ICDL Module 4: Spreadsheets

using

OpenOffice.org Ver 2 Calc

David Varley

IMPORTANT NOTICE

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Module 4: OpenOffice.org Calc

Section 1: Using the Application

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4.1.1 First stages with spreadsheets

4.1.1.1 Open and close a spreadsheet application

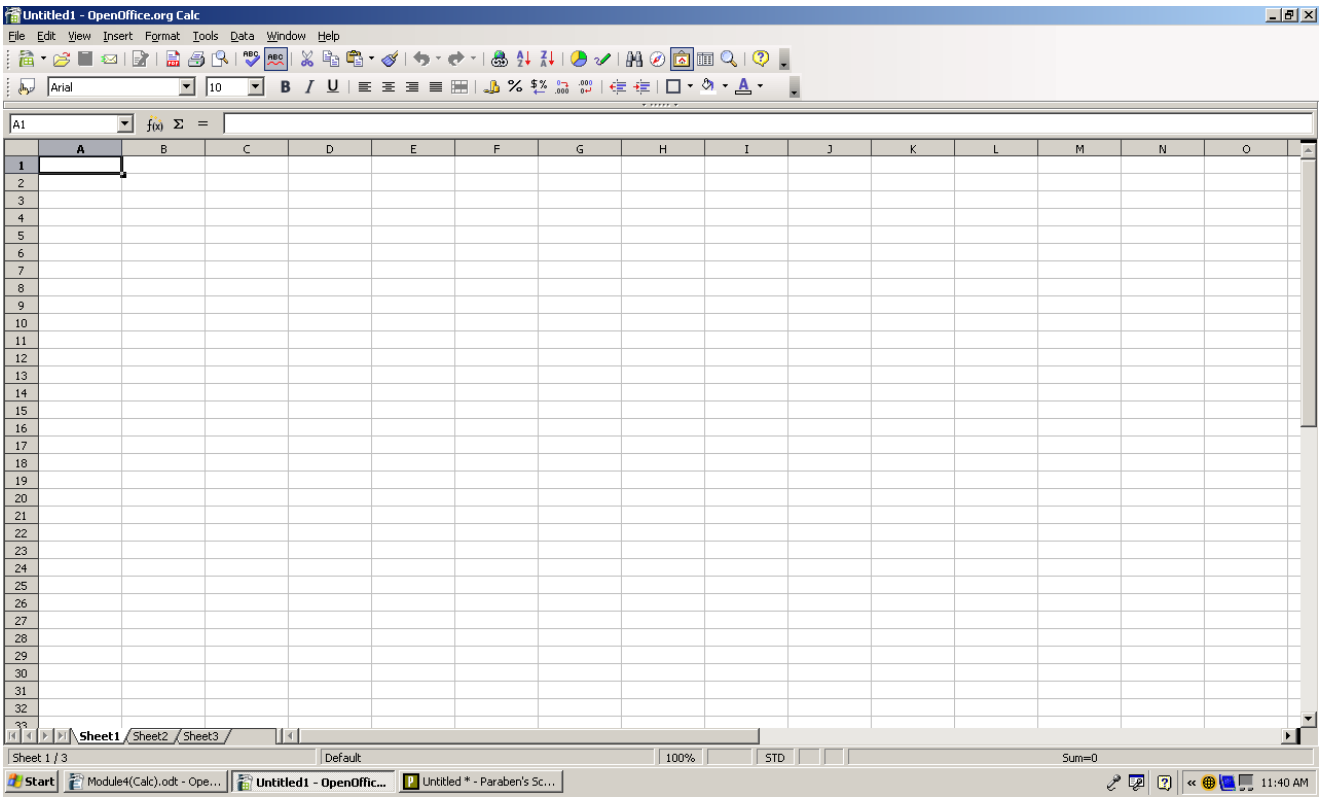
Open Calc in Linux

- Click on **Start Applications**
- Click **Office**
- Click **Spreadsheets**
- Click **OpenOffice.org Calc**

Open Calc in Windows

- Click on **Start**
- Click **Programs**
- Click **OpenOffice.org**
- Click **Spreadsheet**

This will load **Calc.**



Close Calc

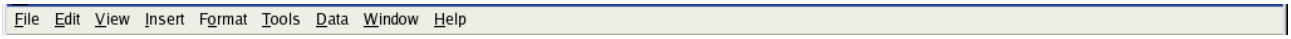
- Click on **File** then click **Exit**.

OR

- Click on the **Exit** icon in the top right hand corner of the screen, 

Components of the Calc screen

Menu Bar



The menu bar displays global commands. These commands that are grouped according to categories.

For example, the **File** menu item consists of a set of commands related to file operations such as open existing files, creating new files, saving files, closing files and so on.

Format toolbar

The object bar contains commands that are used to format cells.

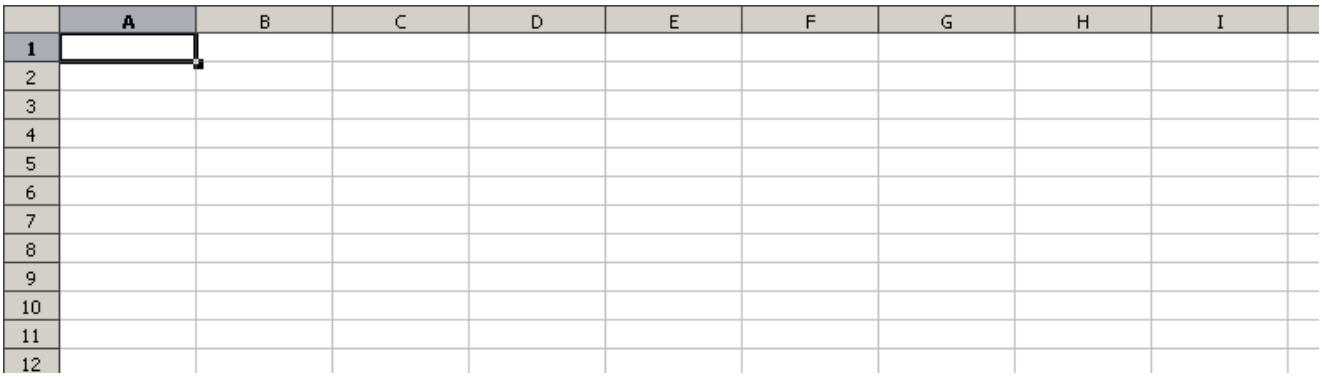
Standard toolbar

The standard toolbar contains shortcuts to commonly used Calc operations.

Formula toolbar

The formula toolbar contains the address of the current cell. It is also used as the entry point for text, numbers and formulas that will be entered into the cells.

Work Area



The work area of the spreadsheet consists of a grid formed by the intersection of rows and columns. The columns are named by letters of the alphabet A, B, C, ... Z, AA, AB, AC, ... The rows are numbered 1,2,3,4, ...

Each cell is identified by its row and column. For example, the cell C11 is the cell lying at the intersection of column C and row 11.

C11 is also referred to as the address of the cell..

Tabs

Each spreadsheet consists of one or more worksheets. These can be accessed by clicking on the tabs at the bottom of the work area.

4.1.1.2 Open one, several spreadsheets

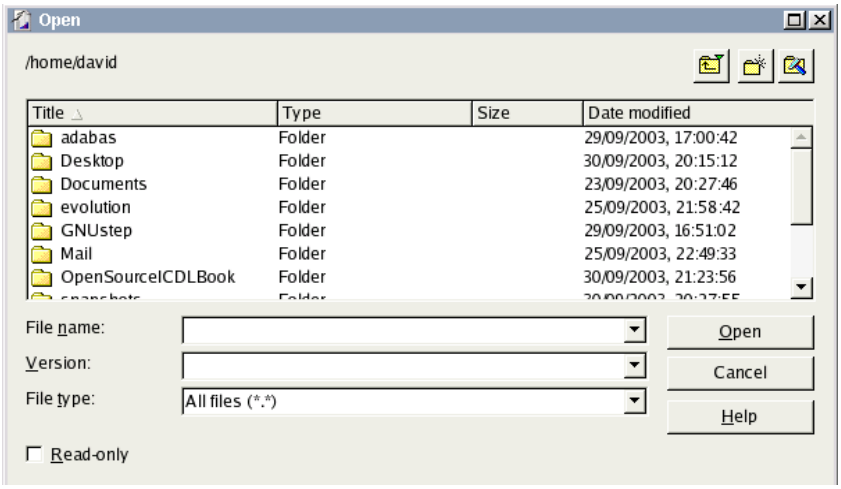
A spreadsheet consists of text, values and formulas inserted into the cells of the work area. Spreadsheets are saved on disk as files, just as in the case of Writer documents.

More than one spreadsheet can be opened at a time.

Open a spreadsheet under Linux

- Click on **File**.
- Click on **Open.**

This brings up the **Open Dialogue** window:

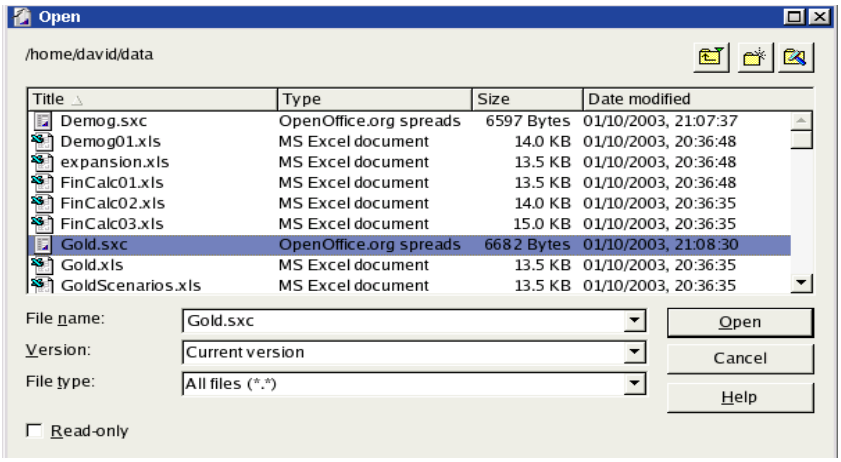


The dialogue lists a series of directories and files.

To view the contents of a directory, click on the directory.

To move up a level, click on the **Up one level** icon,  .
Suppose you have located the directory in which the desired file is located.

- Highlight the file.



- Click **Open**.

Open a spreadsheet under Windows

The process of opening files under Windows is essentially the same.

The essential difference between Windows and Linux is that in Linux all computers, disks and directories are all part of a large tree. In the case of Windows, each drive forms the root of a separate root structure.

The current directory is the **Open** dialogue above is shown as /home/david. The direction of the separators and the absence of a drive indicate that this is a Linux directory.

If you were opening a file in Windows, the Windows **Open** dialogue would appear:

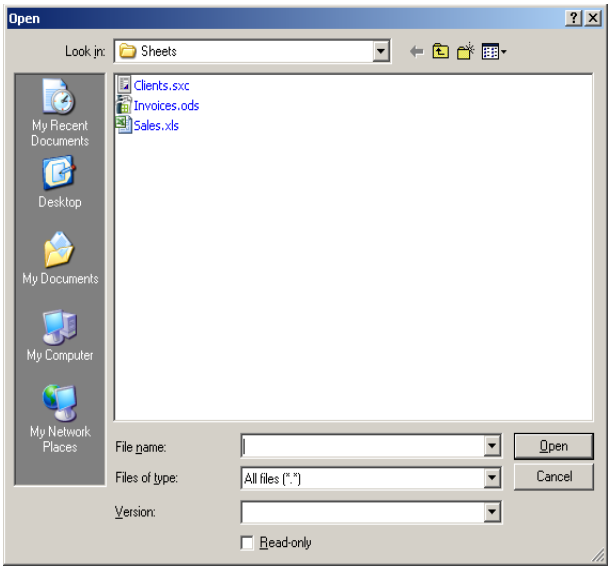
Note that spreadsheets can have a number of different extensions. The main ones are:

ods: This is the default used in OpenOffice.org version 2. It is an abbreviation for Open Document Spreadsheet.

sxc: This is the default extension of spreadsheets in version 1 of OpenOffice.org

xls: This is the extensions that Microsoft Excel assigns to spreadsheets.

All can be opened in Calc.



Open several spreadsheets

If you now repeat this process without closing the first spreadsheet all of them will be loaded and you may switch between them. The process of doing this will be described shortly.

An alternative is to open several spreadsheets at once.

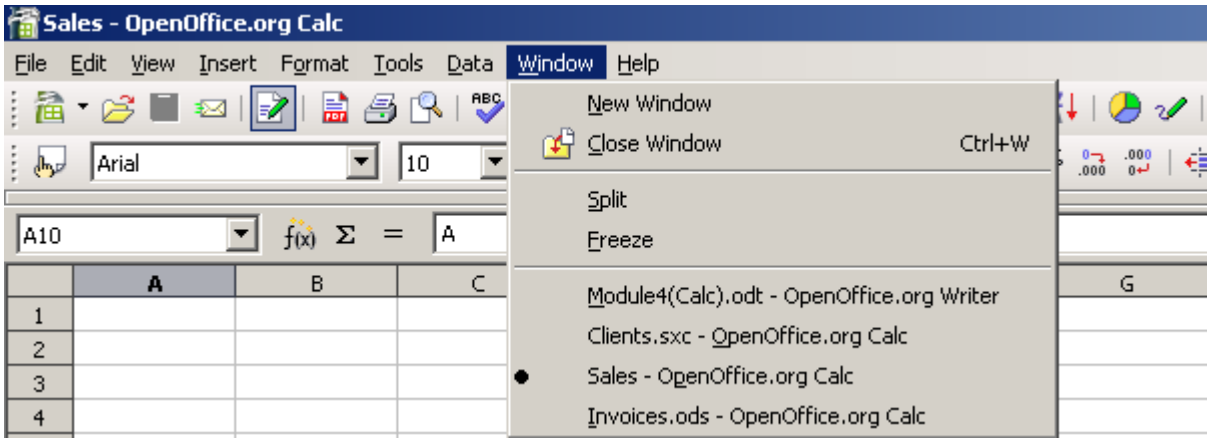
- Click on **File** then **Open.**
- Locate the directory containing the files you wish to open.
- Click on the first file.
- Hold down the **CTRL** key and click on each of the additional files you wish to open.
- Click **Open**.

The last of the files loaded will appear in the window. This will be the active spreadsheet. The others are also loaded but are in the background.

You can make one of the other spreadsheets active as follows:

- Click on **Window**.

This will list the spreadsheets that are loaded.



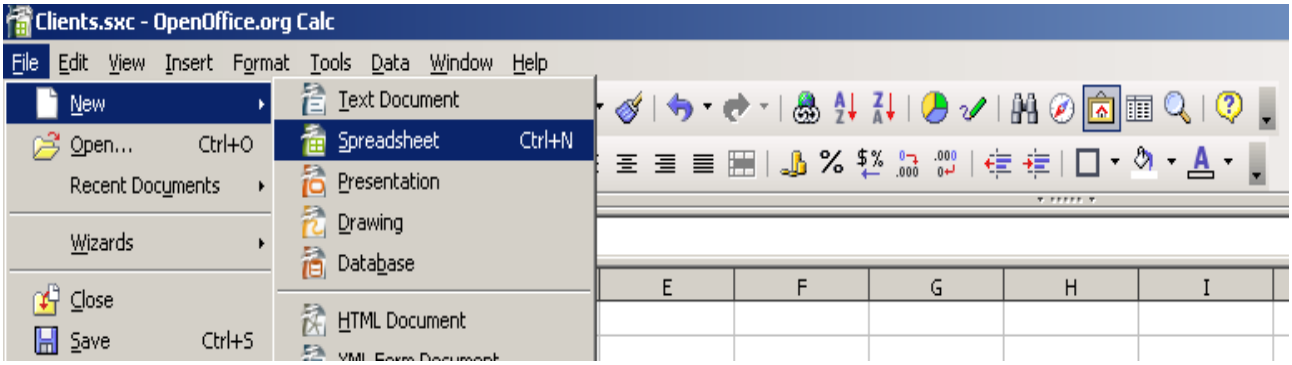
- Click on the spreadsheet you wish to make active.

4.1.1.3 Create a new spreadsheet (default template)

Suppose you wish to create a spreadsheet from scratch.

- Click on **File** then click on **New** then **Spreadsheet**.
  In future a sequence of commands like this will be denoted by:
  File » New » Spreadsheet.

You can do this whether other spreadsheets are loaded or not.



This will display a blank spreadsheet.

You will learn how to enter data later. At this stage we are concerned with the mechanics of opening and saving spreadsheets.

4.1.1.4 Save a spreadsheet to a location on a drive in Linux

For the time being imagine that the spreadsheet you have opened contains data. At this stage your work is located in the RAM of the computer. Since RAM is volatile, the contents will be lost is the computer is switched off.

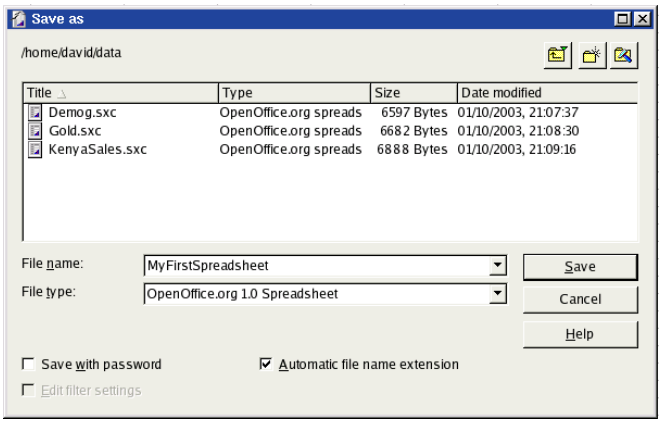
In order to preserve your spreadsheet for later use it must be saved on the hard drive of the computer.

To do so:

- **File » Save as ...**

This will bring up the **Save as** dialogue.

- Locate the directory in which you wish to save the file.
- Enter the name of the file name window.



- Click **Save**.

Saving to a floppy disk in Linux

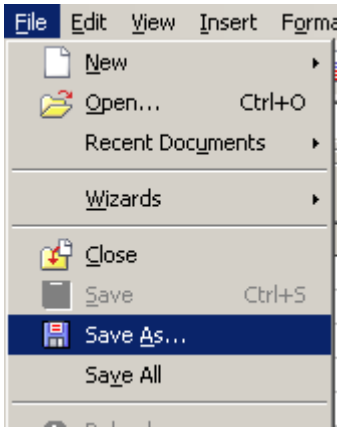
If you wished to save a file to a floppy disk, you would use the directory /mnt/floppy.

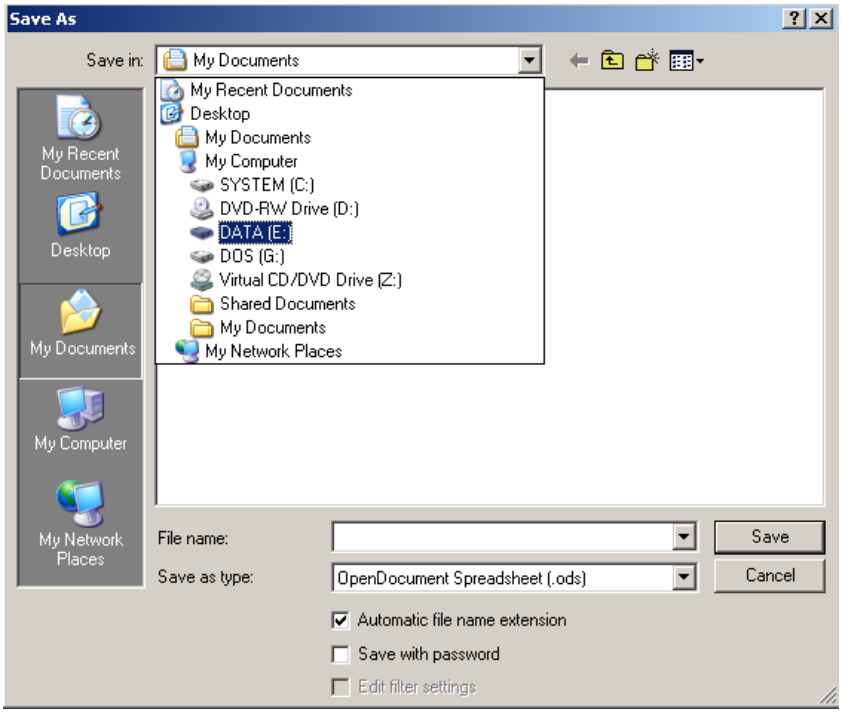
Saving a file in Windows

If you are working with Calc running under Windows, the Windows **Save as ...** dialogue would appear when you save the file.

- Select the drive on which you wish to save the file.
- Select the directory on the drive and, if appropriate, the relevant sub-directory.
- Enter the name for the file in the **File name** window.

- Click **Save**.





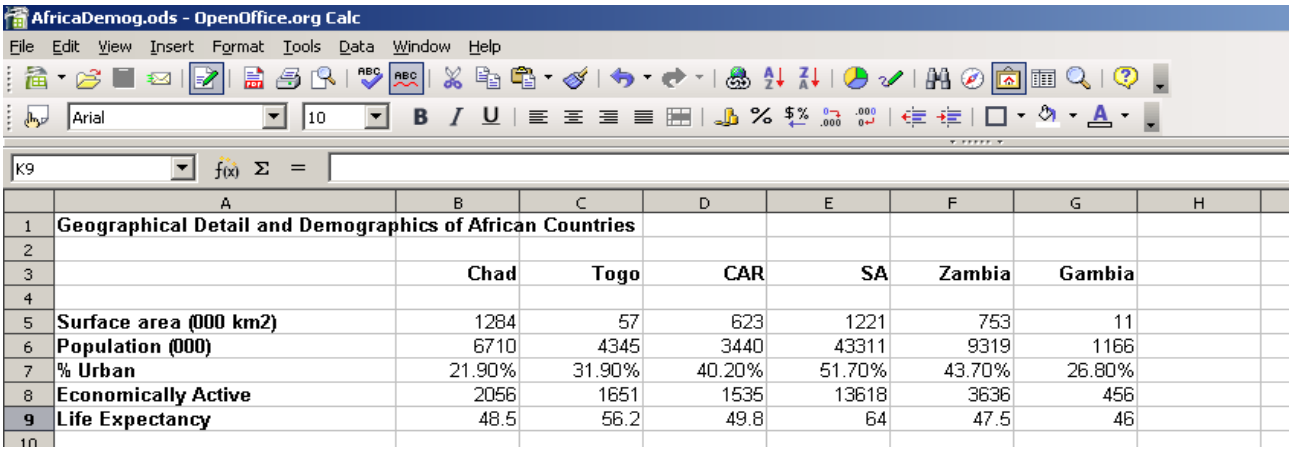
Saving files to floppy disk in Windows

- Select **Floppy (A:)** in the **Save as ...** dialogue.
- Use the same procedure for saving on the hard disk.

4.1.1.5 Save a spreadsheet under another name

Sometimes we may want to have the same spreadsheet saved under a number of different names. Alternatively, we may want to save a spreadsheet before making changes. We would then have a copy of the new version as well as the version before changes were made.

Suppose we have a spreadsheet loaded as shown on the next screen. In this case the spreadsheet already has the name AfricaDemog.ods.



	A	B	C	D	E	F	G	H
1	**Geographical Detail and Demographics of African Countries**							
2								
3		**Chad**	**Togo**	**CAR**	**SA**	**Zambia**	**Gambia**	
4								
5	**Surface area (000 km2)**	1284	57	623	1221	753	11	
6	**Population (000)**	6710	4345	3440	43311	9319	1166	
7	**% Urban**	21.90%	31.90%	40.20%	51.70%	43.70%	26.80%	
8	**Economically Active**	2056	1651	1535	13618	3636	456	
9	**Life Expectancy**	48.5	56.2	49.8	64	47.5	46	

We can now save what is displayed on the screen in two ways.

Overwrite existing file

After loading the spreadsheet from disk, we may have made some changes. In this case, the changes will not automatically be made to the file that is located on the hard disk.

To replace the version on hard disk with the contents as displayed on the screen:

- **File**, **» Save**.

This updates the file on disk.

Save under another name

Suppose we do not wish to overwrite the contents on disk but would still like to save what is on the screen:

- **File » Save as ...**

This will bring up the **Save as** dialogue. You use this in exactly the same way as you would if you were saving a completely new file.

4.1.1.6 Save a spreadsheet in another file type such as: text file, HTML, template, software specific file extension, version number

A spreadsheet is a tool for doing calculations. Consequently, the format of the spreadsheet is structured around this aspect.

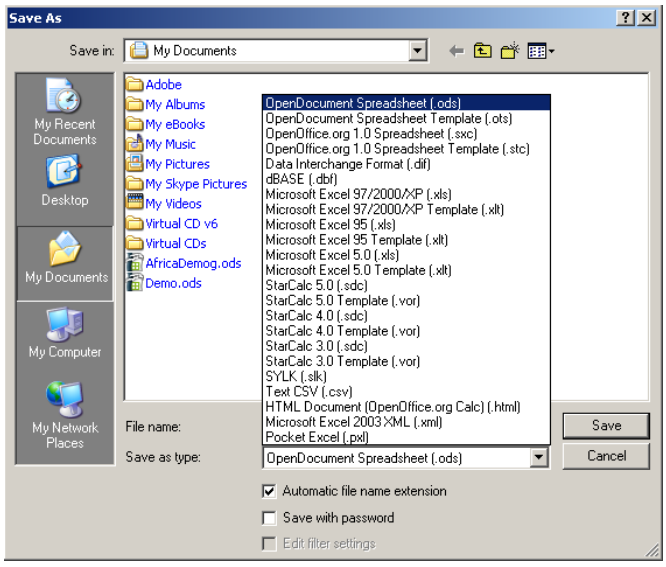
Sometimes it is useful to convert the spreadsheet format into another format such as, for example, a text file which can be manipulated using a word processor.

Alternatively, you may wish to save the spreadsheet in a format use by another spreadsheet program such as Microsoft Excel.

To save a spreadsheet in a different format:

- **File » Save as ...**
- Click on the **File Type** window.
  This will display a list of file types.

- Use the vertical scroll bar to view all the file formats.



The following table list some of the main file formats and a brief explanation of each.

File type	Extension	Explanation
OpenOffice.org Spreadsheet	ods	This is the new format found in OpenOffice.org Version 2
OpenOffice.org Spreadsheet	sxc	This is the format of Calc in OpenOffice.org Version 1.
OpenOffice.org Spreadsheet template	ots	A template is an outline for new templates. This may include text, values and formulas that are automatically inserted when a new template is created using the template. It could also include formatting of cells such as font type and colour.
OpenOffice.org Spreadsheet template	stc	Version 1 templates have this extension.
dBase	dbf	This would save the spreadsheet in a format used by some database programs. These databases would then be able to access the data in the spreadsheet and work with it as if it had been created by a database.
Microsoft Excel	xls	Although Microsoft Excel is also a spreadsheet, it uses a different format. By saving the spreadsheet in the xls format, it could be opened directly by Microsoft Excel.
Web pages	html	In order to read files, web browsers need them to be saved in a special format known as HTML or HyperText Markup Language. Calc is able to save a spreadsheet in this format.
Text CSV	csv	This format is what is also called a comma delimited file. In this format, each row is converted into a paragraph. The columns of the spreadsheet are separated by commas. A word processor will read this file as an ordinary text file.
Data Interchange Format	dif	A DIF file is an industry standard for exchanging data between different types of application.
Portable Document Format	pdf	Pdf files are a common way of sending documents that you do not wish the receiver to be able to edit. These files can be read with Acrobat Reader. Unlike the previous formats which are created using the Save as ... function, pdf files are created using the Export as pdf ... option in the File menu.

4.1.1.7 Switch between worksheets, open spreadsheets

Switching between open spreadsheets was covered in section 4.1.1.2 above.

To understand the difference between a spreadsheet and a worksheet, think of a spreadsheet as a book. The worksheets correspond to the pages of a book. However, in the case of spreadsheets, many of them comprise a single page or worksheet.

The spreadsheet shown in the following screen is made up of three worksheets. Each of these has a name indicated on the tabs at the bottom of the work area.

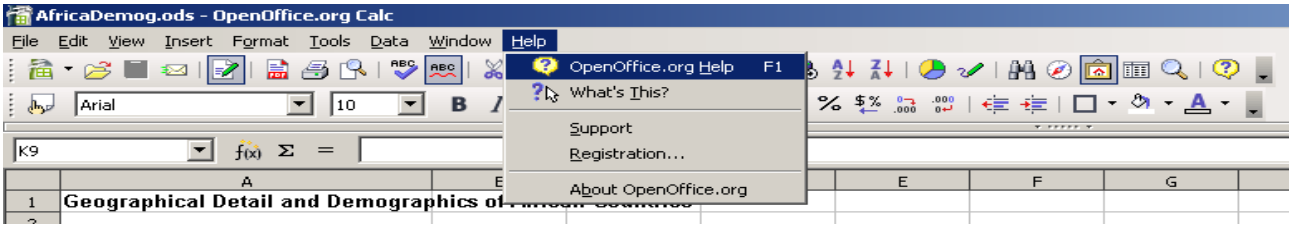
- To switch between the different worksheets, you would click on the tab.

4.1.1.8 Use available Help functions

Calc provides a range of help features. The most useful of these is **Find**.

To access help:

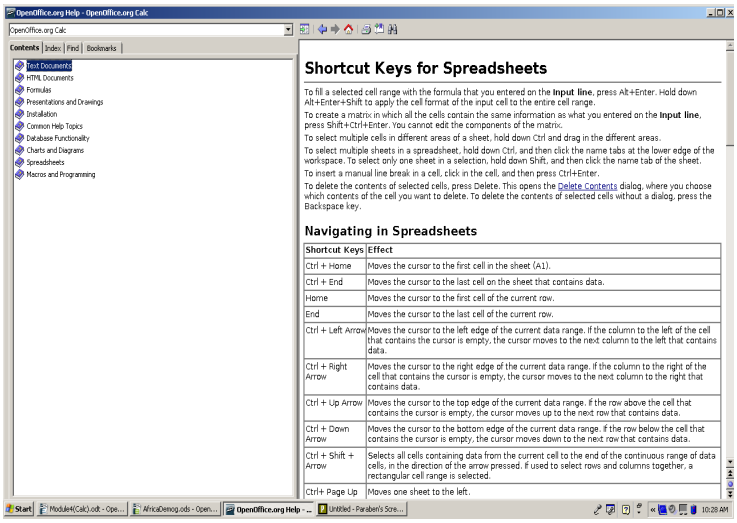
- Click **Help » OpenOffice.org Help** or press **F1**.



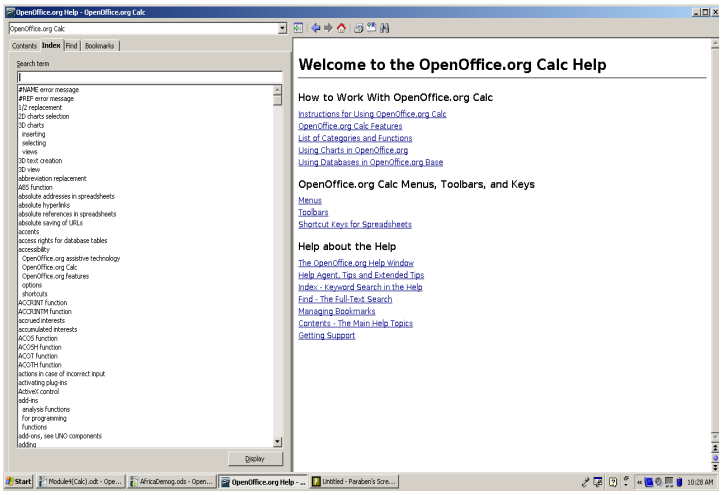
- Click on the **Contents** tab.
- Double click on the book icon next to **Help about OpenOffice.org Calc**.

This lists the main headings in help for Calc. Sections with a book icon contain further subdivisions.

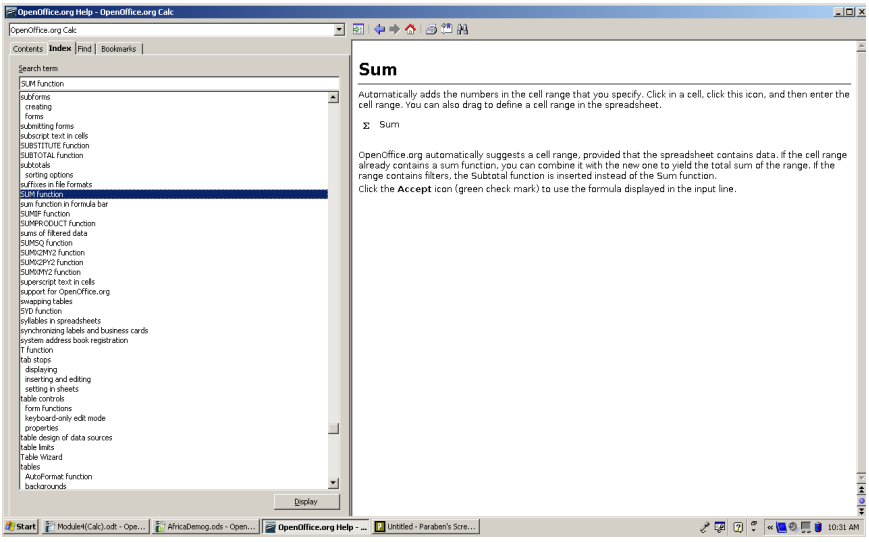
- Double click on **Shortcut Keys in OpenOffice.org**.



- Click on the **Index** tab.



- If you type some text such as *sum* into the **Search item** window, the index will automatically scroll down to **index items** beginning with the word *sum*.
- If you were to double click on an item in the left hand pane or click the **Display** button, help would be displayed in the right hand pane.



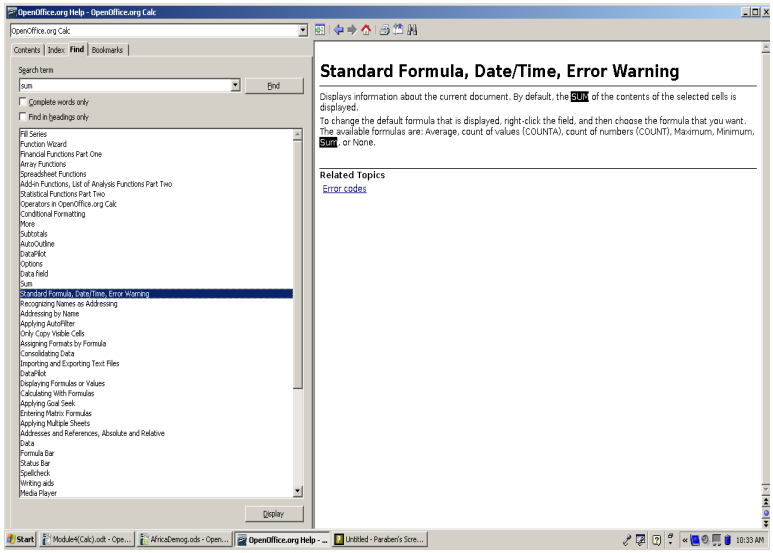
Calc also provides a comprehensive search facility.

- Click on the **Find** tab.
- Type a key work or part of a key word into the **Search item** window, for example, *sum*.
- Click the **Display** button.

A list of items in the index that make reference to the word *sum.*

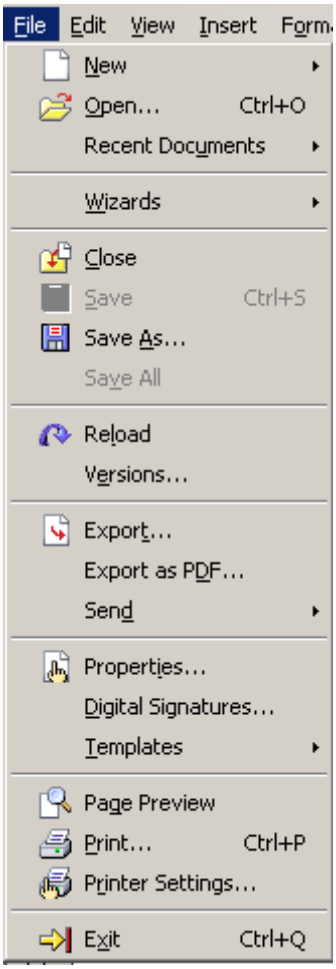
Once again you could highlight the item you wish to read and click the **Display** button.

Note the two check boxes that appear under the **Search item** window.



The **Bookmarks** tab takes you to a section which allows you to create references to specific help items that you might wish to refer to at a later time. These named references are called bookmarks.

4.1.1.9 Close a spreadsheet



- Click on **File**.

There are two menu items that need to be distinguished.

Close closes the current spreadsheet, but leaves Calc open. If version of the spreadsheet on the screen differs from that saved on disk, Calc will ask you if you wish to save before closing the spreadsheet.

Exit closes all open spreadsheets as well as the Calc program itself. Once again, if any spreadsheets are open, Calc will ask you if you wish to save them before closing.

It is important that you adopt good habits and close Calc before you start shutting down the system.

4.1.2 Adjust settings

4.1.2.1 Use magnification / zoom tools

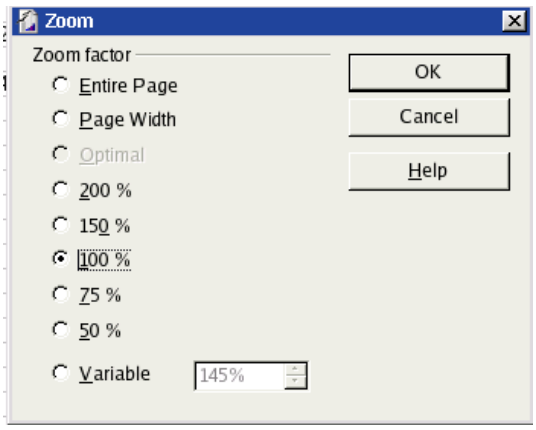
Often when working with spreadsheets it is convenient to enlarge or reduce the spreadsheet in the work area.

Suppose the spreadsheet AfricaDemog.ods is loaded.

To change the scale of the spreadsheet:

- Click **View » Zoom**.

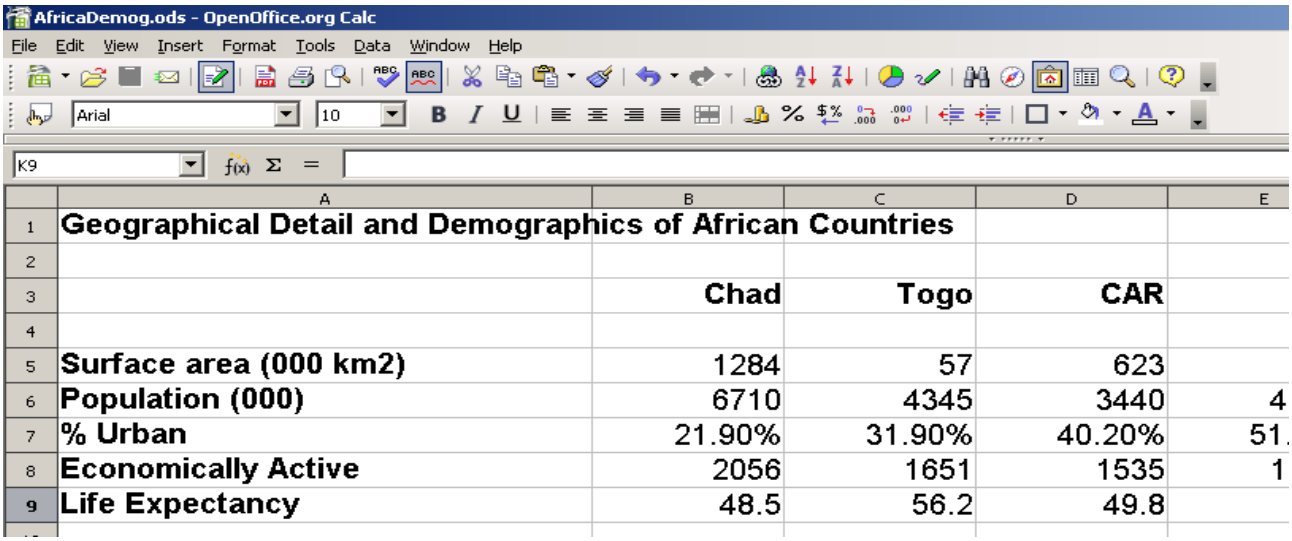
This displays the **Zoom** dialogue.



- Click the appropriate radio button to scale the spreadsheet.

Values less than 100% will reduce the spreadsheet, while values greater than 100% will enlarge it.

- Click **150%** then **OK**.



	A	B	C	D	E
1	**Geographical Detail and Demographics of African Countries**				
2					
3		**Chad**	**Togo**	**CAR**	
4					
5	**Surface area (000 km2)**	1284	57	623	
6	**Population (000)**	6710	4345	3440	4
7	**% Urban**	21.90%	31.90%	40.20%	51.
8	**Economically Active**	2056	1651	1535	1
9	**Life Expectancy**	48.5	56.2	49.8	

- Experiment with the other values in the **Zoom** dialogue.

A useful zoom is **Page width**. This displays the width of the printed page on the screen. The degree of enlargement or reduction depends on whether the **page setup** is portrait or landscape. To see the difference follow the instructions below.

Page width in portrait

- **Format » Page.**
- Click the **Page** tab, then under **Orientation** click the **Portrait** radio button.
- **View » Zoom**.
- Click the **Page width** radio button, then click **OK**.

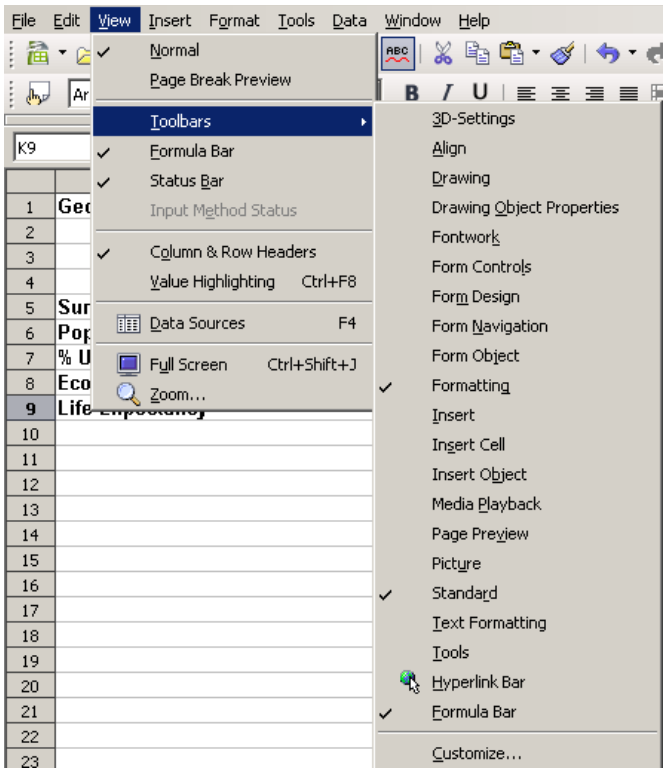
Page width in landscape

- **Format » Page.**
- Click the **Page** tab, then under **Orientation** click the **Landscape** radio button.
- **View » Zoom**.
- Click the **Page width** radio button, then click **OK**.

4.1.2.2 Display, hide built-in toolbars

Calc has a number of standard toolbars. Which of these are displayed depends on how your system was set up. You can decide which toolbars you wish to have displayed.

- **View » Toolbars**.



Toolbars which are displayed have a tick next to them. Hidden toolbars are unmarked.

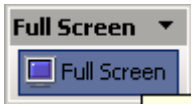
Clicking on a displayed toolbar reverses its status and makes it hidden.

Likewise, clicking on a hidden toolbar causes it to be displayed.

An operation such as this is called a toggle. A toggle is a switch which reverses the status. If it is on, the toggle switches it off. If it is off, the toggle switches it on.

A related function is **Full screen**.

- **View » Full screen**.



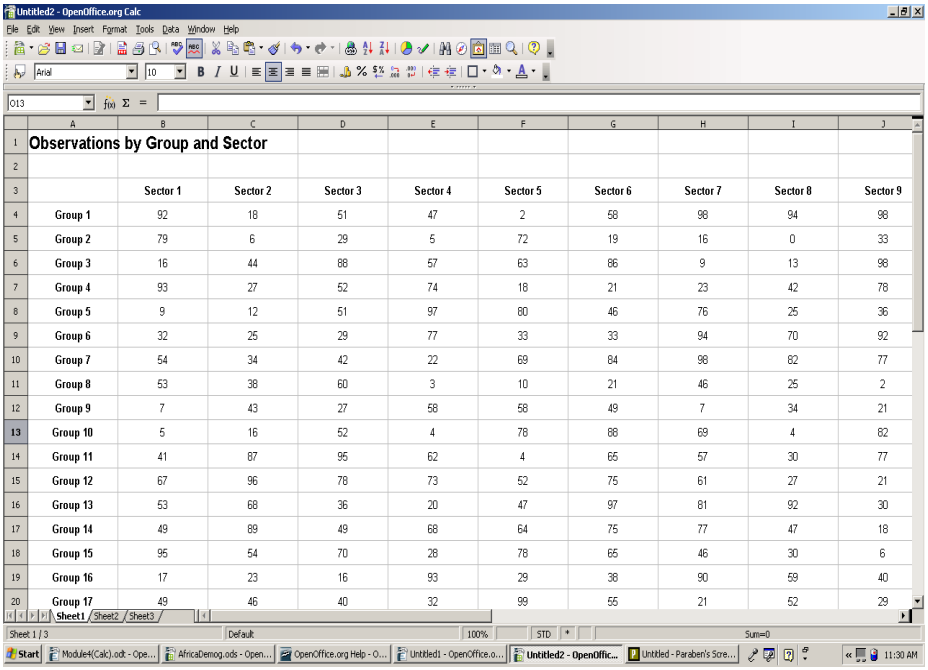
This hides all the toolbars and the ruler.
To restore the toolbars:

- Click the **Full Screen** icon in the top left hand corner.

4.1.2.3 Freeze, unfreeze row and / or column titles

Certain rows and columns are often used as headings. If you scroll down or to the right, these headings will scroll off the screen. To keep headings on the screen will data scrolls off the screen, we can *freeze* the rows or columns containing our headings.

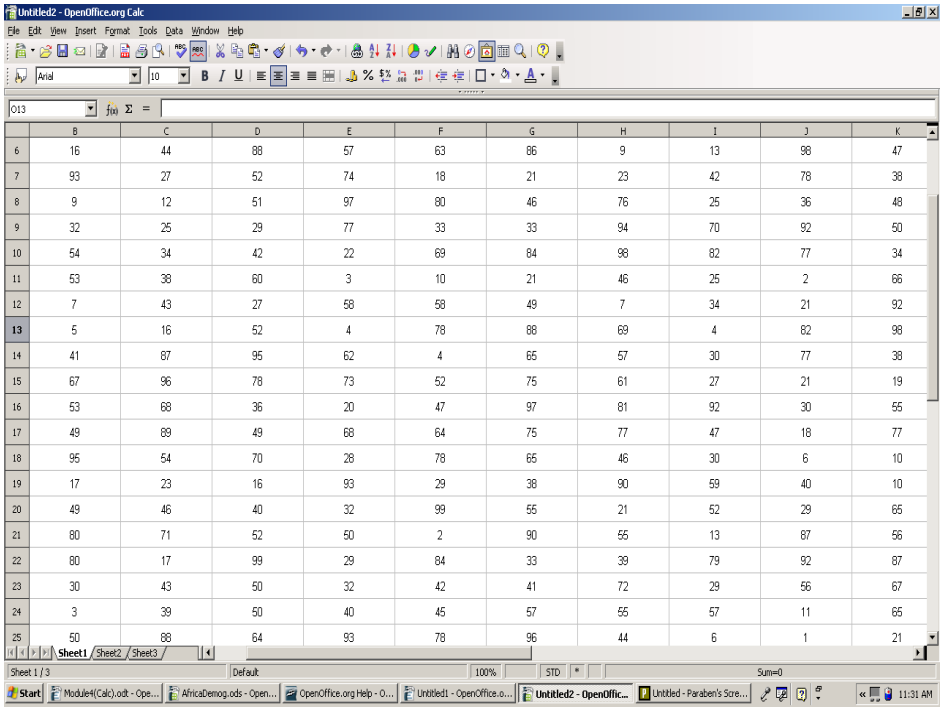
Consider the spreadsheet shown on the next screen.



	A	B	C	D	E	F	G	H	I	J
1	Observations by Group and Sector									
2										
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9
4	Group 1	92	18	51	47	2	58	98	94	98
5	Group 2	79	6	29	5	72	19	16	0	33
6	Group 3	16	44	88	57	63	86	9	13	98
7	Group 4	93	27	52	74	18	21	23	42	78
8	Group 5	9	12	51	97	80	46	76	25	36
9	Group 6	32	25	29	77	33	33	94	70	92
10	Group 7	54	34	42	22	69	84	98	82	77
11	Group 8	53	38	60	3	10	21	46	25	2
12	Group 9	7	43	27	58	58	49	7	34	21
13	Group 10	5	16	52	4	78	88	69	4	82
14	Group 11	41	87	95	62	4	65	57	30	77
15	Group 12	67	96	78	73	52	75	61	27	21
16	Group 13	53	68	36	20	47	97	81	92	30
17	Group 14	49	89	49	68	64	75	77	47	18
18	Group 15	95	54	70	28	78	65	46	30	6
19	Group 16	17	23	16	93	29	38	90	59	40
20	Group 17	49	46	40	32	99	55	21	52	29

Notice the column headings in row 3 and the row headings in column A.

If we were to scroll down and across these headings would disappear off the screen.

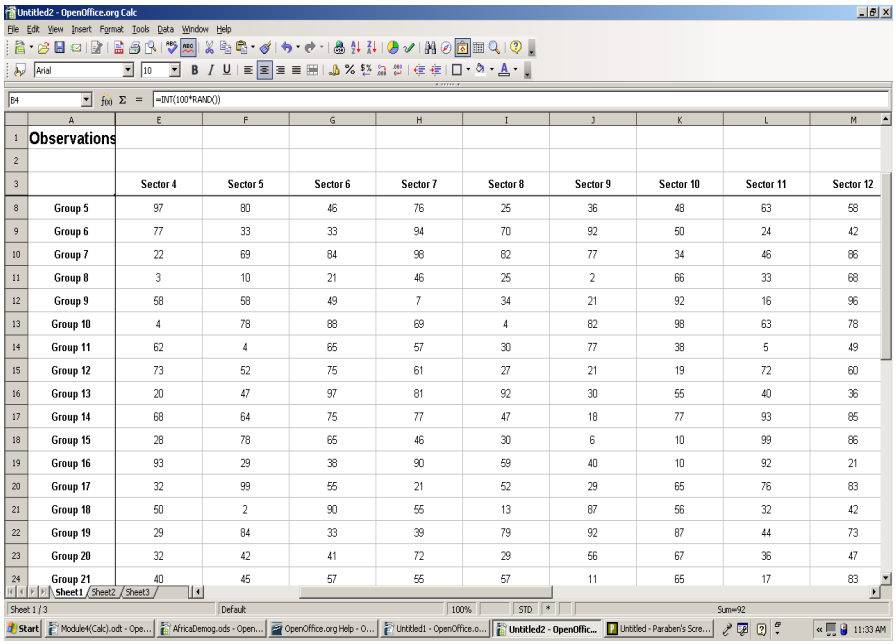


	B	C	D	E	F	G	H	I	J	K
6	16	44	88	57	63	86	9	13	98	47
7	93	27	52	74	18	21	23	42	78	38
8	9	12	51	97	80	46	76	25	36	48
9	32	25	29	77	33	33	94	70	92	50
10	54	34	42	22	69	84	98	82	77	34
11	53	38	60	3	10	21	46	25	2	66
12	7	43	27	58	58	49	7	34	21	92
13	5	16	52	4	78	88	69	4	82	98
14	41	87	95	62	4	65	57	30	77	38
15	67	96	78	73	52	75	61	27	21	19
16	53	68	36	20	47	97	81	92	30	55
17	49	89	49	68	64	75	77	47	18	77
18	95	54	70	28	78	65	46	30	6	10
19	17	23	16	93	29	38	90	59	40	10
20	49	46	40	32	99	55	21	52	29	65
21	80	71	52	50	2	90	55	13	87	56
22	80	17	99	29	84	33	39	79	92	87
23	30	43	50	32	42	41	72	29	56	67
24	3	39	50	40	45	57	55	57	11	65
25	50	88	64	93	78	96	44	6	1	21

We can freeze the headings as follows:

- Position the cursor in the cell immediately below the column heading and in the column immediately to the right of the row headings. In this case it is cell B4.
- **Window » Freeze**.

If we were to scroll down and across, the headings would remain on the screen as shown below.



		Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Sector 11	Sector 12
8	Group 5	97	80	46	76	25	36	48	63	58
9	Group 6	77	33	33	94	70	92	50	24	42
10	Group 7	22	69	84	98	82	77	34	46	86
11	Group 8	3	10	21	46	25	2	66	33	68
12	Group 9	58	58	49	7	34	21	92	16	96
13	Group 10	4	78	88	69	4	82	98	63	78
14	Group 11	62	4	65	57	30	77	38	5	49
15	Group 12	73	52	75	61	27	21	19	72	60
16	Group 13	20	47	97	81	92	30	55	40	36
17	Group 14	68	64	75	77	47	18	77	93	85
18	Group 15	28	78	65	46	30	6	10	99	86
19	Group 16	93	29	38	90	59	40	10	92	21
20	Group 17	32	99	55	21	52	29	65	76	83
21	Group 18	50	2	90	55	13	87	56	32	42
22	Group 19	29	84	33	39	79	92	87	44	73
23	Group 20	32	42	41	72	29	56	67	36	47
24	Group 21	40	45	57	55	57	11	65	17	83

In this case both rows and columns are frozen.

If you wish to freeze only rows, position the cursor in column A, then **Windows » Freeze**.

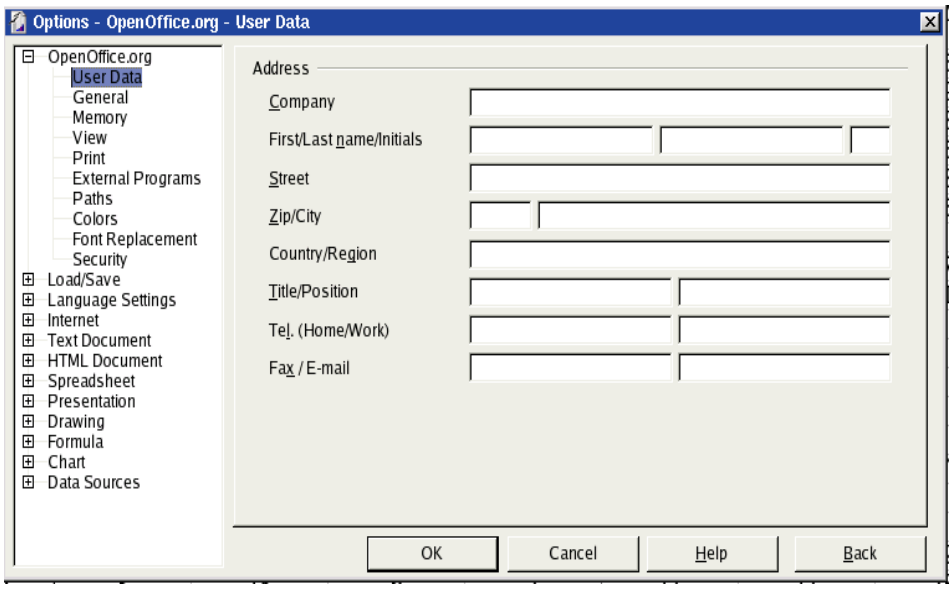
If you wish to freeze only columns, position the cursor in row 1, then **Windows » Freeze**.

4.1.2.4 Modify basic options / preferences in the application: user name, default directory / folder to open, save spreadsheets

User name and data

The default user data can be set as follows:

- **Tools » Options**.
- Expand **OpenOffice.org** by clicking on the **+** symbol.
- Click on **User Data**.



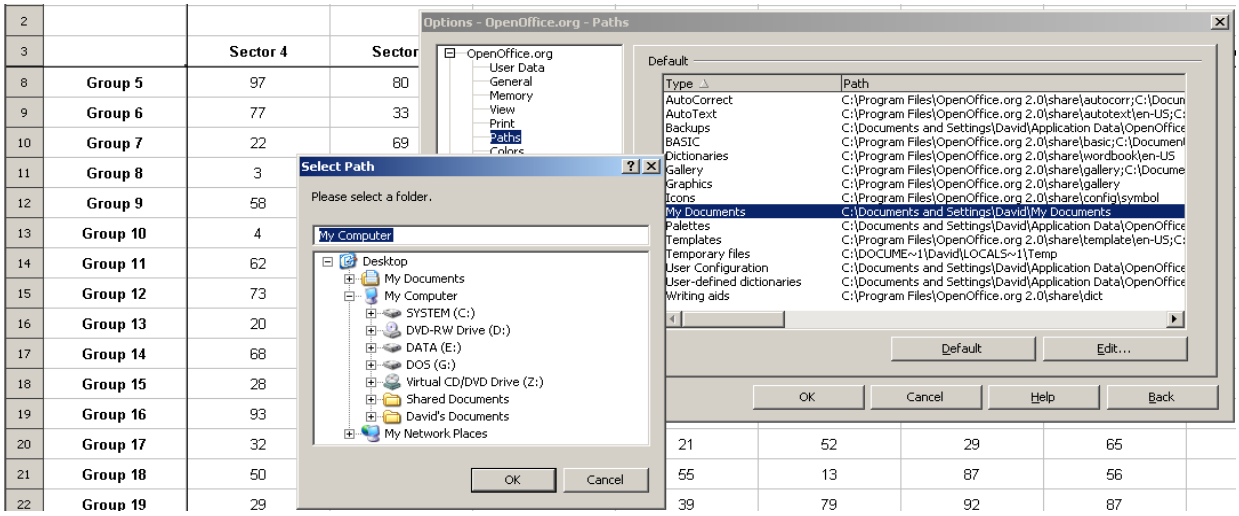
- Fill in the user data and click **OK.**

Note that this user information will be used for all the applications in the OpenOffice.org suite.

Default directory

When opening or saving files, Calc will by default look in a certain directory. This can be set as follows:

- **Tools » Options**.
- Expand **OpenOffice.org** by clicking on the **+** symbol.
- Click on **Paths**.
- Double click on **My Documents**.



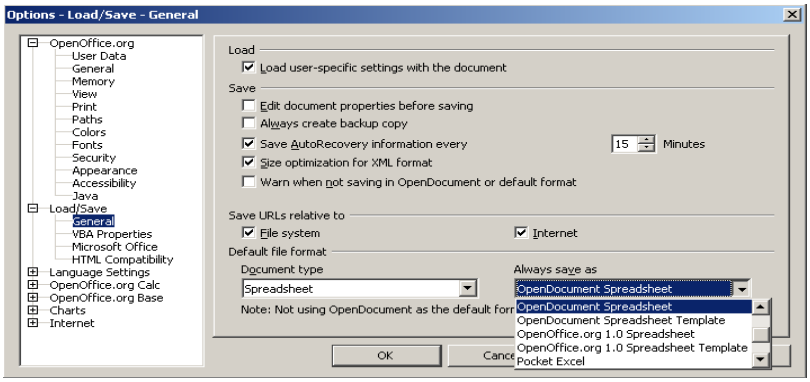
- Locate the desired path using the **Select path** dialogue.
- Click **Select**.

Default spreadsheet type

The default, Calc saves spreadsheets in Calc format. This will have an ods extension. You may

have to share your work with users who use other spreadsheet programs. In this case you could change the default format to that of another product, for example, Microsoft Excel.

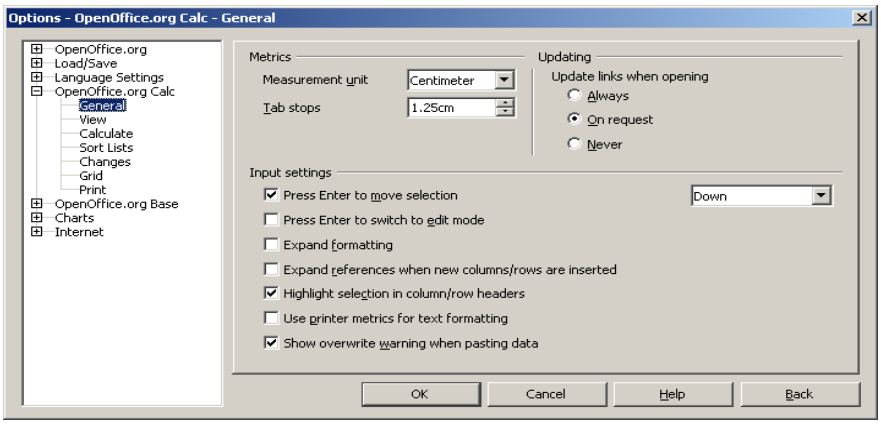
- **Tools » Options**.
- Expand **Load/save**.
- Click on **General**.
- Under **Document type**, select **Spreadsheets**.
- Under **Always save as** select the format you wish to use.



- Click **OK**.

Other settings

- Click on **Tools » Options**.
- Expand **OpenOffice.org Calc**.



A number of other important settings can be set in the different sections. For example:

General Use to set measurement units and tab stops.
View Use to change the colour of gridlines; whether formulas or values are shown.

- Scroll through the different options to get a feel of the range of settings.

Module 4: OpenOffice.org Calc

Section 2: Cells

4.2.1 Insert data

Data types

Data entered into cells can be of three types: numeric, text or date.

If a set of pure digits (0,1,2,3,4,5,6,7,8,9) are typed in a cell, Calc will normally treat the data as numeric. In this case arithmetic operations can be performed on the numbers.

If the ' symbol is typed in front of a set of digits, then Calc will treat the number as if it were ordinary text. In this case you will not be able to do arithmetic. You will however be able to format the numbers in the way you do text.

If you enter numbers in the format that Calc would recognise as a date, Calc will treat these as a date and reformat the contents of the cell in the default date format. For example, 20 Sept 2003, 20 September 2003 and 20-09-2003 will all be interpreted by Calc as dates. If the default date format is **Short date**, then Calc will reformat these as 20/09/03 in all cases. If you wish these not to be interpreted as dates, precede the entry with the ' symbol.

If the contents of a cell are interpreted as data, then certain types of date arithmetic can be performed. For example, two dates can be subtracted to yield the number of days between the dates. If a number is added to a date, this is interpreted as a number of days and the result will be another date.

Entering data

Data can be entered into the current cell. As you type, numbers and text will be entered into a cell. At the same time these appear on the **Input line** of the **Formula bar**.

When you have completed your data entry, press **Enter** to move to the cell below or **Tab** to move to the cell to the right.

You may also use the direction arrows to move to an adjacent cell.

Changing the direction of Enter

By default, when you press **Enter**, the cursor moves to the next cell down. This can be changed using:
Tools >> Options >> OpenOffice.org >> General

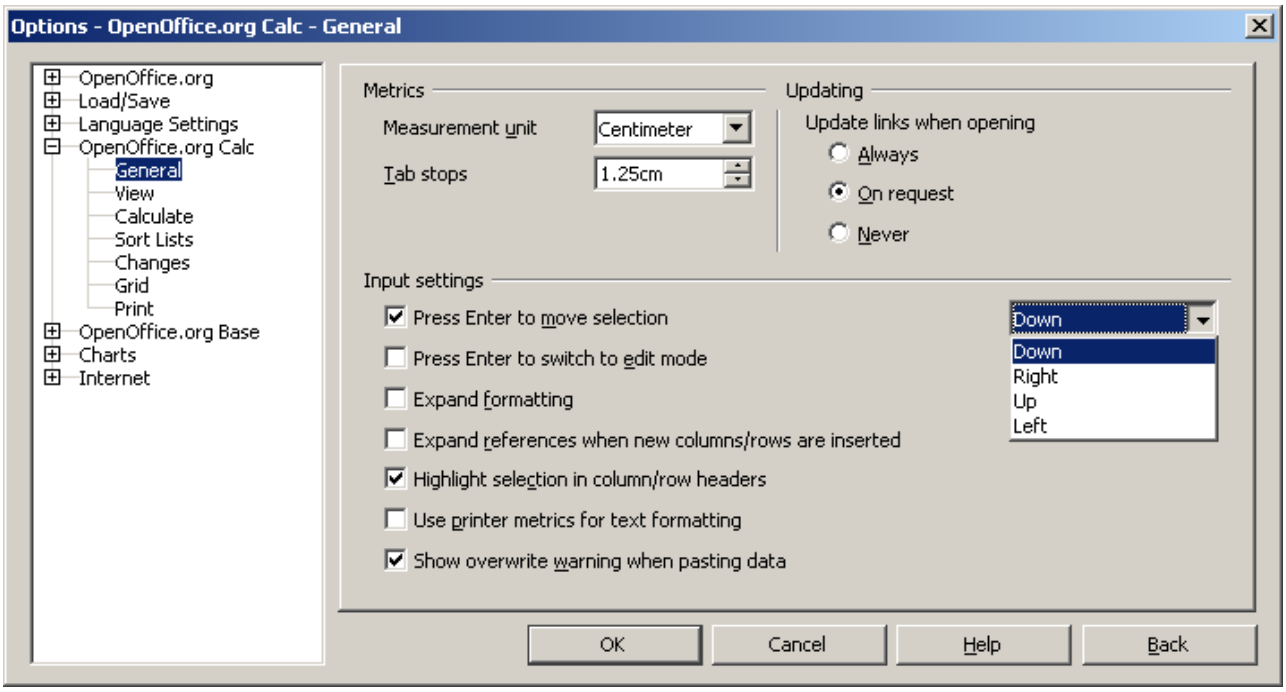
Note on notation

To simplify the text in future, where there is no possibility of ambiguity, the notation:

- **Tools » Options » OpenOffice.org » General**

will be used instead of the longer form:

- Click on **Tools**, then **Options**.
- Expand the **OpenOffice.org** option by clicking on the **+** symbol
- Click on **General**



- Check **Press Enter to move selection**.
- Select the appropriate option in the drop down window as shown on the screen above.

4.2.2 Select cells

4.2.2.1 Select a cell, range of adjacent cells, range of non-adjacent cells, entire worksheet

When a cell or group of cells is selected, actions can be performed on these cells. These operations include deleting the cells, copying them to the clipboard, changing their font and so on.

Select a single cell

- To select a single cell, simply click of the cell.

Select a range of adjacent cells

- Click on the first cell of the range.
- Hold down the left mouse button and drag the cursor to the last cell of the range

OR

- Hold down the **Shift** key and use the direction arrows to move to the last cell of the range.

OR

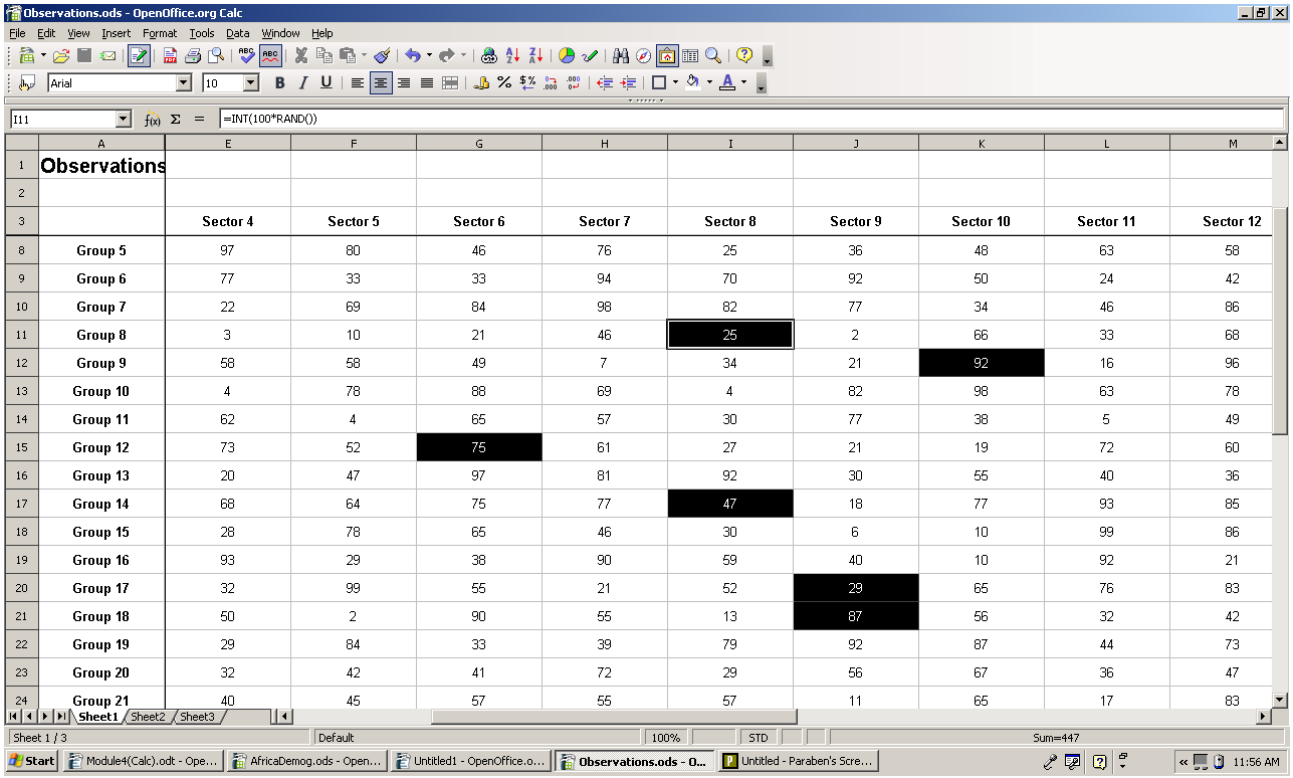
- Hold down the **Shift** key and click on the last cell of the range.

The selected cells will be highlighted on the worksheet.

Select a range of non-adjacent cells

- Hold down **Shift** and click on the first cell.
- Release the **Shift** key.
- Hold down the **Ctrl** key and click on each of the cells you wish to select.

The following screen shows the selection of a number of non-adjacent cells.



Select an entire worksheet

- **Edit » Select All** (Click on **Edit**, then click on **Select All** – see **Note on notation** above)

OR

- Hold down **Ctrl** and press **A**.

4.2.2.2 Select a row, range of adjacent rows, range of non-adjacent rows

Select an entire row

- Click on the row number.

Select a range of adjacent rows

- Click on the row number of the first of the rows.
- Hold down the **Shift** key and click on the row number of the final row.

Select a range of non-adjacent rows

- Click the row number of the first row you wish to select.
- Hold down the **Ctrl** key and click on the row numbers of the other rows you wish to select.

4.2.2.3 Select a column, range of adjacent columns, range of non-adjacent columns

Select an entire column

- Click on the column letter.

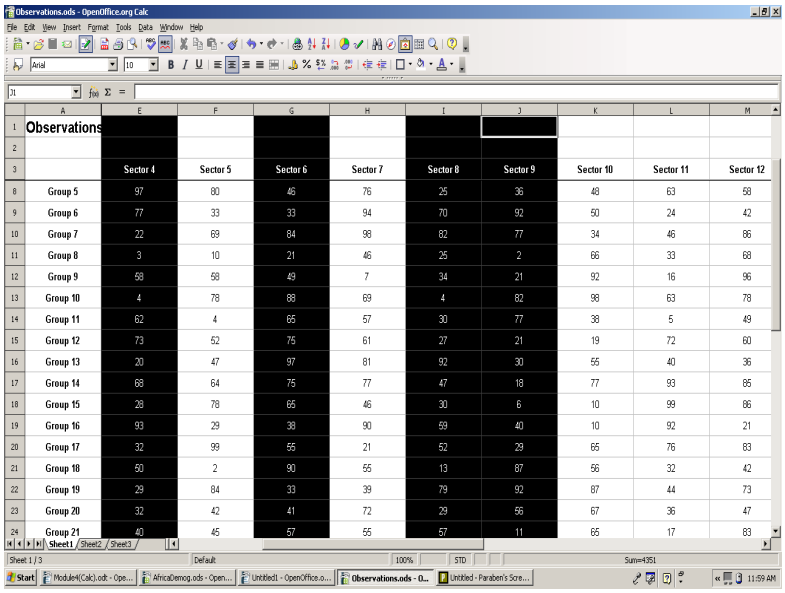
Select a range of adjacent columns

- Click on the column letter of the first of the columns.
- Hold down the **Shift** key and click on the column letter of the final column.

Select a range of non-adjacent columns

- Click the column letter of the first column you wish to select.
- Hold down the **Ctrl** key and click on the column letters of the other columns you wish to select.

The following screen illustrates a number of non-adjacent columns selected.

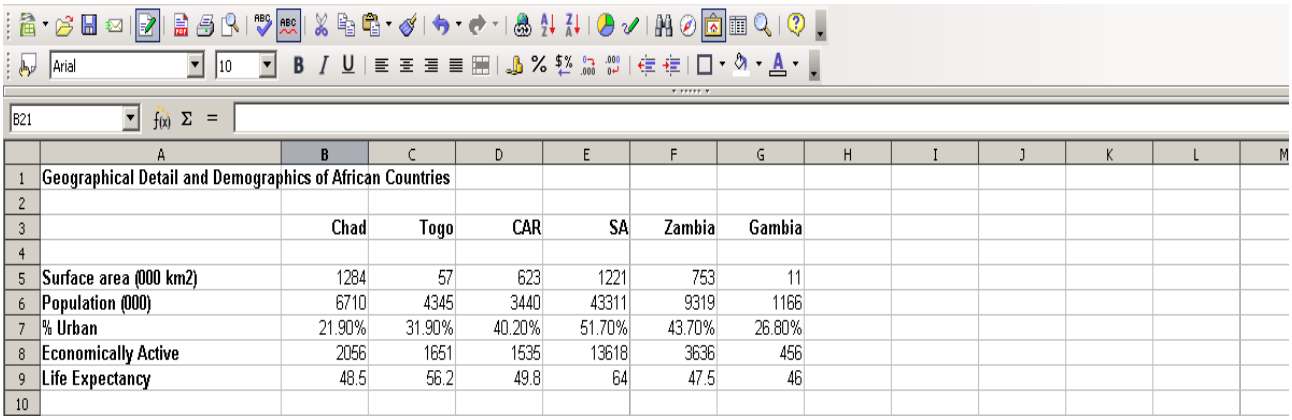


4.2.3 Rows and columns

4.2.3.1 Insert rows, columns in a worksheet

Insert a single row

Suppose we have the file AfricaDemog.ods displayed:



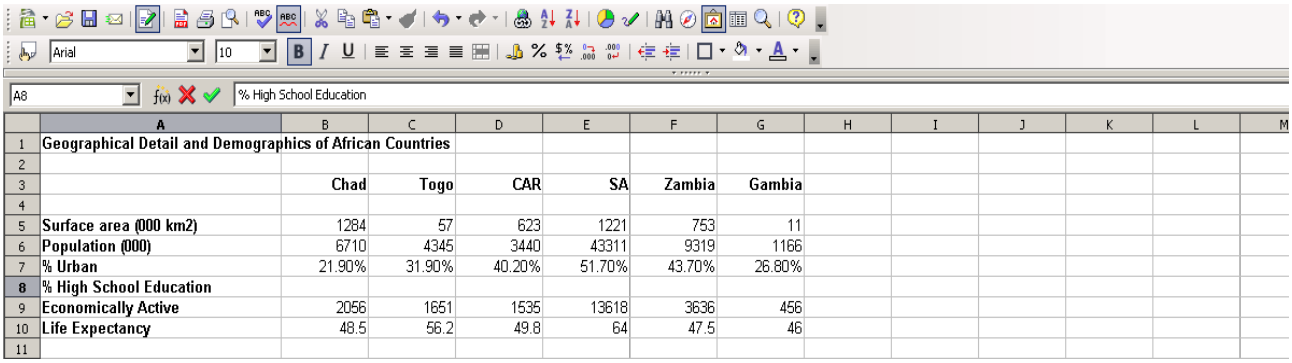
	A	B	C	D	E	F	G
1	Geographical Detail and Demographics of African Countries						
2							
3		Chad	Togo	CAR	SA	Zambia	Gambia
4							
5	Surface area (000 km2)	1284	57	623	1221	753	11
6	Population (000)	6710	4345	3440	43311	9319	1166
7	% Urban	21.90%	31.90%	40.20%	51.70%	43.70%	26.80%
8	Economically Active	2056	1651	1535	13618	3636	456
9	Life Expectancy	48.5	56.2	49.8	64	47.5	46
10							

We now wish to insert a row after **% Urban** with the row heading **% High school education**.

- Position the cursor anywhere in row 8.
- **Insert » Rows**.

Note when you execute this command, the new row is inserted before the current row. Row 8 is now a blank row.

- Click on A8 and type the text **% High school education**.



	A	B	C	D	E	F	G
1	Geographical Detail and Demographics of African Countries						
2							
3		Chad	Togo	CAR	SA	Zambia	Gambia
4							
5	Surface area (000 km2)	1284	57	623	1221	753	11
6	Population (000)	6710	4345	3440	43311	9319	1166
7	% Urban	21.90%	31.90%	40.20%	51.70%	43.70%	26.80%
8	% High School Education						
9	Economically Active	2056	1651	1535	13618	3636	456
10	Life Expectancy	48.5	56.2	49.8	64	47.5	46
11							

Insert several rows

Suppose you wished to insert three rows after **% Urban**.

- Select rows 8 to 10.
- **Insert » Rows**

This will insert three new rows 8 to 10. The previous rows 8 to 10 will be shifted down.

Insert one or more columns

The process of inserting one or more columns is done in a similar way:

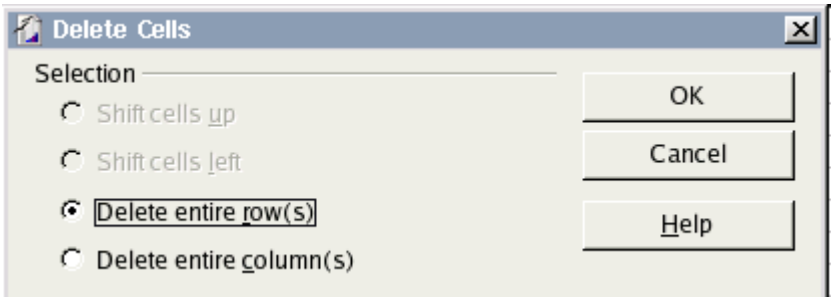
- Select the columns.
- **Insert » Columns**

Existing columns will be shifted to the right.

4.2.3.2 Delete rows, columns in a worksheet

- Select the rows or columns to be delete. These may be adjacent or not.
- **Edit » Delete cells**

This will bring up the **Delete cells** dialogue.



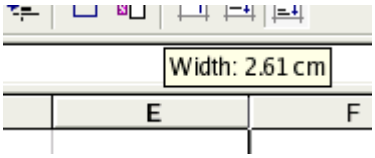
- Click on the **Delete entire row(s)** or **Delete entire column(s)** radio button as appropriate.
- Click **OK**.

4.2.3.3 Modify column widths, row heights

Resize column widths using the mouse

- Position the cursor on the right hand border on the column letter box.
- Hold down the left hand mouse button and drag the border to the left or right.

As you do the width of the column will be displayed.



Important: You can only use the right hand border for adjusting the column width.

Resize rows heights using the mouse

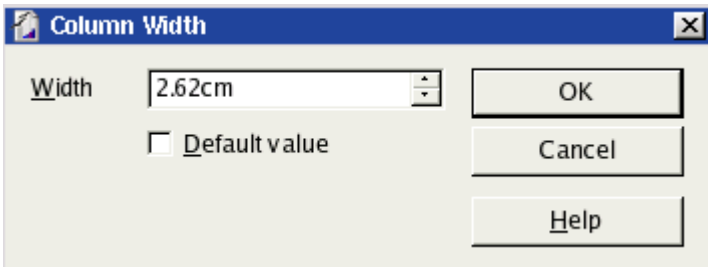
- Position the cursor on the lower border of the row number.
- Hold down the left hand mouse button and drag the border down or up.

Important: You must use the lower border of the cell. If you drag the upper border of a cell, you will change the row height of the cell above. For example, instead of making the lower cell wider, you will make the upper cell narrower.

Resize one or more columns using Format

- Select the column(s) whose width you wish to change (or press **Ctrl+A** to select all the columns).
- **Format » Column » Width**

This brings up the **Format column width** dialogue.



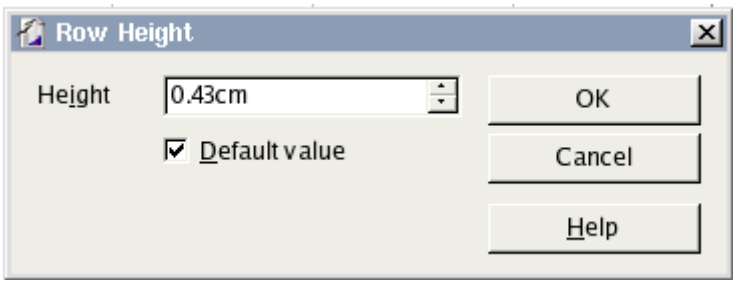
- Enter a value in the **Width** window and click **OK**.

OR

- Check the **Default value** check box to select the default column width and click **OK.**

Resize one or more rows using Format

- Select the row(s) whose height you wish to change (or press **Ctrl+A** for all the rows).
- **Format » Row » Height**. This brings up the **Format row height** dialogue.



- Check the **Default value** check box to select the default row height and click **OK**.

OR

- Enter a height into the **Height** window and click **OK**.

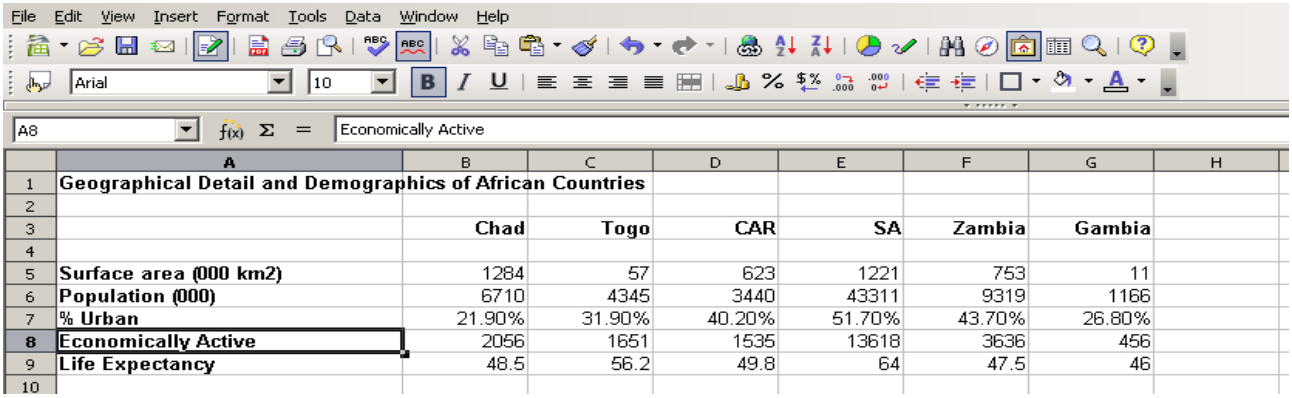
4.2.4 Edit data

4.2.4.1 Insert additional cell content, replace existing cell content

Edit existing content of a cell

Suppose we click on a cell, for example A8 in the following screen. The contents of cell A8 are also display in the **Input line** of the **Formula bar.** If you wish to add text to the existing contents of the cell:

- Click at the end of the text in the **Input line**.



	A	B	C	D	E	F	G	H
1	Geographical Detail and Demographics of African Countries							
2								
3		Chad	Togo	CAR	SA	Zambia	Gambia	
4								
5	Surface area (000 km2)	1284	57	623	1221	753	11	
6	Population (000)	6710	4345	3440	43311	9319	1166	
7	% Urban	21.90%	31.90%	40.20%	51.70%	43.70%	26.80%	
8	Economically Active	2056	1651	1535	13618	3636	456	
9	Life Expectancy	48.5	56.2	49.8	64	47.5	46	
10								

- Press **Enter**, **Tab** or an arrow key when you are done.

Alternatively, you could edit the contents of the **Input line** as you would any text. You can insert text or delete text.

Replace content of a cell

- Click on the cell whose content you wish to replace.
- Type your new content.

When you do this, the existing content of the cell will automatically be replaced by your new entry.

Note: The difference between the method for editing existing content and replacing existing content is that to edit the content you click on the input line whereas to replace you do not.

4.2.4.2 Use the undo, redo command

Suppose you delete a line of text, then immediately realise you have made a mistake. The **undo** command allows you to go back a step to the point before the previous command. To use this command:

- **Edit » Undo**

OR

- Press **Ctrl+Z**.

In fact the undo command has a history. If you repeat the command it will undo the second last command. If you repeat it once more it will undo the third last command, and so on.

The redo command reverses the effect of the last undo. To use this command:

- **Edit » Redo**.

Suppose you had used the undo command three times. In effect you would have undone your previous three command. If you now use the redo, it will re-instate these actions.

The best way of understanding how undo and redo work is to practice using them.

4.2.5 Duplicate, Move, Delete

4.2.5.1 Duplicate the content of a cell, cell range within a worksheet, between worksheets, between spreadsheets

The process of duplicating data involves a number of simple steps:

- Select the cells to be duplicated.
- Copy them to the clipboard. Usually we refer to this simply as **copy**.
- Select the target (where the cells are to be copied to).
- Paste the data from the clipboard.

Warning: When you paste data, the contents of the target cells will be overwritten.

Duplicate within a worksheet

Suppose you have the following spreadsheet displayed on your screen.

B4 f(x) Σ = =INT(100*RAND())

	A	B	C	D	E	F	G	H	I
1	Observations by Group and Sector								
2									
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8
4	Group 1	98	83	16	35	90	40	40	41
5	Group 2	74	14	47	15	0	87	73	46
6	Group 3	96	84	86	53	98	37	52	60
7	Group 4	91	85	27	39	75	97	57	53
8	Group 5	50	11	12	22	13	76	42	64
9	Group 6	99	97	49	65	97	26	71	28
10	Group 7	48	29	54	62	96	75	40	84
11	Group 8	44	67	67	52	61	12	94	3
12	Group 9	80	99	54	7	73	71	95	39
13	Group 10	5	67	23	6	3	82	9	32
14	Group 11	64	12	51	62	3	29	43	74
15	Group 12	34	69	55	55	8	56	98	64

Suppose you now wish to insert another set of headings above Group 11.

- Insert a blank row at row 14.
- Select cells B3 to K3. (We represent a range of cells such as this with the notation B3:K3)

- Copy the selected cells using one of the following methods:
  Press **Ctrl+C**.
  Edit » Copy
  Click the **Copy** icon, 
- Position the cursor at the start of the target range. (It is not necessary to highlight the entire range.)
- Paste the copied cells using one of the following methods:
  Press **Ctrl+V**.
  Edit » Paste.
  Click the **Paste** icon, 

B15 | =INT(100*RAND())

	A	B	C	D	E	F	G	H	I
1	Observations by Group and Sector								
2									
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8
4	Group 1	52	75	4	28	51	66	2	15
5	Group 2	16	22	93	86	27	86	74	32
6	Group 3	33	73	29	78	58	50	68	11
7	Group 4	5	39	5	3	82	69	62	7
8	Group 5	71	49	19	17	12	73	57	47
9	Group 6	30	25	7	5	78	0	48	19
10	Group 7	21	8	55	83	37	77	66	87
11	Group 8	70	10	53	8	31	31	62	2
12	Group 9	25	69	23	1	22	99	71	35
13	Group 10	8	19	9	87	79	53	27	17
14		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8
15	Group 11	17	76	25	38	34	45	46	97
16	Group 12	54	33	69	40	95	54	70	10

Duplicate between worksheets

When you create a new spreadsheet, Calc creates three worksheets by default. You can think of each worksheet as a page of the spreadsheet. Pages can be added to or removed from the spreadsheet very simply. You can move between the worksheets of an open spreadsheet by clicking on the appropriate tab at the bottom of the work area.

Suppose you wish to copy cells A3:K5 from Sheet 1 to B7 on Sheet 3.

- Select cells A3:K5
- **Edit » Copy**.
- Click on the Sheet 3 tab.

Select cell B7.
- **Edit » Paste**.

Duplicate between open spreadsheets

It is possible to have several spreadsheets open at the same time. The difference between spreadsheets and worksheets is that the spreadsheets are stored in different files, whereas the worksheets of a particular spreadsheet are all stored in the same file.

You can switch between spreadsheet using the **Window** menu item.

Suppose you have two spreadsheets open. The first is called ObservationsByGroupSector and the other is called Obs2. You now wish to copy the cells A3:K10 from the first into the second starting at B5.

- Click on **Window**.
- Click on **ObservationsByGroupSector.sxc**

This will display this spreadsheet.
- Select cells A3:K10.
- **Edit » Copy**.
- **Window » Obs2.**
- Select cell B5.
- **Edit » Paste.**

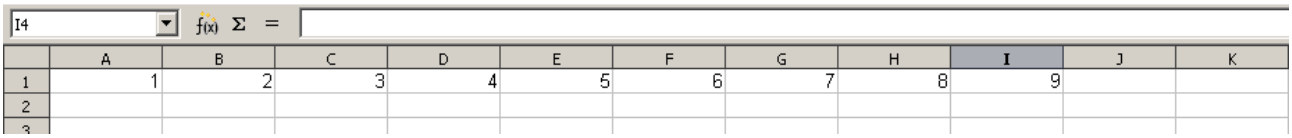
4.2.5.2 Use autofill tool/copy to copy, increment data entries

- Open a new spreadsheet.
- Type **1** in A1 and **2** in A2.
- Select A1 and A2.

A fill handle will appear at the bottom right hand corner of A2.

- Drag the highlight across the adjacent cells.
- Deselect the cells by clicking elsewhere in the spreadsheet.

Calc will attempt to complete the series based on the values in the first two cells as shown on the next screen.



- Now type **100** in B1 and **101** in B2
- Drag the fill handle across the adjacent cells.

Calc assumes you wish to insert a series of numbers will a common difference between the cells.

- Type **5** in C1 and **8** in C2.
- Drag the fill handle across the adjacent series.

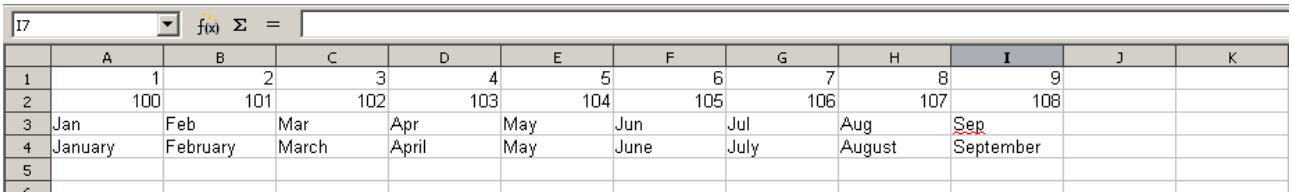
In this case the difference between the first two cells is 3. Calc assumes each cell must have a value 3 greater than the previous cell.

- Type **Jan** into D1 and **Feb** into D2.
- Drag the fill handle across adjacent cells.

Calc now assumes you wish the series to be the names of months.

- Type **January** into E1 and **February** into E2.
- Drag the fill handle across adjacent cells.

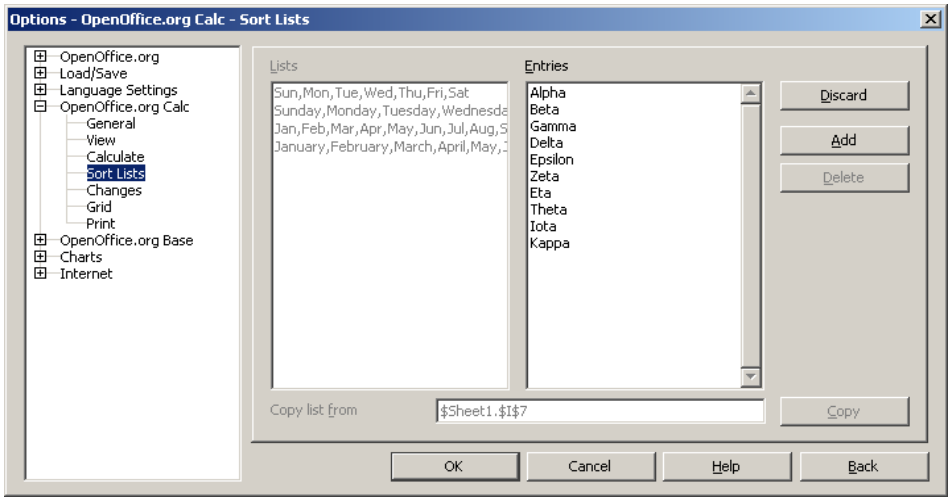
At this point your screen will appear as follows:



	A	B	C	D	E	F	G	H	I	J	K
1	1	2	3	4	5	6	7	8	9		
2	100	101	102	103	104	105	106	107	108		
3	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
4	January	February	March	April	May	June	July	August	September		
5											

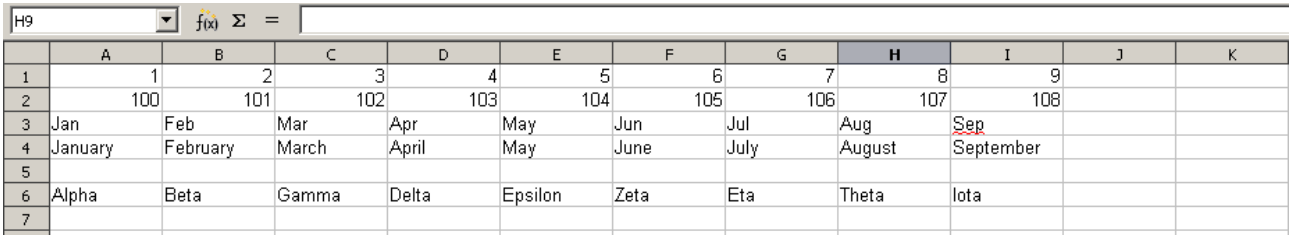
You can create your own sort lists as follows:

- **Tools » Options » OpenOffice.org Calc » Sort lists**
- Click the **New** button.
- Type the entries into the **Entries** window as shown on the next screen. You will need to press **Enter** after each entry.



Click **Add** when complete.

- Type **Alpha** in A6 and **Beta** in B6.
- Drag the fill handle across adjacent cells.
-



	A	B	C	D	E	F	G	H	I	J	K
1	1	2	3	4	5	6	7	8	9		
2	100	101	102	103	104	105	106	107	108		
3	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
4	January	February	March	April	May	June	July	August	September		
5											
6	Alpha	Beta	Gamma	Delta	Epsilon	Zeta	Eta	Theta	Iota		
7											

You can use this method to create your own sort lists.

4.2.5.3 Move the content of a cell, cell range Within a worksheet, between worksheets, between spreadsheets

The procedure for moving the content of cell(s) is exactly the same as that for duplicating the content of cell(s) except that you use the **Cut** function instead of the copy function.

- Select the cell(s) whose content is to be moved
- Cut the selected cells using one of the following methods:
  Press **Ctrl+X**.
  Edit » Cut
  Click the **Cut** icon, 

- Position the cursor at the start of the target range. (It is not necessary to highlight the entire range.)

Note that the target may be in the same worksheet, or a different worksheet within the same spreadsheet or within a different spreadsheet.

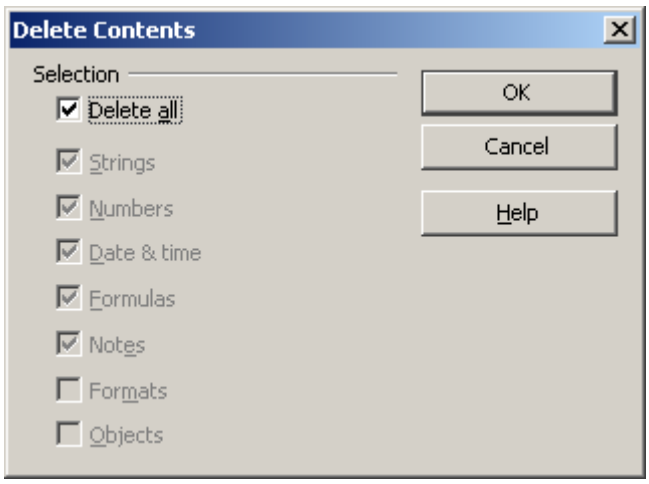
- Paste the copied cells using one of the following methods:
  Press **Ctrl+V**.
  Edit » Paste.
  Click the **Paste** icon, 

4.2.5.4 Delete cell contents

Use the Delete key

- Open a spreadsheet.
- Select a range of cells.
- Press the **Delete** key.
- The **Delete dialogue** will be displayed.
- Select an option and press **OK.**

The effect is as shown on the following screen. As this screen shows the contents of the cell are emptied. No cells are moved in the process.

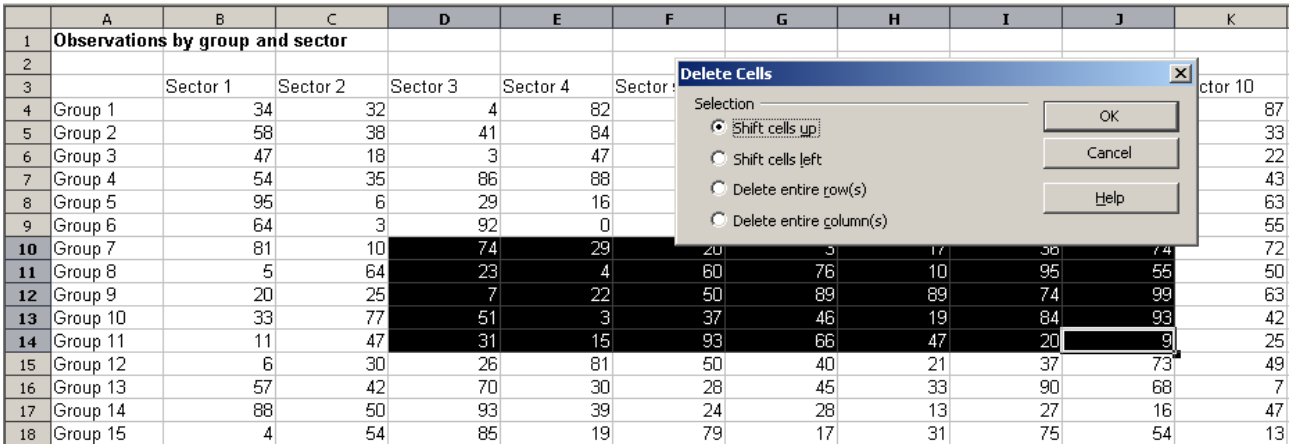


	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Observations by group and sector**													
2														
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Sector 11	Sector 12	Sector 13
4	Group 1	34	32	93	12	9	40	72	66	76	45	57	69	38
5	Group 2	24	8	3	4	17	51	23	76	91	27	11	25	4
6	Group 3	82	30	18	62	45	98	36	52	98	89	47	56	95
7	Group 4	93	85	19	25	26	76	72	89	37	91	7	68	93
8	Group 5	47	73	59	91	33	8	72	81	3	88	40	50	93
9	Group 6	65	50	43	12	30	37	78	66	37	69	30	60	23
10	Group 7	38								44	38	88	2	40
11	Group 8	6								38	97	83	12	77
12	Group 9	41								80	95	45	78	61
13	Group 10	11								74	68	37	36	83
14	Group 11	64	56	39	72	99	70	49	30	22	47	97	25	82
15	Group 12	4	59	96	37	25	74	96	58	41	72	26	9	7
16	Group 13	91	8	89	87	97	13	2	66	11	21	44	88	39
17	Group 14	22	72	74	13	14	51	77	51	35	41	57	24	77
18	Group 15	10	33	53	1	47	66	20	25	65	63	10	97	47

Use Edit » Delete Cells

- Highlight a range of cells.
- **Edit » Delete cells**.

You are now offered a range of options:



	A	B	C	D	E	F	G	H	I	J	K
1	**Observations by group and sector**										
2											
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector					ctor 10
4	Group 1	34	32	4	82						87
5	Group 2	58	38	41	84						33
6	Group 3	47	18	3	47						22
7	Group 4	54	35	86	88						43
8	Group 5	95	6	29	16						63
9	Group 6	64	3	92	0						55
10	Group 7	81	10	74	29	20	5	17	38	74	72
11	Group 8	5	64	23	4	60	76	10	95	55	50
12	Group 9	20	25	7	22	50	89	89	74	99	63
13	Group 10	33	77	51	3	37	46	19	84	93	42
14	Group 11	11	47	31	15	93	66	47	20	9	25
15	Group 12	6	30	26	81	50	40	21	37	73	49
16	Group 13	57	42	70	30	28	45	33	90	68	7
17	Group 14	88	50	93	39	24	28	13	27	16	47
18	Group 15	4	54	85	19	79	17	31	75	54	13

The operation of **Edit » Delete cells** is quite different to the action of the **Delete** key. You are offered a number of options as shown on the previous screen. All of these will involve movement of cells to the right and / or below the highlighted cells.

- Click the **Shift cells up** radio button and click **OK.**

Notice that the cells in D15:J19 have been moved up to D10:J14 as shown on the next screen.

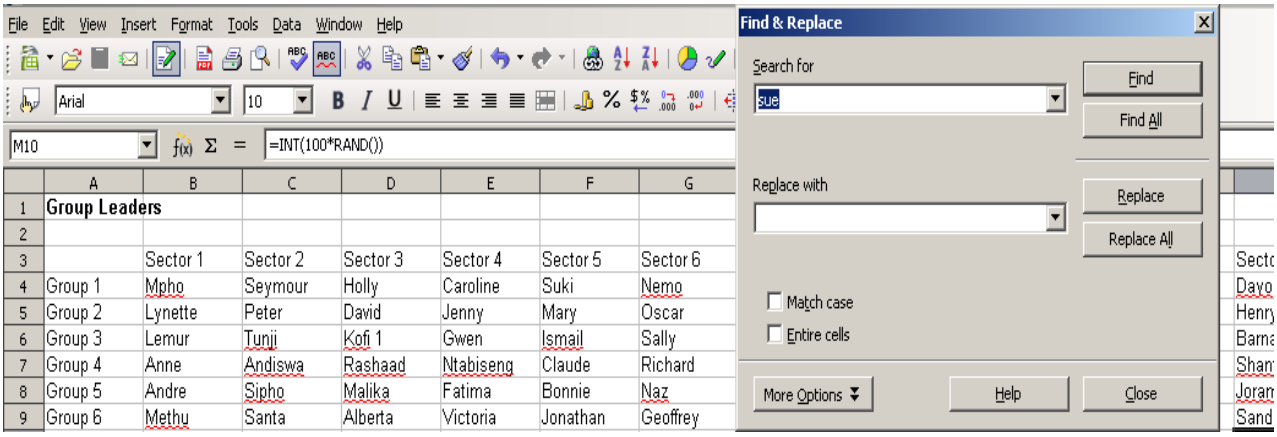
4.2.6 Search and Replace

4.2.6.1 Use the search command for specific content in a worksheet

In practical situations spreadsheets are often quite large and we need quick methods of locating items.

Suppose you have a spreadsheet loaded as shown on the next screen and you wish to locate an item.

- **Edit » Find and replace.**



	A	B	C	D	E	F	G
1	**Group Leaders**						
2							
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6
4	Group 1	Mpho	Seymour	Holly	Caroline	Suki	Nemo
5	Group 2	Lynette	Peter	David	Jenny	Mary	Oscar
6	Group 3	Lemur	Tunji	Kofi 1	Gwen	Ismail	Sally
7	Group 4	Anne	Andiswa	Rashaad	Ntabiseng	Claude	Richard
8	Group 5	Andre	Sipho	Malika	Fatima	Bonnie	Naz
9	Group 6	Methu	Santa	Alberta	Victoria	Jonathan	Geoffrey

- Type the item in the **Search for** window.
- Click **Find all** to highlight all occurrences of the item.

OR

- Click **Find**.

- This will select the first occurrence of the item.
- Click **Find** repeatedly to locate further occurrences.

4.2.6.2 Use the replace command for specific content in a worksheet

The **Find** command simply locates occurrences of an item. It does not change these in any way. You may do so manually, if you wish.

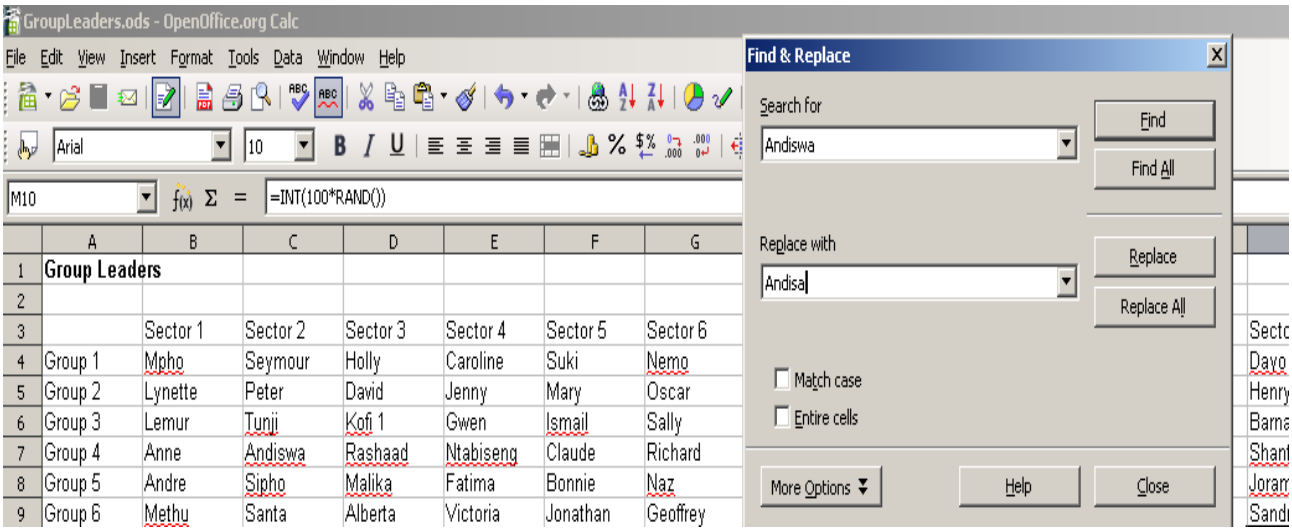
The **Replace** command on the other hand is useful when we wish to change entries.

The **Replace** command provides us with two methods of replacement.

Replace all replaces all occurrences of the item with the new entry without further prompting.

Replace gives you the option of changing each occurrence or not.

- **Edit » Find and replace**
- Type appropriate entries in the **Search for** window and the **Replace with** window.



Global replacement

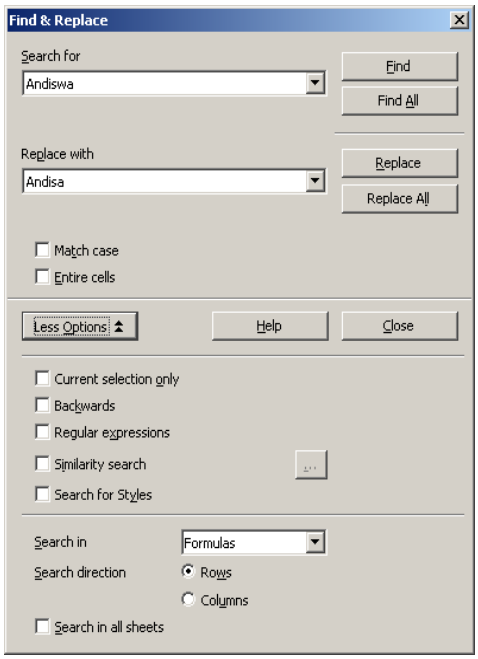
- Click **Replace all**.

In this case all occurrences of **Andiswa** will be replaced by **Andisa** without any further prompting**.**

Selective replacement

- Click **Find** to locate the first occurrence.
- Click **Replace** if you wish to replace this item or click **Find** to locate the next occurrence.
- Repeat this process until you have cycled through all the occurrences.

Important Find and replace options



- Click the **More Options** button.

This will display the full set of options which can be selected by checking the appropriate check box.

Backwards: By default, the **Find** procedure moves to the right and down the spreadsheet, ie forwards. If you wish to move backwards, check this option.

Match case: By default, the **Find** procedure ignores the case of text. This is called **case insensitive**. Where you wish to match the case of text, check this box. The **Search** is then said to be **case sensitive**.

Entire cells: By default, the **Find** procedure looks anywhere in the cell for the search data. This option matches the criterion to the cell as a whole, not any part.

4.2.7 Sort Data

4.2.7.1 Sort a cell range by one criterion in ascending, descending numeric order, ascending, descending alphabetic order

Sorting a range of cells is a straight forward process involving the following steps:

- Highlight the range of cells to be sorted.
- **Data » Sort**.
- Set the criteria in the **Sort** dialogue.
- Click **OK**.

Important: Select the entire block to be sorted. If columns are omitted, the resulting data could become a meaningless jumble.

Numeric sorts

Suppose we have the following spreadsheet displayed on our screen. We wish to sort the groups in the order of the scores in Sector 1. Here we wish to sort according to values, hence this is a numeric sort.

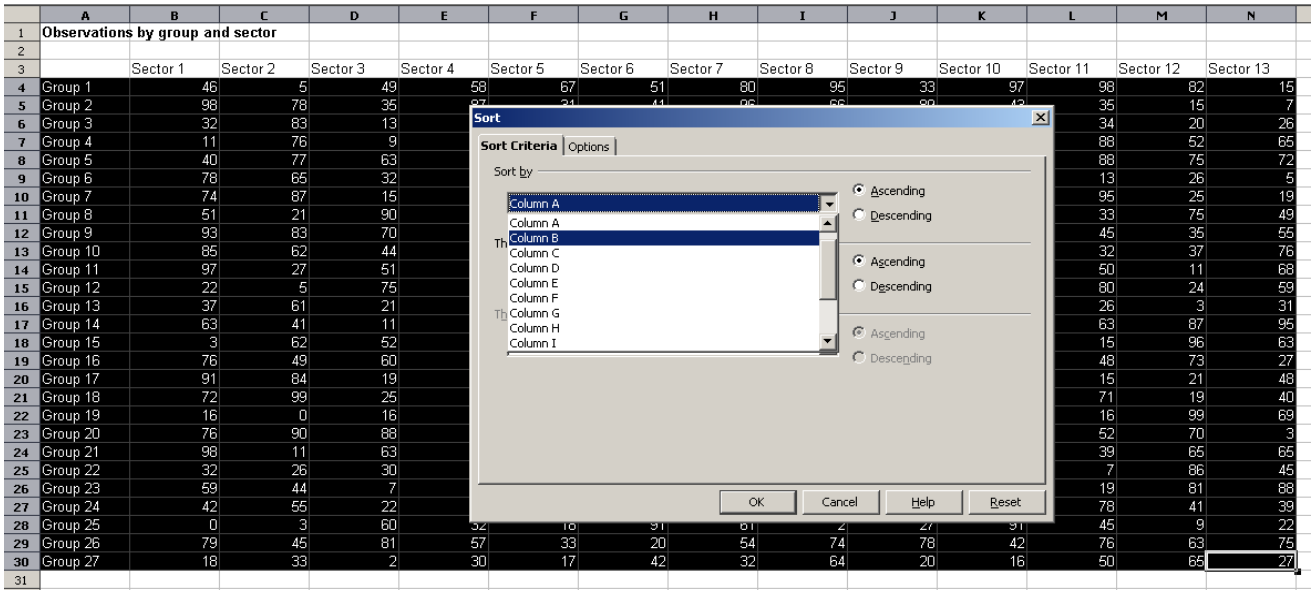
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Observations by group and sector**													
2														
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Sector 11	Sector 12	Sector 13
4	Group 1	46	5	49	58	67	51	80	95	33	97	98	82	15
5	Group 2	98	78	35	87	31	41	96	66	89	43	35	15	7
6	Group 3	32	83	13	99	32	5	93	71	34	60	34	20	26
7	Group 4	11	76	9	33	58	26	31	50	7	34	88	52	65
8	Group 5	40	77	63	64	28	24	82	43	72	15	88	75	72
9	Group 6	78	65	32	93	5	91	20	8	60	63	13	26	5
10	Group 7	74	87	15	33	63	21	21	40	91	97	95	25	19
11	Group 8	51	21	90	15	42	50	57	32	31	56	33	75	49
12	Group 9	93	83	70	67	57	29	44	24	0	65	45	35	55
13	Group 10	85	62	44	45	63	70	15	93	4	24	32	37	76
14	Group 11	97	27	51	82	2	16	92	57	80	94	50	11	68
15	Group 12	22	5	75	89	24	9	74	87	65	83	80	24	59
16	Group 13	37	61	21	71	66	72	90	78	92	62	26	3	31
17	Group 14	63	41	11	90	94	17	96	63	68	21	63	87	95
18	Group 15	3	62	52	79	68	58	45	72	9	2	15	96	63
19	Group 16	76	49	60	88	61	18	67	87	4	97	48	73	27
20	Group 17	91	84	19	32	7	11	31	67	38	91	15	21	48
21	Group 18	72	99	25	42	25	82	99	53	1	34	71	19	40
22	Group 19	16	0	16	89	68	69	13	78	13	7	16	99	69
23	Group 20	76	90	88	55	14	20	68	23	31	21	52	70	3
24	Group 21	98	11	63	67	14	40	10	69	96	19	39	65	65
25	Group 22	32	26	30	64	70	83	13	14	62	24	7	86	45
26	Group 23	59	44	7	23	73	40	30	94	69	98	19	81	88
27	Group 24	42	55	22	3	75	64	14	53	8	1	78	41	39
28	Group 25	0	3	60	32	18	91	61	2	27	91	45	9	22
29	Group 26	79	45	81	57	33	20	54	74	78	42	76	63	75
30	Group 27	18	33	2	30	17	42	32	64	20	16	50	65	27
31														

In this case, the data is located in the range A4:N30. We call each row between columns A and F a **record** and each column a **field**. The rows will be sorted according to the values in Column B in Ascending order (the smallest first).

- Highlight the range A4:N30.

If we omitted any rows, the records would not be sorted. If we omitted any columns, the values in the omitted fields would be associated with the wrong records.

- **Data » Sort**.



In the **Sort by** window select **Column B**. This is the column that contains the values that we wish to sort according to.

- Check the adjacent **Ascending** radio button.
- Click **OK**.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Observations by group and sector**													
2														
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Sector 11	Sector 12	Sector 13
4	Group 25	0	3	60	32	18	91	61	2	27	91	45	9	22
5	Group 15	3	62	52	79	68	58	45	72	9	2	15	96	63
6	Group 4	11	76	9	33	58	26	31	50	7	34	88	52	65
7	Group 19	16	0	16	89	68	69	13	78	13	7	16	99	69
8	Group 27	18	33	2	30	17	42	32	64	20	16	50	65	27
9	Group 12	22	5	75	89	24	9	74	87	65	83	80	24	59
10	Group 3	32	83	13	99	32	5	93	71	34	60	34	20	26
11	Group 22	32	26	30	64	70	83	13	14	62	24	7	86	45
12	Group 13	37	61	21	71	66	72	90	78	92	62	26	3	31
13	Group 5	40	77	63	64	28	24	82	43	72	15	88	75	72
14	Group 24	42	55	22	3	75	64	14	53	8	1	78	41	39
15	Group 1	46	5	49	58	67	51	80	95	33	97	98	82	15
16	Group 8	51	21	90	15	42	50	57	32	31	56	33	75	49
17	Group 23	59	44	7	23	73	40	30	94	69	98	19	81	88
18	Group 14	63	41	11	90	94	17	96	63	68	21	63	87	95
19	Group 18	72	99	25	42	25	82	99	53	1	34	71	19	40
20	Group 7	74	87	15	33	63	21	21	40	91	97	95	25	19
21	Group 20	76	90	88	55	14	20	68	23	31	21	52	70	3
22	Group 16	76	49	60	88	61	18	67	87	4	97	48	73	27
23	Group 6	78	65	32	93	5	91	20	8	60	63	13	26	5
24	Group 26	79	45	81	57	33	20	54	74	78	42	76	63	75
25	Group 10	85	62	44	45	63	70	15	93	4	24	32	37	76
26	Group 17	91	84	19	32	7	11	31	67	38	91	15	21	48
27	Group 9	93	83	70	67	57	29	44	24	0	65	45	35	55
28	Group 11	97	27	51	82	2	16	92	57	80	94	50	11	68
29	Group 2	98	78	35	87	31	41	96	66	89	43	35	15	7
30	Group 21	98	11	63	67	14	40	10	69	96	19	39	65	65
31														

If you wished to sort the data by points in descending order, that is with the highest number first, you would have checked the **Descending** radio button.

Alphabetic sorts

Suppose we had wished to sort the data in the previous example in alphabetic order of Group you would proceed as follows:

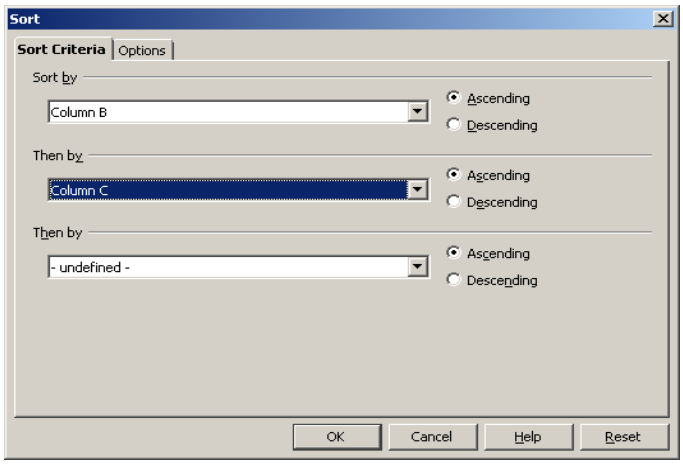
- Highlight A4:N30
- **Data » Sort**.
- Select **Column A** in the **Sort by** window. This is the column containing the name field.
- Check the **Ascending** radio button.

This will sort the records into Group order.

If you wished to sort with the names sorted in reverse order from Z to A, you would check the **Descending** radio button.
- Click **OK.**

Multiple sort criteria

If you look at the results of the previous sort, yo will notice that both Group 3 and Group 22 had values of 32 in Sector A. A similar duplication of results occurs in Groups 16 and 20 with a score of 76 and groups 2 and 21 with scores of 98. Suppose we wish to sort these records based on the scores in Sector B. We then need to make use of multiple sort criteria.



If you are only sorting on a single criterion, then the two **Then by** windows indicated undefined. In the above dialogue, the **Then by** drop down window indicates Column C.

As the above screen shows, Calc can sort on up to three criteria. These do not have to be in any column sequence.

Module 4: OpenOffice.org Calc

Section 3: Worksheets

4.3.1 Handling worksheets

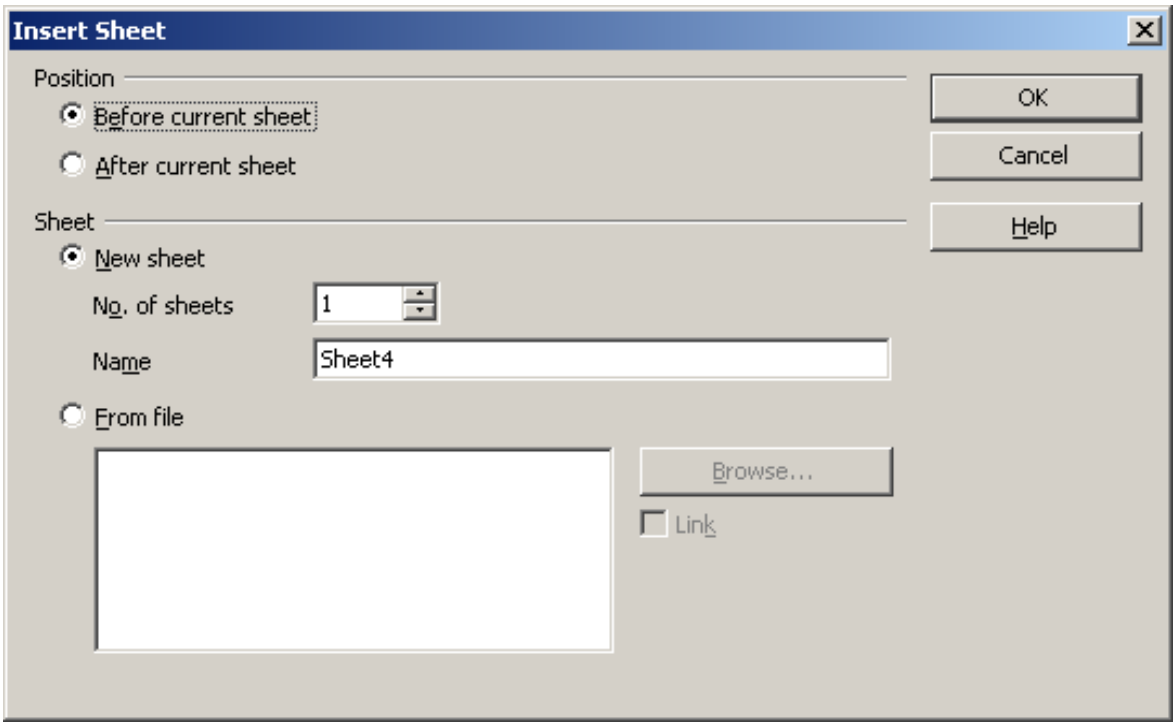
4.3.1.1 Insert a new worksheet

A spreadsheet consists of one or more worksheets. The worksheets can be thought of as pages of the spreadsheets. By default, a spreadsheet consists of three worksheets. These are labelled Sheet1 to Sheet3.

New worksheets can be added to a spreadsheet.

- **Insert » Sheet ...**

This displays the **Insert worksheet** dialogue.



- Choose the **Position**, before or after the current sheet.
- Choose the **No of sheets** you wish to insert.
- If you choose to insert only one sheet, you may (optionally) enter the name of the sheet in the **Name** window.
- Click **OK**.

4.3.1.2 Rename a sheet

The default names of worksheets are Sheet1, Sheet2, and so on. You may change the name of a worksheet as follows:

- Right click on the tab of the worksheet that you wish to rename.
- Select **Rename** in the contextual menu that appears.
- Enter the new name in the dialogue.
- Click **OK**.

4.3.1.3 Delete a worksheet

- Right click on the tab of the worksheet you wish to delete.
- Select **Delete** in the contextual menu that appears.

A dialogue will appear asking you to confirm that you wish to permanently delete the worksheet and its contents.

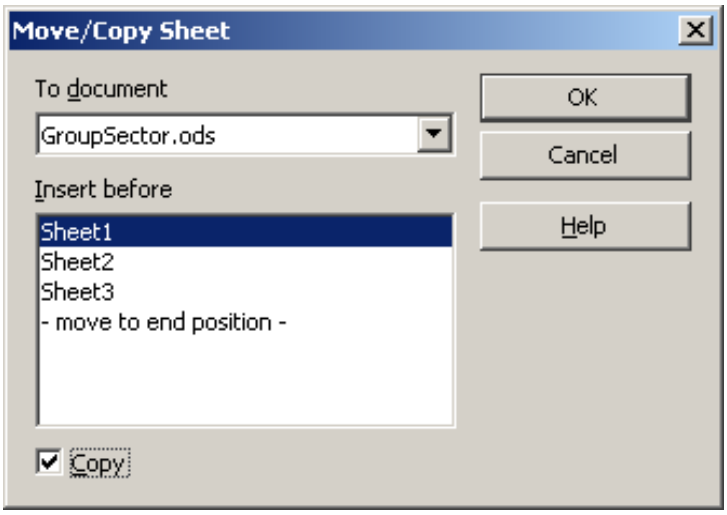
- Click **Yes** to confirm that you wish to delete the worksheet or **Cancel** if you do not wish to.

4.3.1.4 Duplicate a worksheet within a spreadsheet, between spreadsheets

There are two methods of duplicating a copy of a worksheet. One method is to copy the entire contents of a worksheet to the clipboard and then pasting this into another existing worksheet. In this section you will make a duplicate of the worksheet in a new worksheet.

Duplicate a worksheet within a spreadsheet

- Right click on the name tab of the worksheet you wish to duplicate. This will display a contextual menu.
- Select **Copy/Move worksheet .....**



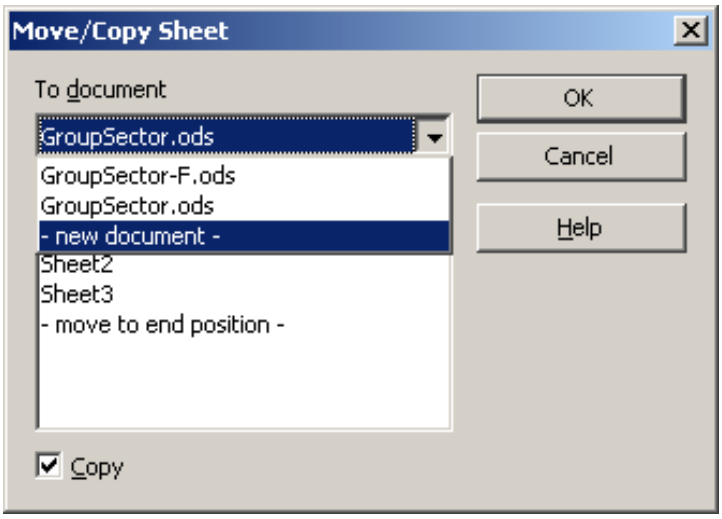
- Tick the **Copy** checkbox as shown above.
- Select the position for the duplicate in the **Insert before** window.
- Click **OK**.
- Rename the duplicate worksheet if you wish.

Duplicate a worksheet between spreadsheets

You may insert a copy of a worksheet in another open spreadsheet or into a new document.

- Right click on the name tab of the worksheet you wish to duplicate. This will display a contextual menu.
- Select **Copy/Move worksheet .....**
- Make sure the **Copy** checkbox is ticked.
- Click on the **To Document** drop down window.

- Select the name of the spreadsheet in which you wish to duplicate the worksheet and select the position in this spreadsheet.
- Select **New document** in the **To document** window if you wish to create a new spreadsheet for the duplicate.



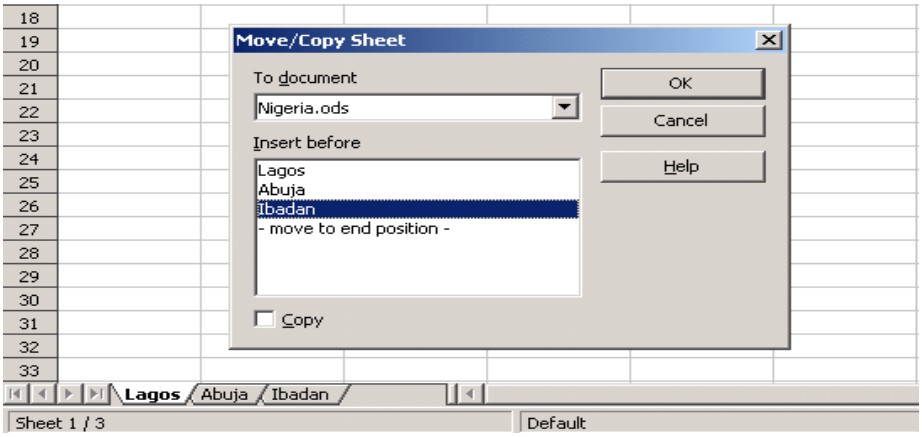
- Click **OK**.

4.3.1.5 Move a worksheet within a spreadsheet, between spreadsheets

The process of **moving** a worksheet within a spreadsheet or between spreadsheets is virtually the same as duplicating a worksheet, **except** that you do **NOT** tick the **Copy** checkbox in the **Move/Copy Sheet** dialogue.

Suppose we have two spreadsheets open. They are called Nigeria and Ghana. Nigeria contains three worksheets called Lagos, Abuja and Ibadan. We wish to move Lagos to a position before Ibadan.

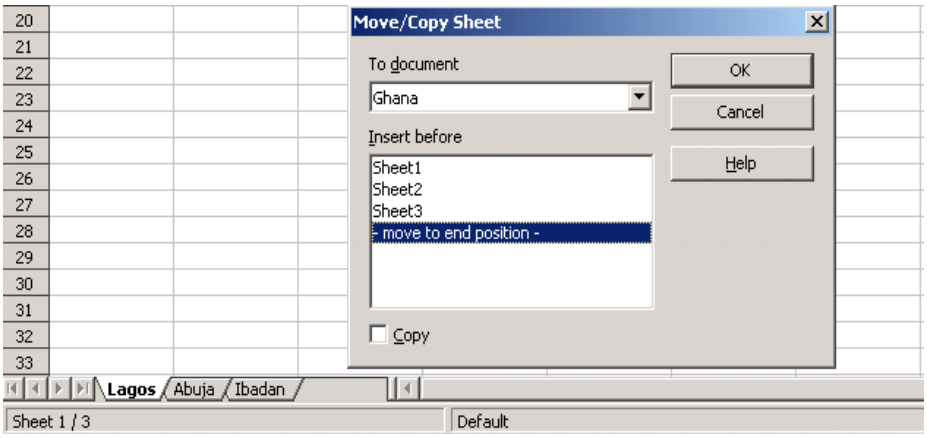
- Right click on **Lagos** and select **Copy/Move Sheets**.
- Uncheck the **Copy** check box.
- Highlight **Ibadan** in the **Insert before** window.



- Click **OK**.

To move the Lagos worksheet to the end of the worksheets in Ghana:

- Right click on **Lagos** and select **Copy/Move Sheets**.
- Uncheck the **Copy** check box.
- Select **Ghana** in the **To document** window.
- Select **Move to end position** in the **Insert before** window.



- Click **OK**.

Module 4: OpenOffice.org Calc

Section 4: Formulas and Functions

4.4.1 Arithmetic formulas

4.4.1.1 Generate formulas using cell references and arithmetic operators Plus (+), minus (-), division (/) and multiplication (*)

The main purpose of a spreadsheet is to automate numeric work and to store the calculations and their results for later use.

At the heart of any numeric work are the calculations themselves. In their simplest form, these are made up of numbers separated by the usual arithmetic operators of addition, subtraction, division and multiplication. The only difference is that the symbols we use in spreadsheets may be different from those you are used to.

Indicating a calculation

Calculations are done within cells. In order to indicate that we wish to do a calculation in a cell, we preface the cell entry with the **=** symbol. This indicates to Calc that it must treat the cell entry as a calculation.

Calc records the entry in a cell as you enter it, but normally displays the result of the calculation.

For example, a cell could contain the entry:

=7+8

Calc however displays the result 15.

You need to make a distinction between the actual contents of a cell and what is displayed.

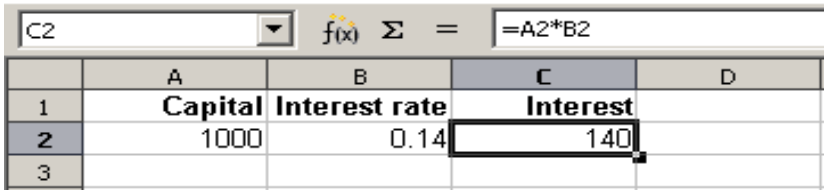
Arithmetic operators

The four basic operations are as follows:

Addition: =7+8.
Subtraction: =7-8
Multiplication: =7*8
Division: =7/8

Arithmetic using cell references: Automatic recalculation

If we simply performed arithmetic using numbers, we may as well use a calculator. Suppose we have a simple situation in which one cell contains an amount of money and another an interest rate. If a third contains the product of the two (a product is the result of multiplying two numbers), this cell will in fact display the interest that would be earned on the capital. This is illustrated in the following screen:

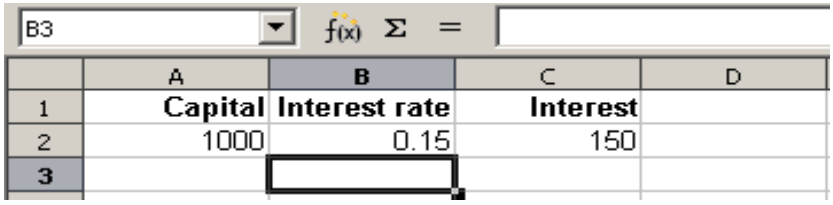


The contents of cell C2 are: =A2*B2

Notice that the formula bar contains the actual contents of a cell. If the cell contains a calculation, the result of the calculation is displayed in the cell.

The = sign indicates that C2 contains a calculation. This calculation involves multiplying the contents of A2 with those of B2.

Now suppose we change the contents of cell B2, without making any change to C2, and press **Enter** as shown in the following screen:



The value in C3 automatically changes to reflect the changed value in B2. This tool is called **automatic recalculation**.

When you save a spreadsheet, the formulas are displayed so that they can be reused at a later stage.

Arithmetic operations using the values of cells are written down in the same way as arithmetic operations between values.

Addition: =A2+B2
Subtraction: =A2-B2
Multiplication: =A2*B2
Division: =A2/B2

More complex calculations are carried out using the normal rules of arithmetic.

Suppose cell A2 contains the value 12, B2 the value 6 and C2 the value 8. The following table illustrates how these can be combined into arithmetic formulas.

Cell entry	Equivalent arithmetic expression	Cell display
=A2 + B2 - C2	12 + 6 - 8	10
=A2 + B2*C2	12 + 6*8	60
=(A2+B2)*C2	(12 + 6)*8	144
=A2/B2 - C2	12/6 - 8	-2
=A2/B2 + A2*C2	12/2 + 12*8	98

Important note: When you carry out arithmetic involving the different operators, remember that different operations have different priorities. The order is as follows:

- Work out the contents of brackets
- Carry out the multiplications and divisions
- Do the additions and subtractions

4.4.1.2 Recognise and understand error values associated with using formulas

If you enter a formula and Calc is not able to interpret it, it will display an **error** in the cell. The main errors that you will come across are shown below.

Error message	Cause of error
#NAME	An identifier could not be evaluated. This usually means that the reference to a cell or row or column was invalid. This is also known as error 525
#VALUE	Calc was unable to evaluate one of the cell references in the formula as a number. This error usually occurs when one of the cells referenced in a formula contains text rather than a number. This is also known as error 519.
#REF	This indicates that the formula contains a reference to a cell, row or column that was deleted. It is also known as error 524.
Invalid floating point operation	A formula contains division by zero. A common misunderstanding is that because multiplication by zero results in zero, so does division by zero. Division by zero is however impossible. This is also known as error 503.

4.4.2 Cell referencing

4.4.2.1 Understand and use relative, mixed and absolute cell referencing in formulas

Relative addressing

Suppose cell D4 contains the formula =D1-D2. Suppose we now copy the contents of D4 to E4:G6.

The result is shown on the following screen:

	A	B	C	D	E	F	G	H
1								
2								
3								
4				=D1-D2	=E1-E2	=F1-F2	=G1-G2	
5					=E2-E3	=F2-F3	=G2-G3	
6					=E3-E4	=F3-F4	=G3-G4	
7								
8								

If you look at this screen, you will see that both the column letters and row numbers can change when the cell D4 is copied.

Cell D4 contains the formula =D1-D2. This means find the difference between the cell three rows up in the same column and the cell two rows up in the same column. When D4 is copied, the formula will be adjusted so that the cell references in the target cells have the same relationship.

For example, F6 contains the formula =F3-F4. This also means the difference between the cell three rows up in the same column and the cell two rows up in the same column. When cell references such as this can be changed when the cell is copied, we say that we are using **relative addresses.**

Absolute addressing

If we put the $ symbol in front of a column letter or row number, then the reference will not change. The following screen indicates this type of addressing known as **absolute addressing**.

	A	B	C	D	E	F	G	H
1								
2								
3								
4				=$D$1-$D$2	=$D$1-$D$2	=$D$1-$D$2	=$D$1-$D$2	
5					=$D$1-$D$2	=$D$1-$D$2	=$D$1-$D$2	
6					=$D$1-$D$2	=$D$1-$D$2	=$D$1-$D$2	
7								
8								

As this screen shows the addresses in the target cells are identical to that in the source cell.

Mixed addressing

You may make either the column or row absolute. When you do this the column or row reference will remain fixed when the cell is copied. This is referred to as **mixed addressing.**

The following two screens illustrate mixed addressing.

	A	B	C	D	E	F	G	H	I
1									
2									
3									
4				=$D1-$D2	=$D1-$D2	=$D1-$D2	=$D1-$D2		
5					=$D2-$D3	=$D2-$D3	=$D2-$D3		
6					=$D3-$D4	=$D3-$D4	=$D3-$D4		
7									
8									

	A	B	C	D	E	F	G	H
1								
2								
3								
4				=D$1-D$2	=E$1-E$2	=F$1-F$2	=G$1-G$2	
5					=E$1-E$2	=F$1-F$2	=G$1-G$2	
6					=E$1-E$2	=F$1-F$2	=G$1-G$2	
7								
8								

4.4.3 Working with functions

4.4.3.1 Generate formulas using SUM, AVERAGE, MINIMUM, MAXIMUM and COUNT functions

SUM

A function is an inbuilt utility that simplifies the creation of arithmetic expressions involving cell ranges.

For example, we could add up the contents of all the cells in the range B4: D7 with the expression:
=B4+B5+B6+B7+C4+C5+C6+C7+D4+D5+D6+D7

Obviously, the bigger the cell range we wish to add the more terms there will be in the expression.

The SUM function simplifies the process considerably. All we have to enter is the function:
=SUM(B4:D7)

Important: Notice the = symbol in front of the SUM function.

This means add the contents of all the cells in the range B4:D7.

The SUM function can be used in an arithmetic expression as shown in the following examples:

=SUM(C4:F8) + B6
=B6 – SUM(B7:B12)
=SUM(A3:B6) + SUM(C3:D9)

Syntax

The syntax of a function is the formal structure of the function. We write the syntax of the SUM function as:

=SUM(*range***)**

where *range* is the range of cells that are being summed as, for example, B4:D7.

AVERAGE

Syntax: =AVERAGE(*range***)**

AVERAGE functions in exactly the same way as SUM, except that it calculates the average value of the cells in *range*.

MAX and MIN

Syntax: = MAX(*range***), =MIN(***range***)**

These functions determine the maximum and minimum values in a range of cells.

COUNT

Syntax: =COUNT(*range***)**

COUNT returns the number of cells that contain values in *range*.

=AVERAGE(*range*) is actually the same as =SUM(*range*) / COUNT(*range*).

Using functions in a spreadsheet

Often functions are used to summarise data in a spreadsheet. When you create a spreadsheet, it is good practice to put your summary information at the top of the spreadsheet and the data on which the summary is based below.

Suppose we wish to summarise the data in the spreadsheet below.

	A	B	C	D	E	F	G	H
1	Observations by group and sector							
2								
3		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Secto
4	Group 1	23	14	9	16	32	18	14
5	Group 2	23	18	1	21	25	19	18
6	Group 3	17	12	3	45	12	4	34
7	Group 4	14	34	2	2	12	2	21
8	Group 5	21	5	6	12	3	3	13
9	Group 6	36	2	7	2	5	4	16
10	Group 7	14	3	11	12	3	2	17
11	Group 8	17	17	5	4	21	4	19
12	Group 9	39	3	4	17	6	7	21
13	Group 10	32	24	2	28	23	6	2

In this we may wish to find the sum, average, maximum and minimum of each column as well as the number of data entries in each column. We start by inserting four rows below row 2.

- Select rows 2 to 6.
- **Insert » Rows**
- Enter the following in A3:A7
  - A3: SUM
  - A4: MAXIMUM
  - A5: MINIMUM
  - A6: ENTRIES
  - A7: AVERAGE
- Enter the following in B3:B6
  - B3: =SUM(B9:B39)
  - B4: =MAX(B9:B39)
  - B5: =MIN(B9:B39)
  - B6: =COUNT(B9:B39)
  - B7: = AVERAGE(B9:B39)

The next screen illustrates the situation at this stage. The functions have been displayed in the cells rather than the values. How to do this will be explained shortly.

	A	B	C	D	E	F	G
1	**Observations by group and sector**						
2							
3	**SUM**	=SUM(B9:B39)					
4	**MAXIMUM**	=MAX(B9:B39)					
5	**MINIMUM**	=MIN(B9:B39)					
6	**COUNT**	=COUNT(B9:B39)					
7	**AVERAGE**	=AVERAGE(B9:B39)					
8		**Sector 1**	**Sector 2**	**Sector 3**	**Sector 4**	**Sector 5**	**Sector 6**
9	**Group 1**	23	14	9	16	32	18
10	**Group 2**	23	18	1	21	25	19
11	**Group 3**	17	12	3	45	12	4
12	**Group 4**	14	34	2	2	12	2
13	**Group 5**	21	5	6	12	3	3
14	**Group 6**	36	2	7	2	5	4
15	**Group 7**	14	3	11	12	3	2
16	**Group 8**	17	17	5	4	21	4
17	**Group 9**	39	3	4	17	6	7
18	**Group 10**	32	24	2	28	23	6

- Select B3:B6
- **Edit » Copy**
- Select C3:K3 OR C3:K6
- **Edit » Paste**

	A	B	C	D	E	F	G	
1	**Observations by group and sector**							
2								
3	**SUM**	695	395	248	357	316	288	
4	**MAXIMUM**	56	34	51	45	32	32	
5	**MINIMUM**	4	2	1	2	0	1	
6	**COUNT**	30	30	30	30	30	30	
7	**AVERAGE**	23.17	13.17	8.27	11.9	10.53	9.6	
8		**Sector 1**	**Sector 2**	**Sector 3**	**Sector 4**	**Sector 5**	**Sector 6**	**Sec**
9	**Group 1**	23	14	9	16	32	18	
10	**Group 2**	23	18	1	21	25	19	
11	**Group 3**	17	12	3	45	12	4	
12	**Group 4**	14	34	2	2	12	2	
13	**Group 5**	21	5	6	12	3	3	
14	**Group 6**	36	2	7	2	5	4	
15	**Group 7**	14	3	11	12	3	2	
16	**Group 8**	17	17	5	4	21	4	
17	**Group 9**	39	3	4	17	6	7	
18	**Group 10**	32	24	2	28	23	6	

To display the functions rather than values in the cells:

- **Tools » Options**
- Expand **OpenOffice.org Calc** and select **View**.
- Tick the **Formulas** checkbox in the **Display** area. If you wish to display values at a later stage, untick this box.

Where an entry is too wide to display in a cell, a series of hash symbols (#####) will be displayed.

- Widen the columns as necessary to view the cell contents.

	A	B	C	D	E	F
1	**Observations by group and sector**					
2						
3	**SUM**	=SUM(B9:B39)	=SUM(C9:C39)	=SUM(D9:D39)	=SUM(E9:E39)	
4	**MAXIMUM**	=MAX(B9:B39)	=MAX(C9:C39)	=MAX(D9:D39)	=MAX(E9:E39)	
5	**MINIMUM**	=MIN(B9:B39)	=MIN(C9:C39)	=MIN(D9:D39)	=MIN(E9:E39)	=MIN(F9:
6	**COUNT**	=COUNT(B9:B39)	=COUNT(C9:C39)	=COUNT(D9:D39)	###	
7	**AVERAGE**	=AVERAGE(B9:B39)	=AVERAGE(C9:C39)	=AVERAGE(D9:D39)	###	
8		**Sector 1**	**Sector 2**	**Sector 3**	**Sector 4**	**Sector**
9	**Group 1**	23	14	9	16	32
10	**Group 2**	23	18	1	21	25
11	**Group 3**	17	12	3	45	12
12	**Group 4**	14	34	2	2	12
13	**Group 5**	21	5	6	12	3
14	**Group 6**	36	2	7	2	5
15	**Group 7**	14	3	11	12	3
16	**Group 8**	17	17	5	4	21
17	**Group 9**	39	3	4	17	6
18	**Group 10**	32	24	2	28	23

In the above screen, the ##### in cells E6 and E7 indicates that the cell is too narrow to display the contents.

4.4.3.2 Generate formulas using logical function IF yielding one of two specific values

The IF function allows you insert different values, text or formulas in a cell depending on the result of a test.

Syntax: =IF(*condition; TrueValue; FalseValue***)**

Condition is a test which can evaluate to True or False. If *Condition* is True, then *TrueValue* is inserted into the cell. If *Condition* is False, then *FalseValue* is inserted into the cell.

Condition generally involves a comparison between two expressions. The comparison is created using one of the operators:

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

Suppose in the previous example, we wish to indicate whether a score is above average or below average by inserting the appropriate word in the adjacent column. We could proceed as follows:

- Selecting column C
- **Insert » Column**
- Enter the following in C9 =IF(B9>B$7; "Above"; "Below")

Notice the mixed mode addressing in this example. The reason for this is that the value being compared to is always in the same row 7.

- Copy the contents of C9 to C10:C39

	A	B	C	D	E
1	**Observations by group and sector**				
2					
3	**SUM**	695		395	248
4	**MAXIMUM**	56		34	51
5	**MINIMUM**	4		2	1
6	**COUNT**	30		30	30
7	**AVERAGE**	23.17		13.17	8.27
8		**Sector 1**		**Sector 2**	**Sector 3**
9	**Group 1**	23	Below	14	9
10	**Group 2**	23	Below	18	1
11	**Group 3**	17	Below	12	3
12	**Group 4**	14	Below	34	2
13	**Group 5**	21	Below	5	6
14	**Group 6**	36	Above	2	7
15	**Group 7**	14	Below	3	11
16	**Group 8**	17	Below	17	5
17	**Group 9**	39	Above	3	4
18	**Group 10**	32	Above	24	2

To understand why we need mixed mode addressing rather than absolute addressing in C9, suppose we were to insert a column after column D and copy column C to the new column. We would get the following:

	A	B	C	D	E
6	**COUNT**	###		###	
7	**AVERAGE**	###		###	
8		**Sector 1**		**Sector 2**	
9	**Group 1**	23	=IF(B9>B$7;"Above";"Below")	14	=IF(D9>D$7;"Above";"Below")
10	**Group 2**	23	=IF(B10>B$7;"Above";"Below")	18	=IF(D10>D$7;"Above";"Below")
11	**Group 3**	17	=IF(B11>B$7;"Above";"Below")	12	=IF(D11>D$7;"Above";"Below")
12	**Group 4**	14	=IF(B12>B$7;"Above";"Below")	34	=IF(D12>D$7;"Above";"Below")
13	**Group 5**	21	=IF(B13>B$7;"Above";"Below")	5	=IF(D13>D$7;"Above";"Below")
14	**Group 6**	36	=IF(B14>B$7;"Above";"Below")	2	=IF(D14>D$7;"Above";"Below")
15	**Group 7**	14	=IF(B15>B$7;"Above";"Below")	3	=IF(D15>D$7;"Above";"Below")
16	**Group 8**	17	=IF(B16>B$7;"Above";"Below")	17	=IF(D16>D$7;"Above";"Below")
17	**Group 9**	39	=IF(B17>B$7;"Above";"Below")	3	=IF(D17>D$7;"Above";"Below")
18	**Group 10**	32	=IF(B18>B$7;"Above";"Below")	24	=IF(D18>D$7;"Above";"Below")

If we had used absolute addressing, you would then have obtained the entry =IF(D9>$B$7;”Above”;”Below”) when you copied cell B9 to E9. However the average for column D is found in D7 not in B7.

Module 4: OpenOffice.org Calc

Section 5: Formatting

4.5.1 Number, Date

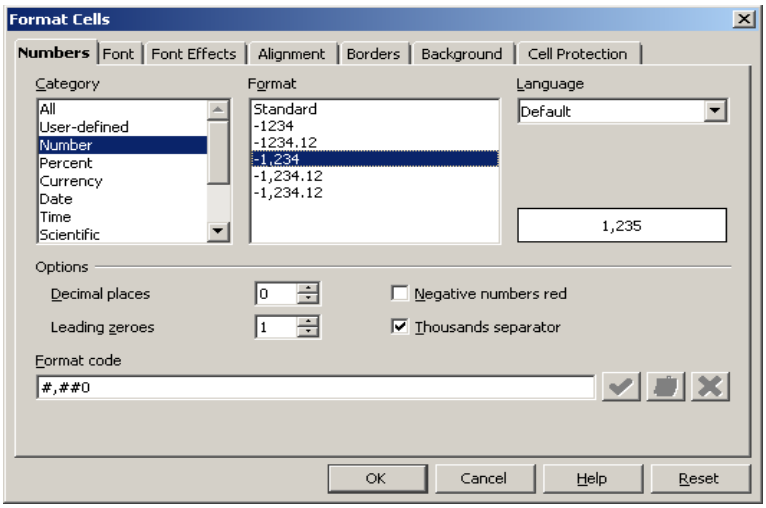
4.5.1.1 Format cells to display numbers to a specific number of decimal places, to display numbers with, without commas to indicate thousands

Suppose we have the spreadsheet Sales.ods on our screen as shown below.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3		**Cost of sales**	**Sales**	**Gross Profit**	**% Profit**					
4	**Region**									
5	Green	14562	15422							
6	Blue	24515	31324							
7	Yellow	11872	17861							
8	Red	6822	6981							
9										

This illustrates a common problem, namely that it is sometimes difficult to read large numbers. Calc allows us to format numbers with a decimal separator.

- Highlight the numbers to be formatted.
- **Format » Cells**
- Click the **Numbers** tab.
- Select **Number** in the **Category** window.
- Select a **Format.**
- Tick the **Thousands separator** check box.



- Click **OK**.

The result is shown on the next screen.

3		**Cost of sales**	**Sales**	**Gross Profit**	**% Profit**
4	**Region**				
5	Green	14,562	15,422		
6	Blue	24,515	31,324		
7	Yellow	11,872	17,861		
8	Red	6,822	6,981		

To remove the thousands separator:

- Repeat the above process, but untick the **Thousands separator** check box.

In the previous example, we left the number of decimals places as **0**. This will display numbers to the nearest whole number.

When we do calculations, we usually find that there is a fractional or decimal part to the number. For example, 18 / 7 is 2.57142857 ..... It is neither meaningful nor convenient to express numbers with all the trailing decimal places. In the **Options** area of the **Numbers** tab above, we can set the number of decimal places displayed. Numbers are rounded up. The system however still stores the full number of decimal places. This means that calculations will not use the displayed number but the actual number. The following table illustrates the effect of using a specific number of decimal places.

Decimal places	0	1	2	3	4
Displayed value	3	2.6	2.57	2.571	2.5714

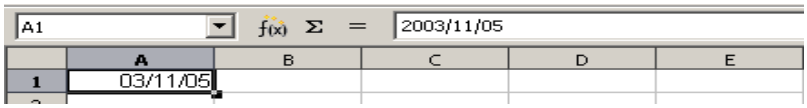
4.5.1.2 Format cells to display a date style

If you type data into a cell, Calc attempts to interpret the data according to one of its known data types. These include numeric, text and date.

- Type the entry **3/11/05** into a cell in a blank spreadsheet.

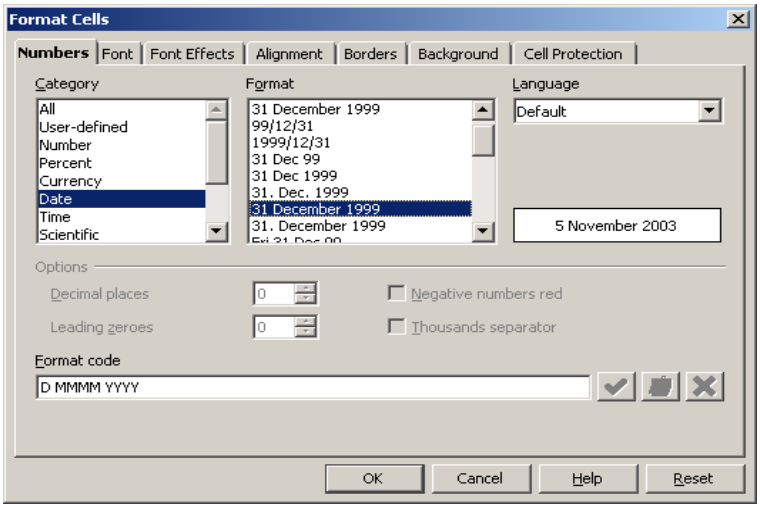
Calc will interpret this as a date according to its default date setting. For example, as soon as you press enter, the contents of the above cell may become **2003/11/05**. You ay have thought you were entering the short form of 03/11/2005.

The following screen illustrates this The input window on the **Formula bar** shows the actual data entry, while the cell illustrates how it has been reformatted.

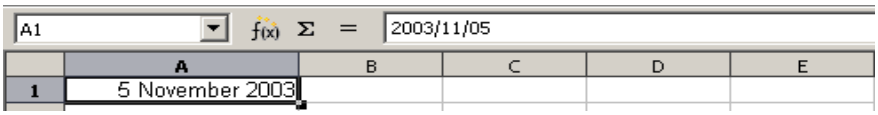


To change the format of the cell.

- Select the cell(s) to be reformatted.
- **Format » Cells**.
- Click the **Numbers** tab.
- Select **Date** in the **Category** window.
- Select the date format in the **Format** window.



- Click **OK.**
- If the display shows a series of **#####**, then widen the column.

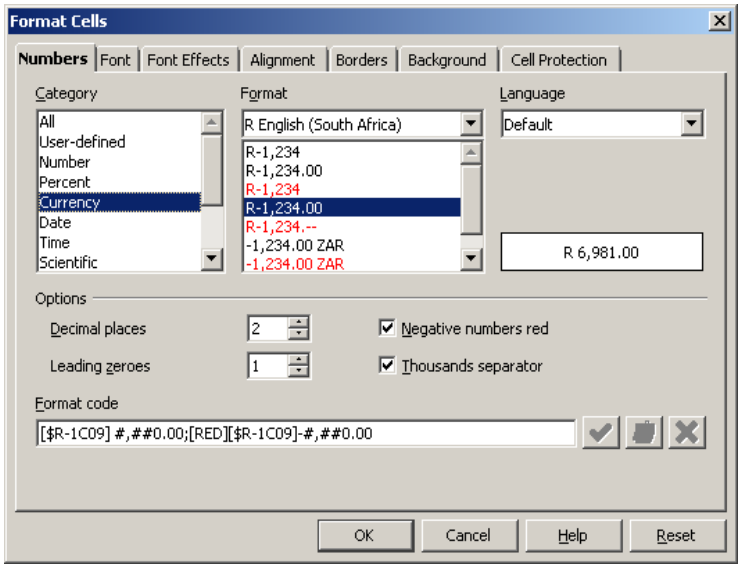


As the above example illustrates, be careful when entering dates in short format as the system may be set up to interpret them differently to the way you do.

4.5.1.3 Format cells as currency style

If we look at the example in 4.5.1.1 we see that although some of the figures refer to currency, the currency symbol is not displayed. This is simply remedied by formatting numeric data to currency format.

- Select the range of cells to be formatted as currency.
- **Format » Cells**.
- Click the **Numbers** tab.
- Select **Currency** in the **Category** window.
- Select a language in the **Language** window. This will select the appropriate currency symbol.
- Select the desired format in the **Format** window.



- Click **OK**.

	A	B	C	D	E	F	G	H	I
1									
2									
3		**Cost of sales**	**Sales**	**Gross Profit**	**% Profit**				
4	**Region**								
5	**Green**	R 14,562.00	R 15,422.00						
6	**Blue**	R 24,515.00	R 31,324.00						
7	**Yellow**	R 11,872.00	R 17,861.00						
8	**Red**	R 6,822.00	R 6,981.00						
9									

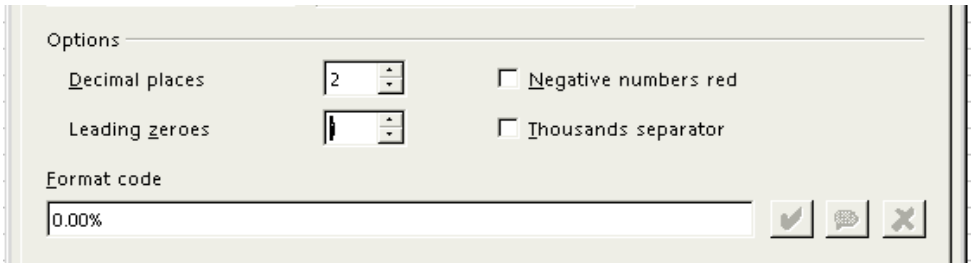
4.5.1.4 Format cells to display numbers as percentages

The next screen shows the previous spreadsheet with the profit calculated as a fraction.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3		**Cost of sales**	**Sales**	**Gross Profit**	**% Profit**					
4	**Region**									
5	Green	R14,562.00	R15,422.00	R860.00	0.06					
6	Blue	R24,515.00	R31,324.00	R6,809.00	0.28					
7	Yellow	R11,872.00	R17,861.00	R5,989.00	0.5					
8	Red	R6,822.00	R6,981.00	R159.00	0.02					
9										

In situations such as this it is more common to express the numbers in E5:E8 as percentages.

- Select the numbers to be formatted.
- **Format » Cells**.
- Select the **Numbers** tab.
- Select **Percent** in the category window.
- Select the **Number of decimal places** in the **Options** area.
- Set any other options.



- Click **OK.**

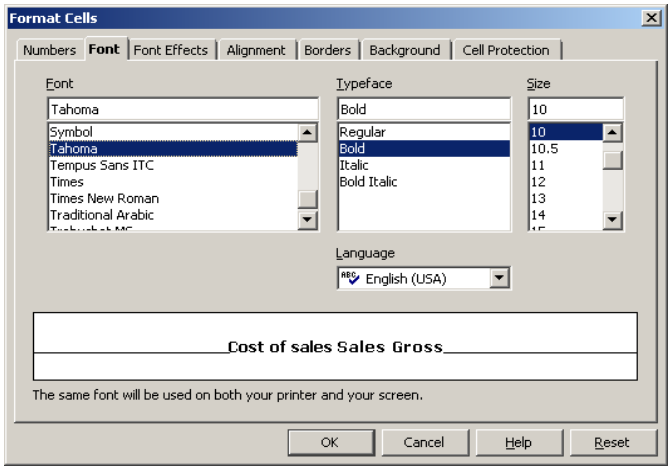
	A	B	C	D	E	F	G	H	I	J
1										
2										
3		**Cost of sales**	**Sales**	**Gross Profit**	**% Profit**					
4	**Region**									
5	Green	R14,562.00	R15,422.00	R860.00	5.91%					
6	Blue	R24,515.00	R31,324.00	R6,809.00	27.77%					
7	Yellow	R11,872.00	R17,861.00	R5,989.00	50.45%					
8	Red	R6,822.00	R6,981.00	R159.00	2.33%					
9										

4.5.2 Contents

4.5.2.1 Change cell content appearance: font sizes, font types

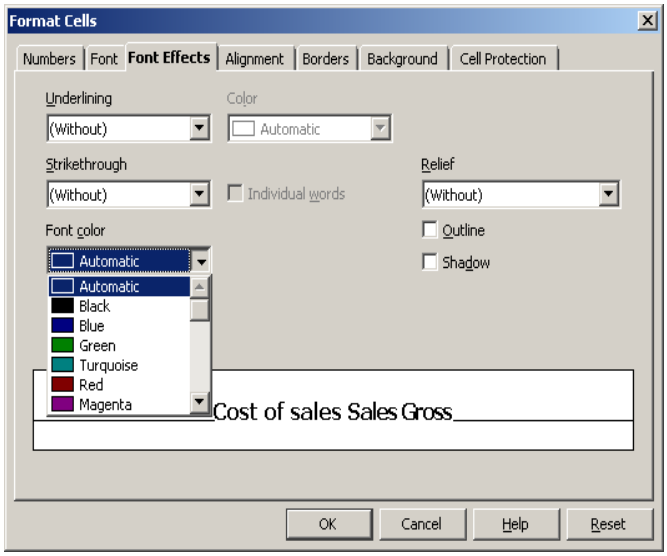
The font style, size and colour of any group of cells whether text, number or date may be changed.

- Select the cells.
- **Format » Cells**.
- Click the **Font** tab.



- Select the font, typeface and size.

Additional effects such as colour can be set by clicking on the **Font Effects** tab.



- Click **OK**.

4.5.2.2 Apply formatting to cell contents such as: bold, italic, underline, double underline

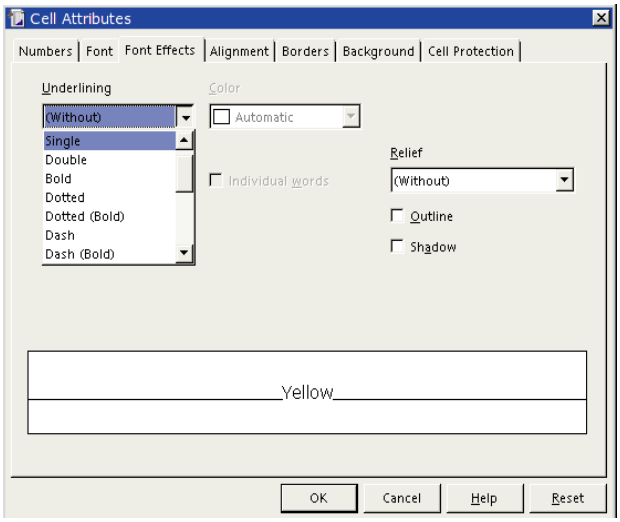
The simplest way to add underlining, bold or italic is to:

- Select the cells to be formatted.
- Click the desired effect on the **Formatting toolbar**.

Note you could have also changed the font style and size using the **Formatting toolbar**.

Double underline does not appear by default on the **Formatting toolbar**. In this case:

- Select the cells to be formatted.
- **Format » Cells**.
- Click the **Font effects** tab.
- Click down on the **Underlining** drop down window to view the different underlining options.



- Select the desired type of underlining.

Click **OK**.

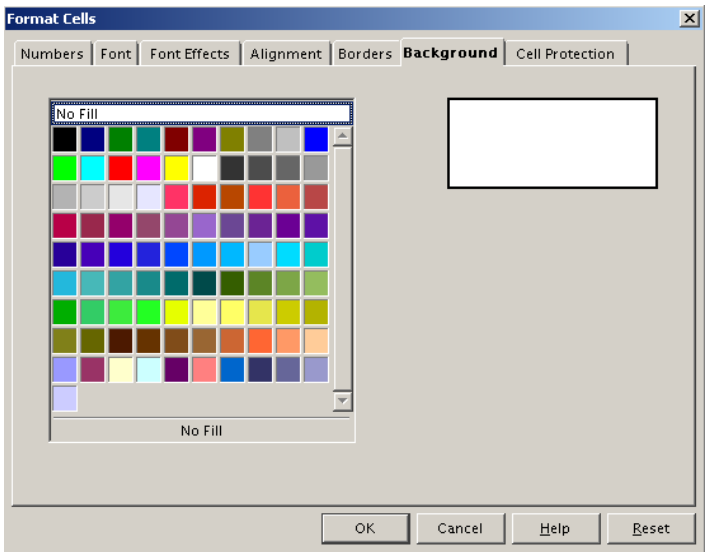
4.5.2.3 Apply different colours to cell content, cell background

Suppose you have a single row of cells or a row of cells which you wish to display in a particular colour.

- Select the cells to be formatted.
- **Format » Cells**.
- Click the **Font effects** tab.
- Click on the drop down arrow next to **Font colour** to display the possible colours.
- Select the colour you wish to use then click the **OK** colour.

You can also change the background of the cells which, by default, is white.

- Select the cells to be formatted.
- **Format » Cells**.
- Click on the **Background** tab.



- Select the colour you wish to apply to the cell backgrounds and click the **OK** button.

4.5.2.4 Copy the formatting from a cell, cell range to another cell, cell range

Copying the formatting of a cell to another cell or range of cells involves a couple of steps.

The following example illustrates the process.

In the following screen, cell A6 has been formatted to Roman, 12 point, bold, red. We wish to copy this formatting to cells A5 and A7:A9.

1	**Sales figures**								
2									
3	**Name**	**Team**	**January**	**February**	**March**	**April**	**May**	**June**	**Ha**
4									
5	Shirley	West	56000	23000	45931	32876	17262	87625	
6	**Mpho**	North	37862	31267	34252	65431	11213	19871	
7	Leslie	West	45362	32423	62526	32424	62525	42342	
8	Ahmed	South	54535	23132	54234	17252	42323	12121	
9	Toyo	North	43242	12134	16353	53434	42324	12323	
10									

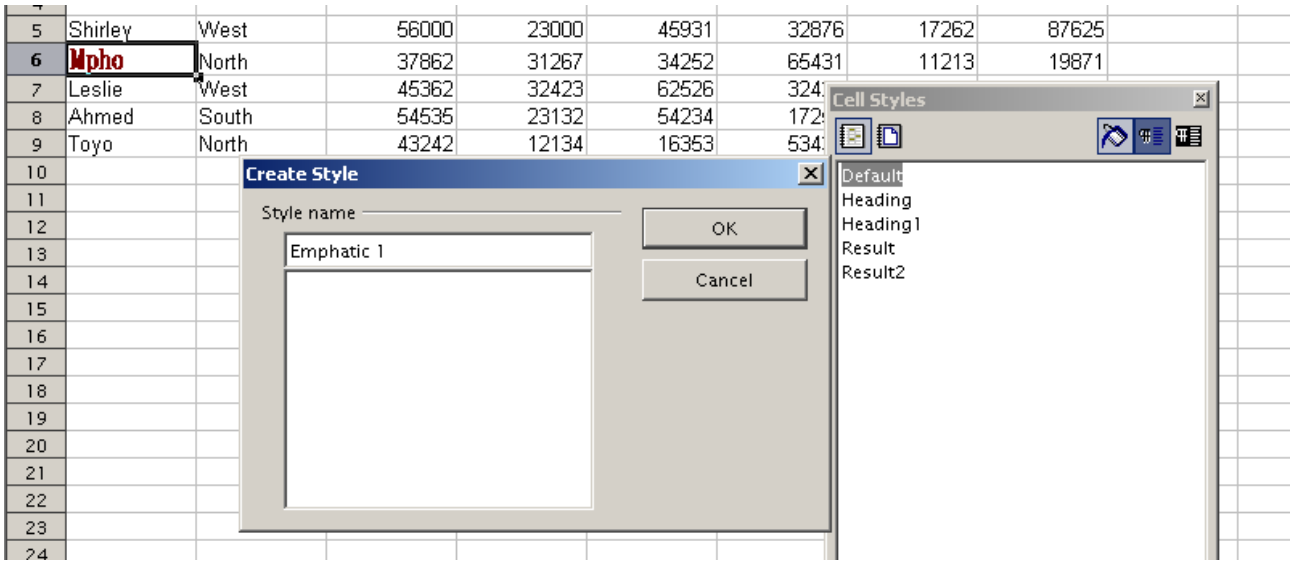
- **Format » Styles and Formatting**

This displays the **Cell styles** dialogue. This dialogue contains five icons:

The first icon is the **Cell styles** icon while the second is the **Page styles** icon.
On the right hand side, the first icon (paint can) is the **Fill format mode** icon. The next is the **New style from selection** and the last the **Update style** icon. An icon can be selected from each group independently.

Hint: If you let your cursor hover over the icons, a tip will be displayed telling you what the icon is.

- Select the **Cell styles** icon.
- Select the cell whose format you wish to copy and click the **New style from selection** icon.



- Enter an appropriate style name for the formatting and click **OK**.

The new style name will appear in the list of styles.

- Select the style and click on the **Fill format mode** icon.

The cursor will now be displayed as a paint can.

- Hold down the left mouse button and drag the cursor over the cells whose format you wish to change.
- When you have finished, click on the **Fill format mode** icon once more.

This will change the cursor back to its normal pointing function.

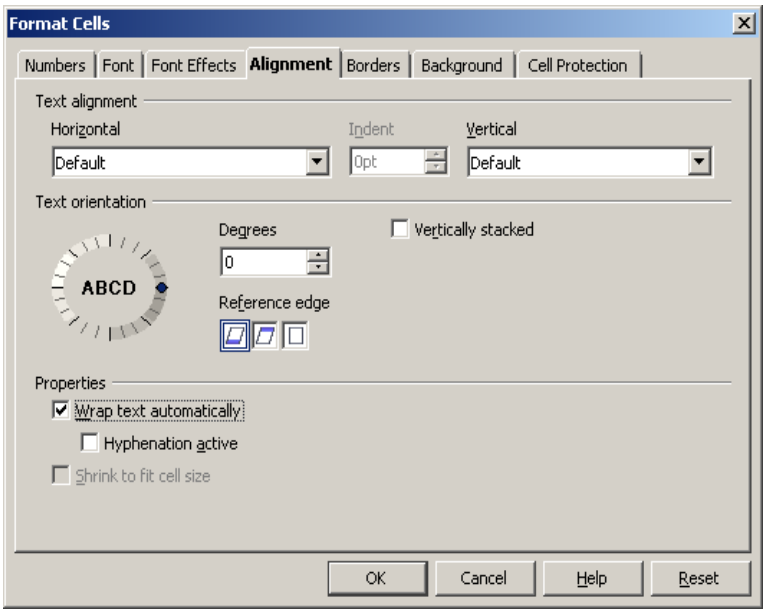
4.5.2.5 Apply text wrapping to contents within a cell

Suppose we have a column of cells that we wish to use to write notes. By default, if we write in a cell, the text will appear to spill over into the next cell. If we enter text in the next cell, part of our old text will cease to be visible.

Name	Team	January	February	March	April	May	June	Notes
Shirley	West	56000	23000	45931	32876	17262	87625	Shirley's sales figures tend to fluctuate very widely over time.
Mpho	North	37862	31267	34252	65431	11213	19871	
Leslie	West	45362	32423	62526	32424	62525	42342	

The answer to this problem is to cause the text to wrap within the cell.

- Select the range of cells in which you wish text to wrap.
- **Format » Cells**.
- Select the **Alignment** tab.
- Check the **Wrap text automatically** check box.



- Click **OK**.

The effect is shown below.

	Name	Team	January	February	March	April	May	June	Notes
	Shirley	West	56000	23000	45931	32876	17262	87625	Shirley's sales figures tend to fluctuate very widely over time. She needs to concentrate more to achieve consistency.
	Mpho	North	37862	31267	34252	65431	11213	19871	

4.5.3 Alignment, Border Effects

4.5.3.1 Align contents in a cell, cell range: left, centre, right, top, bottom

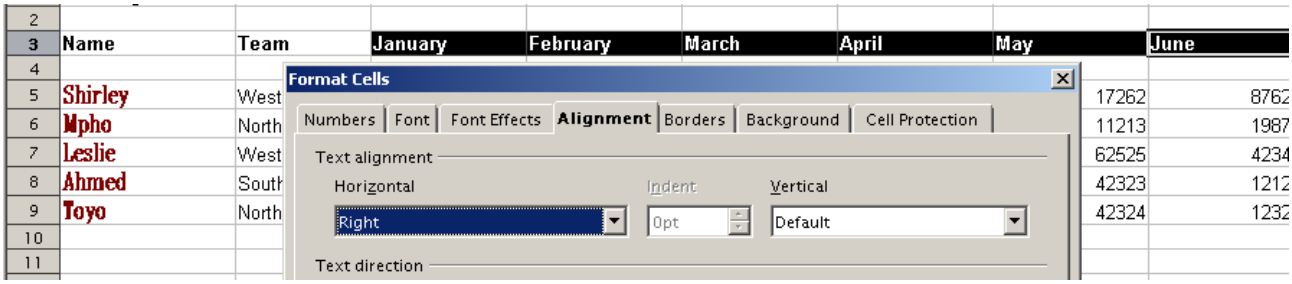
If you type numbers in a cell you will notice that, by default, they are right aligned. In other words, the numbers are flush against the right hand borders of the cell. Text, on the other hand is left aligned. Changing these defaults is simply a matter of changing the alignment of a cell or range of cells.

Notice the alignment of the headings in the worksheet below:

2								
3	Name	Team	January	February	March	April	May	June
4								
5	Shirley	West	56000	23000	45931	32876	17262	8762

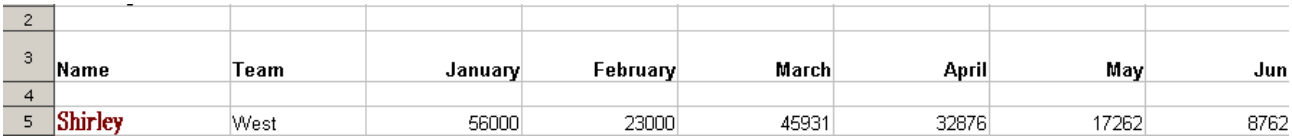
The text in row 3 is left aligned, while the numbers in row 5 are right aligned. Suppose we wish to make the contents of B3:G3 right aligned.

- Select the cells whose alignment you wish to change.
- **Format » Cells**
- Click the **Alignment** tab.
- Change the Horizontal alignment to the desired option



- Click **OK**.

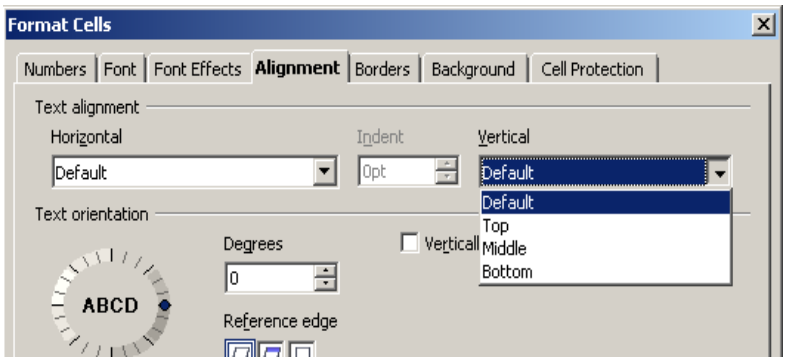
Generally, the height of rows is such that the text in the cells appears to occupy the entire height of the row. It is possible to change the height of a row either by clicking and dragging the lower border of the row number or by selecting the row and using **Format » Row » Height**. In the next screen, the height of row 3 has been changed in this way.



In this worksheet, the vertical alignment of row 3, is **Bottom**.

The vertical alignment of the entire row, a range of cells, or a single cell can be changed as follows:

- Select the cells whose vertical alignment is to be changed.
- **Format >> Cells**.
- Click the **Alignment** tab.
- Change the **Vertical alignment** to the desired option.



- Click **OK**.

4.5.3.2 Centre a title over a cell range

Consider the following screen:

	A	B	C	D	E	F	G	H
1	Sales figures							
2			Month					
3	Name	Team	January	February	March	April	May	Jun
4								
5	Shirley	West	56000	23000	45931	32876	17262	8762

Suppose we wish to centre the heading across C2:H2.

- Highlight the range of cells. In this case, it would be C2:H2.
- **Format >> Merge cells**
- Click the **Centre** icon on the toolbar,  .

	A	B	C	D	E	F	G	H
1	Sales figures							
2			Month					
3	Name	Team	January	February	March	April	May	June
4								

4.5.3.3 Adjust cell content orientation

Normally when we type text in a cell, its orientation is from left to right. Calc allows us to change the orientation of text very simply.

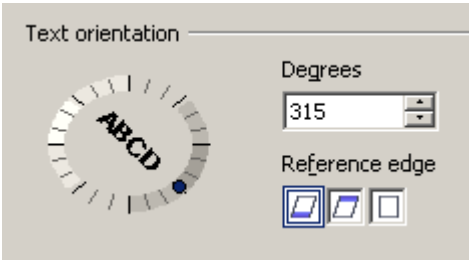
Suppose we wish to add a slightly unusual effect to the following screen so that the headings slope from left to right.

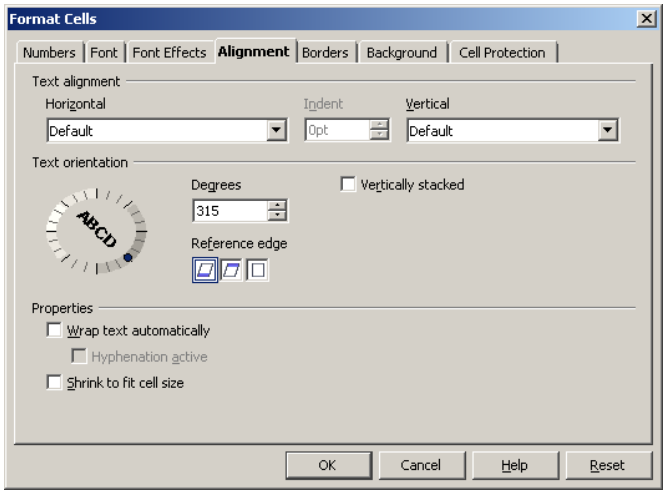
Name	Team	January	February	March	April	May	June
Shirley	West	56000	23000	45931	32876	17262	87625

- Select the range of cells you wish to modify.
- **Format » Cells**
- Select the **Alignment** tab.

Notice that the **Text direction** is 0º. Next to the degrees box, there is a compass indicating the text directly visually.

- Either enter the figure 315º or click on the 315º point on the compass.





- Click **OK**.

2								
3	Name	Team	January	February	March	April	May	June
4								
5	Shirley	West	56000	23000	45931	32876	17262	87625

- Experiment with other orientations of text in cells.

4.5.3.4 Add border effects to a cell, cell range

The gridlines that you see on your screen indicated the edges of the cells. You can, if you wish, add borders to cells or ranges of cells.

Suppose, in the following screen, we wish to put a border round the range of cells C5:H9 as well as vertical lines between the columns.

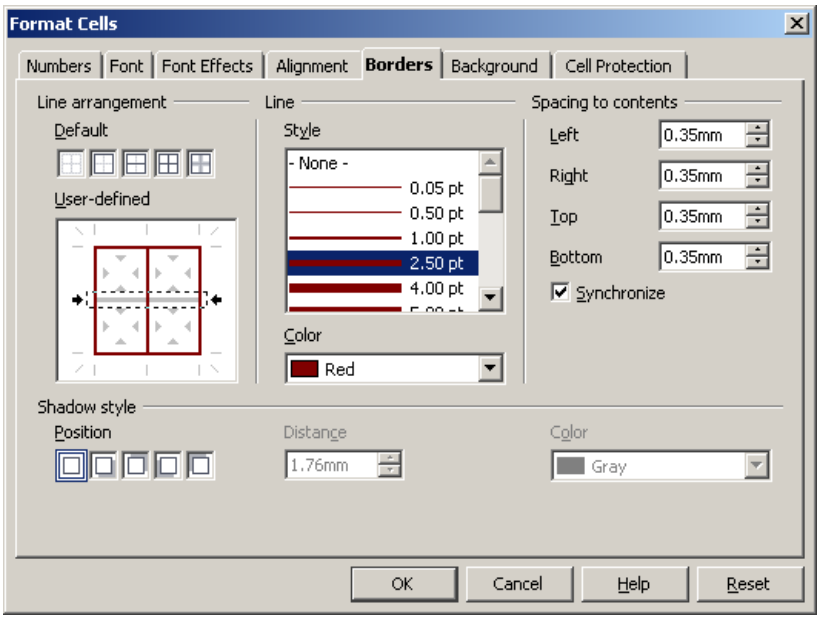
	A	B	C	D	E	F	G	H	I	J
1	Sales figures									
2										
3	Name	Team	January	February	March	April	May	June		
4										
5	Shirley	West	56000	23000	45931	32876	17262	87625		
6	Mpho	North	37862	31267	34252	65431	11213	19871		
7	Leslie	West	45362	32423	62526	32424	62525	42342		
8	Ahmed	South	54535	23132	54234	17252	42323	12121		
9	Toyo	North	43242	12134	16353	53434	42324	12323		
10										

- Select the range of cells for which you wish to define the borders. In this case, it would be C5:H9.
- **Format » Cells**.
- Select the **Borders** tab.
- Select a **Colour** for the borders. In the example below, red has been selected.
- Select a **Style**. In the example below, 2.5 pt has been selected.

The **Line arrangement** section allows you to select a predefined option in **Default** or to create your own custom arrangement under **User-defined.**

- Select a suitable line arrangement.

You may remove a line you have added by clicking on it.



- Click **OK.**

	Name	Team	January	February	March	April	May	June
5	Shirley	West	56000	23000	45931	32876	17262	87625
6	Mpho	North	37862	31267	34252	65431	11213	19871
7	Leslie	West	45362	32423	62526	32424	62525	42342
8	Ahmed	South	54535	23132	54234	17252	42323	12121
9	Toyo	North	43242	12134	16353	53434	42324	12323

Note: In the **Borders** tab you could have also added a shadow effect to your borders.

Module 4: OpenOffice.org Calc

Section 6: Charts

4.6.1 Using Charts and Graphs

4.6.1.1 Create different types of charts/graphs from spreadsheet data: column chart, bar chart, line chart, pie chart

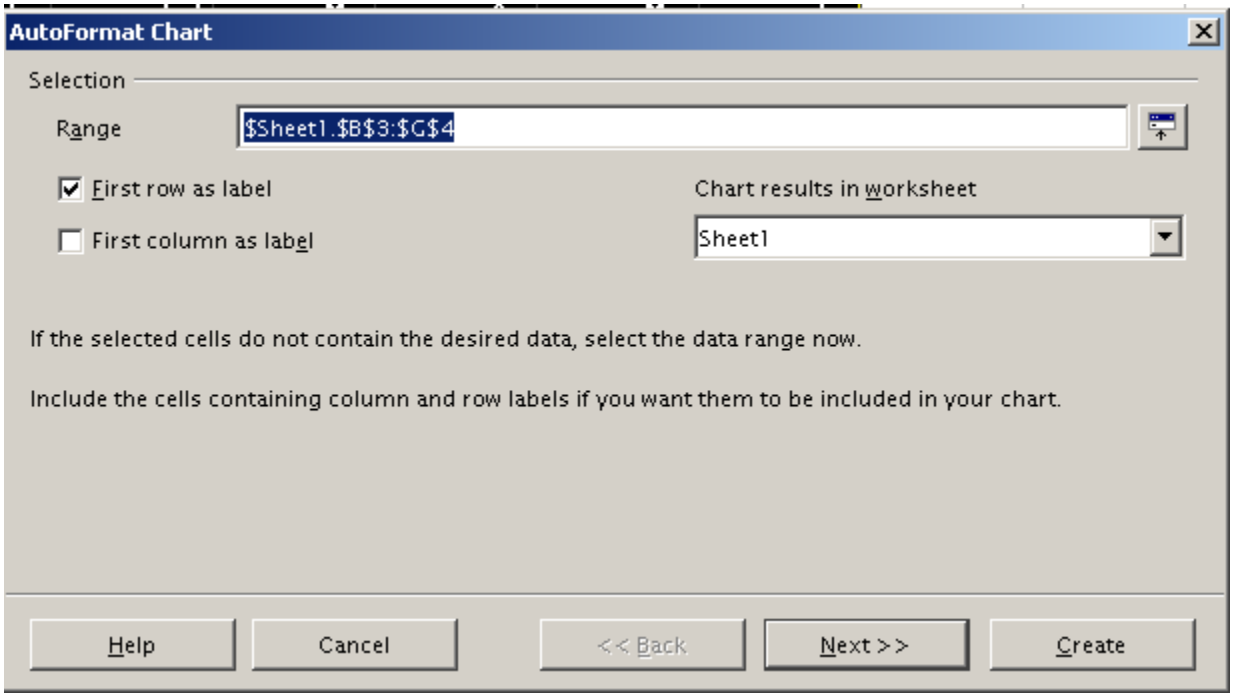
Charts and graphs provide us with a more visual representation of one or more sets of numbers, making the interpretation of these numbers simpler and more intuitive.

The following screen shows some data that we wish to represent graphically.

	A	B	C	D	E	F	G
1	Rainfall and temperature for the first half of the year						
2							
3		Jan	Feb	Mar	Apr	May	Jun
4	Rain (mm)	15	11	8	3	4	7
5	Temp (° C)	22	23	18	15	12	10
6							

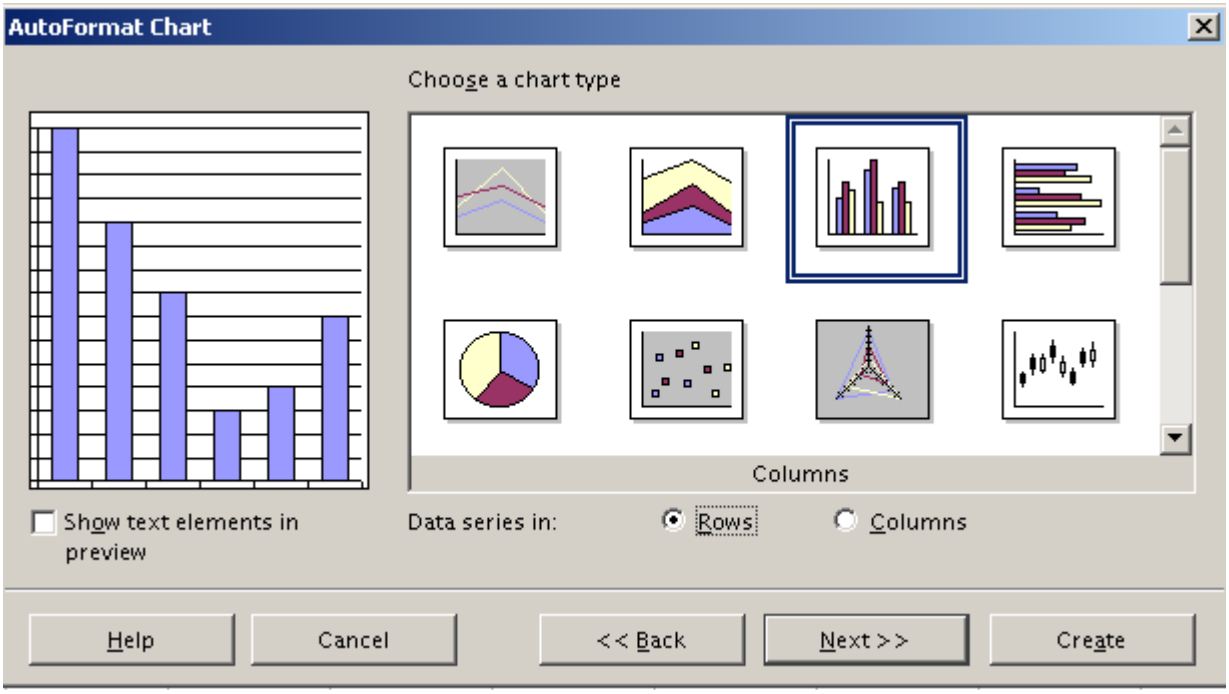
We start with the data in row 4. In creating the chart we will make use of the fact that the names of the months are in row 3.

- Select B3:G4
- **Insert » Chart**

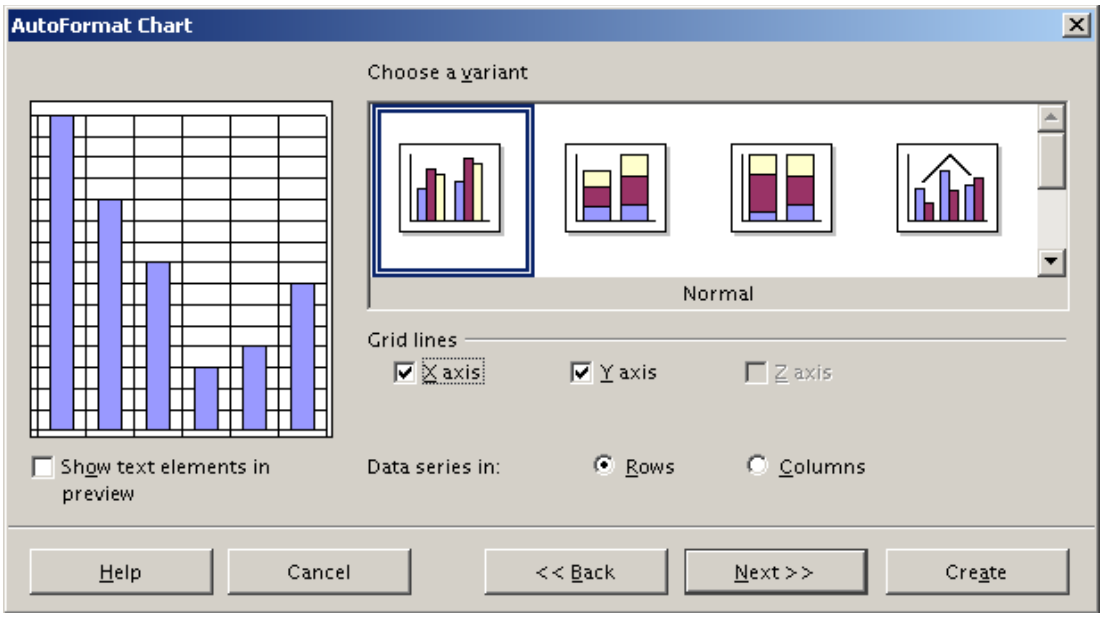


- Make sure **First row as label** has been checked.
- If you wish to insert the chart into a different worksheet, select the worksheet in the **Chart result in worksheet** window.
- Click **Next**.

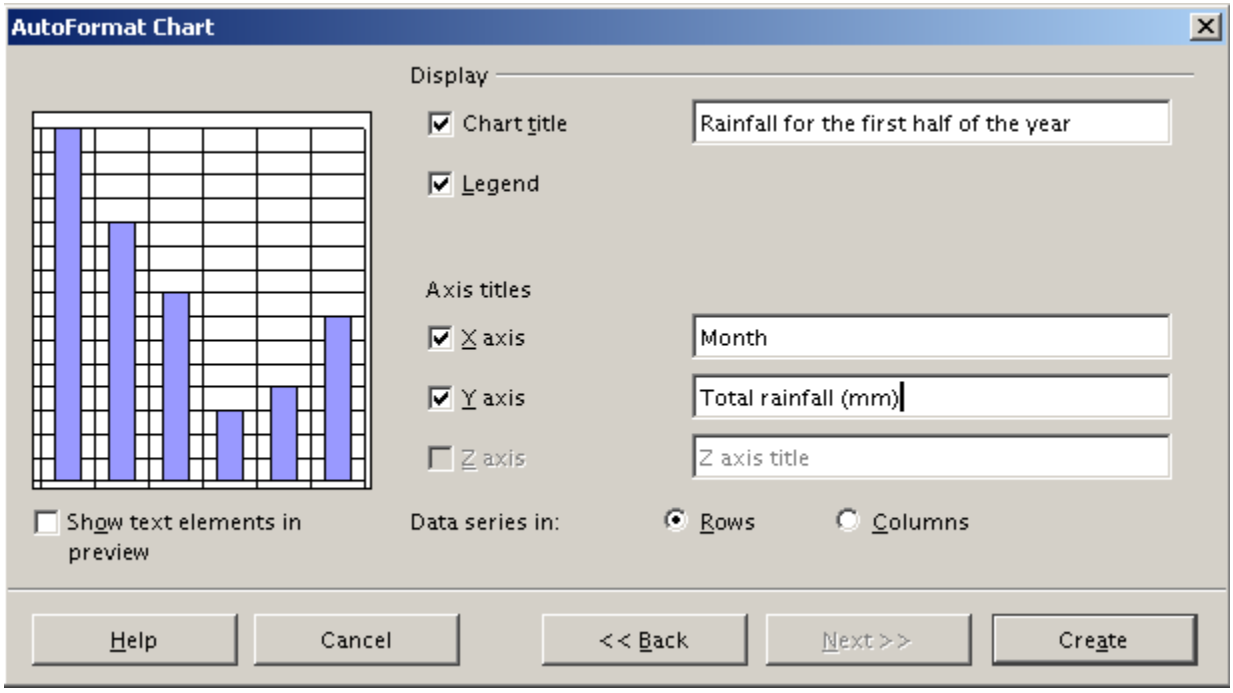
Note: If you click the **Create** button, Calc will make a series of choices for you. This is not a good idea since these may not be what you had in mind.



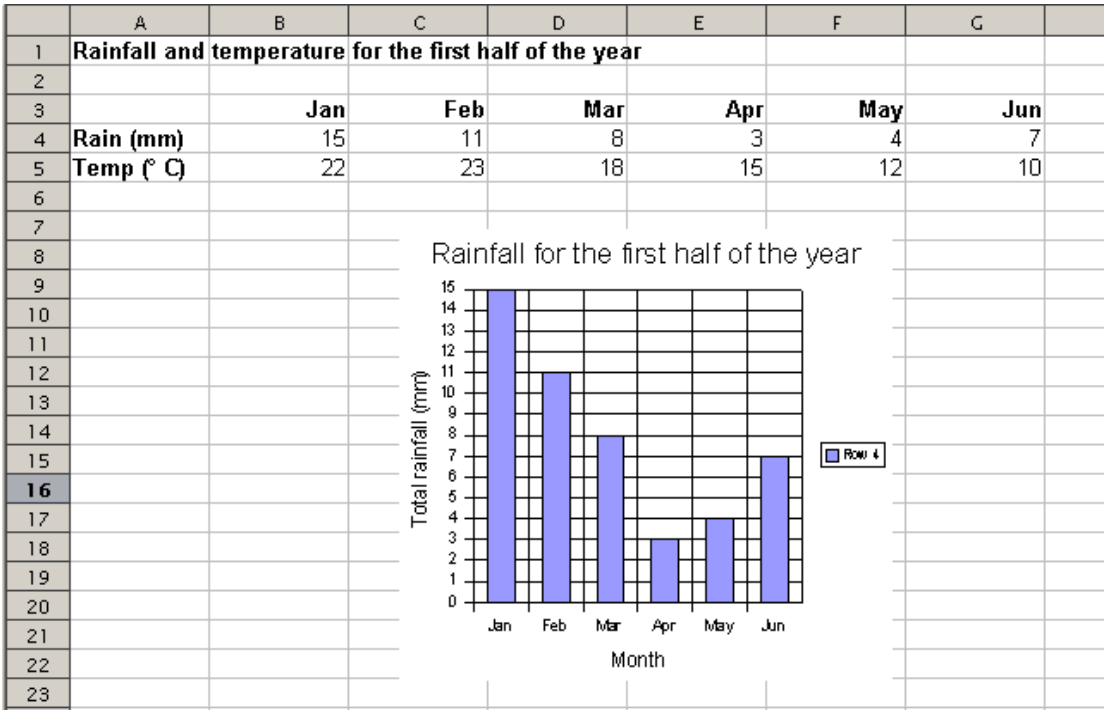
- Select the appropriate chart type. In this case we have selected column.
- Make sure the **Rows** radio button is checked. (If the data had been organised in a column, we would have needed to check the **Columns** radio button).
- Click **Next**.



- Select the variant of the basic chart type. In this case we have selected **normal**.
- If you wish to select gridlines, check the **X axis** and **Y axis** check boxes.
- Click **Next**.
- Fill in appropriate title for the chart and for the X and Y axis as shown on the following screen.



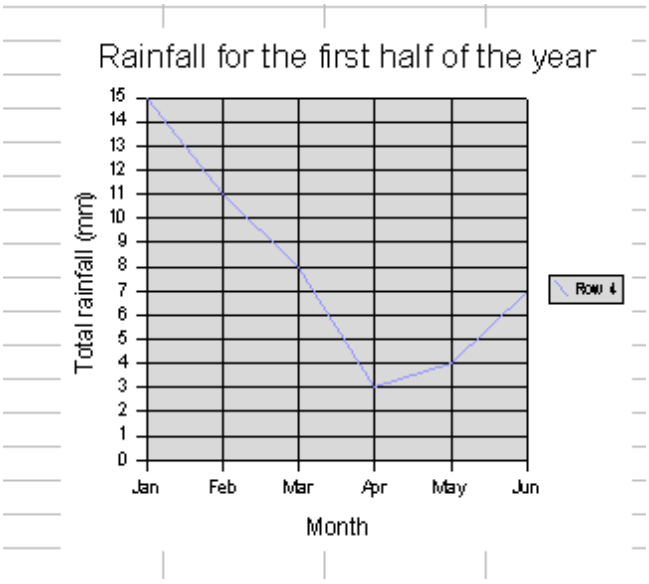
- Click **Create**.



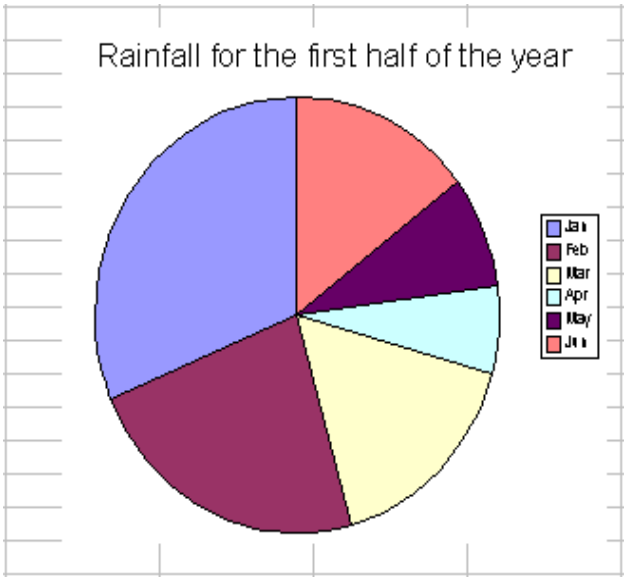
	A	B	C	D	E	F	G
1	**Rainfall and temperature for the first half of the year**						
2							
3		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
4	**Rain (mm)**	15	11	8	3	4	7
5	**Temp (° C)**	22	23	18	15	12	10

- Drag the chart to the position you desire.

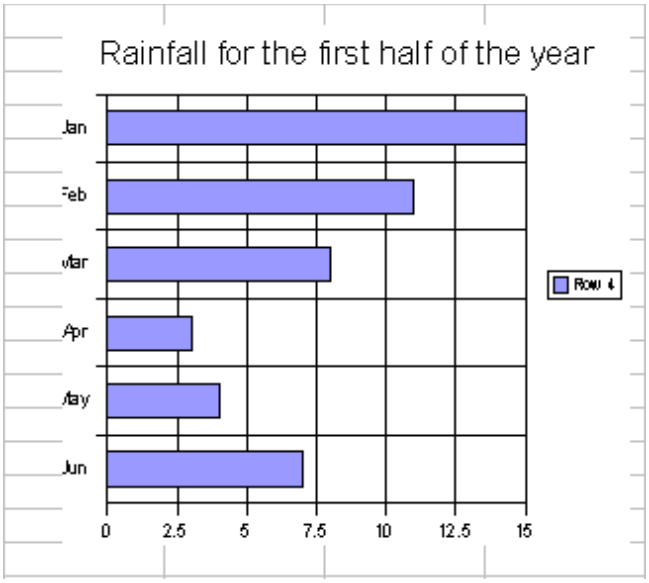
In the above example, we created a column chart. We could have created a number of other charts in the same way by making the appropriate choice in the **Choose chart type** window. Other common chart types are line, pie and bar. These are illustrated below.



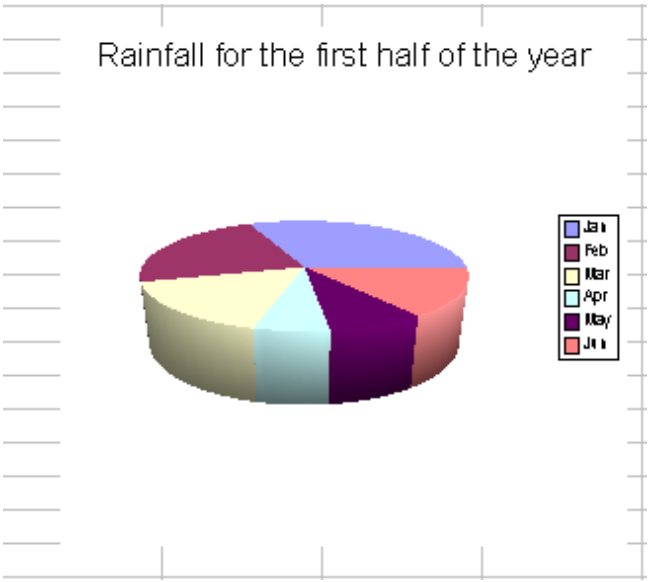
Line chart



Pie chart



Bar chart



3D Pie chart

Creating graphs with more than one data series

In the previous example, only a single data range (the rainfall) was displayed. We can display more than one data range.

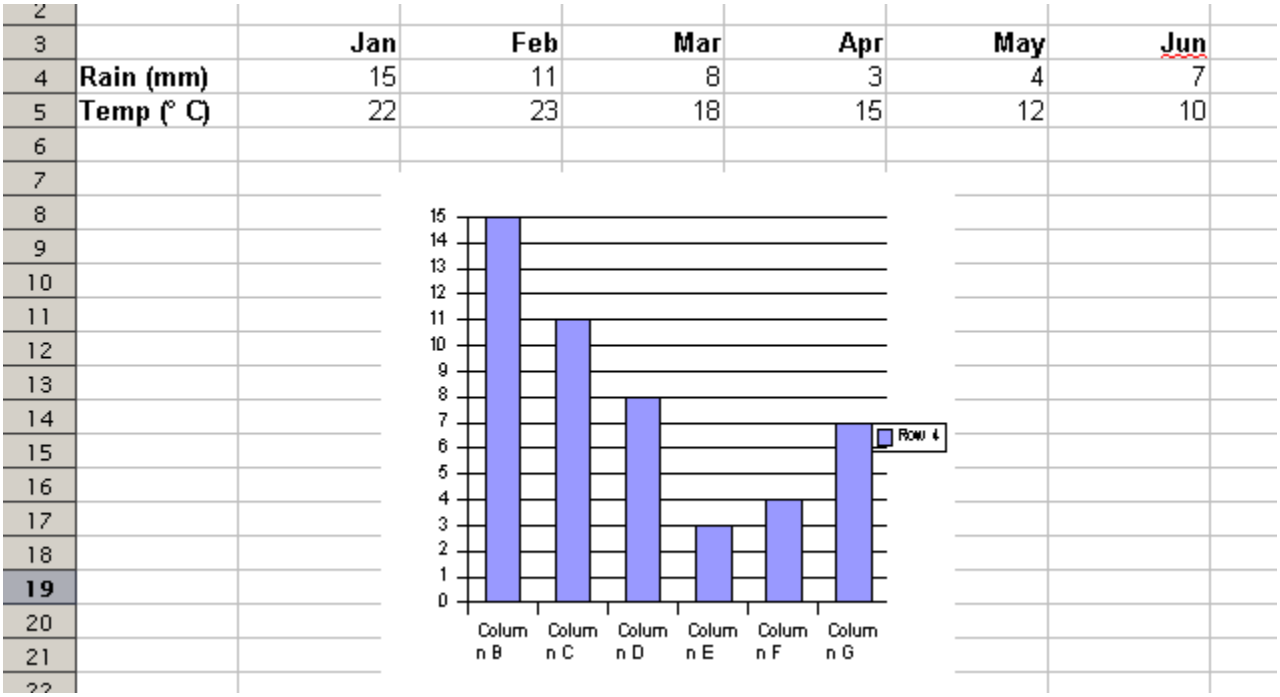
The only change we really need make is to select the data labels and data when we start. In the example above:

- Select B3:G5
- **Insert » Chart**
- Follow the process through as before.

4.6.1.2 Add a title, label to the chart/graph. Remove a title, label from the chart/graph

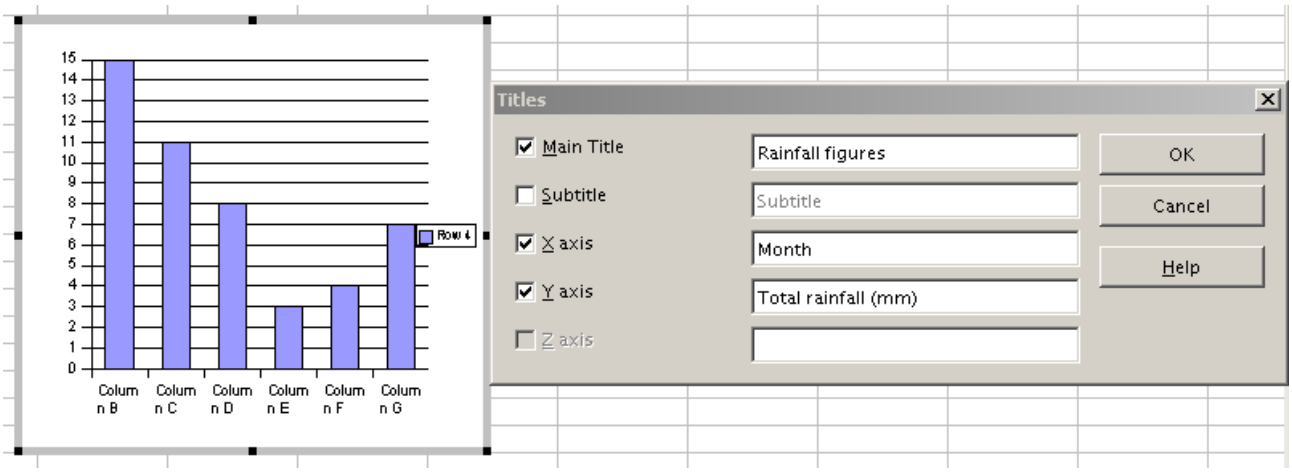
The previous example illustrated how to add titles and labels to graphs during the creation process.

Suppose a graph had been created without labels and titles as shown in the following screen.



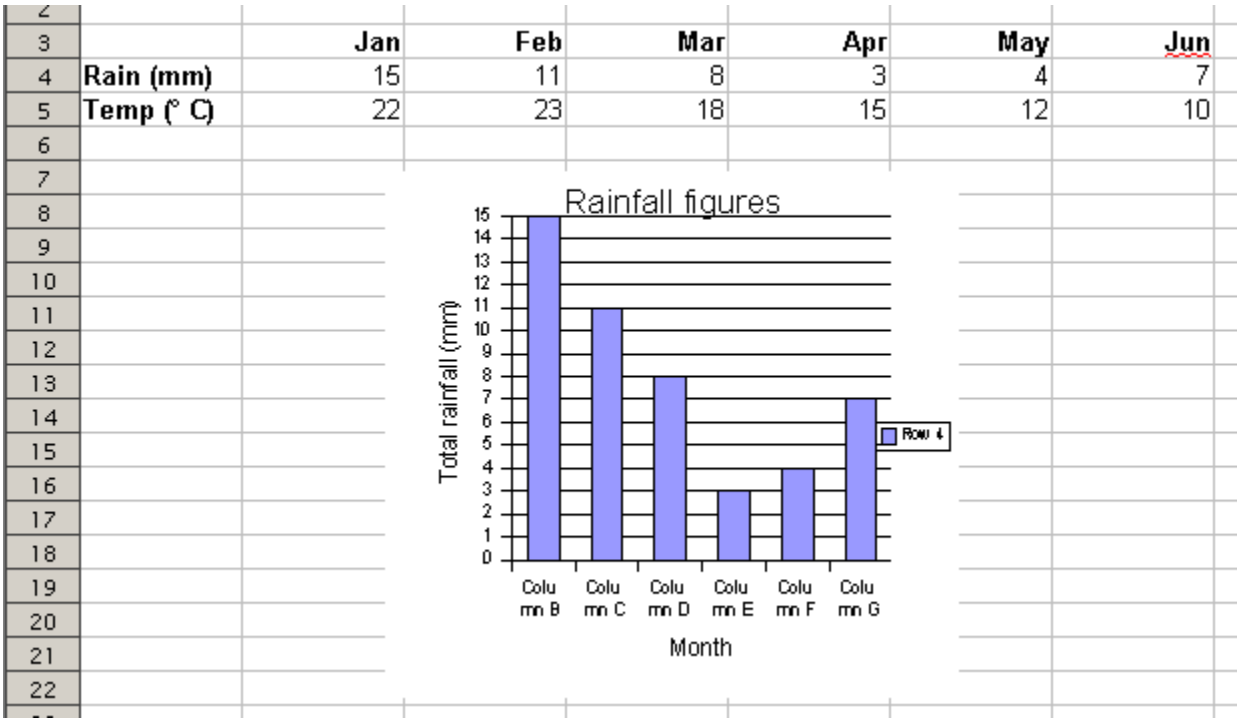
There are no labels or title on this chart. The processing of adding them is quite simple.

- Double click on the chart. A thick grey border will appear round the chart.
- **Insert » Title**



- Make sure the **Main title, X axis** and **Y axis** check boxes are ticked and add appropriate text as shown in the screen above.
- Click **OK**.

The result is shown on the following screen.



	Jan	Feb	Mar	Apr	May	Jun
Rain (mm)	15	11	8	3	4	7
Temp (° C)	22	23	18	15	12	10

To remove labels and titles:

- Double click on the chart.
- **Insert » Titles**
- Uncheck the labels and / or titles check boxes.

To change labels and titles:

- Double click on the chart.
- **Insert » Titles**
- Edit the contents of the labels and titles.

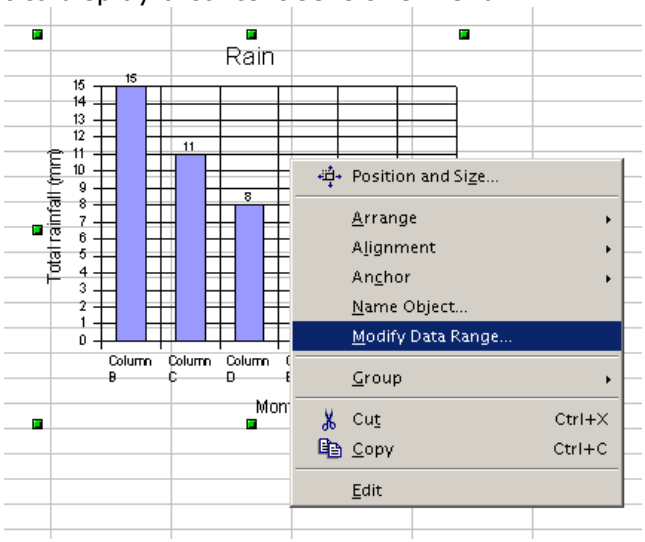
If you delete the contents of the labels or titles this will also have the effect of removing them.

To add x axis labels:

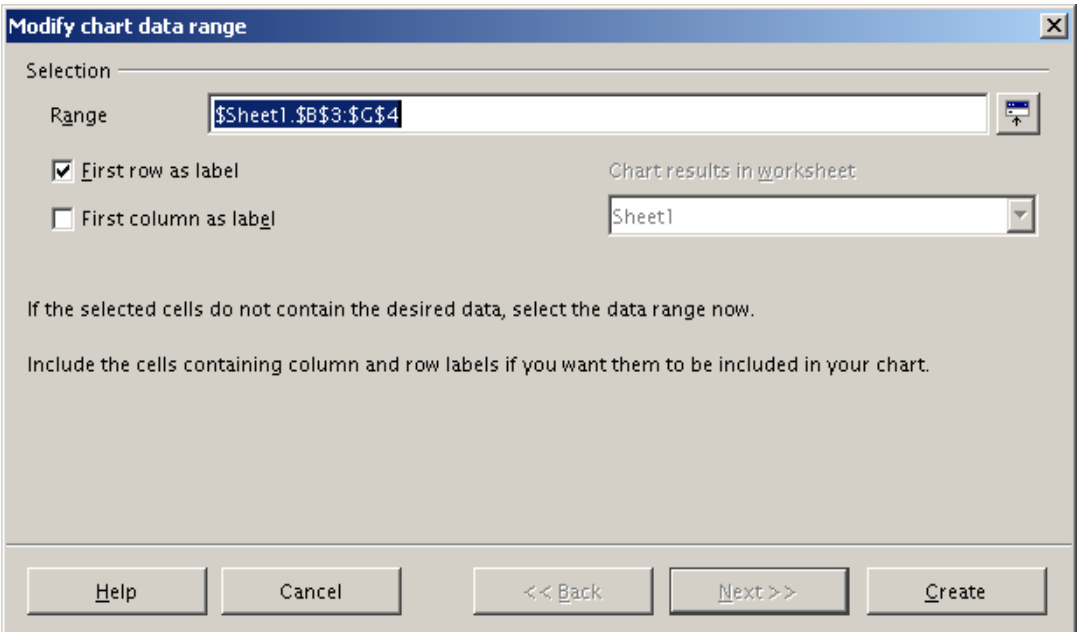
As you will notice from the chart, the x-axis labels indicate the column of the data. What we would like is for the months to be displayed. These are indicated in row 3. The reason the graph in this example did not contain the x axis labels is as a result of only the data row being selected when creating the graph.

To add x axis labels:

- Single click on the chart.
- Right click on the chart to display a context sensitive menu.



- Select **Modify data range**.
- Tick the **First row as label** check box.
- Select two rows of data – the x axis labels and the data itself.
  The range in the **Modify chart data range** dialogue will change accordingly.



Note: In setting up data for creating graphs, it is important that the data labels are in the row above the data.

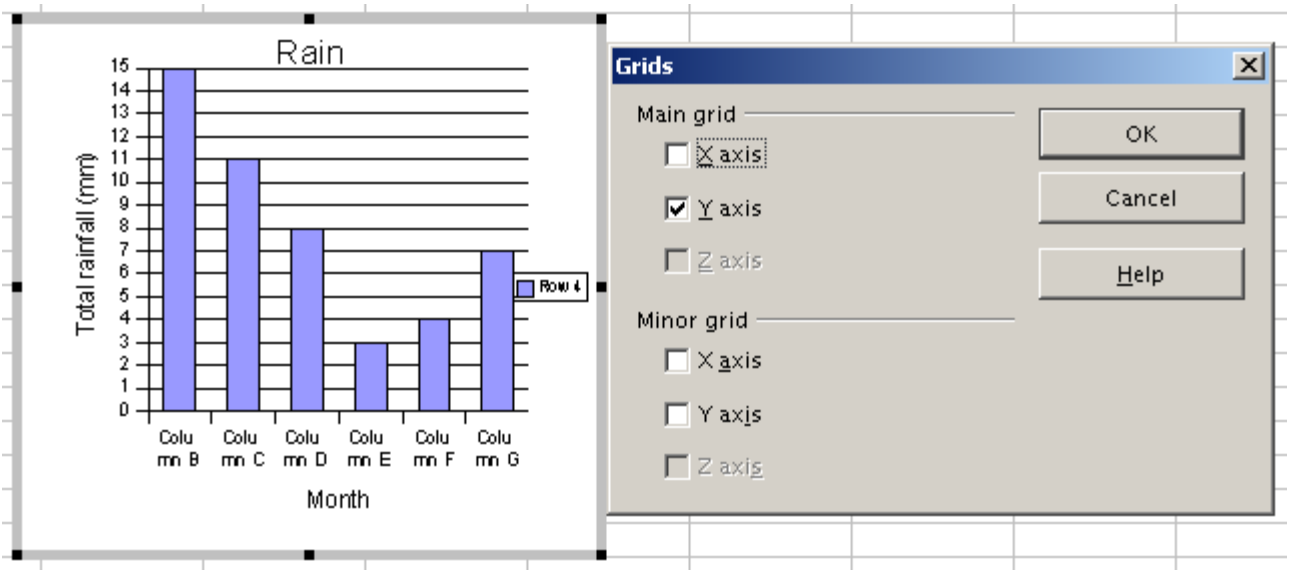
- Click **Create**.

There are some further related actions that can be carried out using this method.

To change the gridlines:

In the above example, only horizontal gridlines are displayed. This can be changed as follows:

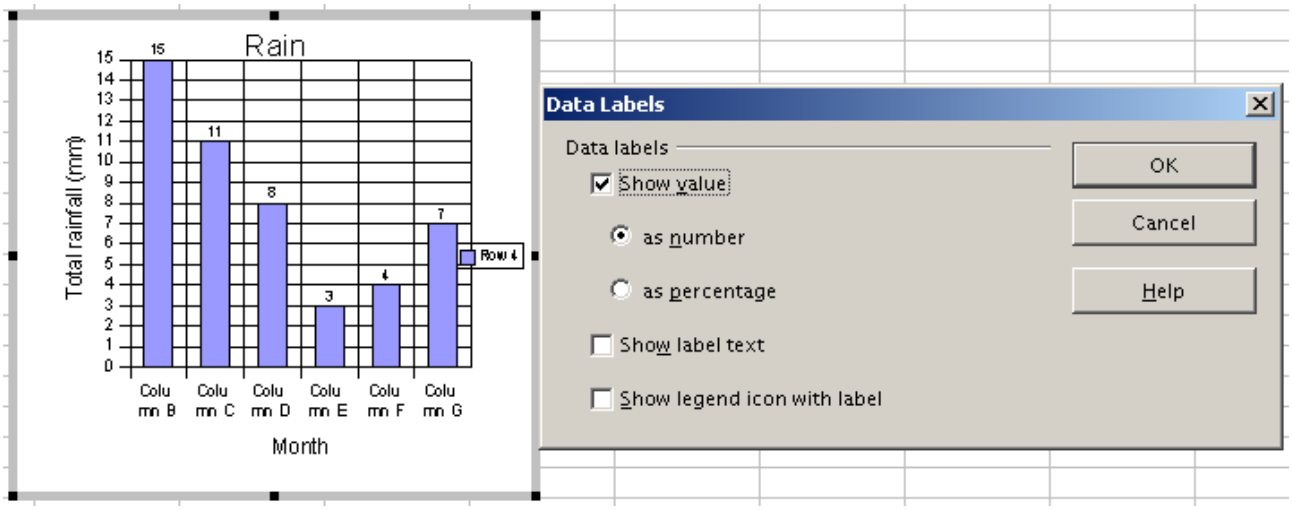
- Double click on the chart.
- **Insert » Grids ...**



- Edit the check boxes as desired.

To show the value of data:

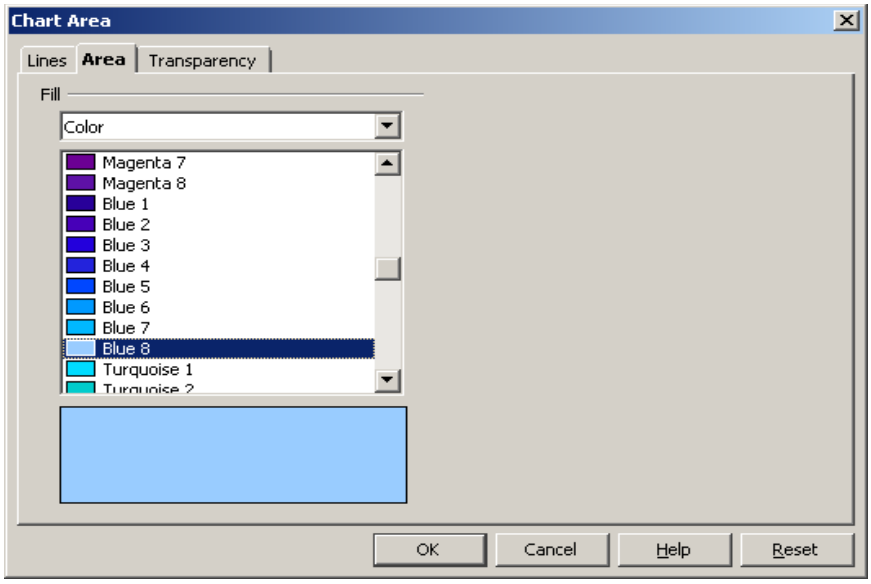
- Double click on the chart.
- **Insert » Data labels ...**



4.6.1.3 Change the background colour in a chart/graph

By default, there is no background colour to the chart. To add colour to or change the background colour of a chart:

- Double click on the chart.
- Right click on the chart.
- Select **Chart area**.
- Click the **Area** tab.



- Select the colour for the background background.
- Click **OK**.

4.6.1.4 Change the column, bar, line, pie slice colours in the chart/graph

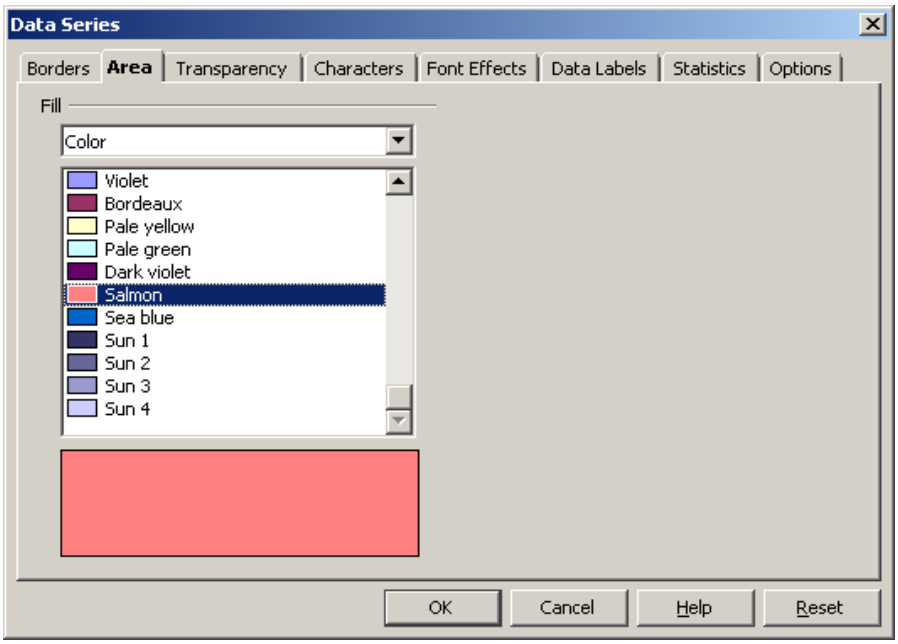
When we create a line, bar or column chart, Calc assigns default colours to the different data series. It also applies default colours to the different segments of a pie chart. These default colours can be changed as follows:

- **Tools » Options**
- Expand **Charts**.
- Select **Default colours**.
- Select the data series you wish to change.
- Select the desired colour from the palette.
- Click **OK.**

The new colours will apply to future charts you create.

To change the colours of an existing chart:

- Double click on the chart. This will display a thick grey border around the chart.
- Double click on the data series or pie segment whose colour you wish to change.
- Click on the **Area** tab.
- Select the new colour.

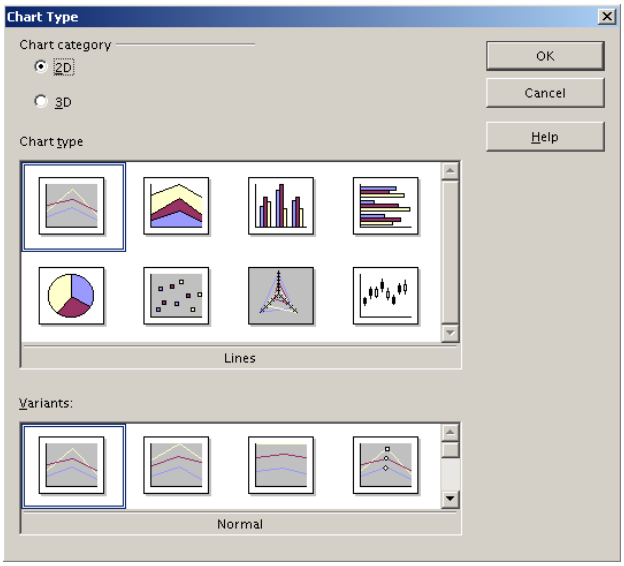


- Click **OK**.

4.6.1.5 Change the chart/graph type

Once a chart has been created it can be changed to another type of chart quite simply as follows:

- Double click on the chart.
- Right click on the chart to display a context sensitive menu.
- Select **Chart type**.



- Select **Chart type** and **Variant**.
- Select **2D** or **3D**.
- Click **OK**.

4.6.1.6 Duplicate, move charts/graphs within a worksheet, between open spreadsheets

Charts can be copied and moved just like any other object.

Moving a chart within a worksheet by dragging:

- Position the cursor over the chart.
- Hold down the left mouse button and drag the chart to its new position.
- Release the left mouse button.

Moving / duplicating a chart within a worksheet using cut / copy and paste:

- Click on the chart.
- **To move: Edit » Cut** OR **To duplicate: Edit » Copy**.
- Select a target cell.
- **Edit » Paste**.

Moving / duplicating a chart between worksheets within a spreadsheet:

- Click on the chart.
- **To move: Edit » Cut** OR **To duplicate: Edit » Copy**.
- Click on the tab of the target worksheet.
- Select a target cell in the worksheet.
- **Edit » Paste**.

Moving / duplicating a chart between open spreadsheets:

- Click on the chart.
- **To move: Edit » Cut** OR **To duplicate: Edit » Copy**.
- Click on the **Window** item in the menu bar and select the desired spreadsheet.
- Click on the tab of the target worksheet in the new spreadsheet.
- Select a target cell in the worksheet.
- **Edit » Paste**.

4.6.1.7 Resize, delete charts/graphs

Deleting a chart:

- Click on the chart.
- Press the **Del** key.

Resizing a chart:

- Click on the chart.
- Position the cursor over any of the eight handles.
- Drag the handle by holding down the left mouse button and moving the cursor.
- Release the left mouse button when the desired size has been achieved.

A resizing symbol will appear. The side handles allow you to resize the chart horizontally and the top and bottom handles vertically. Using these will cause the chart to appear flatter or longer.

The corner handles allow you to resize the chart either horizontally or vertically. By dragging these diagonally, you are able to resize a chart and keep its scaling.

Module 4: OpenOffice.org Calc

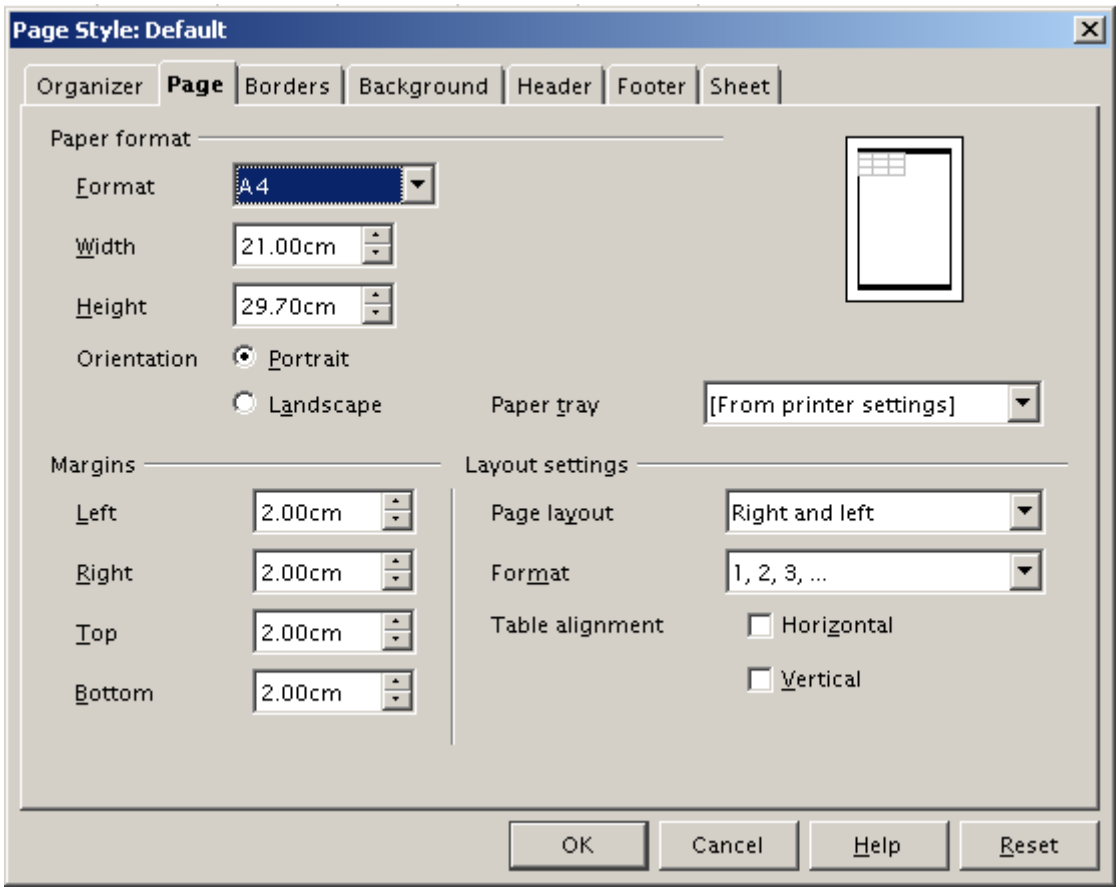
Section 7: Prepare Outputs

4.7.1 Worksheet Setup

4.7.1.1 Change worksheet margins: top, bottom, left, right

Margins refer to the blank areas at the top, bottom and sides of the printed page. The sizes of these margins are set as follows:

- Open the document whose margins are to be set.
- **Format » Page**.
- Click the **Page** tab.



Here we are only concerned with the **Margins** area of this dialogue.

- Adjust the margins by typing in the desired measurements into the **Left**, **Right**, **Top** and **Bottom** windows. Alternatively, clicking on the increase and decrease arrows at the side of the windows allows you to change the settings in increments or decrements of 0.1 cm.
- Click **OK** when you have completed the changes.

Note: The settings that you apply in this way will only apply to the current page style. If you have used different page styles in a document, you will need to set each of these independently.

4.7.1.2 Change worksheet orientation: portrait, landscape Change paper size

Pages of spreadsheets and other documents can be printed either across the short side of the page (as in the case of this document) or across the long side of the paper. The former is called **portrait** and the latter **landscape**.

Landscape orientation is particularly important in the case of spreadsheets as our data often covers many columns.

Generally, we work with A4 size paper. There are, however, many other standard paper sizes. Further, you may form time to time come across non-standard sizes.

To change the worksheet orientation and paper size of the current spreadsheet:

- **Format » Page**.
- Click the **Page** tab.

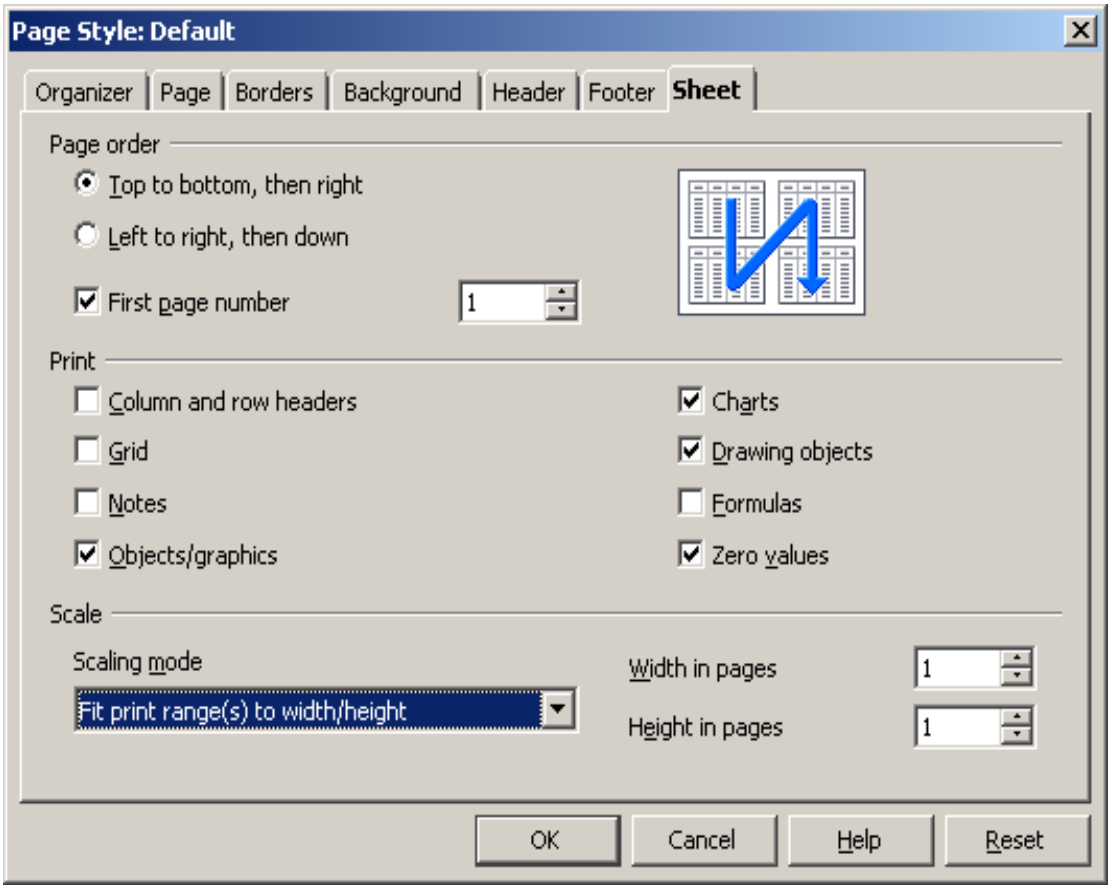
This displays the same dialogue as in the previous section.

- Select portrait or landscape by clicking the appropriate radio button in the **Paper format** area.
- If you are using a standard paper size, click the **Format** drop down box to select the desired paper size. If you are using a non-standard paper size, adjust the **Width** and **Height** entries in the **Paper format** area.

4.7.1.3 Adjust page setup to fit worksheet contents on one page, on a specific number of pages

It may be that in creating a spreadsheet we have not been careful is setting our columns widths so that a spreadsheet can fit on a single page. In such a case, Calc can adjust the column widths so that the spreadsheet will fit on a single page.

- Select the pages that need to be adjusted.
- **Format » Page**.
- Click the **Sheet** tab.
- Click the drop down button of the **Scaling mode** window.
- Select **Fit print range(s) to width / height**.
- Adjust **Width in pages** to **1**.
  If you used a different value, Calc would spread the output across this number of pages. For example, if you entered the value 2, the output would be spread across two pages.



- Click **OK**.

4.7.1.4 Add, modify text in Headers, Footers in a worksheet

Adding headers and footers:

Headers and footers are text and information such as file names and page numbering that are inserted at the top and bottom of each printed page.

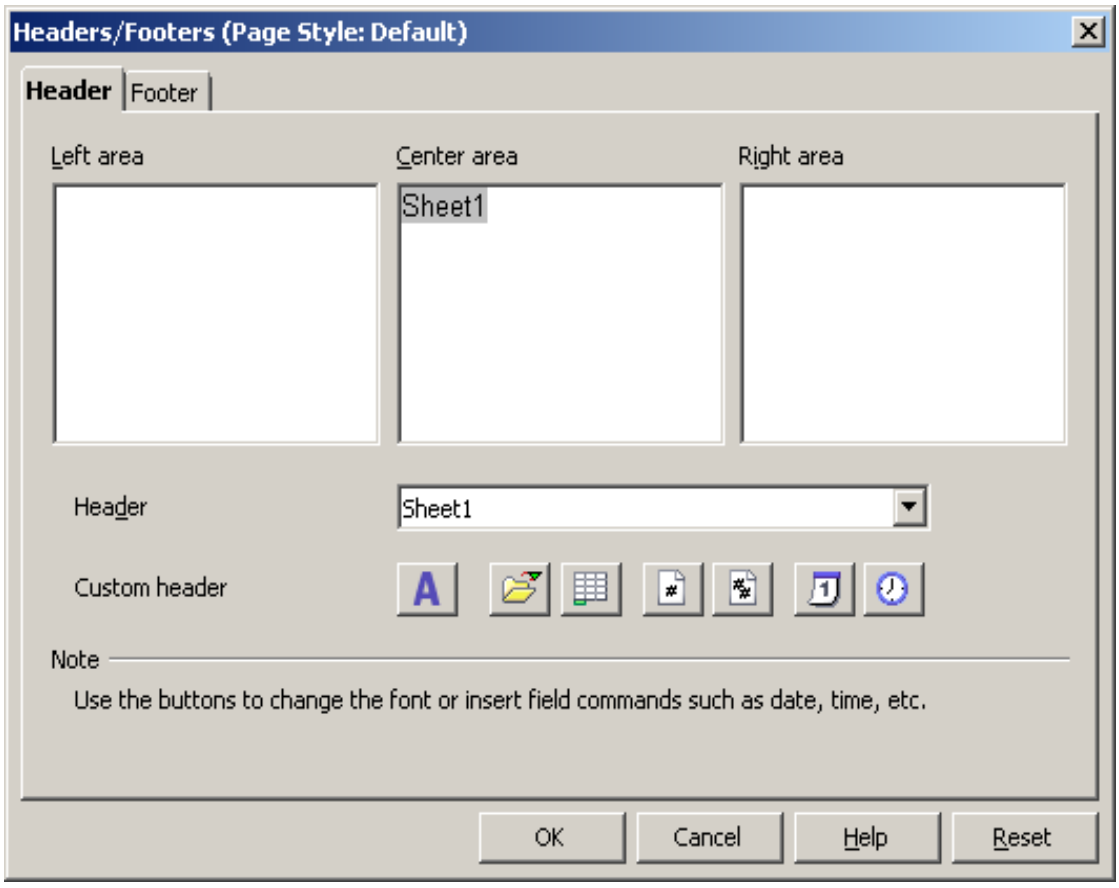
- **Edit » Headers and footers**

This brings up the **Headers / Footers** dialogue.

- Click on the **Headers** tab.

The header is divided into three sections: Left, centre and right.

- Enter the appropriate text in each of the sections of the header.



- If you wish to format the text, click the text attributes icon: 
  This will display the text attributes dialogue which will allow you to change the font type and size as well as other attributes such as colour.

- Click the **Footer** tab.
  The footer can be created in exactly the same way as the header.
- Click **OK** when done.

Editing headers and footers:

If headers and footers have already been defined, **Edit » Headers and footers** will show the current entries. These can be edited in the usual way.

4.7.1.5 Insert fields: page numbering information, date, time, file name, worksheet name into Headers, Footers

To the right of the text attributes icon in the **Headers / Footers** dialogue are a number of other icons. Pressing any of these will insert information such as page numbering, date and file name.

The meaning of these icons is shown in the following table:


File name


Sheet name


Current page number


Number of pages in worksheet


Date


Time

4.7.2 Preparation

4.7.2.1 Understand the importance of checking spreadsheet calculations and text before distribution

Calculations

A spreadsheet is an example of a decision support system. We create spreadsheets so that data can be analysed in various ways and turned into information.

You can think of information as data that has been manipulated in various ways so that we are able to interpret the results. Ways in which we manipulate data include things like sorting, summing, averaging, and so on.

If our data is incorrect or if the logic of our manipulations is flawed, the information will be useless at best and dangerous at worst.

If our spreadsheet provides us with incorrect information, we will make incorrect decisions.

Before we make use of a spreadsheet or before we pass it on to someone else to make use of, here are some checks that should be carried out:

- Check the values that have been entered for correctness.
- Check the completeness of the data. Has all data been entered?
- Check that the correct functions and formulas have been used. It is possible to get spreadsheets that provide us with information, but there are errors in the formulas. For example, incorrect ranges may have been used in functions.

One simple check is to verify that our summaries provide reasonable values. For example, if you have a spreadsheet that determines the average sales of a group of representatives, this value will be somewhere between the largest and smallest values.

Text

Just as numeric work needs to be accurate, the presentation needs to reflect professionalism. This means that the creator of a spreadsheet must check grammar and spelling as well as layout before releasing the spreadsheet. A poorly constructed spreadsheet will be treated with less respect by users, even if the numeric work is correct.

4.7.2.2 Preview a worksheet

Calc allows us to see what the printed spreadsheet will look like without actually printing it. To use this facility:

- **File » Page preview**.

This will display a full page as it would appear on the printed page.

The **Page view** object bar contains a number of icons that are relevant to working with the preview.

These icons are in order:

- Previous page
- Next page
- First page
- Last page
- Zoom in (enlarge)
- Zoom out (shrink)
- Full page
- **Page format** button will take you directly to the page format dialogue. You can make your changes and see the effect immediately.
- **Close preview** button takes you back to normal mode.

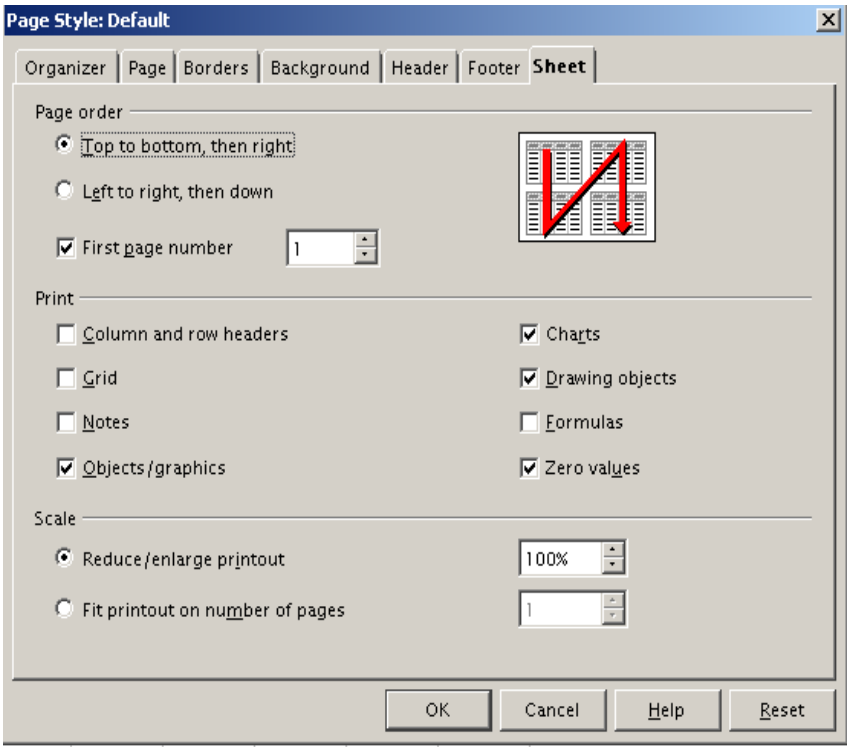
Note: You cannot edit a spreadsheet while in page preview mode.

4.7.2.3 Turn on, off display of gridlines, display of row and column headings for printing purposes

Unless you specify otherwise, gridlines and row and column headings are printed when you print a spreadsheet.

To specify whether you wish these printed or not:

- **Format » Page**.
- Click the **Sheet** tab.
- Uncheck the **Column and row headers** check box if you do not wish row and column headers to be printed.
- Uncheck the **Grid** check box if you do not wish gridlines to be printed.



- Click **OK**.

4.7.2.4 Apply automatic title row(s) printing on every page of a printed worksheet

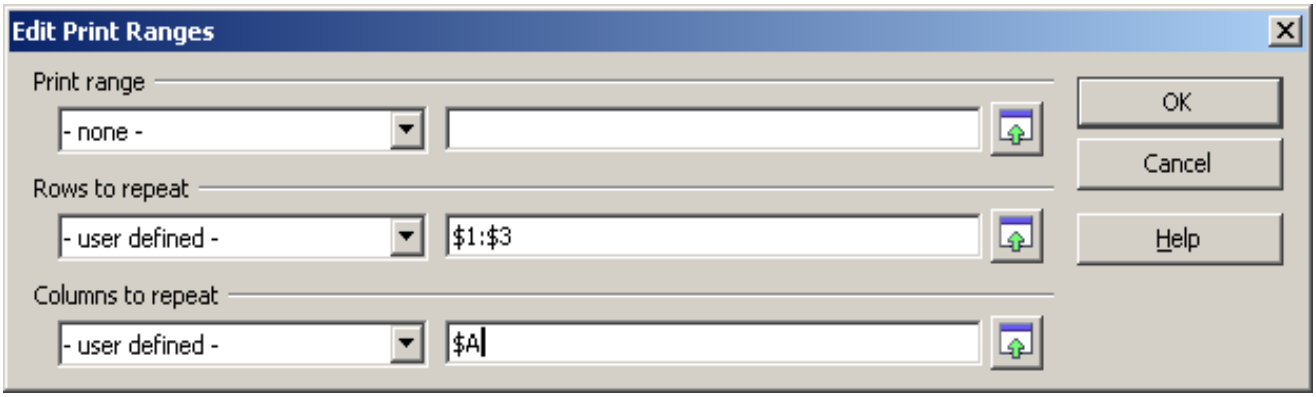
In the case of very large spreadsheets, you may wish to have certain rows or columns printed on each page. This would happen, for example, when certain rows or columns contain titles.

To achieve this:

- **Format » Print ranges » Edit**.

This will display the **Edit print ranges** dialogue:

- Enter the rows and or columns you wish to repeat as shown in the screen below.



An alternative method is to click in the window indicating the range or click on the shrink icon at the right of the window and select the range of rows or columns by dragging the mouse over

them.

- Se the **Print range** in a similar way to indicate the range for which the rows and or columns must be repeated.

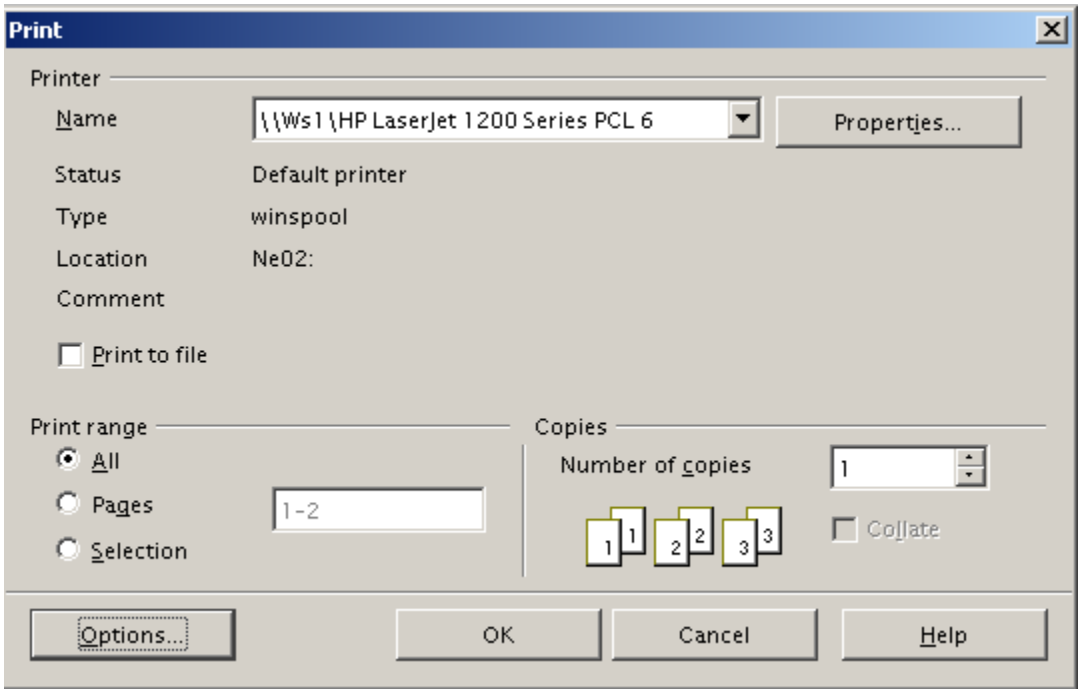
4.7.3 Printing

4.7.3.1 Print a cell range from a worksheet, an entire worksheet, number of copies of a worksheet, the entire spreadsheet, a selected chart

To print a spreadsheet:

- **File » Print**.

This brings up the **Print** dialogue:



- If you wish to print using all the defaults, click **OK**.

To print a section of a worksheet:

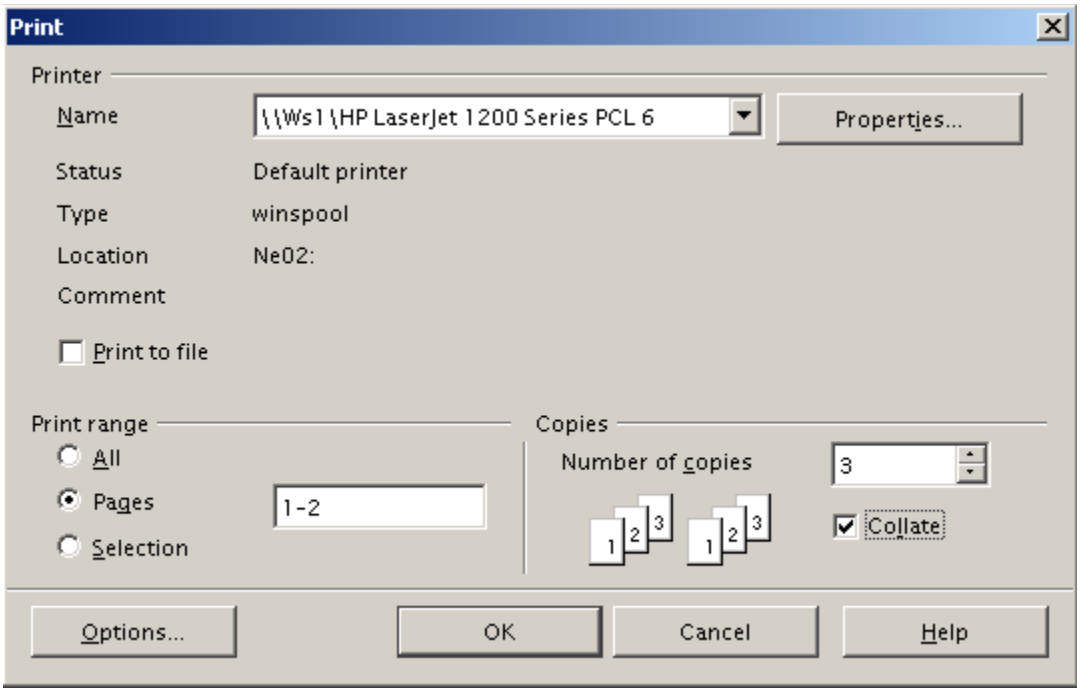
- Highlight the section of the spreadsheet you wish to print.
- **File » Print**.
- Click the **Selection** radio button.
- Click **OK.**

To print a range of pages:

- **File » Print**.
- Click the **Pages** radio button.
- Enter the range of pages you wish to print.
- Click **OK.**

To print multiple copies:

- **File » Print**.
- Click the **Pages** radio button.
- Enter the range of pages you wish to print.
- Set the number of pages you wish to print.
- If you wish the pages to be collated, check the **Collate** check box.



- Click **OK.**

Changing the printer:

If you have more than one printer installed, you can click on the **Name** drop down box. This will display a list of installed printers.