CHAPTER 4

LABELS AND NAMES

InFocus

Labels and names are used to identify cells and ranges using a tag that is more meaningful than ordinary cell references such as **B6** or **C5:D11**. These names and labels can be used in formulas and in links between worksheets and workbooks to make the formulas easier to understand. They can also be used to identify specific print areas or to help you locate a specific place in a spreadsheet.

If you haven't worked on your workbook for a while, or have to work with someone else's, the clever use of labels and names will help you find your way around the workbook and understand the formulas.

In this session you will:

- √ gain an understanding of how labels and names are used
- ✓ learn how to create range names using existing text labels
- ✓ learn how to use range names in new formulas
- √ learn how to apply names to existing formulas
- ✓ learn how to create range names using the *Name* box
- ✓ learn how to use range names to select and navigate to ranges
- ✓ learn how to paste range names into formulas
- ✓ learn how to create constants in Excel
- learn how to create names from a selection in the worksheet
- learn how to create range names that are scoped to a specific worksheet
- ✓ learn how to use the range *Name Manager*
- ✓ learn how to paste a list of range names into the worksheet.

UNDERSTANDING LABELS AND NAMES

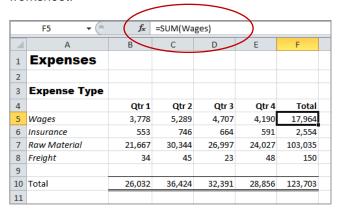
Labels are used to refer to individual cells or ranges of cells as an alternative to using cell references. **Names** are more descriptive than labels, but they serve the same purpose. For

example, in a formula that calculates profit, the profit column's formula may hold the formula **=***Income-Expenses*, which is more readable than **=***E12-E9*. Here are some other examples.

1

Labels

The term *label* usually refers to text that you have typed in a cell. If the text appears next to a continuous list of values, Excel sees the label as a 'tag' that represents that range of values. The label can then be used in formulas instead of direct cell references. If you have used numbers as 'labels', such as the year 2010, Excel allows you to define these as labels too. Note that labels can be used only within the same worksheet.



Here the label **Wages**, typed originally in A5, is being used in the formula in F5 to refer to the range B5:E5.

Similarly, the label **Qtr_1** could be used to refer to the cells in the range B5:B8.

2 Names

If you want to create a *tag* that refers to a range of cells holding values and text, or that you can use in formulas on other worksheets, you need to create a *Name*.

Names are like labels except that the name has to be specified against a particular range, and does not usually appear on the spreadsheet. Names can be used to refer to cells in other worksheets, in other workbooks, and can even be used to represent a fixed value rather than a range of cells. For example, if you need to use a *constant* value in your calculations, but don't want the value to appear in the worksheet in case it is accidentally changed, you can define a name and assign it a value. For example, *GST* could represent the value 10%.

The name **ExpenseTotals** is being created in the Name box to refer to the non-contiguous ranges A5:A8 and F5:F8.

This name can be used to re-select the ranges later, or to refer to the ranges from another part of the workbook.

Exp	ExpenseTotals • () fx =SUM(Wages)					
4	A	В	С	D	Е	F
1	Expenses					
2						
3	Expense Type					
4		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
5	Wages	3,778	5,289	4,707	4,190	17,964
6	Insurance	553	746	664	591	2,554
7	Raw Material	21,667	30,344	26,997	24,027	103,035
8	Freight	34	45	23	48	150
9						
10	Total	26,032	36,424	32,391	28,856	123,703
11						

Need to Know...

There are two important rules to follow when creating Names:

- 1. You can only use letters of the alphabet, numbers or the underscore character (_) in names. Spaces and other special characters such as &, * or % are not allowed.
- 2. Names must not begin with a number. Use a letter or an underscore as the first character of your name, for example, Year2008 or _2010.

CREATING NAMES USING TEXT LABELS

Excel assumes that there will be many occasions where the text typed in a worksheet describes the values to which it is adjacent. If you have typed a text label next to a continuous list of values, you

can use it as a *tag* to refer to the values. This can be done using the *Define Name* command in the *Defined Names* group on the *Formulas* tab of the *Ribbon*.

Try This Yourself:

- Before starting this exercise you MUST open the file E834 Labels and Names 1.xlsx...
- Click on the **Past 5 years**worksheet tab and spend a
 few moments studying the
 data
- Select the range **B6:B10**
- Click on the *Formulas* tab of the *Ribbon*, and click on the *Define Name* command in the *Defined Names* grouping to see the *New Name* dialog box

Notice how Excel has used the text label from B5 as the assumed name for the range...

Click on [OK] to accept the default settings

The new name will appear in the Name box...

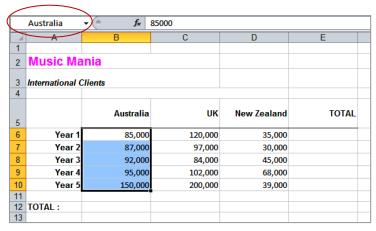
Repeat the above steps and create the following names:

<u>Name</u>	<u>Range</u>
UK	C6:C10
New_Zealand	D6:D10
Year_1	B6:D6
Year_2	B7:D7
Year_3	B8:D8
Year_4	B9:D9
Year_5	B10:D10











For Your Reference...

To create a name from an existing label:

- 1. Select the cell or range adjacent to the label
- Click on the Formulas tab and click on the Define Name command in the Defined Names grouping
- 3. Click on [OK]

Handy to Know...

 If there is a gap in the list or row of values, Excel will only include the values closest to the label. Therefore, if you have a gap in the desired range, you should formally assign the labels to a particular range, or use a name.

USING NAMES IN NEW FORMULAS

Once range names have been defined within a worksheet or workbook they can be used when *typing formulas*. Range names are stored within the workbook so that when a name is typed into a

formula Excel checks its internal listing. If the name is there, Excel will use it to reference the appropriate cells and calculate the formula.

Try This Yourself:

Same File Continue using the previous file with this exercise, or open the file E834 Labels and Names_2.xlsx...

- Click on cell B12
- Type =sum(Australia) and press Enter

If you have typed the name correctly the formula will now display a calculated result as though you had typed the formula in the normal way using cell references. If your formula contains an invalid name, then the error #NAME? will appear...

Type the following formulas:

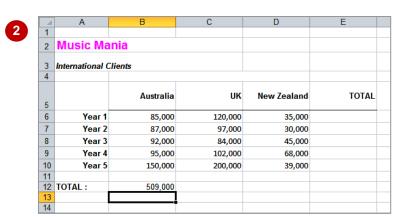
Cell	Formula

C12 = sum(UK)

D12 =sum(New_Zealand)



	Α	В	С	D	E
1					
2	2 Music Mania				
3	International (Clients			
4					
5		Australia	uk	New Zealand	TOTAL
6	Year 1	85,000	120,000	35,000	
7	Year 2	87,000	97,000	30,000	
8	Year 3	92,000	84,000	45,000	
9	Year 4	95,000	102,000	68,000	
10	Year 5	150,000	200,000	39,000	
11					
12	TOTAL:				
13					
14					





	Α	В	С	D	Е
1					
2	Music Ma	ınia			
3	International C	Clients			
4					
		Australia	UK	New Zealand	TOTAL
5					
6	Year 1	85,000	120,000	35,000	
7	Year 2	87,000	97,000	30,000	
8	Year 3	92,000	84,000	45,000	
9	Year 4	95,000	102,000	68,000	
10	Year 5	150,000	200,000	39,000	
11					
12	TOTAL:	509,000	603,000	217,000	
13					
14					

For Your Reference...

To use a range name in a new formula:

1. Type the formula in the normal way but type the range name in lieu of the range address

Handy to Know...

- If you attempt to type a name that Excel doesn't recognise, the #NAME? error message will appear in the cell.
- Range names are NOT case sensitive so you can type them in either upper- or lowercase.

APPLYING NAMES TO EXISTING FORMULAS

Range names are often defined within a workbook after many of the formulas have already been entered. It would be a pain to have to re-create the formulas using newly defined

range names. Fortunately, Excel allows you to *apply defined names to existing formulas* without having to edit or re-type the formulas into the workbook.

Try This Yourself:

Continue using the previous file with this exercise, or open the file E834 Labels and Names_3.xlsx...

- Click on *E6*, then type =SUM(B6:D6) and press
- Click on *E6*, and drag the fill handle at the bottom right, to *E12*
- Click on *E11* and press to delete the superfluous formula
- Select the range **A5:E12**
- 5 Click on the Formulas tab of the Ribbon, click on the drop arrow for Define Name in the Defined Names group and click on Apply Names
- Click on all of the names until they are selected, then click on **[OK]** to apply the selected names to formulas in the selected range
- 7 Click on the formulas in the worksheet and notice how names have been inserted in lieu of cell addresses







For Your Reference...

To apply names to existing formulas:

- 1. Select the range containing the formulas
- 2. Click on the drop arrow for **Define Name** in the **Defined Names** group and click on **Apply Names**
- 3. Select the names to apply and click on [OK]

Handy to Know...

 Even though some of the formulas in the example above already had names, these names have been re-applied to the formulas.
 The *Apply Names* command is also a handy way of refreshing range names.

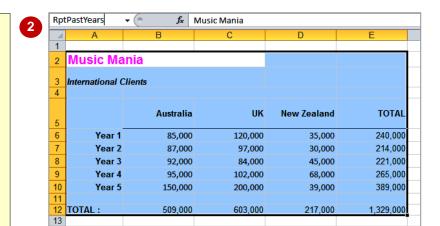
CREATING NAMES USING THE NAME BOX

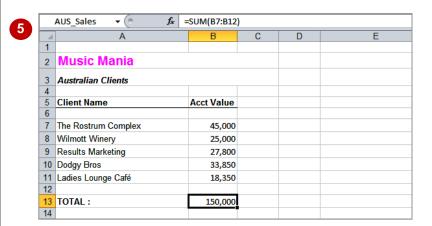
Names are defined to represent individual cells, ranges of cells, or specific values. Names can be used in formulas and to re-select cells. A quick way to create a name for a range is by selecting

the cell(s) and then typing the name in the *Name* **Box**. The *Name Box* is located below the toolbars and to the left of the *Formula Bar*.

Try This Yourself:

- Continue using the previous file with this exercise, or open the file E834 Labels and Names_4.xlsx...
- Click on **A2**, hold down
 Shift and click on **E12** to
 select the range **A2:E12**
- Click in the *Name* box (just above column *A*) and type **RptPastYears**
- Press Enter to create the name
- Click on the Australia worksheet tab and click on B13
- Click in the *Name* box, type **AUS_Sales** and press Enter
- 6 Repeat steps **4** and **5** and create the names as shown





6	<u>Worksheet</u>	<u>Cell</u>	<u>Name</u>	
	United Kingdom	B13	UK_Sales	
	New Zealand	B13	NZL Sales	

For Your Reference...

To use the *Name box* to *create range names*:

- 1. Select the range in the worksheet to name
- 2. Click in the Name box
- 3. Type the desired name and press Enter

Handy to Know...

 If you use the *Name box* and type in a name that already exists as a range name, Excel will think you want to navigate to that range and will position the cell pointer in that range.

USING NAMES TO SELECT RANGES

Names can be used in a variety of ways. They can be used to refer to a range of cells on which you want to perform a calculation. You can also use them to **reselect an area** easily. This means

that you can define ranges for printing or charting, for example, and return to them just by selecting their name. This is ideal when you need to print specific selections of cells.

Try This Yourself:

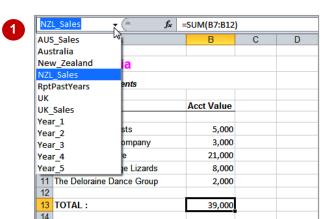
- Continue using the previous file with this exercise, or open the file E834 Labels and Names_5.xlsx...
- Click on the drop arrow of the *Name box* to see a list of names that have been created
- Click on *RptPastYears* to see select and move to this range

This selected range could now be used for a variety of tasks including copying, printing, charting, etc...

- Glick on the *Name box* drop arrow and click on *UK Sales*
- Click on the **Name box** drop arrow again and click on **Australia**

You can also use the Go To box and range names to navigate...

- Click on the *Home* tab of the *Ribbon* and click on *Find* & *Select* in the *Editing* group, then click on *Go To* to display the *Go To* dialog box
- 6 Click on **New_Zealand** and click on **[OK]**







For Your Reference...

To use range names to select ranges:

- 1. Click on the *Name box* drop arrow
- 2. Click on the desired range name

Handy to Know...

 Single-cell range names are a good way of navigating to specific locations in large and complex workbooks. For example, if you name the top cell of your budget data BudgetData you can use the Name box drop arrow or Go To to navigate to that specific location.

PASTING NAMES INTO FORMULAS

Range names are the perfect way of making more complex formulas easier to comprehend. You can type range names into formulas as the formula is created. But what happens if you are unsure of the range name or its spelling? Fortunately, Excel provides you with a facility where *range names can be pasted into formulas* directly from a list of valid names.

Try This Yourself:

Same

Continue using the previous file with this exercise, or open the file E834 Labels and Names_6.xlsx...

On the *Past 5 years* worksheet tab, click on *B10*

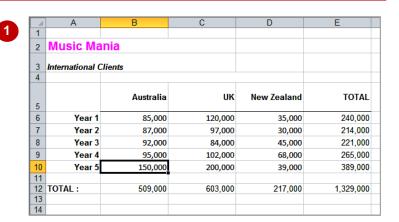
This is the last year of total sales for Australia and should be based on the total sales in the Australia worksheet...

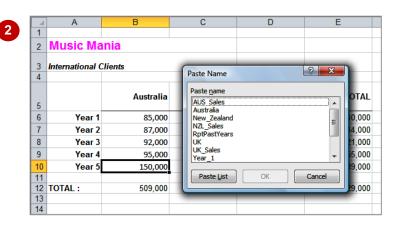
- Click on the Formulas tab of the Ribbon, click on Use in Formula in the Defined Names group, then select Paste Names to display the Paste Name dialog box
- Click on *AUS_Sales* and click on [OK] to have Excel build a formula for you
- Press Enter to accept the formula
- Repeat the above steps to create the formulas as follows:

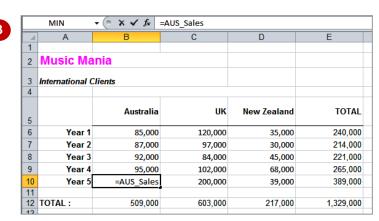
 Cell
 Formula

 C10
 =UK_Sales

 D10
 =NZL_Sales







For Your Reference...

To paste names into a formula:

- 1. Click in the cell where you want the formula
- Click on the Use in Formula command and select Paste Names
- 3. Click on the desired name

Handy to Know...

• You can also press [3] to display the **Paste Name** dialog box.

CREATING NAMES FOR CONSTANTS

If you have key values in your formulas that are unlikely to change, you can create a name to represent a value rather than a cell reference. This type of value is known as a *constant*

because it doesn't need to be changed. Constants are defined in the same way as range names, except that they are not directly entered into a cell in the workbook.

Try This Yourself:

Same

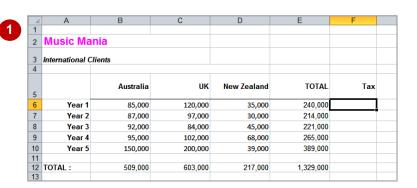
Continue using the previous file with this exercise, or open the file E834 Labels and Names_7.xlsx...

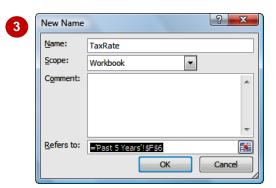
- On the *Past 5 years* worksheet, click on *F5* and type **Tax**, then press Enter
- Click on the *Formulas* tab on the *Ribbon*, then click on *Define Name* in the *Defined Names* group, to see the *New Name* dialog box
- Type TaxRate in Name and press Tab until Refers to is selected
- Type 10% and click on [OK]
- In *F6*, type =E6*TaxRate

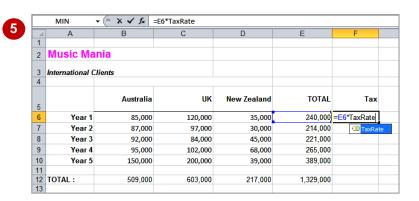
Notice how the name appears in a list of constants as you type...

- 6 Press Enter to complete the formula
- Click on *F6* again, move the mouse pointer to the fill handle and drag down to *F10*

Each formula in the filled cells will use the constant







For Your Reference...

To create a *constant range name*:

- On the Formulas tab, click on Define Name
 in the Defined Names group
- 2. Type the name for the constant
- Replace the address in *Refers to* with a value

Handy to Know...

 One advantage of creating a name for a value is that the value is not easily accessible, and therefore has some protection. To display the value in a worksheet, use the name of the constant in a formula, and format it to your requirements. For example, =TaxRate.

CREATING NAMES FROM A SELECTION

There will be times in a workbook when you have a whole lot of labels that are used to describe the contents of the adjacent cells. When this occurs you can select the cells and get Excel to pick up the *labels and assign them as names* to the cells to the right (the most common), the left, to the top, or to the bottom of the labels.

Try This Yourself:

Same File Continue using the previous file with this exercise, or open the file E834 Labels and Names_8.xlsx...

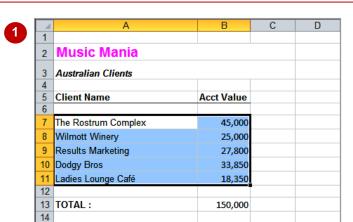
Click on the *Australia* worksheet tab and select the range *A7:B11*

The range must include a series of labels and this one does, in column A...

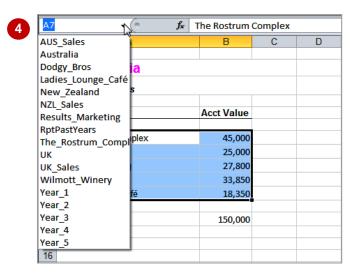
- On the Formulas tab of the Ribbon, click on Create from Selection in the Defined Names group, to see the Create Names from Selection dialog
- 3 Ensure that *Left column* is ticked (because that is where the labels are) and click on **[OK]**
- Click on the *Name box* drop arrow to see the new names
- Repeat the above steps for the following ranges:

Worksheet Range
United Kingdom A7:B11
New Zealand A7:B11

Click on the *Name box* drop arrow ▼ and click on *Edgecliff_Cellars* to navigate to that range







For Your Reference...

To create *names from a selection*:

- 1. Select the range (including the labels)
- 2. On the *Formula* tab of the *Ribbon*, click on *Create from Selection*
- Specify the location of the labels and click [OK]

Handy to Know...

 The Create from Selection command is typically used where the labels are in the first column and values are in the second. You must ensure that the labels are somewhere in the selected range.

SCOPING NAMES TO THE WORKSHEET

Unless otherwise specified, range names are **scoped to the entire workbook**. This means that range names can be accessed from any worksheet in the workbook. You can also **scope**

range names to the **worksheet**. This means that a range name will only be available to the worksheet in which it was created.

Try This Yourself:

- Before starting this exercise you MUST open the file E834 Labels and Names_9.xlsx...
- On the *Australia* worksheet tab, click on cell *B5*
- Click on the *Formulas* tab of the *Ribbon*, then click on *Define Name* in the *Defined Names* group to see the *New Name* dialog box
- Click on the drop arrow for **Scope** to see the current worksheet names
- 4 Click on *Australia* and click on [OK]

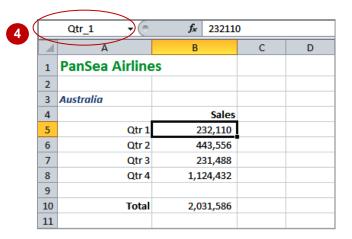
The new name, Qtr_1, appears in the Name box...

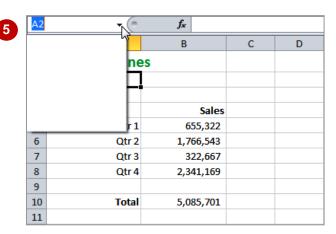
Click on the *United Kingdom* worksheet tab, then click on the *Name box* drop arrow

No names will appear because the only name we've created has been scoped to the Australia worksheet...

- Click on cell **B5**, then click on **Define Name** to see the **New Name** dialog box
- 7 Click on the drop arrow for **Scope**, click on **United Kingdom** and click on **[OK]**







For Your Reference...

To scope a range name to the worksheet:

- 1. Select the range in the worksheet
- 2. Click on the **Define Name** command
- 3. Click on the drop arrow **T** for **Scope** and click on the worksheet name

Handy to Know...

 Normally you can't have duplicate range names in a workbook. Since worksheet range names are scoped only to a worksheet it is possible to have the same range name duplicated across several of the worksheets.

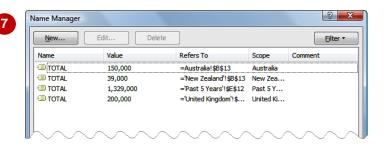
USING THE NAME MANAGER

Once you've got a dozen or more range names in a workbook, management of those range names becomes crucial. There will be times when you want to redefine a name, delete redundant names, or just see what is available. Fortunately, Excel's *Name Manager* allows you to do all of these things plus more.









For Your Reference...

Using the Name Manager.

- On the Formulas tab, click on Name
 Manager in the Defined Names group
- 2. Use the manager to delete, edit and filter the range names as appropriate

Handy to Know...

 Be careful of the filter because it is a <u>compound</u> filter. Each time you choose a filter option it builds from the previous filter to further refine your search. If you no longer want to work with a filtered names list, use the Clear Filter option to clear the filter out.

DOCUMENTING RANGE NAMES

The job's not done till the paperwork's finished – or so the saying goes. Excel allows you to paste a list of all range names and their locations into the workbook. This provides an invaluable

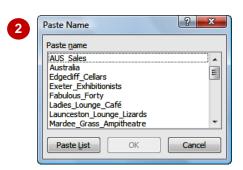
documentation tool so that you, and other users, can see what range names are in the workbook and what ranges they refer to.

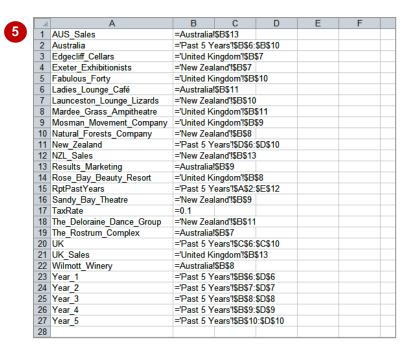
Try This Yourself:

Continue using the previous file with this exercise, or open the file E834 Labels and Names_11.xlsx...

- Click on the *Insert Worksheet* tab at the
 bottom of the workbook, to
 create a new worksheet
- On the Formulas tab of the Ribbon, click on Use in Formula in the Defined Names group, then click on Paste Name to see the Paste Name
- Click on [Paste List] to paste a list of range names into the worksheet
- Double click on the border between the headings for columns **A** and **B** to best fit column **A**
- 5 Click elsewhere in the worksheet to deselect the cells and see the changes more clearly







For Your Reference...

To paste a list of names into the worksheet:

- On the Formulas tab, click on Use in Formula in the Defined Names group
- 2. Click on Paste Names
- 3. Click on [Paste List]

Handy to Know...

 Be careful when creating a range name list as only those range names scoped to the workbook will be listed. Range names scoped to worksheets do not appear in the list.

Notes:

1