

Spreadsheets – A Simple Introduction

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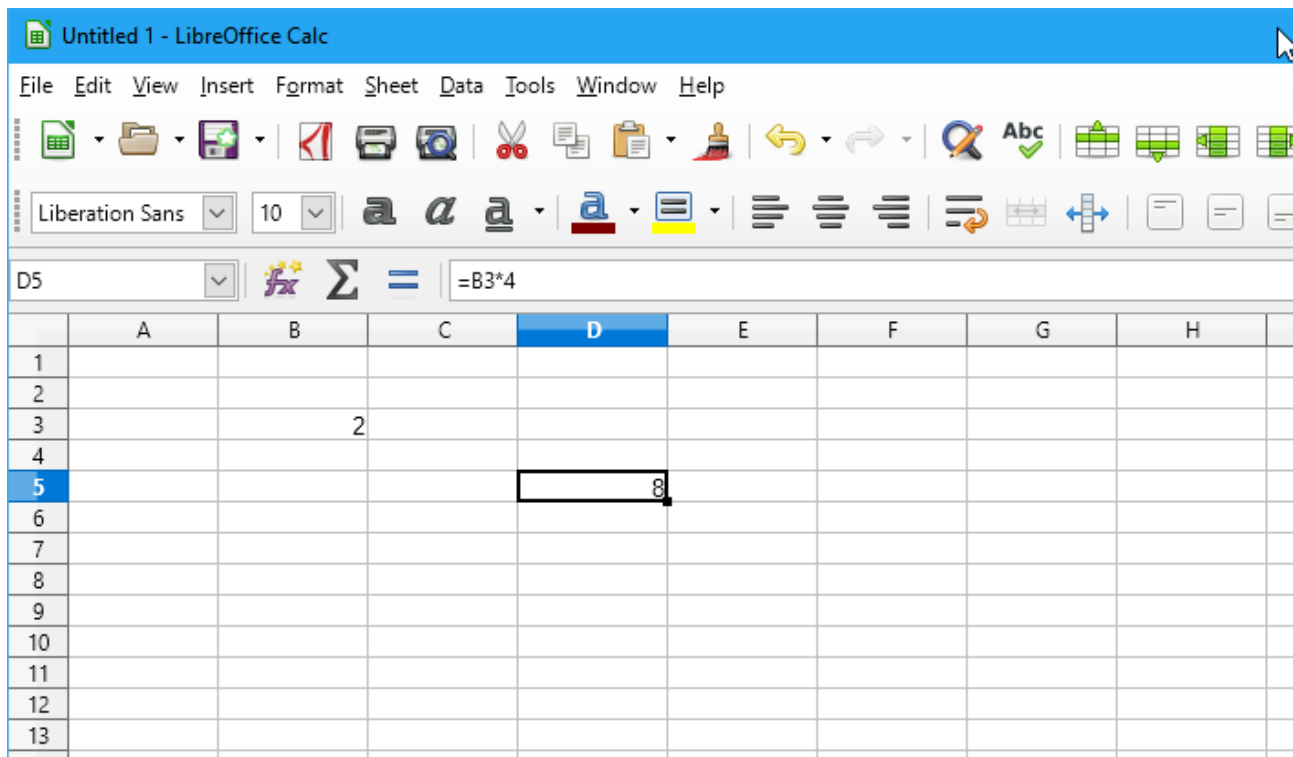
This is Revision 2.0, it will be updated from time to time. If you have any questions or comments, or anything is not clear, please let me know so that I can update it for the benefit of others.

Spreadsheets were created to simplify and automate business models originally created with chalk and blackboards, but if you have never been shown how to use one they can be daunting. The aim of this document is to give you a simple introduction into how they work.

Libre Office contains an excellent spreadsheet that can also open Excel and other formats and is available absolutely free from [Libre Office](#). If you don't already have a spreadsheet application installed on your Windows or Linux PC, then download and install it now. A spreadsheet for Android is Google Sheets, one for Apple iOS machines is Numbers.

After installing your chosen application, open up a spreadsheet. In Libre Office this is called “Calc”. When you run it you will get a window the top left of which looks like the image below.

To start with, ignore the ribbon across the top with all the buttons and concentrate on the grid area below. This is the working area. It is divided into columns and rows by grey lines, creating “cells”.



Each cell has a line and column reference. In the image the “active” cell is outlined in black, this outline is called the “active cell indicator”. The cell is referred to as D5, shown by the blue highlights on the column and row axes, and in the “Name Box” just above the “A” column heading.

The active cell is where anything you type on the keyboard is entered. To change the active cell, either click on another cell with the mouse, or use the cursor keys to move the active cell indicator to the cell you want to make active.

I have made two entries. In cell B3 I have put the number 2. Cell D5 is displaying the number 8, but if you look at the “Formula Bar”, the white bar above the column heads, just above the “C” and “D” column heads you can see that this cell actually contains a formula “=B3*4”. If a cell contains a formula, the Formula Bar shows the formula, the cell itself displays the result.

Formulas always start with an = (equals) sign, which tells the spreadsheet that they are a formula. The formula contains a reference to the cell with the number 2 in it, cell B3, and tells the spreadsheet to display the value of B3 times 4, which at the moment is 8 as shown.

This is the great power of a spreadsheet, you can create formulas that refers to values in other cells and perform calculations on them.

Try this yourself. You enter text, numbers or formulas in a cell by first making it the active cell, then typing the entry and pressing “Enter” to finish. You make a cell the active cell by clicking on it with the mouse, or use the cursor keys move the active cell indicator around.

Enter “2” in cell B3 and “=B3*4” in cell D5 (both without the quote marks) – it should look like the example in the image. Now change the value in cell B3. Enter 4 in B3. You should see the value in cell D5 immediately change to 16. Now you understand spreadsheets! This is it in a nutshell:

Every cell can use the contents of every other cell in calculations.

If the contents of one of the other cells changes, the calculation is instantly updated.

Just try playing with the spreadsheet using formulas like this until you get familiar with the basic operations of moving the active cell indicator and entering numbers, text and formula. Any cell in the spreadsheet can be referenced from any other cell, or many cells.

For instance, make the active cell A1, type “My First Spreadsheet” and hit enter. Or go to any empty cell you like and enter “=D5*10”. Now if you change the value in cell B3, the values displayed in D5 and this cell will automatically update.

Here is something else to try. Create a column of numbers by typing a number into a cell and pressing Enter. The active cell will become the one below; type another number in that and press enter. When you have a column of half a dozen or so numbers, stop. Now find the summation sign “Σ” (the Greek letter Sigma) just above the column heading “B”. Press that and see what happens. It will highlight all the numbers in your column and offer a formula like “=SUM(H4:H8)”, which means “Sum the contents of the cells from H4 to H8”. (Your cell references will probably be different.) Press Enter and this formula will be entered into the cell and the result displayed. Try changing one of the entries in the column and see how the result changes.

Editing Cell Contents

If you want to edit or change the contents of a cell, fist make it the active cell and the press F2. You can then edit the contents. Press Enter to finish editing. Alternatively, you can click in the formula bar and edit there.

Number Formats

Spreadsheets contain many built in ways of formatting text or numbers.

For example, if you want to display the numbers in the column as currency, first use the mouse to highlight all the numbers. Do this by clicking on the first cell with the left mouse button and, while holding the button down, drag the mouse so that all the cells containing numbers are highlighted. Then look across the ribbon until you see a button with a picture of a stack of gold coins. Click on that and the format of the numbers will change to the currency set on your device.

Formulas

Spreadsheets contain many built in mathematical operators, square roots, trigonometry functions, etc.

Some of the most useful are square roots, squares, and the value of π (Pi). Remember that all formulas start with an = (equals) sign, that is what tells the spreadsheet that it is a formula and not just text. If you forget the equals sign, what you type in will be displayed as text.

For a square root, enter “=sqrt(x)” where x is the thing you want to find the square root of, it can be either a number or a cell reference.

For a square, enter “=x^2” where x is the number you want to square. The ^ is found above the 6 on most keyboards. Similarly, for a cube, enter “=x^3”.

To use π in a calculation, enter “=Pi()”. For example, if cell B5 contains the diameter of a circle (make sure it does – anything will do), in another cell type “=Pi()*B5” to find the circumference of the circle. The * (multiply) sign is found above the 8 on most keyboards. To find the area of the circle, in another cell type “=Pi()*B5^2/4”, i.e. $\pi D^2 / 4$.

You can use brackets to make sure that things are executed in the correct order. For instance, if you are more familiar with writing $A = \pi/4 D^2$, you might prefer to enter “=(Pi()/4)*B5^2”.

This is a very short introduction, but I hope it fires your imagination as to what you can do with a spreadsheet. If you have any questions or comments, or anything is not clear, please let me know so that I can update it for the benefit of others.