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# **SUMMARISING AND SUBTOTALLING**

Spreadsheets are often used to store data in a list – in rows and columns. Often there is a need to provide *grand totals* at the bottom and *subtotals* throughout the data – as a *summary*.

Summarising in a structured worksheet has traditionally been done by: typing the data in a logical sequence; creating a formula for the subtotal of each subsection and; creating a grand total at the bottom of the list.

Since many of the operations are routine, special features have been added to Excel to perform these steps for you.

#### In this session you will:

- ✓ learn how to create subtotals
- ✓ learn how to use a subtotalled worksheet
- ✓ learn how to create nested subtotals
- ✓ learn how to copy subtotals using Go To
- $\checkmark$   $\,$  learn how to use subtotals with autofilter
- $\checkmark$  learn how to create relative names to use with subtotals
- $\checkmark$  learn how to use relative names to create subtotals.

### **CREATING SUBTOTALS**

**Subtotalling** in Excel automatically outlines and totals data that is presented in a list. This is done by applying outlining to the list, adding a new row at each change in the data and applying the

**SUBTOTAL** function to perform the calculations. For this to work, the column headings must be unique, there should be no blank cells and the data must be sorted by the column to be grouped.



#### For Your Reference...

#### To create subtotals:

- 1. Click in the column to be grouped by
- On the *Home* tab, click on *Sort & Filter* 27.
   and click on <u>Sort A to Z</u>
- 3. On the *Data* tab, click on *Subtotal* 🔠
- 4. Select the *At each change in* column and click on **[OK]**

#### Handy to Know...

 If you realise that you don't want subtotalling, or have forgotten to sort the list first, you can click on *Undo Subtotals* in the *Quick Access Toolbar*. Alternatively, you can click on [Remove All] in the *Subtotal* dialog box.

# USING A SUBTOTALLED WORKSHEET

When a worksheet is subtotalled, **outlining** is applied to help group data and subtotals are created as well. You can therefore use all of the features of outlining to work with the worksheet – hiding detail if necessary to display only subtotals. Outlining provides *expand* and *collapse* buttons as well as level buttons that can be used to quickly display data at a specific level.



### For Your Reference...

To work with a subtotalled worksheet:

- Click on a level button 1 2 3 to show that level of detail for the entire list
- Click on *expand* + or *collapse* to work with individual subgroups of the list

#### Handy to Know...

• The subtotal figures are created using the *SUBTOTAL* function. The first parameter in this function is *9* which tells Excel to *SUM* the figures. The alternatives include calculating the average, maximum, minimum and product.

## **CREATING NESTED SUBTOTALS**

You can create quite complex subtotalling with more than one subtotal on a group. This involves **nesting the subtotals** that you create. The first step is to sort the data on the main grouping and then on the secondary grouping. In this example, the data is sorted first by *Bank* and then by *Date*. Within each bank grouping, the date subgroups will display a separate subtotal.

Yourself: inue using the previous file this exercise, or open the file Summarising_3.xlsx on any data cell then, on the tab, click on Sort & Filter and select Custom Sort on [Add Level]	Column Sort by Then by	Bank	Delete Level	Copy Level Sort On Values Values	Coptions O C C C C A	My d rder to Z to Z	lata has <u>h</u> eaders
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on the drop arrow for by and click on <b>Date</b> , then on <b>[OK]</b> abtotals already exist in the sheet, the Sort operation will to remove them first on <b>[OK]</b> on the <b>Data</b> tab, then click <b>ubtotal</b> to display the <b>otal</b> dialog box on the drop arrow for <b>At</b> <b>change in</b> , click on <b>Bank</b> lick on <b>[OK]</b> add a second subtotal on <b>Subtotal</b> and select in <b>At each change in</b>		A           1         Cheque           2         25879           3         100419           4         187419           6         361970           7         378970           8         9           9         32211           10         091747           11         109547           15         05879           15         05879           15         05879           15         05879           16         087679           17         055477           18	B           Date D           4/1/08 Ep           4/1/08 Sp           4/1/08 Sp           4/1/08 Total           5/1/08 Total           9/1/08 Total           10/1/08 Total           10/1/08 Total           10/1/08 Total           10/1/08 Total           10/1/08 Total           1/1/08 Total           5/1/08 Total           10/1/08 Total           5/1/08 Re           9/1/08 Re	C rawer elina Secondary Col pindles Co-operativ r Smile Medical Ser endall Holdings J Bloggs rime Fighters pindles Co-operativ endall Holdings elina Secondary Col elina Secondary Col elina Secondary Col rime Fighters al etty Bloggs etty Bloggs eraldine Hogan eginald George	D       Bank       ANZ       Bank of Melbourne	E Branch Mt Waverley Thornbury Cairns Cairns Cairns Sydney South Monbulk Monbulk Thornbury Cairns Mt Waverley Mt Waverley Mt Waverley Mt Waverley Monbulk Melbourne Hobart Melbourne Melbourne	F           Amount           \$130.00           \$70.00           \$170.00           \$370.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$50.00           \$512.234.50           \$544.00           \$3154.50           \$190.00           \$321.50           \$45.150           \$410.00           \$210.00           \$455.50           \$75.00           \$160.00           \$192.00
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#### For Your Reference...

#### To create nested subtotals:

- 1. Sort the data according to the primary and secondary groupings
- 2. Create the subtotal for the primary group
- 3. Create the subtotal for the secondary group, without replacing the current subtotals

#### Handy to Know...

If you select the option *Page breaks between groups* in the *Subtotal* dialog box,
 Excel will insert a page break at the start of
 each group so that you can print each on a
 separate page. It will also include vertical
 page breaks indicating how much of the data
 will fit across a portrait page.

### **COPYING SUBTOTALS**

Once you have created subtotals, there are a number of things that they can be used for. For instance, you may want to chart the subtotals or perform additional analyses on them. To protect the original data, it is wise to **copy the subtotals** to another location first. The trick is to use a special **Go To** feature to select only the subtotal cells, otherwise you'll end up copying the detail as well.



#### For Your Reference...

To select and copy the subtotals:

- 1. Select the range to copy
- On the *Home* tab, click on *Find & Select* Ar then select Go To Special
- 3. Click on Visible cells only and click on [OK]
- 4. Copy and paste the cells as usual

#### Handy to Know...

 You could copy the grand total when copying subtotals by including it in the selection.
 However, remember that only the *values* are pasted into the new worksheet not the *formulas*, so any changes you make to the subtotals in the copied version will not update the grand total.

# USING SUBTOTALS WITH AUTOFILTER

You may find a situation where you are working with a *filtered* list and want to create *subtotals* for a particular subset of the data. For example, if you want to group records within a particular date

range, you can create a custom autofilter first to list the required records and then apply subtotals to create the summary.



To use subtotals with a filtered list.

- 1. Sort the data as required
- 2. On the **Data** tab, click on **Filter T** and apply a filter
- Create subtotals as required

#### Handy to Know...

It is important to remember to sort the data in the required order prior to applying a filter and subtotals.

## **CREATING RELATIVE NAMES FOR SUBTOTALS**

An **absolute** range name is the most common type of range name. It refers to a specific cell or range as an **absolute address** (e.g. \$A\$4 or \$A\$2:\$D\$6). You can also create **relative** range names, where names move from one part of the worksheet to another with the formulas that refer to them. The position of the *cell pointer* when you create a relative reference is very important.

Try	This Yourself:	3 New Name
T File	Continue using the previous file with this exercise, or open the file E836 Summarising_6.xlsx Click on the <b>Statements</b> worksheet tab, then click on <b>F4</b> We want to create relative range names so that we can create a running balance using formulas for each change in customer	Name: Blance   Scope: Workbook   Comment: Image: Comment in the second seco
2	Click on the <i>Formulas</i> tab of the <i>Ribbon</i> , then click on <i>Name</i> <i>Manager</i> to display the <i>Name Manager</i> dialog box	Name Manager     P       New     Edit       Delete     Eilter •       Name     Value       Refers To     Scope       Comment
3	Click on <b>[New]</b> to display the <i>New Name</i> dialog box	Image: State in the state of the state
4	Type <b>Customer</b> in <i>Name</i> , press Tab three times and type =\$B:\$B in <i>Refers to</i> , then click on [OK]	Image: Second
5	Repeat steps 3 and 4 for the column range names:Debit=\$D:\$DCredit=\$E:\$EBalance=\$F:\$F	Refers to:
6	Repeat steps3 and4 for the rowrange names:This=4:4Previous=3:3Next=5:5	G
7	Click on <b>[Close]</b>	

### For Your Reference...

To create names:

- 1. Position the cell pointer (for relative names)
- Click on the *Formulas* tab, click on *Name Manager* and click on [New]
- 3. Type a *Name*
- 4. Type a cell *Reference* and click on [OK]

#### Handy to Know...

 To create just one range name, click on *Define Name* in the *Defined Names*  group on the *Formulas* tab of the *Ribbon*. This will display the *New Name* dialog box enabling you to create a single name.

# **USING RELATIVE NAMES FOR SUBTOTALS**

While range names are usually created to refer to a specific part of the worksheet, *relative range names* refer to a range relative to the position of the *cell pointer* at the time they were created. This makes them ideal for special types of formulas where you want the name to move with the formula. This example demonstrates how to use formulas and relative names to create subtotals.



### For Your Reference...

To use relative names in formulas:

- 1. Replace cell references with range names
- 2. Fill-in other cells as required

#### Handy to Know...

• The range names that you create will appear listed in the *Name Box* located to the left of the *Formula Bar*. By selecting the name from the list, Excel will highlight the related cells.