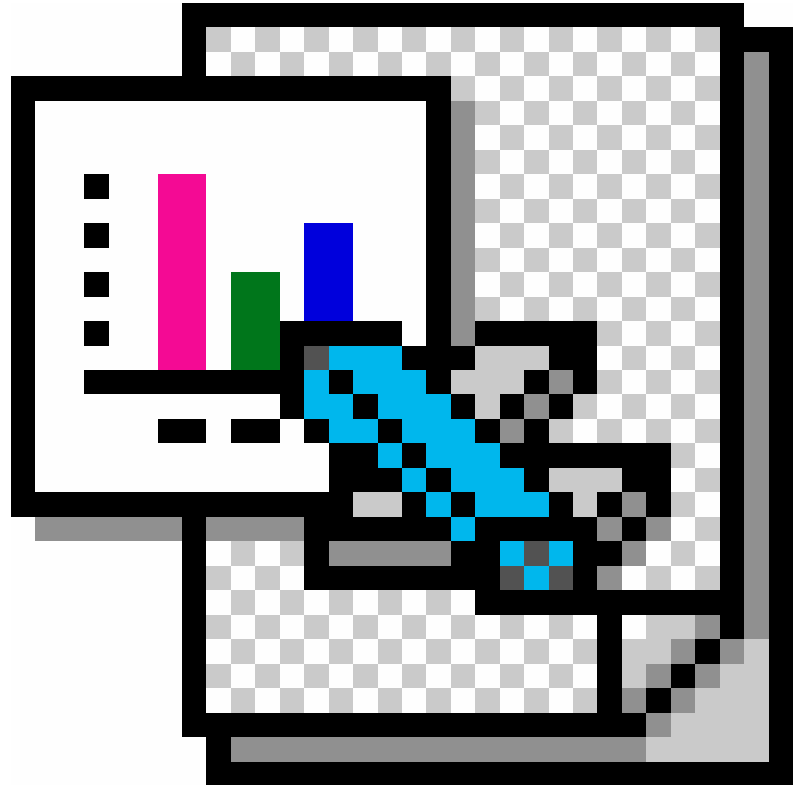




Queen Mary  
University of London

Computing  
Services

# Excel



## Data Presentation

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Computing Services  
February 12, 2003

These notes apply to  
Excel 97, 2000 and 2002

## Acknowledgement

The first sections on formatting and charting are based upon TUT47 and TUT49 by Nicholas Cook, University Computing Service, University of Leeds

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## Introduction

The main purpose of any spreadsheet is to manipulate and present numbers. However, numbers can mean little unless they are accompanied by a few important things:

- titles and other information explaining the reason for the data and how the data was acquired
- labels on individual numbers or sequences of numbers explaining what the numbers refer to
- formatting of the numbers themselves to make their meaning as clear as possible
- formatting of cells containing numbers to draw attention to important parts of the data

All these come under the general heading of *formatting*. We are not concerned here with the mathematical manipulation of numbers but with their presentation and visual emphasis.

Excel has a large range of very powerful formatting facilities that enable you to present numbers and text on your sheet precisely as you want. It also gives you some preset formats so that if you are not sure what combinations of formats are likely to work you can choose one that has been tested.

## Opening the Example File

1. Start Excel
2. Open the file `tut26.xls`, which is on the H: drive in the Excel folder:

|    | A                           | B  | C  | D  | E  | F      | G          |
|----|-----------------------------|----|----|----|----|--------|------------|
| 1  | Sales for VINO plc (1991/2) |    |    |    |    |        |            |
| 2  |                             |    |    |    |    |        |            |
| 3  | (Figures in 000's)          |    |    |    |    |        |            |
| 4  |                             |    |    |    |    |        |            |
| 5  |                             |    |    |    |    |        |            |
| 6  |                             | Q1 | Q2 | Q3 | Q4 | Actual | Sal Target |
| 7  | SALLY                       | 40 | 57 | 52 | 65 | 214    | 250        |
| 8  | ANN                         | 50 | 69 | 69 | 90 | 278    | 220        |
| 9  | RAY                         | 53 | 75 | 71 | 82 | 281    | 250        |
| 10 | JOHN                        | 44 | 59 | 38 | 70 | 211    | 200        |
| 11 |                             |    |    |    |    |        |            |

3. Save the file as `tut26` in the My Documents folder

## Simple Text Formatting

**Objective** To format text on the spreadsheet.

**Instructions** You will use the **Format** menu for nearly all of the formatting exercises which follow. In this exercise you will use the **Cells . . .** command.

**Comment** *Formatting text is very similar to most other Windows applications.*

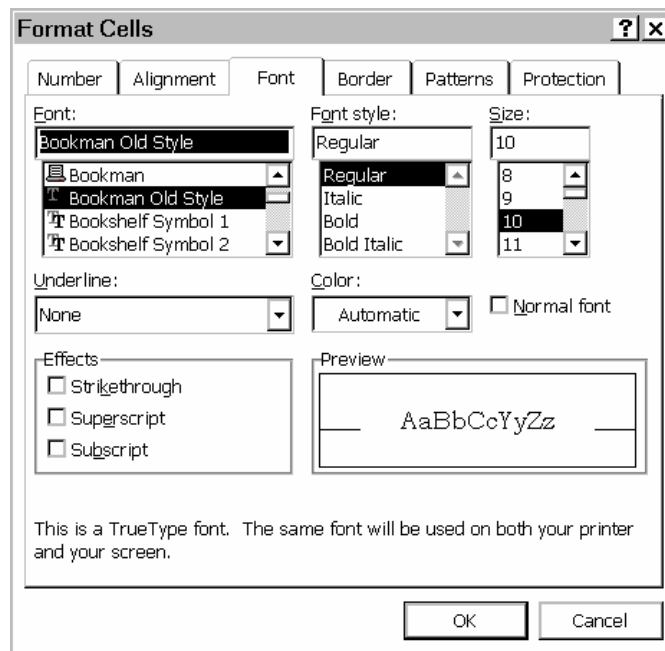
---

---

**Activity 1** Select cell A1 containing the title "Sales for Vino plc".

Select **Format** → **Cells** from the menu. The *Format Cells* dialog box will appear.


Click on the **Font** tab at the top of the box:



**Activity 2** This tab gives a complete set of options for formatting the text.

Whatever formatting you apply, you will see the result in the Preview box.

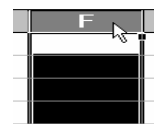
- In the **Font** box choose **Bookman Old Style**.
- Select **Bold** from the **Font Style** box.
- Select **16** from the **Size** box.
- In **Color**, select **Red**.

When you have finished click .

## Row Heights and Column Widths

- Objective** To alter the height of rows and the width of columns to enable better display of the data.
- Instructions** You will use the **Row>Height** and **Column>Width** commands from the **Format** menu, and also some mouse operations.
- Comments** *Excel always creates new spreadsheets with a default column width and row height. It is often better for presentation if these are altered to suit the contents of the rows and columns.*

**Activity 1** The information in column F is too big for the width of the column. Select column F by clicking the column header once.




**Activity 2** Select **Format** > **Column** > **Width** from the menu. The *Column Width* dialog box will appear:





In this dialog box you can specify the exact width you want your columns to be. It is, however, much easier to get Excel to calculate the best width for the column for you. Click  to close the box.

**Activity 3** Select **Format** > **Column** > **Autofit Selection** from the menu. Column F will be widened so that the text `Actual Sales` fits exactly.

**Activity 4** Row height can be altered in a similar way. A row will deepen automatically if you increase the font size in one its cells (you can see this by looking at Row 1). There is also a shortcut using the mouse.

Move the mouse to the row headers on the left hand side of the worksheet. On the line between row headers, the cursor changes to .

Move the cursor so that  is between rows 6 and 7. Drag halfway down row 7. A dotted line shows where the new base to row 6 will be. Release the button and row 6 is 50% deeper.

**Note** As you move the mouse across the column headers the pointer changes to . This provides the same shortcut for columns. In fact, if you now double-click it will resize the column to the left or the row directly above to be the best fit for the contents.

## Aligning Data in Cells

**Objective** To alter the position of data within and across cells.

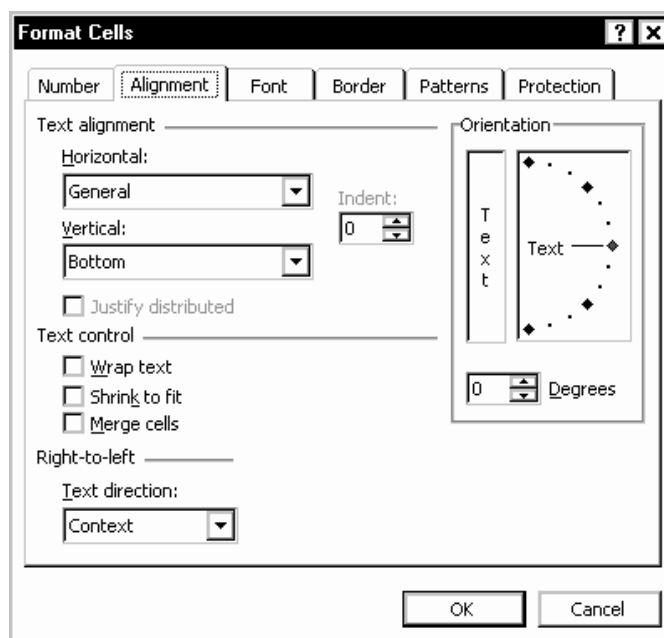
**Instructions** You will use the **Alignment** tab in the **Format Cells** dialog box and also a toolbar shortcut.

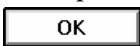
**Comments** *The ability to alter the width and height of cells means that the position of data within cells may end up not looking quite right. Excel provides facilities for altering this.*


**Activity 1** The quarterly titles would look better if they were centred in their cells rather than left aligned.

Select the range B6 : G6. Then select **Format**  **Cells** . . . .

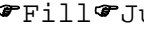
In the **Format Cells** dialog box select the **Alignment** tab:



**Activity 2** Select **Center** from the **Horizontal** drop-down list and **Center** from the **Vertical** drop-down list, and click . The titles should be centred in their cells.

**Activity 3** Select the range A1 : G1. This covers the range of columns that the table is in. Click the **Merge and Center** tool, . The text "Sales for Vino plc" is centred across the entire table.

**Activity 4** Select cell H7. Type the following: "**The sales figures on average are above the targets. The only exception in these results was due to illness**". Press **↵**.

The text is on one line and stretches out of view of the spreadsheet. Select the range H7 : J10. Then select **Edit** . The text is redistributed across the cells in the selection.

## Simple Number Formatting

**Objective** To format a range of numbers.

**Instructions** You will use the **Number** tab in the **Format Cells** dialog box.

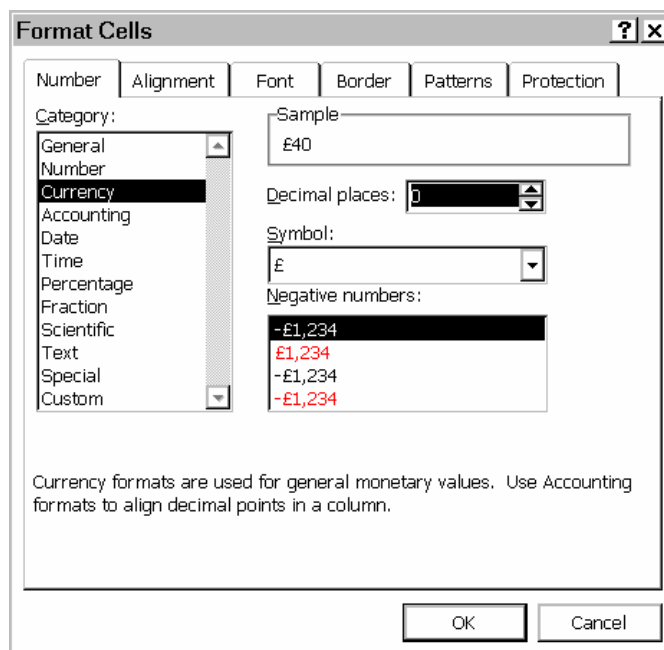
**Comments** Remember that numbers can have text formatting such as font, style, colour and alignment applied to them as well as special number formats.

**Activity 1** Select the range B7 : E10 by dragging the mouse diagonally from B7 to E10.

**Activity 2** Select **Format Cells** from the menu. The **Format Cells** dialog box will appear. If necessary, click the **Number** tab.

By default the dialog box will show you all the preset formats available in Excel. These have been grouped into categories so that you need only view the ones relevant to you. A sample corresponding to the current selection is at the top of the box.

**Activity 3** Click on **Currency** in the **Category** list box. The dialog box changes:



**Activity 4** The right hand side of the box shows the preset format alternatives available in the currently selected **Category**. In the case of **Currency**, the presets for negative values are shown. Set **Decimal Places** to 0, select the last preset format and click **OK**. Your table should now look like this:

|    |       | Q1  | Q2  | Q3  | Q4  | Ac |
|----|-------|-----|-----|-----|-----|----|
| 6  |       |     |     |     |     |    |
| 7  | SALLY | £40 | £57 | £52 | £65 |    |
| 8  | ANN   | £50 | £69 | £69 | £90 |    |
| 9  | RAY   | £53 | £75 | £71 | £82 |    |
| 10 | JOHN  | £44 | £59 | £38 | £70 |    |
| 11 |       |     |     |     |     |    |

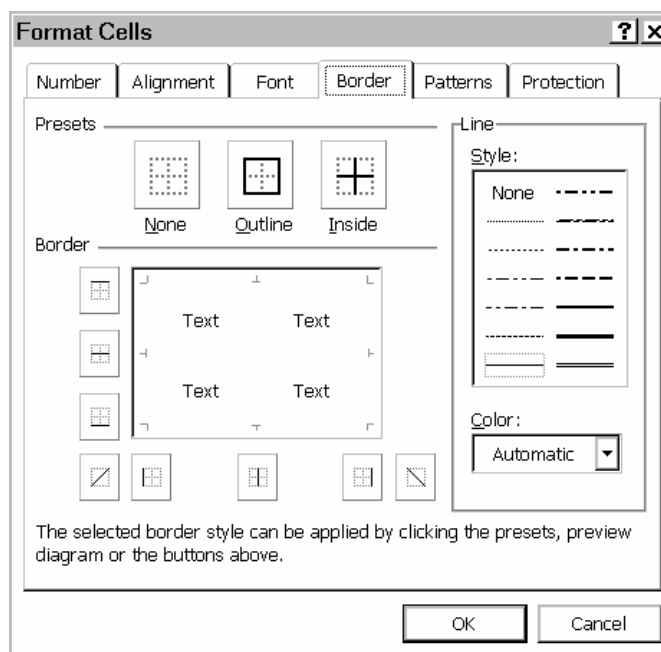
**More information on number formatting is in the Appendix**

## Formatting Cell Borders

- Objective** To add formatting enhancements to whole cells.
- Instructions** You will use the **Border** tab in the **Format Cells** dialog box.
- Comments** *Borders are particularly effective on spreadsheets for displaying tables.*

**Activity 1** Select the whole table A6 : J12.

Select **Format Cells** from the menu, and the **Border** tab from the dialog box. The dialog box will appear thus:



**Activity 2** To put a box around the whole table:

In the **Style** box, click on the medium thick line (second column, fifth row) and from the **Color** box select **Dark Green** (first row, fourth colour). You should see the line in the **Outline** box change with each complementary selection you make.

Click the **Outline** Preset.

Click  and a dark green thick border should appear around the selection. It will appear purple whilst the range is selected, but if you click outside the range it will be shown to be green.

**Activity 3** Select the range A6 : A12, containing the row labels. **Format Cells** **Border** again, and this time put a right hand border on the selection. Click .

In the same way put a medium weight dark green border on the following:

Right Hand border on the range E6 : E12

Bottom border under row 6 from A6 : J6

Bottom border under row 10 from A10 : J10

To see what the spreadsheet should look like at this point, turn to page 8.

## Formatting Cell Patterns

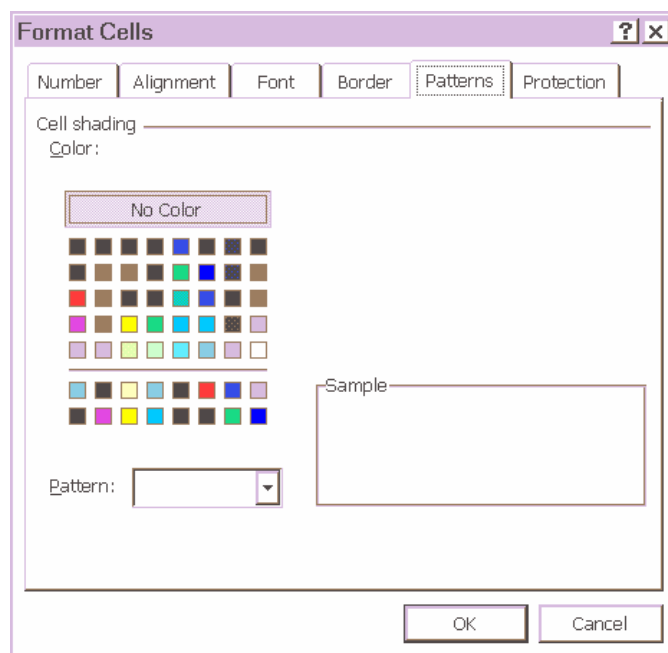
**Objective** To add further formatting enhancements to whole cells.

**Instructions** You will use the **Patterns** tab in the **Format Cells** dialog box.

**Comments** *Patterns can be effective on spreadsheets for drawing peoples' attention to particular data, or by making large tables of data easier to read. Colour used well can also add a lot of clarity to a presentation, but used badly it can be distracting and unhelpful.*

**Activity 1** Select the range F6 : F10.

Choose **Format Cells** from the menu, and the **Patterns** tab from the dialog box to display:



**Activity 2** The following illustrates the use of the **Patterns** dialog box.

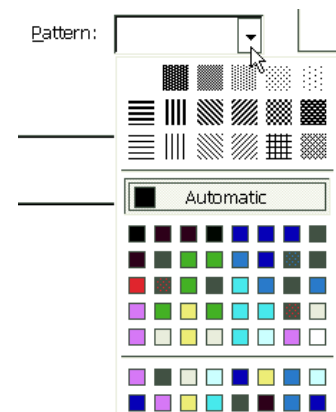
In the **Color** palette click yellow.

Click the **Pattern** drop-down arrow and select one of the striped patterns from the top half. The sample box will now show a black pattern.

Open the **Pattern** palette list box again, select click blue from the lower half of the palette and click

**OK**.

The yellow background and blue stripes pattern is put into the background of the cell, but has now made the text almost unreadable. This is the danger of badly chosen colour. You will correct this in the next task.



## Deleting and Copying Cell Formats

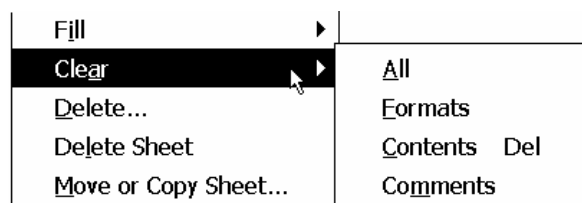
**Objective** To delete a set of formats from a cell without deleting the cell contents and to copy a set of formatting enhancements from one set of cells to another.

**Instructions** You will use **Copy**, **Paste Special** and **Clear** from the **Edit** menu.

**Comments** *It is often more convenient to copy an existing set of formats from one cell to another than to reformat the new cell. It is also useful to be able to remove a cell's formatting without removing the entire cell.*

**Activity 1** Select the range F6 : F10

Select **Edit** → **Clear** from the menu. A submenu appears:




Click on the word **Formats**. All formatting is removed from the cells.

**Activity 2** The borders, alignment and currency formats that were originally applied to cells F6 and F10 have been deleted. You can put these back manually but there is a simpler way.

Select the range D6 : D10.

Click **Format Painter**, , on the Standard (top) toolbar.

An active dotted box appears around the selected range, and the cursor changes to .

Now select the range F6 : F10. When you release the mouse button the range F6:F10 will have the same formatting as the range D6:D10.

Result of Formatting Cell Borders

|    | A                                  | B   | C   | D   | E   | F            | G      | H                               | I | J |
|----|------------------------------------|-----|-----|-----|-----|--------------|--------|---------------------------------|---|---|
| 1  | <b>Sales for VINO plc (1991/2)</b> |     |     |     |     |              |        |                                 |   |   |
| 2  |                                    |     |     |     |     |              |        |                                 |   |   |
| 3  | (Figures in 000's)                 |     |     |     |     |              |        |                                 |   |   |
| 4  |                                    |     |     |     |     |              |        |                                 |   |   |
| 5  |                                    |     |     |     |     |              |        |                                 |   |   |
| 6  |                                    | Q1  | Q2  | Q3  | Q4  | Actual Sales | Target |                                 |   |   |
| 7  | SALLY                              | £40 | £57 | £52 | £65 | 214          | 250    | The sales figures on average    |   |   |
| 8  | ANN                                | £50 | £69 | £69 | £90 | 278          | 220    | are above the targets. The only |   |   |
| 9  | RAY                                | £53 | £75 | £71 | £82 | 281          | 250    | exception in these results was  |   |   |
| 10 | JOHN                               | £44 | £59 | £38 | £70 | 211          | 200    | due to illness                  |   |   |
| 11 |                                    |     |     |     |     |              |        |                                 |   |   |
| 12 |                                    |     |     |     |     | 984          | 920    |                                 |   |   |

## Using the Formatting Toolbar


**Objective** To use the formatting toolbar instead of some of the menu commands.


**Instructions** You will use the buttons on the second toolbar at the top of your screen.

**Comments** *Toolbars are often much quicker and easier to use than menus, and the formatting toolbar is especially useful if you are doing a lot of formatting on your spreadsheet all at once.*

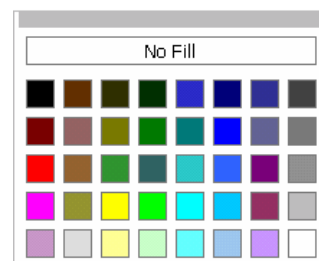
**Activity 1** At the top of the screen you will see two toolbars. The upper one is known as the *Standard Toolbar*. The other is called the *Formatting toolbar*:





**Activity 2** Select the range A7:A10 with the row labels in, and click on *Italics*, . The contents of the selected cells all become italicised.

**Activity 3** Select the range G6:G12 and click on . A palette of colours appears. You can tear off the palette by dragging it down into the worksheet.

Choose the light grey colour (last row, second column). The cells are shaded light grey.



**Activity 4** Select the data in the two columns *Actual Sales* and *Target*, range F7:G12. Click on the *Currency* tool, . The selected cells take on a currency format with two decimal places. If ##### appears in a cell, increase the column width.

**Activity 5** Select the original data in the range B7:E10. Click on *Decimal increase*, , twice to put two decimal places onto the figures so that all the numbers are formatted identically.

## Finishing off

After all your formatting your spreadsheet should look something like the one below:

|    | A                                  | B       | C       | D       | E       | F            | G        | H  | I | J | K |  |
|----|------------------------------------|---------|---------|---------|---------|--------------|----------|--|---|---|---|--|
| 1  | <b>Sales for VINO plc (1991/2)</b> |         |         |         |         |              |          |  |   |   |   |  |
| 2  |                                    |         |         |         |         |              |          |  |   |   |   |  |
| 3  | (Figures in 000's)                 |         |         |         |         |              |          |  |   |   |   |  |
| 4  |                                    |         |         |         |         |              |          |  |   |   |   |  |
| 5  |                                    |         |         |         |         |              |          |  |   |   |   |  |
| 6  |                                    | Q1      | Q2      | Q3      | Q4      | Actual Sales | Target   |  |   |   |   |  |
| 7  | SALLY                              | £ 40.00 | £ 57.00 | £ 52.00 | £ 65.00 | £ 214.00     | £ 250.00 | The sales figures on average are above the targets our sale team set. The only exception in these results was due to illness |   |   |   |  |
| 8  | ANN                                | £ 50.00 | £ 69.00 | £ 69.00 | £ 90.00 | £ 278.00     | £ 220.00 |  |   |   |   |  |
| 9  | RAY                                | £ 53.00 | £ 75.00 | £ 71.00 | £ 82.00 | £ 281.00     | £ 250.00 |  |   |   |   |  |
| 10 | JOHN                               | £ 44.00 | £ 59.00 | £ 38.00 | £ 70.00 | £ 211.00     | £ 200.00 |  |   |   |   |  |
| 11 |                                    |         |         |         |         |              |          |  |   |   |   |  |
| 12 |                                    |         |         |         |         | £ 984.00     | £ 920.00 |  |   |   |   |  |

Save the workbook as FORMDONE in the folder **My Documents** and then close it.

## Charting

Charting is one of the clearest methods of presenting bulk numerical data.

There are two main reasons for drawing charts:

- as part of some data analysis so that you can see more clearly what the numbers mean.
- to present to other people.

Excel has a range of 2-D and 3-D Standard chart types. All of these types have sub-types. There is also a range of built-in Custom types. Altogether, the chart types provide a large range of graphs appropriate to analysis and presentation.

The exercises that follow give practice in creating and changing a chart.

## Opening the Example File

Open the file `tut28.xls` in the `Stu` directory (see page 1). The file will load as shown below.

|    | A                                  | B            | C            | D            | E            | F                   | G             | H            | I   |
|----|------------------------------------|--------------|--------------|--------------|--------------|---------------------|---------------|--------------|-----|
| 1  | <b>Sales for VINO plc (1991/2)</b> |              |              |              |              |                     |               |              |     |
| 2  |                                    |              |              |              |              |                     |               |              |     |
| 3  | (Figures in 000's)                 |              |              |              |              |                     | <i>Bonus</i>  |              | 15% |
| 4  |                                    |              |              |              |              |                     |               |              |     |
| 5  |                                    |              |              |              |              |                     |               |              |     |
| 6  |                                    | <i>Q1</i>    | <i>Q2</i>    | <i>Q3</i>    | <i>Q4</i>    | <i>Actual Sales</i> | <i>Target</i> | <i>Bonus</i> |     |
| 7  | <i>SALLY</i>                       | £40.00       | £57.00       | £52.00       | £65.00       | £214.00             | £250.00       | £32          |     |
| 8  | <i>ANN</i>                         | 50.00        | 69.00        | 69.00        | 90.00        | 278.00              | 220.00        | £42          |     |
| 9  | <i>RAY</i>                         | 53.00        | 75.00        | 71.00        | 82.00        | 281.00              | 250.00        | £42          |     |
| 10 | <i>JOHN</i>                        | 44.00        | 59.00        | 38.00        | 70.00        | 211.00              | 200.00        | £32          |     |
| 11 | <i>Average</i>                     | <i>46.75</i> | <i>65.00</i> | <i>57.50</i> | <i>76.75</i> |                     |               |              |     |
| 12 |                                    |              |              |              |              | £984.00             | £920.00       |              |     |
| 13 |                                    |              |              |              |              |                     |               |              |     |

Save the file as `tut28` in **My Documents**.

## Creating a New Chart

**Objective** To create a new chart in a separate worksheet from the data.

**Instructions** You will use **Chart** from the **Insert** menu to invoke the Chart Wizard.

**Comment** *In the last step of the Chart Wizard, you decide whether the chart is to be created in a separate sheet or is to be embedded in the current sheet.*

---

**Activity 1** On the sheet select the range A6 to D10. From the Insert menu choose Chart. The Chart Wizard dialog box will appear:

**Activity 2** Follow through the Chart Wizard steps, filling the options in as given below:

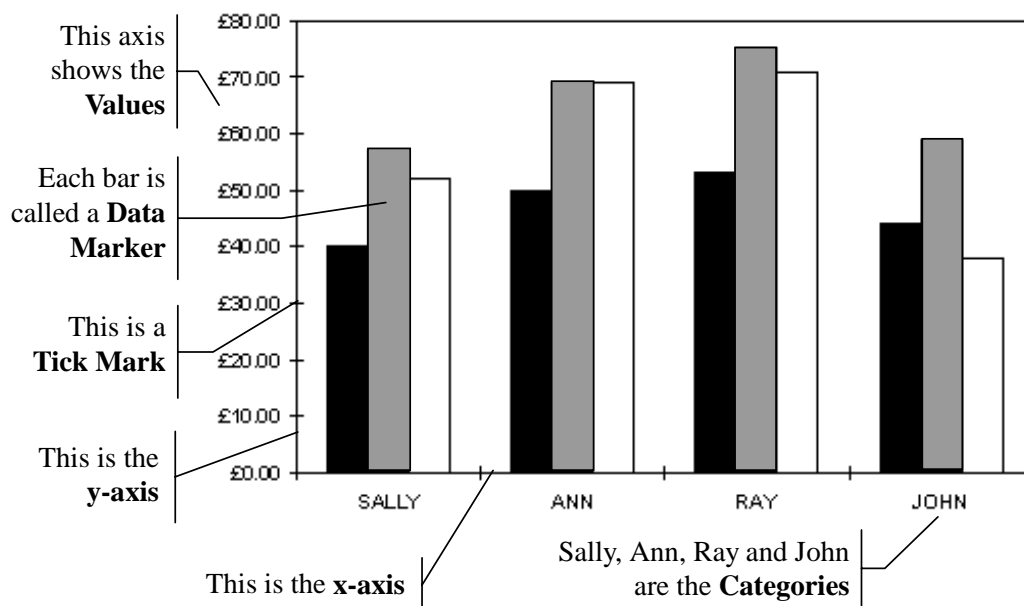
**Step 1** Select the Column chart type. Click .

**Step 2** Check that the Data Series is correct. You can, if necessary, reenter that data range by dragging through the range on the sheet. Click .

**Step 3** No changes here, so click .

**Step 4** Click As new sheet and click .

Your chart should look like this:




The exercises that follow show how to use menus and toolbars to change some of the options set via the Chart Wizard.

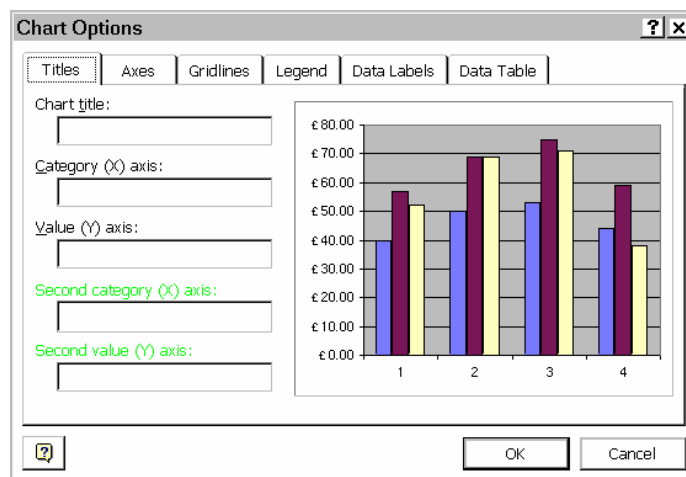
## Adding Titles and Labels


**Objective** To add a title and axes labels to the chart and then edit them


**Instructions** You will use the **Titles** tab on the **Chart options** dialog box.


**Comment** *Charts, like numbers, will be meaningless unless there is information on what the chart is about and what the elements of the chart are supposed to represent.*

**Activity 1** Select Chart  Chart Options from the menu . . . The following dialog box will appear.



**Activity 2** Enter the following into the first three boxes: Title, X Axis and Y Axis. Click . You could enter here the final title that you want but the point of this exercise is to change them on the sheet. You will be returned to the chart worksheet, only there will now be three titles on it.

**Activity 3** Click on the text **Title** at the top of the chart. It should appear surrounded by a grey border and little black squares. The word “Chart Title” should also appear in the cell reference section of the formula bar. If you start typing, the text you type in the formula bar will replace the text on the sheet. Type the following title: **Graph of Sales per Region for Each Sales Rep**. What you type will appear in the formula bar as you type it. When you click elsewhere on the chart or press **<Enter>** the title will take on the text you have just typed in. 

**Activity 4** Now click once on the X-Axis label. Notice that the mouse cursor changes to an I-Beam text editing cursor as you pass it across the X. Click on the X again, and you will notice the blinking text cursor that signifies you are editing text. Press the Delete or backspace key, , as appropriate to delete the X, and then type **Sales Reps**. When you have finished click on any other part of the chart.

**Activity 5** This time select the Y-Axis label. Notice that the text, "Y axis", is rotated 90 degrees alongside the Y axis. If you start typing the text will be replaced by what you are typing. However, click on the Y again, just like you did for the X-axis. The Y swivels round and appears horizontally with a blinking I-Beam cursor alongside it. Delete the Y and type the following text: **Sales in Thousands**. When you have finished click anywhere outside the editing area. The text appears alongside the Y axis, rotated 90 degrees.

## Modifying a Chart Legend

**Objective** To modify the legend to the chart that informs the reader what the different data series are - i.e. what the different colours refer to.

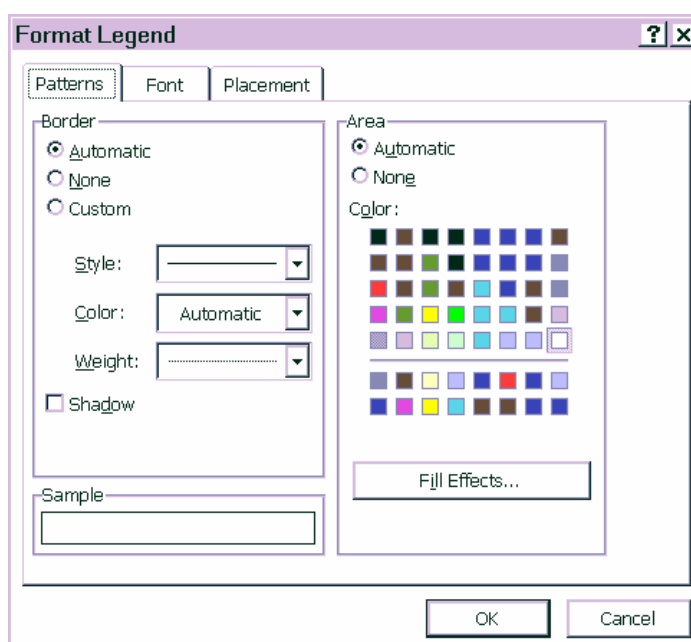
**Instructions** You will use the **Legend** tab on the **Chart Options** dialog box.

**Comment** *Most charts are plotted with more than one set of data, the purpose of the chart often being to compare one set of data against another. It is therefore essential to label the different sets of data. You do this using a legend.*

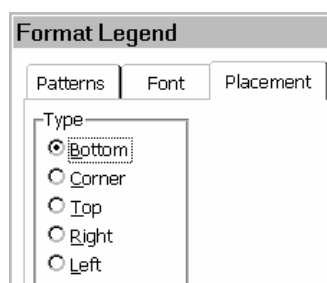
**Activity 1** Select the legend on the right hand side of the chart:



**Activity 2** Choose **Format > Selected Legend...** from the menu. The **Format Legend** dialog box appears:



This box defines everything for the legend box, including the border and the patterns behind it. Patterns will be discussed in more detail later. For now, just click the tab marked **<Placement>**. This tab defines where the legend is positioned on the graph. Select **Bottom**:



Click **OK**. Your legend should appear in a long thin box just underneath the X-axis.

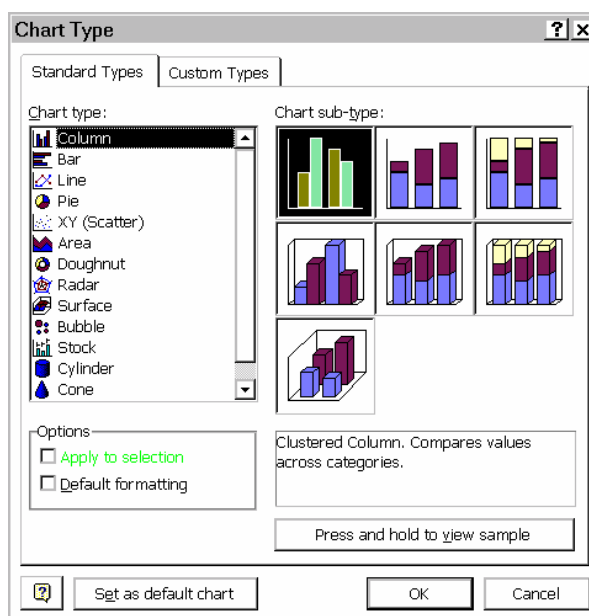
## Changing the Chart Type

**Objective** To change the type of chart plotted whilst using the existing set of data.

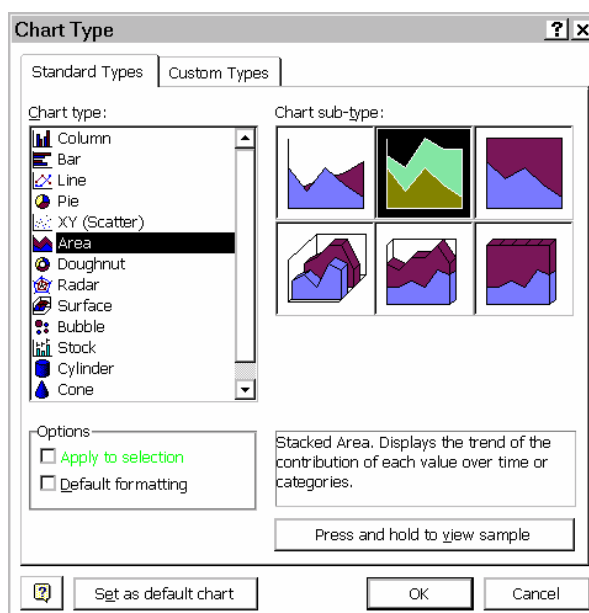
**Instructions** You will use the **Chart Type . . .** command from the **Format** menu.

**Comment** *Different graph types are useful for different kinds of data or for different emphasis on the data.*

**Activity 1** Select **Chart** → **Chart Type . . .** from the menu. The following dialog box appears showing the types available:



Select the Chart Type Area:

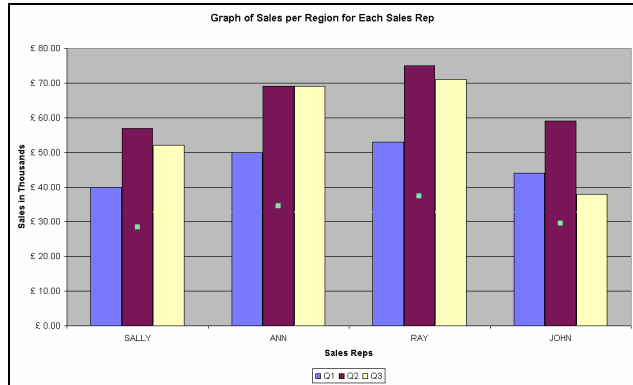


**Activity 2** Select the second subtype (Stacked Area) and click **OK**. The graph alters to show an area graph. Note that the Y axis has altered its scale for the new graph. Type 2 Area graphs stack data to display the cumulated totals for each category over time. Before continuing, return the chart to the 2-D column type you originally had by going back to the **Chart Type . . .** dialog box.

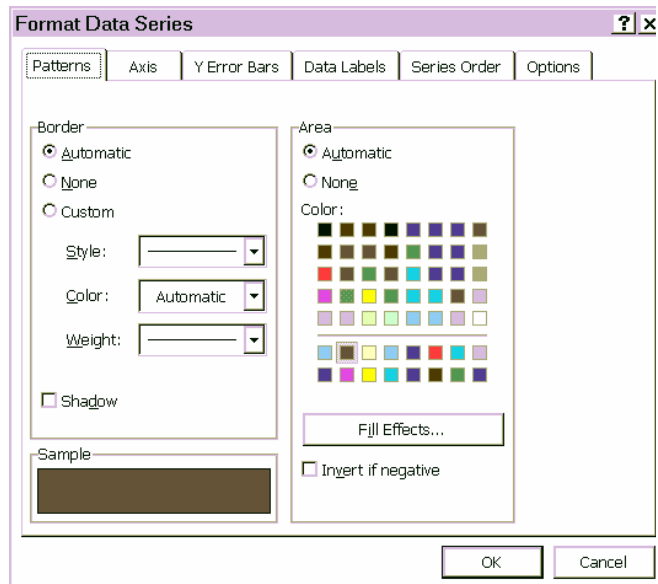
# Editing the display of the data

- Objective** To alter the patterns and format of the series that are displayed.
- Instructions** You will use the **Selected Data Series** command from the **Format** menu.
- Comments** You may want to replace colours with patterns for a black and white printer, or to change the emphasis of data.

**Activity 1** Click once on one of the purple columns. Little boxes will appear on all the purple columns:



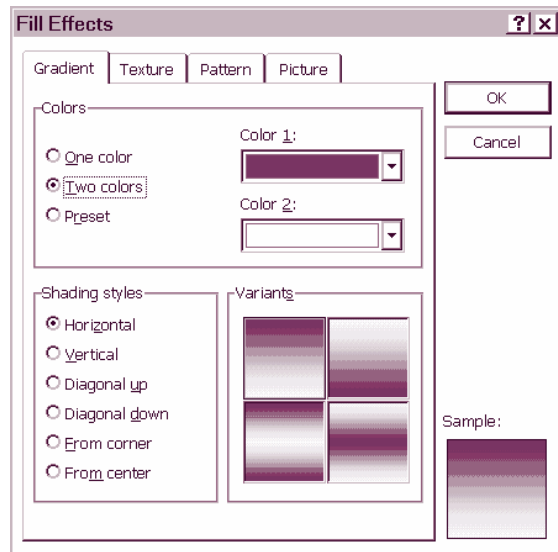
Then select **Format** > **Selected Data Series...** from the menu. The **Format Data Series** dialog box will appear:



This lets you alter the colours and patterns for the borders and fills of the columns.

**Activity 2** In the **Area** section select the white colour box under the **Color:** section. The **Sample** box should turn white.

**Activity 3** Now click on the **Fill Effects...** button. Make your choice of **Gradient**, **Texture**, or **Pattern** fill. It is also possible to use a picture as a fill.



**Activity 4** Click **OK**. Your change of fill is implemented on the Q2 data series.

**Activity 5** Now try changing the other two data series to be black and white but with different patterns. Notice that the legend records the change in patterns as you do them.



## Editing The Plotted Data

**Objective** To alter the data that you actually want plotted on the chart.

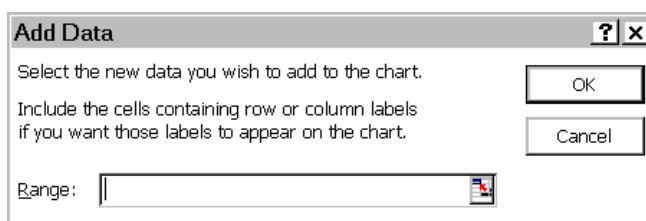
**Instructions** You will use the **Add Data** command from the **Chart** menu.

**Comment** *It is sometimes the case that you either want to add an extra series to what you are plotting, or else you want to use the format for the current chart to plot a new set of data with. To do this you change the Data Series you plot.*

---

---

**Activity 1** Select Chart ➤ Add Data to display:



**Activity 2** Click on the **<Sheet1>** tab at the bottom of the window to take you back to the worksheet. Select the range **E6:G10**. When you have done that click .

**Activity 3** You will have noticed that the Y-axis is now unhelpful as it still has the settings we gave it in the previous exercise. Double click on the Y-axis and reset all the Auto check boxes.

The chart as it stands actually isn't terribly informative. One alternative is to change it's subtype to a stacked column chart. That way you would still get information about the separate quarters, but the columns would relate better to the lines.

**Activity 4** Choose Chart ➤ Chart Type. Choose the second column subtype - the stacked one - and click . The whole chart is altered to become a stacked column chart.

## Using the Chart toolbar


**Objective** To use the Chart toolbar to make changes

**Instructions** You will use some of the tools on the Chart toolbar

**Comment** *The Chart toolbar provides a set of shortcuts to achieve common charting tasks*

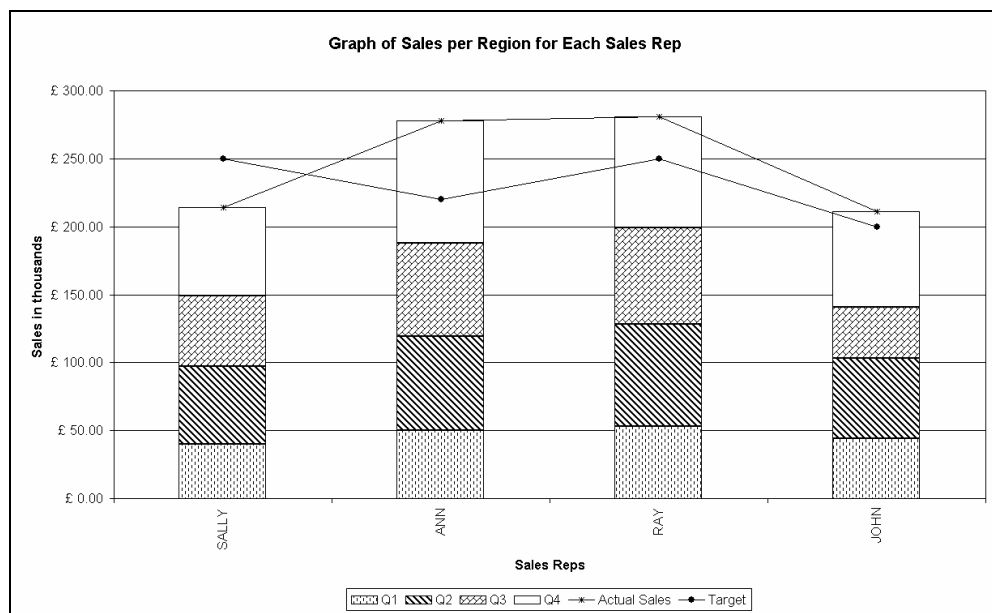
**Activity 2** Click with the right mouse button on any toolbar and choose Chart from the list of toolbars displayed. The Chart toolbar appears:



**Activity 1** Select the *Actual Sales* series by clicking on it once with the mouse. A box will appear in each of the *Actual Sales* columns on the chart. Now click the drop down arrow on the Chart Type tool, . A palette of possible chart types appears. Select the 2-D line chart (4th down in the left hand column).

The chart changes so that the *Actual Sales* form a line chart over the top of the column chart. Now select the *Target Sales* series and do the same for that.

The chart will now appear as follows:



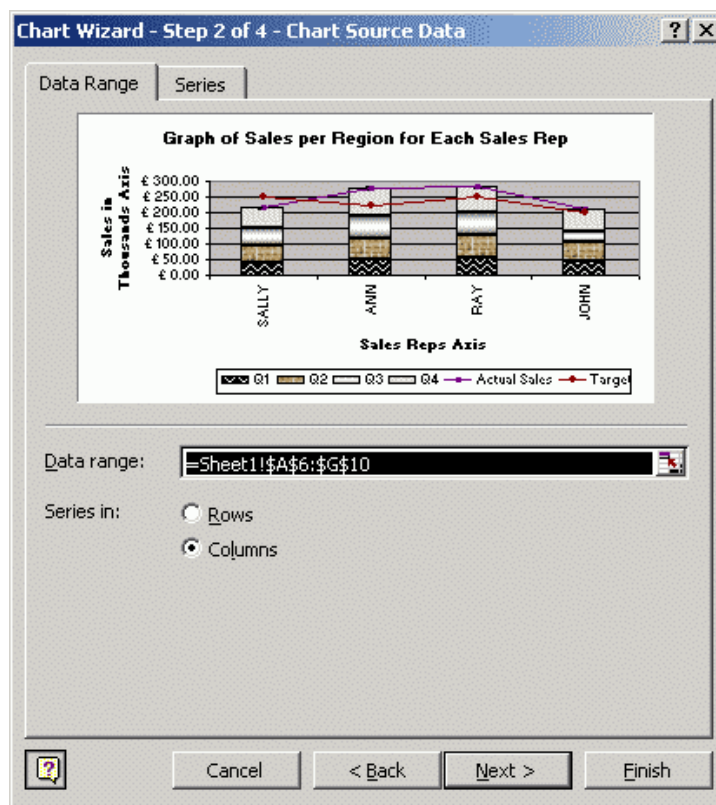
## Changing Data Orientation

**Objective** To change the way the data is plotted on the chart to give a different emphasis.

**Instructions** You will use the **Chart Wizard** to alter the data you are plotting.

**Comments** *You are now going to alter the chart so that it displays the data by quarter rather than by sales rep. This will give a feel for what is happening to the sales over time.*

**Activity 1** Click on the Chart Wizard button. Then click **Next** to display:



**Activity 2** Use the mouse to drag-select the range A6 : E11 (you may need to move the dialog box in order to see what you are doing).

**Activity 3** In the **Series in:** section click the **Rows** radio button. This will put the quarters on the X-axis with the Sales Reps as the different series. Click **Finish**. You will be taken back to the chart sheet with stacked columns representing the quarterly totals and a single line representing the average for each sales rep.

Before continuing, change the colour of John's column to a black and white pattern, change the chart back to unstacked columns and reinstate the Average series as a separate line.

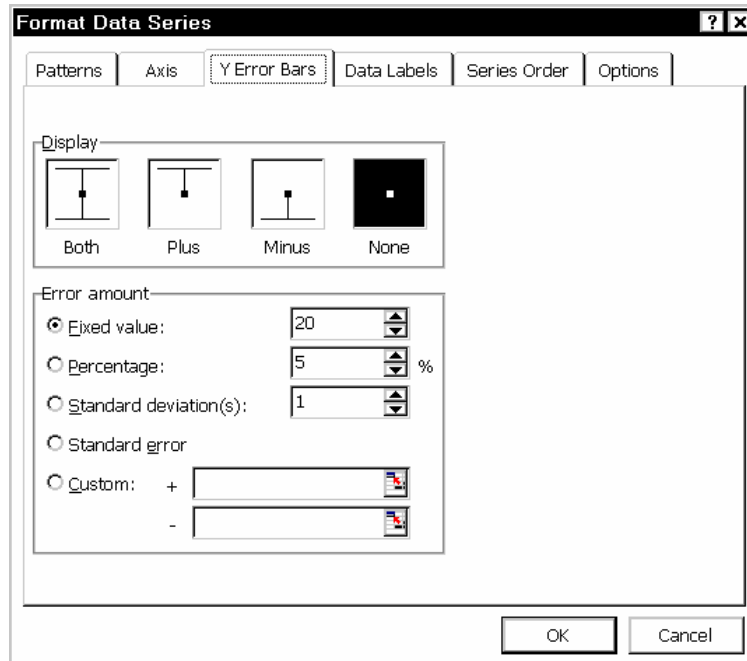
## Adding error bars

**Objective** To add error bars to the data plotted on the chart.

**Instructions** You will use the **Selected Data Series** command from the **Format** menu.

**Comments** *Excel allows some analysis of the data the chart display – error bars show possible error amounts in a data series.*

**Activity 1** Click once on John’s data series to select it. Choose **Format** → **Selected Data Series** from the menu, then click the **Y Error Bars** tab:



**Activity 2** Set **Display** to **Both**, set **Percentage** to 5 and click **OK**

## Adding a Trendline

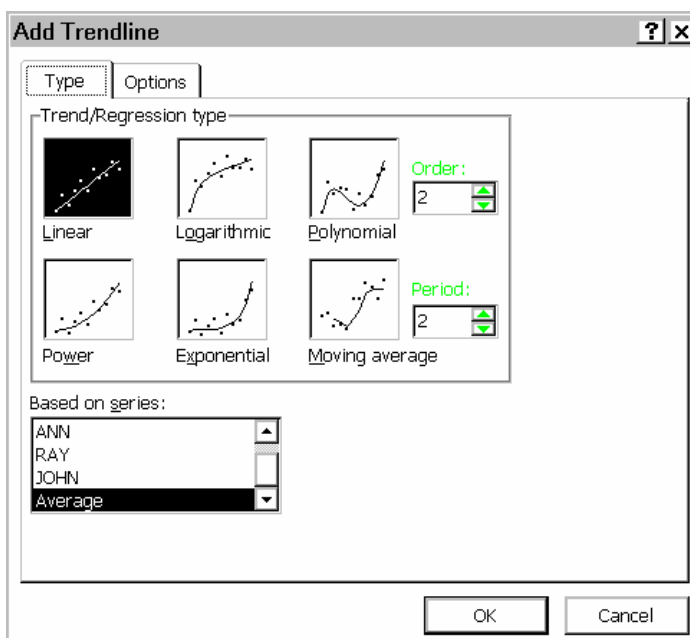
**Objective** To add a simple regression line to the data plotted on the chart.

**Instructions** You will use the **Trendline** command from the **Insert** menu.

**Comments** *Excel allows some analysis of the data the chart displays – trendlines are a representation of trends in data series.*

**Activity 1** Click the line representing the average score for the reps so that the boxes along the line are highlighted. Choose **Chart > Add Trendline...** from the menu to display the dialog box:

Choose the **Linear Trend** box and click **OK**. A thick black line appears representing the linear trend of the average for the Sales Reps over the four quarters.



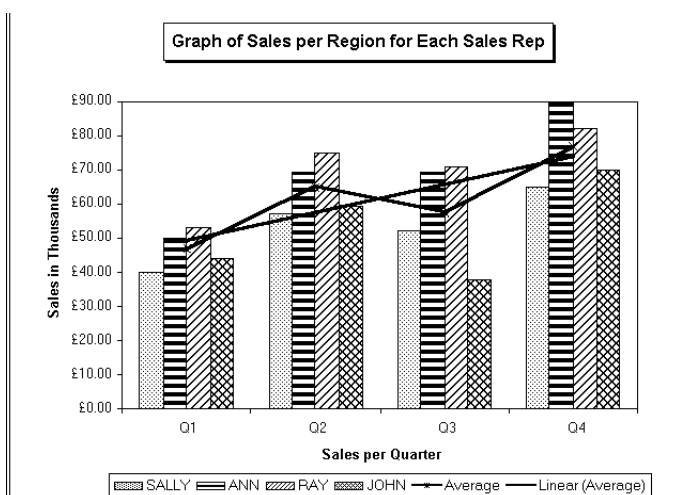
**Activity 2** Before you finish, you may want to tidy the chart up a bit. Try these:

- Double click on the *Average* line to call up the **Format Data Series** dialog box. Change the line weight to be thicker so that it stands out more.
- Change the X-Axis labels around so that they are easier to read.
- Change the X-Axis title to read "Sales per Quarter".
- Double click on the Chart title to open the **Format Chart Title** dialog box. Under the patterns tab give it an Automatic weight border with a shadow.
- Double click inside the axis, but not on a data series, to invoke the **Format Plot Area** dialog box. Change the background colour to a light grey.
- Double-click the tab labelled **<Chart1>** at the bottom of the window to highlight the current name. Type the name **Quarterly Sales**.

## Finishing off

After finishing the exercises you should have a chart that looks something like the one shown on the right (with the addition of error bars).

Save the workbook as **CHARDONE** in **My Documents** folder and close it.



## Other ways of creating and working with charts

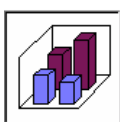
As well as creating a chart in a sheet of its own, you can add one to a worksheet. This is called an embedded chart. You can also create and save your own chart format and then apply it to new charts using AutoFormat. If you are in real hurry you can create a chart completely automatically.

This section also emphasises the use of the mouse for working with charts

### **Create an embedded chart using the ChartWizard**

1. In the Stu/Excel folder, open REPORT.XLS

2. Start the ChartWizard by clicking on 

3. Select the 3-D Column chart,  and then click **Next**

4. Select cells B10:E13 and then click **Next**

5. Add the Chart Title **Encore Sales**

6. Click **Next**

7. Click **Finish** to display the chart

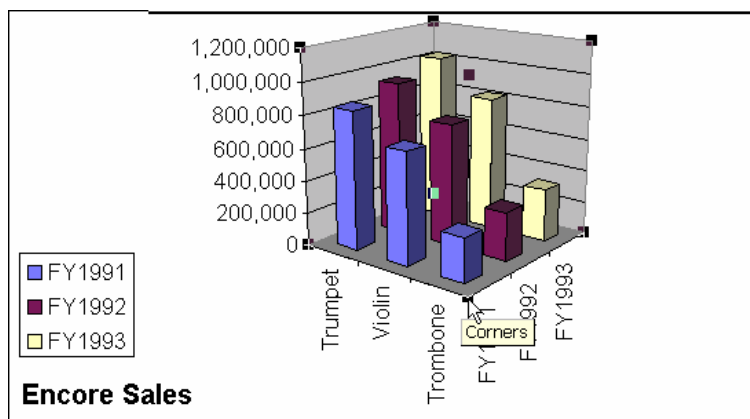
### **Manipulating chart objects using the mouse**

1. Select the title Encore Sales and drag it to the bottom-left corner.
2. Click about one inch to the left of the trumpet label on the chart. A grey border appears around the main chart items.
3. Enlarge the chart area in all directions until it fills the entire area of the chart object.
4. Move the legend until it's just above the title. You have now directly manipulated all the items within the chart area. However, one of the FY labels is not showing. This will be rectified in the what follows.

### **Using the 3-D rotator**

Using the 3-D rotator, change the way your chart appears on the screen.

1. Click the intersection of the axes at the zero, then drag the corner handle by the Trombone label (see the diagram below) about 5 centimetres to the left.
2. Now rotate the chart while holding down the Ctrl (Mac: ⌘) key. This rotates the chart with the images of the columns visible.
3. Reset the 3-D chart to its original perspective: select **Chart ▸ 3-D View...** from the menu.
4. Click **Default** and then click **OK** to restore the chart to its original perspective.
5. Adjust the chart rotation so that all labels are displayed, as shown to the right.



### ***Formatting the chart using the mouse***

Using the mouse to format quickly the chart title and area colours.

1. Double-click the title **Encore Sales** and then select the **Font** Tab.
2. Select a different font size and click **OK**.
3. Double-click the maroon columns to display the **Format Data Series** dialog box, and change the area colour to one you prefer.
4. Double click each of the scales and the legend and set their font sizes to 8 pt.

### ***Using Custom Chart types***

1. Choose **Chart** ➤ **Chart Type . . .** from the menu.
2. Click the **Custom Types** tab, then select the chart type from the **Chart Type** box and click **OK**

### ***Creating and using your own custom chart format***

1. Choose **Chart** ➤ **Chart Type . . .** from the menu.
2. Select the **Custom Types** tab, click the **User Defined** button, then click **Add**
3. In the **Name** box, type **My Format**, click **OK** then **OK** again
4. Now change the chart format to a 2-D format, move the **Title** and **Legend** somewhere else and change some of the colours.
5. Choose **Chart** ➤ **Chart Type . . .** from the menu and apply **My Format** to the chart.

### ***Drag and Plot***

Use **Drag and Plot** to update your chart with additional data.

1. Select cells **F10:F13**, drag this data over the chart, and when the handle is positioned over the chart, release the mouse button. Notice the borders on the chart object change appearance when the mouse pointer is dragged over the object. Also, the chart has been updated to include the **FY Totals** sales data for the **Board of Directors** chart.
2. Click somewhere off the chart to deselect it.

### ***Ultra-rapid chart creation***

1. Select the data to chart
2. Press **F11**

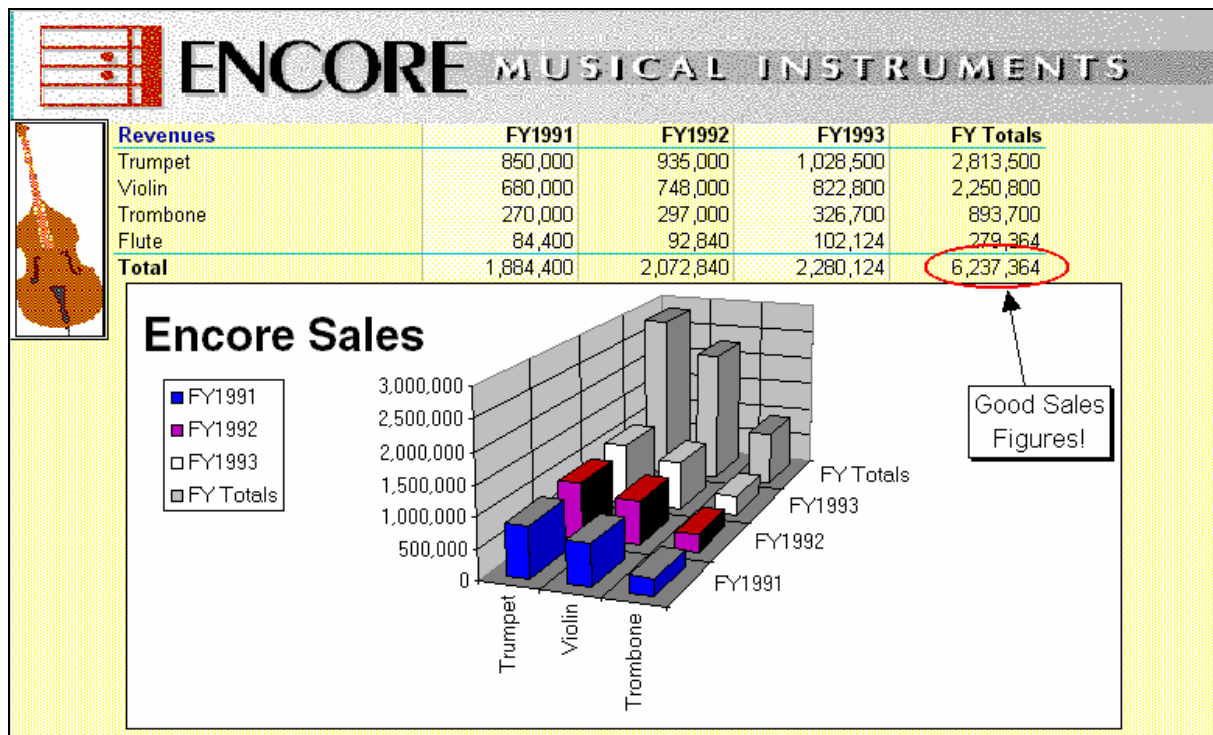


## Using the Drawing tools

In this exercise, you will use tools on the Drawing toolbar to add items of visual interest.

Add and format a text box, and then draw an arrow from the text box to your data.

1. With the right mouse button, click any toolbar to display the toolbar shortcut menu and then select Drawing. This displays the Drawing toolbar on the sheet.
2. Click the Oval tool and draw an oval around the grand total at the bottom right of the data. Double click the oval on its outline and, in the dialog box, increase its weight and change its colour to **No Fill**.
3. Click the Text Box button and, with the mouse, draw a text box on the right corner of the chart.
4. Type **Good Sales Figures!** in the text box and click once outside it to deselect the box.
5. Reselect the text box click the Shadow button on the Drawing toolbar and select a drop shadow. This adds a shadowed background to the text box.
6. Right-click the text box to display the shortcut menu, and then choose Format Text Box....
7. Select the Colors and Lines tab, select a fill colour of your choice, and click OK.
8. Select the Arrow button from the Drawing toolbar and draw an arrow from the text box to the grand total which is circled. The sheet should now look something like this:




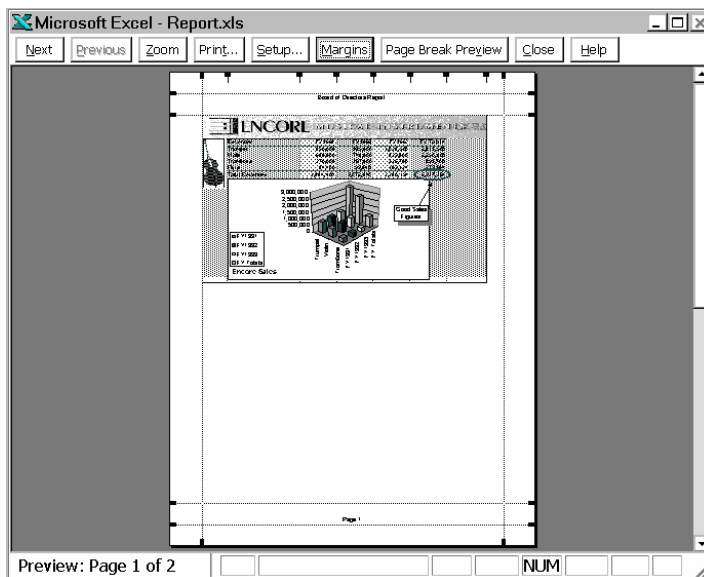
# Printing

**Objective** To prepare the worksheet for printing and then print it

**Instructions** You will use the **File** → **Print Preview** command to see how the sheet will print and then make changes to the print setup

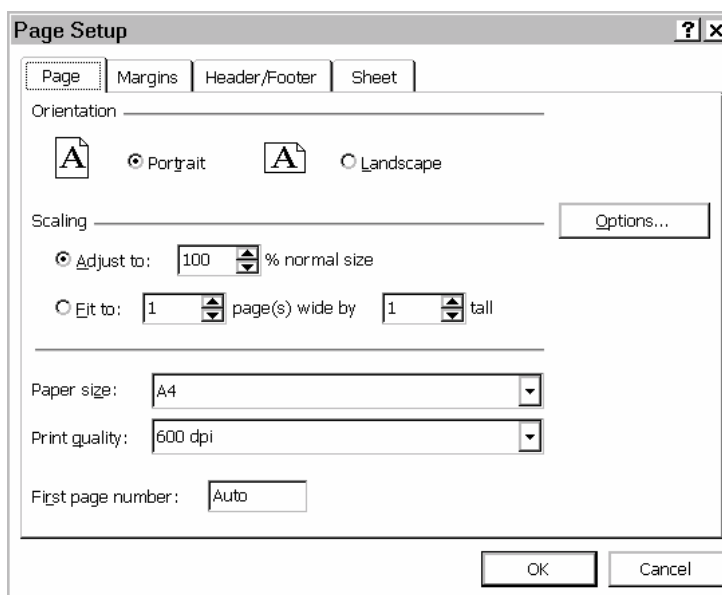
**Comments** You should always preview before you print

**Activity 1** **File** → **Print Preview** or click  to see what the printout will look like. Click **Margins** to show column and margin markers:



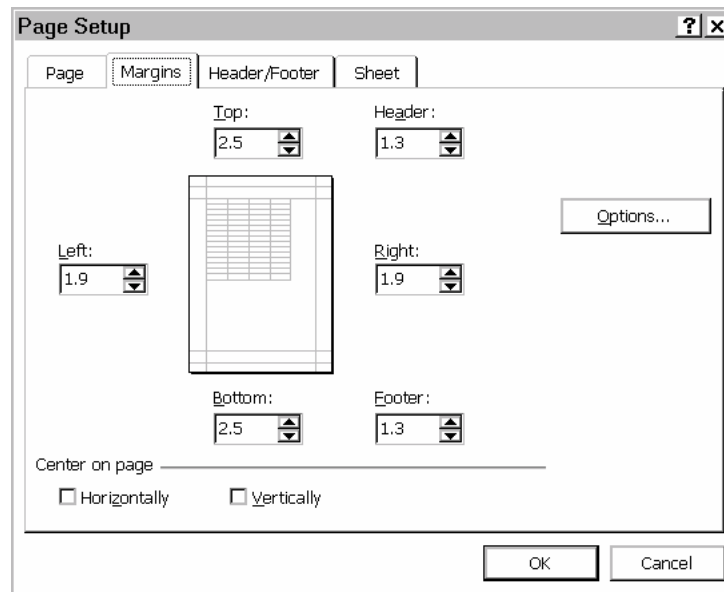
Drag the margin markers so that the whole sheet shows

**Activity 2** You can make other changes to the page setup by clicking **Setup...**. This gives the **Page Setup** box:

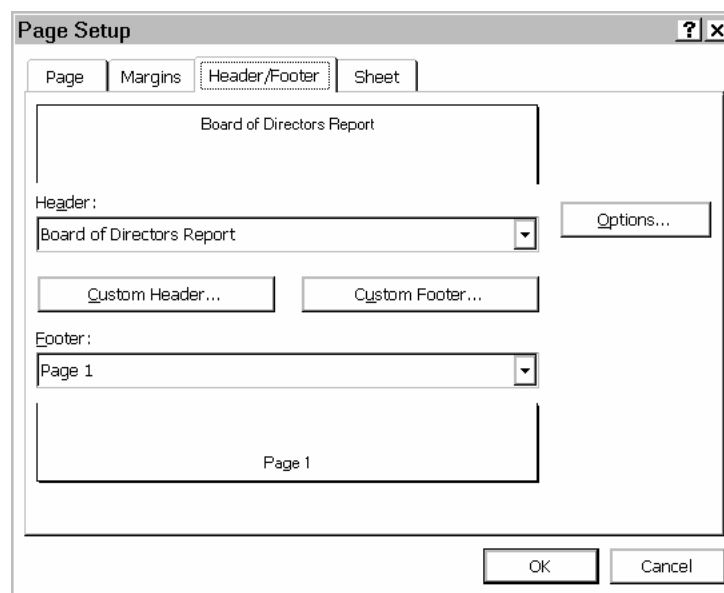


Click the **Landscape** button to flip your page on its side

**Activity 3** Click the **Margins** tab and centre the printout on the page:



**Activity 4** Click the **Header/Footer** tab to change the headers which print at the top of every page or footers which print at the bottom of every page:



**Activity 5** Click **Custom Header** to display the **Header** dialog box. Put your name in the centre and use the date button to put the date on the left.

Click **Custom Footer** to display the **Footer** dialog box. Use the Filename button to put the file name into the centre.

**Activity 6** Click **Print...**

(You can click **Close** to exit from Print Preview without printing.)

## Appendix

### Understanding Number Formats

Each number that you want to display can consist of several elements:

- Digits that must be shown (e.g. zeros in a number with fixed decimal places).
- Digits that need not be shown (thousands when the number is 500)
- decimal points
- thousands indicators
- currency symbols
- percent symbols
- other symbols and number separators

The format descriptors for each of these is as follows:

|          |  |
|----------|--|
| 0        | numbers that must be shown   |
| #        | numbers that do not need to be shown, but the digits must be represented in the format for other reasons |
| .        | where the decimal point appears  |
| ,        | thousands separator  |
| %        | multiply by 100 and add a percent sign   |
| E-       | scientific notation  |
| "text"   | displays the text "text" in the cell   |
| [colour] | Puts the contents of the cell into colour <i>colour</i> .  |

So, for example, the following formats might be useful. The number entered into the cell is 16.475 in every case:

| Format         | Display in the Cell | Note                          |
|----------------|---------------------|-------------------------------|
| 0.00           | 16.48               | Rounds it up.                 |
| ###            | 16.475              |                               |
| 0,000.00       | 0,016.48            |                               |
| 0%             | 1648%               | Multiplied by 100 with % sign |
| "Wrong Number" | Wrong Number        | Just the text is displayed.   |

In addition to these format definition codes, you can have different formats in the same cell depending on what the cell contains. The format code is split into four regions, each separated by a semicolon. The format up to the first semicolon is for positive numbers. The format up to the second semicolon is for negative numbers, the format up to the third semicolon is for zeros, and the format after the third semicolon is for text. So the following single format code can produce different results depending on the content of the cell:

[Blue] #,##0.00;[Red]-(#,##0.00);[Green]0.00;"Rubbish"

| Content  | Display in Cell | Colour of contents |
|----------|-----------------|--------------------|
| 12       | 12.00           | Blue               |
| -12      | -(12.00)        | Red                |
| 0        | 0.00            | Green              |
| Any Text | Rubbish         | Black              |

## Defining Number Formats


**Objective** To define and use your own number format.

**Instructions** You will use the **Number** tab in the **Format Cells** dialog box and write your own format descriptor.

**Comments** *Being able to display numbers differently depending on what they are can be a great help to error check data as you enter it in, or spot anomalous figures.*

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**Activity 1** Select cell F3 (a blank cell which you can experiment on for the sake of demonstration), then choose **Format**  **Cells...** and the **Number** tab.

**Activity 2** The **Number** format dialog box appears as before. Select **Custom** from the left hand list box, and then choose the 4th format from the top:

#,##0;[Red]-#,##0

**Note** If you are writing your formats it is always a good idea to start with one that is close to what you want already.

**Activity 3** Click before the first character in the **Type** box.

The Excel format descriptors are not limited to formatting positive numbers, negative numbers and zeros differently. You can define your own boundary conditions using the syntax [*<number>*] at the start of the description. In this way you can define everything formatted by the first descriptor as being numbers above a certain boundary, everything formatted by the second descriptor as being numbers below a certain boundary, and everything else is formatted by the third descriptor.

**Activity 4** Edit the format description so that it looks like the one below:

```
[Blue][>500] "DM " #,##0; [Red][<-500] "DM " -  
#,##0; [Green]  
"DM " #,##0; "Wrong number"
```

What this format descriptor says is:


- Format every number above 500 as blue, with the text DM in front and no decimal places.
- Format every number below -500 as red, with the text DM in front and no decimal places.
- Format every other number as green, with the text DM in front and no decimal places.
- Format any piece of text as the text "Wrong Number" in black.

**Activity 5** Click . Now enter each of the following in F3 to see the effect of the format descriptor on each value:

**1000            -1000            100            Text**

**Activity 6** When you have finished experimenting, select the cell F3 and press the **<Del>** key. This will clear the cell of all its contents.

## Conditional formatting

The **Format**  **Conditional Formatting...** command on the menu provides a rapid way to set formatting which depends upon cell contents.