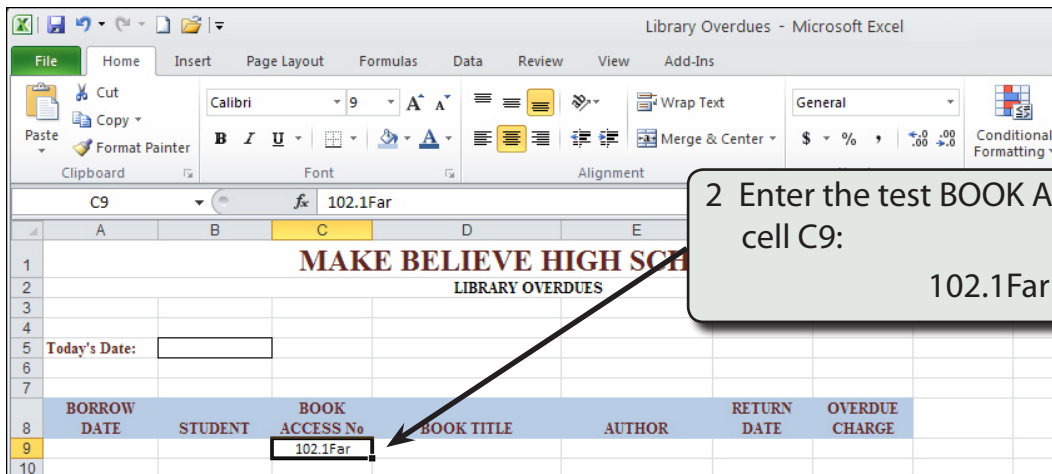
Library Overdues

Remembering to turn off READ-ONLY RECOMMENDED.

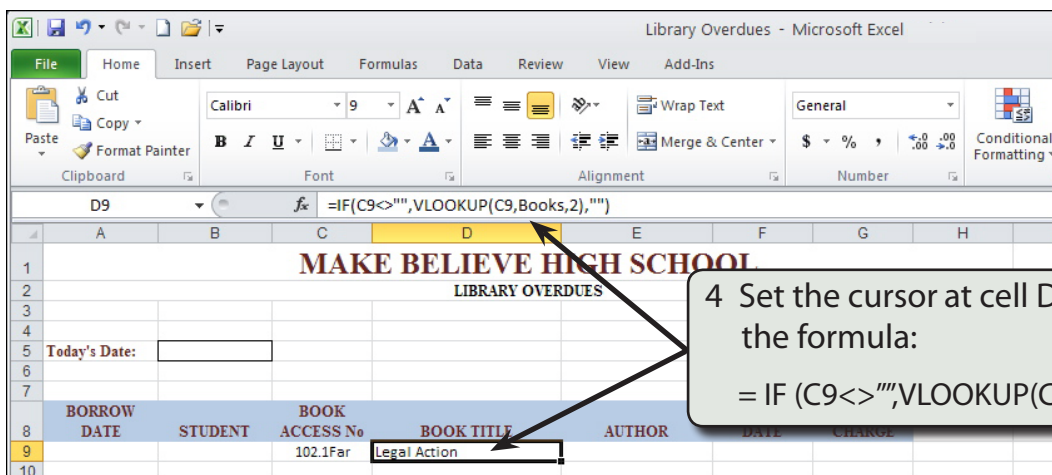
Looking up the Book Title and Author

The BOOK TITLE and AUTHOR can be inserted into the OVERDUES sheet using the VLOOKUP command.

- 1 Return to the OVERDUES sheet.



- 3 The Book Title is found by a formula that checks whether a book accession number has been entered, then looks up the BOOKS table and displays the Book Title (COLUMN 2), otherwise a blank is displayed.



- The Book Author is obtained through a similar formula to the Book Title, except that COLUMN 3 is used.

6 Set the cursor at cell E9 and enter the formula:
= IF (C9<>\"\",VLOOKUP(C9,BOOKS,3),\"\"')

BORROW DATE	STUDENT	BOOK ACCESS No	BOOK TITLE	AUTHOR	RETURN DATE	OVERDUE CHARGE
		102.1Far	Legal Action	Faraday		

Calculating the Return Date

The RETURN DATE is calculated if an accession number has been entered. It is the BORROW DATE plus 21.

1 Enter: 28 Jun in cell A9 then set the cursor at cell F9 and enter the formula:
= IF (C9<>\"\",A9+21,0)

BORROW DATE	STUDENT	BOOK ACCESS No	BOOK TITLE	AUTHOR	RETURN DATE	OVERDUE CHARGE
28-Jun		102.1Far	Legal Action	Faraday	38916	

NOTE: Because the result is a calculation, 0 is used instead of "" in the OTHERWISE section of the IF formula.

Pivot Tables

Pivot Tables allow spreadsheet data to be summarised into reports similar to those created in database programs such as Microsoft Access and FileMaker Pro. Within the spreadsheet data the columns become the fields of the database and the rows become the individual records.

There are three types of fields (columns) in a Pivot Table:

- | | |
|-------------------------|---|
| Category Fields | which contain data that can be grouped together, for example, Departments of a business. |
| Data Fields | which contain numerical data on which calculations such as sum or average can be applied. |
| Arbitrary Fields | which contain general data that cannot be grouped or have calculations applied to it, for example, a person's first name. |

Loading the Prepared Data

The sales data for a month for an online store that sells products over the internet has been prepared for you and summaries of the data are required.

- 1 Load Microsoft Excel or close the current file.
- 2 Click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab. Access the CHAPTER 20 folder of the EXCEL 2010 SUPPORT FILES and load the file:

Selanything Sales

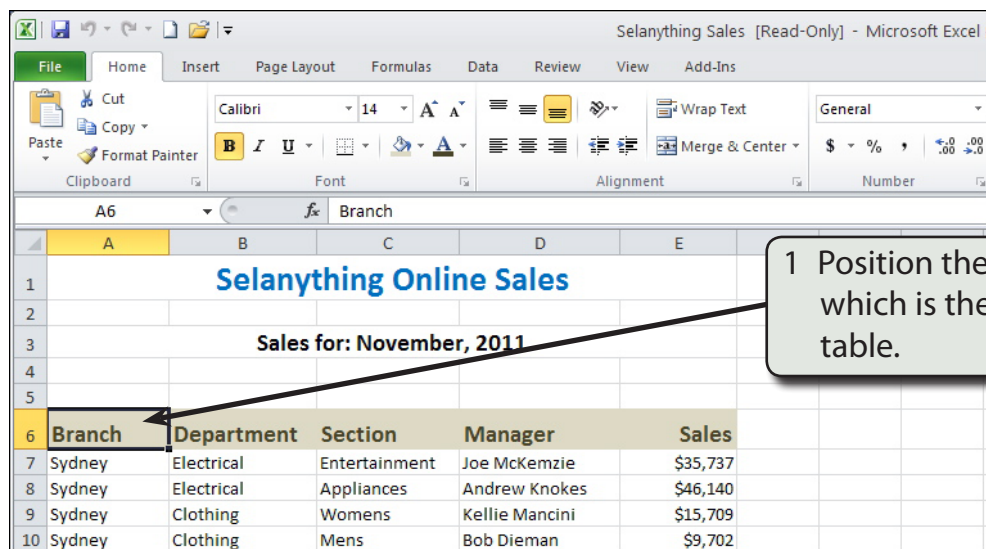
Selecting YES to the READ-ONLY dialogue box.

- 3 Look through the data to familiarise yourself with it. There are three Branches and within each branch there are 4 Departments with sections within each Department. The figures show the total sales for a month for each section.

Creating a Pivot Table

A Pivot Table will be used to summarize the sales for the month.

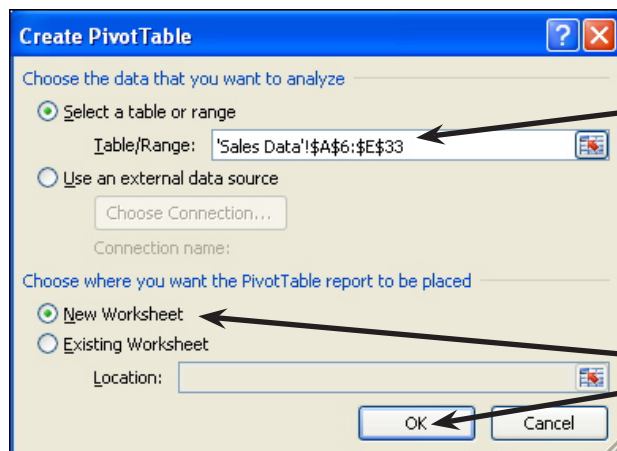
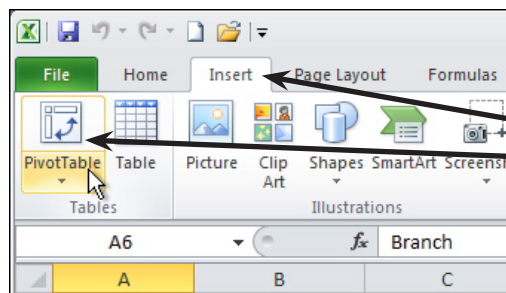
A Setting Up the Pivot Table



Selanything Online Sales

Sales for: November, 2011

Branch	Department	Section	Manager	Sales
Sydney	Electrical	Entertainment	Joe McKemzie	\$35,737
Sydney	Electrical	Appliances	Andrew Knokes	\$46,140
Sydney	Clothing	Womens	Kellie Mancini	\$15,709
Sydney	Clothing	Mens	Bob Dieman	\$9,702



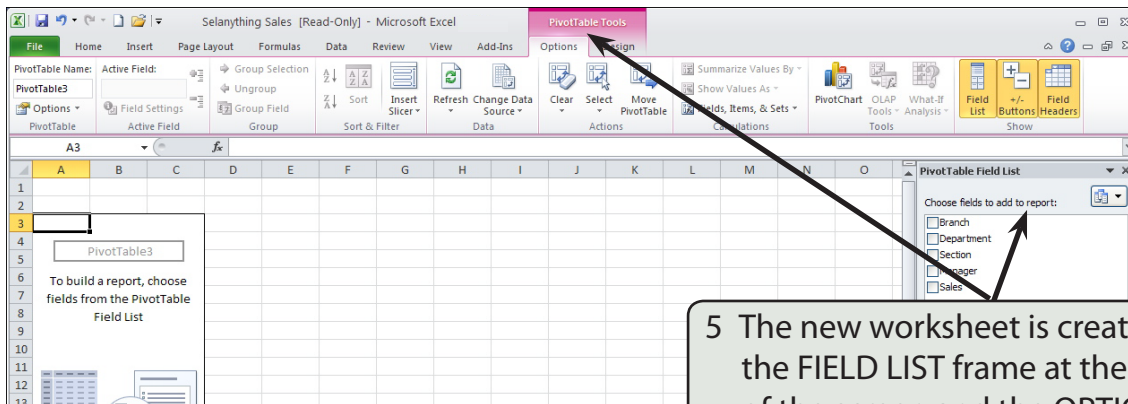
1 Position the cursor at cell A6 which is the beginning of the table.

2 Open the INSERT tab of the RIBBON and click on the PIVOT TABLE icon.

3 The CREATE PIVOT TABLE dialogue box is opened and the spreadsheet data starting from the selected cell is inserted in the TABLE RANGE box.

4 Check that NEW WORKSHEET is selected and click on OK to create the Pivot Table in a separate worksheet.

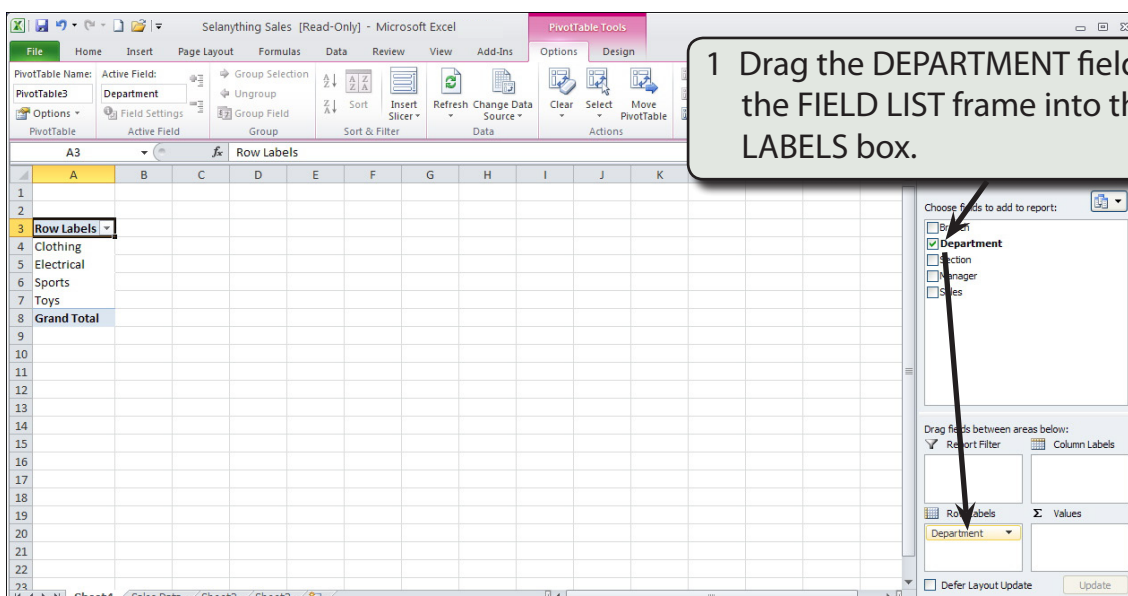
NOTE: When setting up a spreadsheet that will have Pivot Tables created from it, it is best to have no blank rows or columns. If there are blank rows or columns, the Pivot Table wizard will only select the data up to the blank row or column.



5 The new worksheet is created with the FIELD LIST frame at the right of the screen and the OPTION and DESIGN tabs of the PIVOT TABLE TOOLS are added to the RIBBON.

B Inserting the Rows, Columns and Data

The Pivot Table is created by placing fields in the boxes at the base of the FIELD LIST pane. Let's set the Departments to be down the left of the report, the Branches across the top and the Sales to be the data within the Pivot Table.



1 Drag the DEPARTMENT field from the FIELD LIST frame into the ROW LABELS box.

2 Drag the BRANCH field from the FIELD LIST frame into the COLUMN LABELS box.

Row Labels	Brisbane	Melbourne	Sydney	Grand Total
Clothing				
Electrical				
Sports				
Toys				
Grand Total				

3 Drag the SALES field from the FIELD LIST frame into the VALUES box.

Sum of Sales	Column Labels			
Row Labels	Brisbane	Melbourne	Sydney	Grand Total
Clothing	46735	46735	38507	131977
Electrical	72118	72118	81877	226113
Sports	56769	56769	52248	165786
Toys	15767	15767	14469	46003
Grand Total	191389	191389	187101	569879

4 The summary table is created showing the sales for each Department within each Branch and Grand Totals are provided for the DEPARTMENT and BRANCH sales.

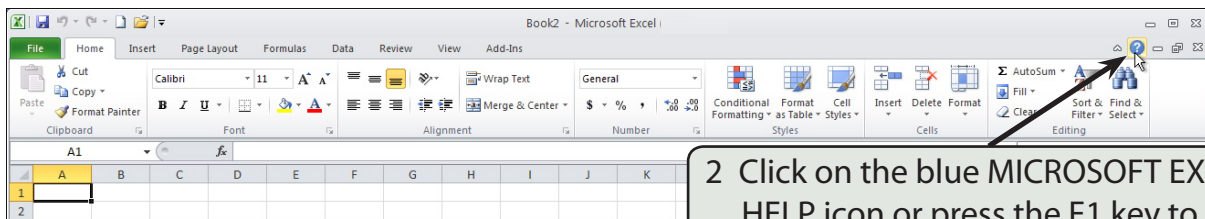
Useful Tools

Microsoft Excel has a number of useful tools that help support the spreadsheet's operations. This chapter will look at a few of them. There will be no Assignment at the end of the chapter, instead there is a project that can be attempted to practice your spreadsheet skills.

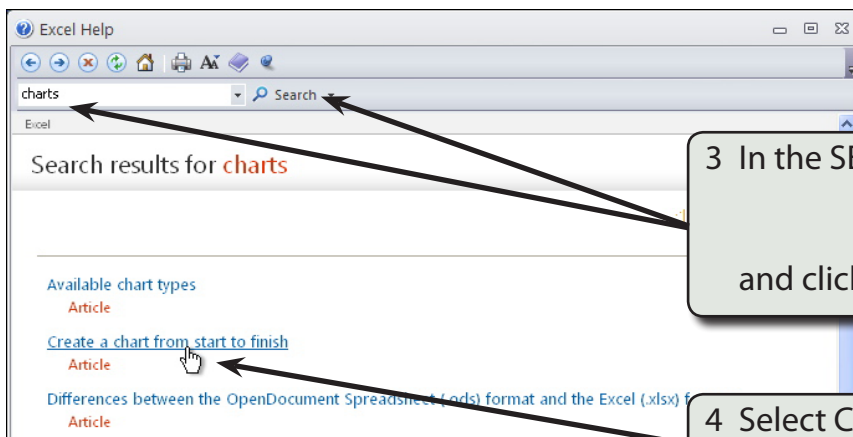
Help Features

Microsoft Excel provides online help support via the HELP window which can be opened at any time.

- 1 Load Microsoft Excel or close the current files and start a NEW BLANK workbook.

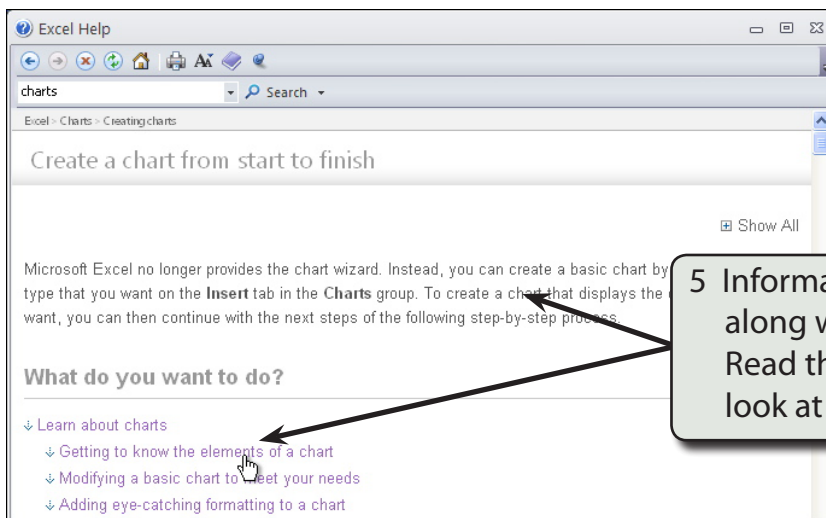


- 2 Click on the blue MICROSOFT EXCEL HELP icon or press the F1 key to open the EXCEL HELP window.



- 3 In the SEARCH box enter:
Charts
and click on the SEARCH button.

- 4 Select CREATE A CHART FROM START TO FINISH in the RESULTS list.



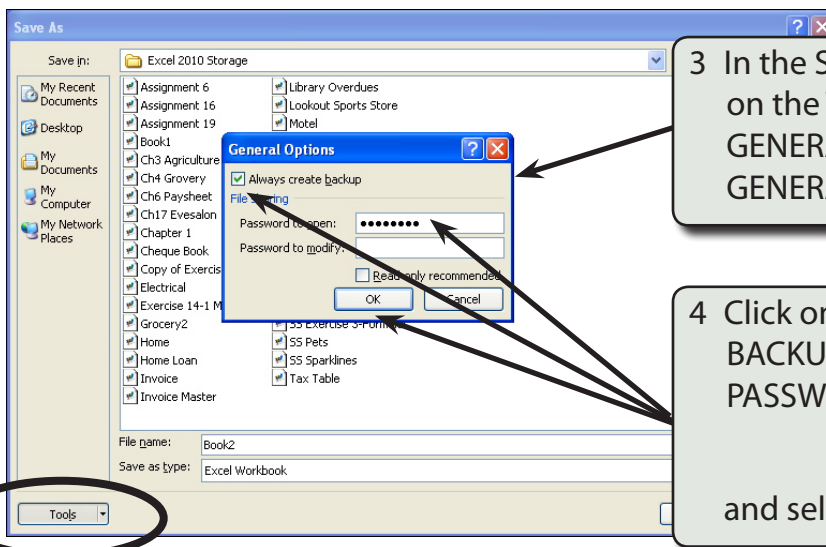
5 Information about charts is provided along with a list of related topics. Read through the information and look at some of the topics.

- 6 Close the HELP window by clicking in its CLOSE box
- 7 Try some searches of your own then close the HELP panel.

The Save Options

The SAVE OPTIONS can be used to instruct Excel to make a backup copy of the file each time it is saved, or to add password protection to the file.

- 1 Enter a few labels and values into a worksheet.
- 2 Click on the FILE tab and select SAVE or SAVE AS.



3 In the SAVE AS dialogue box click on the TOOLS button and select GENERAL OPTIONS to open the GENERAL OPTIONS dialogue box.

4 Click on the ALWAYS CREATE BACKUP check box then click in the PASSWORD TO OPEN box, enter:

security
and select OK.

- NOTE:**
- i The password will be displayed as bullets so that no-one else can see your entry.
 - ii You can also set a password to modify the file. In that case no-one would be able to change the file unless the password was entered.



5 Read the important note about passwords then re-enter the password to ensure that you have entered it correctly.

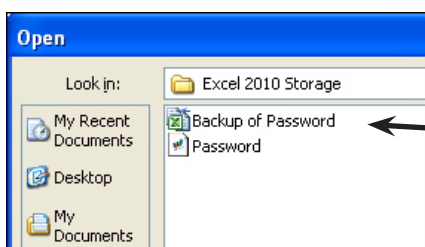
6 Click on OK to return to the SAVE AS dialogue box.

- 7 Enter the file name: PASSWORD and save the file in your STORAGE folder.
- 8 Close the file, then re-open it. You will be asked to enter the password.



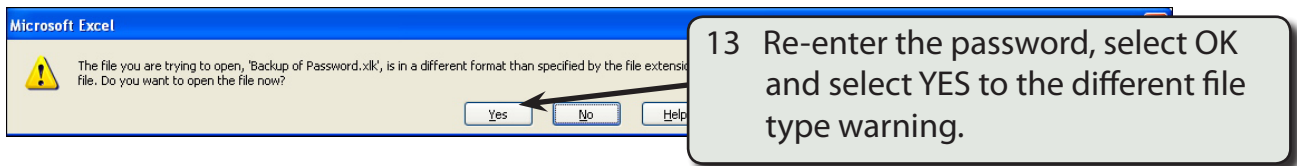
9 Enter: security and click on OK.

- 10 Add some more labels or values to your worksheet and click on the SAVE button in the QUICK ACCESS TOOLBAR to update the file.



11 Click on the FILE tab and select OPEN. You now have two copies of the file, PASSWORD and BACKUP OF PASSWORD.

- 12 Open the BACKUP OF PASSWORD file.



- 14 A copy of the file before your last update will be opened. Excel has kept a backup copy of your previously saved file before updating the file with new data. Both files have passwords.

- NOTE:**
- i **Passwords are case sensitive so if you use a mixture of upper and lowercase letters in the password you will need to remember where they have been used.**
 - ii **Always use a password that you will be able to remember. If you forget the password you will not be able to open the file again. It is a good idea to keep a record of a password in a safe place.**
 - iii **You can set the FILE SHARING to be READ-ONLY RECOMMENDED so that when the file is opened a dialogue box is displayed recommending the user to open the file as a READ-ONLY file. To save the file the user needs to select SAVE AS and enter a different name.**
 - iv **If you enter the password incorrectly you will receive a warning dialogue box. You will not gain access to the file until the password is entered correctly.**

Module 2 Project

Quantum Electronics

