Activity 5 – Budgeting
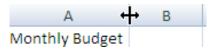
In this activity we are going to continue looking at calculations, as well as having a first go at using one of Excel's built-in functions.

1. For this exercise we are going to set up a six month budget for living in a flat.

    a   Start *Excel* and open the workbook *Budget*.

        This budget will identify the expenses, month by month, for each of the items in the list on the left.

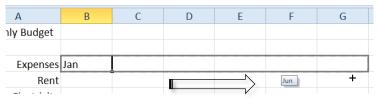   b   Make column A just wide enough so that the longest label will fit.

        Hint: double click the line between columns A and B.

        This will expand the column to just fit its widest entry.

    c   Select the cells A3 to A11 and make the labels in them right aligned.

    d   Move to cell B3 and type *Jan* (short for January) and press *Enter*.

    e   Click on the fill handle at the lower right of the cell B3 so that the mouse pointer changes into a narrow plus sign.
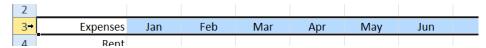

        Click and drag the fill handle across to G3 and let go.

        Excel recognises *Jan* as a month and automatically fills the following months across.

    f   While the cells B3 to G3 are still selected centre them in their columns.

    g   Click on the *3* of row 3. This will select the whole row in one go.

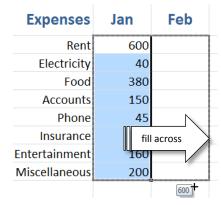   Improve the appearance of the headings (font, colour, size, etc.).

    h   While the headings are still selected, vertically centre the text in the row (use the *Home > Alignment > Middle Align* button).
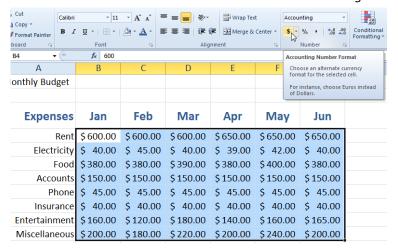

    i   Save your changes to a suitable folder.

2. Now enter reasonable values for each of the expenses. Do not worry about the $ sign for money amounts, we will add that shortly.

    Rent should be about $600 unless you are sharing the flat; *Electricity* and *Insurance* would be around $40 each. You can make up your own values for *Food, Accounts* (e.g. credit cards), *Phone, Entertainment* (movies etc.), and *Miscellaneous* (everything else). Remember that these are costs for a month.

    Hint: To save time you might put your values down column B, then select them (*B3:B11*), and use the fill handle to copy the values across. Once this is done go back over the values you have filled across, and alter some so that they are not all the same.

Now select all of the numbers and click on the *Home > Number > Accounting Number Format* button:

All of the values will now be formatted as currency.

Re-save.

3. We are now ready to total these amounts.

Rather than enter a formula such as = *B4 + B5 + B6 + B7 + B8 + B9 + B10 + B11,* we will use the *Sum* function.

a We will start with totals for each month.
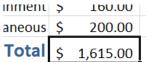
Move to cell A12 and type *Total*.

Format it the same as the *Expenses* heading.

Hint: if you use the *format painter* you can copy the formatting of the heading. To do this, first click on the *Expenses* heading, then click on the format painter button (*Home > Clipboard > Format Painter*), and finally click on the word *Total*.

b In B12 type the formula =*sum(B4:B11)* and press *Enter.*

Note: if ######## appears the cell is not wide enough to see the value. Widen the column.

This formula means sum (i.e. total) all of the values in the range from B4 down to B11. The total of the amounts will appear in cell B12.

c Enter a similar formula in C12, i.e. = *sum(C4:C11).*

Hint: as an alternative to pressing *Enter* when you have typed in a formula you can click the tick next to the formula bar.

The advantage of doing this is that the current cell stays selected rather than the selection moving to the one below. This is handy if you want to format the current cell or copy its contents across.

d Rather than typing the formula in each of D12, E12, and so on, we can fill it across.

Click on the fill handle of C12. This is the cell with the formula we wish to copy across.

Make sure the mouse pointer is a narrow plus sign, and drag across to G12.

When you let the mouse button go the formula in C12 will be copied across to G12. (Again, if ######## appears in any cell, make the columns wider.)

laneous	$ 200.00	$ 180.00	$ 220.00	$ 200.00	$ 240.00	$ 200.00
Total	$ 1,615.00	$ 1,560.00	$ 1,665.00	$ 1,644.00	$ 1,727.00	$ 1,670.00

Note that the formula in D12, E12, etc., has changed *relative* to the column as it has filled across. It changes to *=sum(D4:D11), =sum(E4:E11),* etc.

e   We will now total the amounts for each item.

Move to H3 and add the label *Total*. Make sure it is formatted the same as the other headings.

f   Use the *sum* function in H4 to total the values across, i.e. *=sum(B4:G4)*.

Widen the column if necessary.

Jun	Total
$ 650.00	=sum(B4:G4)
$ 40.00	

g   In H5 we are going to add a similar function to total the values across, but this time we will get Excel to prepare the formula for us.

Click once in H5 to select it.

This time click on the *AutoSum* button, *Home > Editing > AutoSum*.   Σ AutoSum ▾

Expenses	Jan	Feb	Mar	Apr	May	Jun	Total
Rent	$ 600.00	$ 600.00	$ 600.00	$ 650.00	$ 650.00	$ 650.00	$ 3,750.00
Electricity	$ 40.00	$ 45.00	$ 40.00	$ 39.00	$ 42.00	$ 40.00	=SUM(B5:G5)
Food	$ 380.00	$ 380.00	$ 390.00	$ 380.00	$ 400.00	$ 380.00	

Excel makes a best guess at the values we wish to add together.

This guess is correct, so press *Enter* or click the tick next to the formula bar.

h   Use either the AutoSum button, or fill the formula in H5 down to complete the totals in column H.

Your budget should now look similar to this:

Expenses	Jan	Feb	Mar	Apr	May	Jun	Total
Rent	$ 600.00	$ 600.00	$ 600.00	$ 650.00	$ 650.00	$ 650.00	$ 3,750.00
Electricity	$ 40.00	$ 45.00	$ 40.00	$ 39.00	$ 42.00	$ 40.00	$ 246.00
Food	$ 380.00	$ 380.00	$ 390.00	$ 380.00	$ 400.00	$ 380.00	$ 2,310.00
Accounts	$ 150.00	$ 150.00	$ 150.00	$ 150.00	$ 150.00	$ 150.00	$ 900.00
Phone	$ 45.00	$ 45.00	$ 45.00	$ 45.00	$ 45.00	$ 45.00	$ 270.00
Insurance	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 240.00
Entertainment	$ 160.00	$ 120.00	$ 180.00	$ 140.00	$ 160.00	$ 165.00	$ 925.00
Miscellaneous	$ 200.00	$ 180.00	$ 220.00	$ 200.00	$ 240.00	$ 200.00	$ 1,240.00
Total	$ 1,615.00	$ 1,560.00	$ 1,665.00	$ 1,644.00	$ 1,727.00	$ 1,670.00	$ 9,881.00

i   Re-save your work.

Note: the use of the AutoSum button can save time in constructing a formula, but it must be used carefully. Excel makes a guess at the values to put into the function, but it is not always right. If you use AutoSum always check it has correctly guessed the values to use.

4.   To complete the budget we will add wages earned, and calculate how much will be left to bank.

a   Move to cell A13 and enter the label *Wages* and in cell A14 enter the label *Bank*.

Format both the same as *Total* (use the format painter – see 3a above).

b   In row 13 enter a reasonable monthly wage for yourself (e.g. about $2 000), and fill it across to G13. Format it as currency.

c   In cell B14 enter the formula *=B13-B12*.

ellaneous	$ 200.00	$
Total	$ 1,615.00	$ 1,5
Wages	$ 2,000.00	$ 2,0
Bank	=B13-B12	

This will find out how much is left over at the end of each month by subtracting wages from total expenses.

Fill this formula across to G14.

...cellaneous	$ 200.00	$ 180.00	$ 220.00	$ 200.00	$ 240.00	$ 200.00
Total	$ 1,615.00	$ 1,560.00	$ 1,665.00	$ 1,644.00	$ 1,727.00	$ 1,670.00
Wages	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00
Bank	$ 385.00	$ 440.00	$ 335.00	$ 356.00	$ 273.00	$ 330.00

   d   Fill the formula in H12 down to H14 to complete the totals column.

   e   To finish improve the layout and appearance of the worksheet (see step 9 in the last activity).

   f   Add a header or footer, save the worksheet, and print a copy.

Follow up

=sum is the first function we have seen in Excel. There are many other functions for calculating statistics, financial values, logical expressions, engineering, and on and on.

A function is a calculation that has already been set up for us. The *=sum()* function for example will total all of the values placed in between the brackets. These values can be in a row, e.g. *=sum(A5:G5)*, a column, e.g. *=sum(B1:B6),* or any selected values separated by commas, e.g. *=sum(B1, C5, E2)*

Functions are not case sensitive, i.e. *=sum* and *=SUM* are the same. Excel will always change functions to upper case.

A function, like a calculation, will always start with an = sign. It will then have the name of the function (e.g. *=sum, =average, =today*, etc.). This name is then followed by parentheses (brackets). Inside the brackets are the values the function acts upon. The result of the function is shown in the cell; the function itself is shown in the formula bar for that cell.

We will see some more functions in the activity after the next.

Note: simple calculations such as = B5+B6 do not have a function applied to them. For this reason it is unnecessary (and incorrect) to write *=sum(B5+B6).* Functions such as *=sum* are not to be used with simple calculations and are only needed when we want to do a specialist action such as adding a column of numbers.