STRINGFEST ANALYTICS

Getting Started with Excel

Contents:

Welcome and Introduction

What you should already know

You should already know how to:

- Use a mouse
- Open and save files
- Open and close windows
- Switch between windows

What you will learn

This workshop introduces the basic features of Microsoft Excel 2016. We will many topics including:

- Entering various types of data into a worksheet
- Working with formulas and functions
- Inserting and modifying charts
- Customizing printouts

What you will need to use these materials

To complete this workshop you will need

- Microsoft Excel 2013 or newer (Windows preferred for in-person training; all features can be used on Excel for Mac)

Getting Started with Excel

Excel is the spreadsheet program within the Microsoft Office system.

You can use Excel to import and track data, write formulas, summarize and report data, and visualize data in professional-looking graphics and diagrams.

Opening Excel

To open Excel, you can either:

- Click the icon on your desktop called “Microsoft Excel” (featuring the green logo with the X ).
- From the start menu  , go to Programs → Excel 2016.

A brief tour of Excel

When you open Excel, you will see the following four elements:

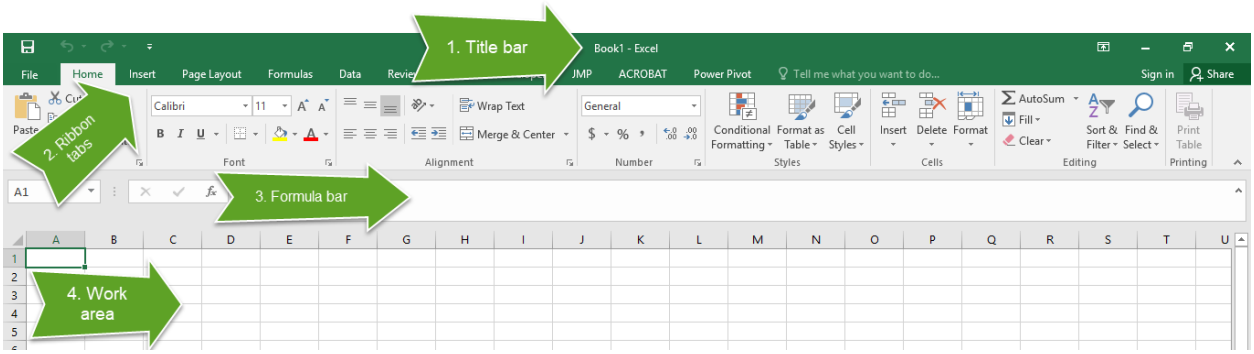
1. **Title bar.** This is the bar at the very top. It shows you what program you are in and the name of your current file. You should see Book1 as the current file’s name. This is the default title of your spreadsheet.

2. **The ribbon tab.** This takes the place of toolbars and menus in previous versions of Excel. Here you can access many of the most important features of Excel.

3. **The formula bar.** This is the big white bar across the top of

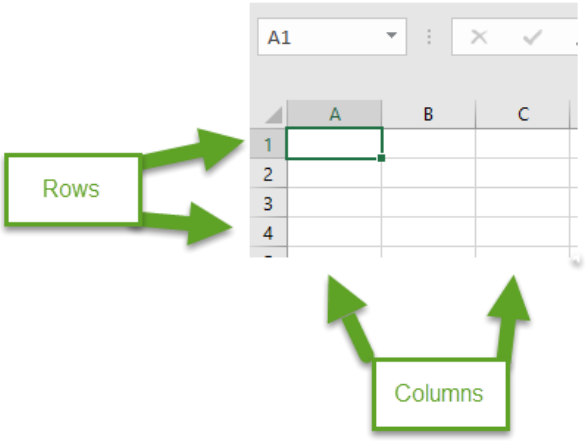
your spreadsheet. This is where text, numbers and formulas are entered into Excel.

4. **The work area.** The large white area with the gridlines is the "workbook" proper. An individual tab of your workbook is called a "worksheet." Excel always opens a worksheet with cell A1 selected. A1 or any combination of letter and number is called the cell *address.*



The **work area** is divided into rows and columns.

- The rows are designated by a number (1, 2, 3…)
- The columns are designated by letters (A, B, C…).



A brief tour of the home ribbon

As stated earlier, the home ribbon gives you access to the most frequently-used features in Excel. From left to right, a description of their purpose:

1. The **File Menu** works the same as with most other programs. Here you open, save and print files. The file menu also contains hundreds of pre-made templates for budgets, invoices, calendars, and more; select "new" from the file menu and browse through the templates.
    - **Don't forget to save!** While we are here, let's choose Save As... and call our spreadsheet (Your Name) Excel.

2. The **Home** tab is where you will spend most of your time. Font settings, alignment, how numbers are displayed, cell formatting, and editing are all found on the Home tab.

3. The **Insert** tab is where you will go to add elements such as charts, tables, and pictures to your workbook. The Page Layout is where you set page margins, page orientation, and document scale.

4. The **Formulas** tab is where you will find a listing of all the most common formulas used in Excel. This is a good place to go if you can't remember exact formulas when working on your spreadsheet.

5. The **Data** tab is most commonly used to import information from other programs, such other Microsoft Office programs. Beginners typically don't use this tab much, so we won't discuss it in detail during this lesson.

6. The **Review** tab has a few useful features, most importantly being the spell check option.

7. Finally, the **View** tab gives you options on how you want your spreadsheet to be displayed. Again, most beginners don't need this function, but it is important to understand what it does.

Entering Data into Excel

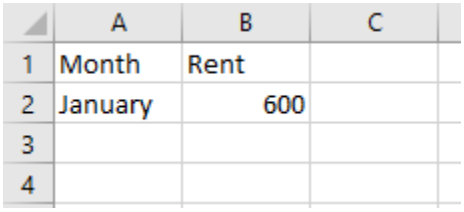
When you work with Excel, you are usually working with either plain text (words), data (numbers), or a combination of the two. In this exercise you will get comfortable working with both types and how they are used in Excel.

	A	B	C	D	E	F
1	Month	Rent	Car	Utilities	Food	Other
2	January	600				
3	February					
4	March					
5	April					
6	May					
7	June					
8	July					
9	August					
10	September					
11	October					
12	November					
13	December					

In this lesson, we will set up a small personal budget. To begin:

1. Click on cell B1 and type in “Rent” (this would of course be just plain text).
2. Click the Enter button to cell B2 and type 600 (a number). Use the left arrow key to move to cell A2 and input the word January.

Your spreadsheet should now look like the image to the right.

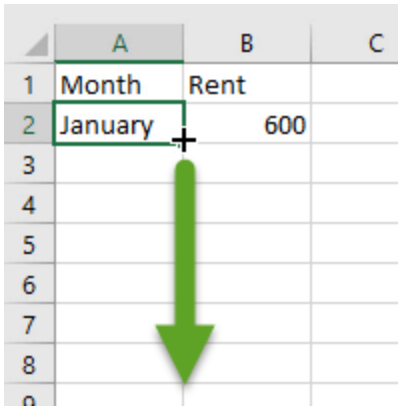


	A	B	C
1	Month	Rent	
2	January	600	
3			
4			

Using the fill handle

Repetitive data entry can be a drag (pun!). Fortunately, Excel has alleviated filling out the most common data entry tasks with the fill handle. This includes filling months of the year down your worksheet.

With cell A2 selected, click the **lower right** of the cell and drag the fill handle  over the cells that you want to fill.



	A	B	C
1	Month	Rent	
2	January	600	
3			
4			
5			
6			
7			
8			

Excel will automatically fill the rest of the months down column A.

Unfortunately Excel does not know the other categories of expense we will be using. So starting in cell C1, type in the remaining categories: Car, Utilities, Food, Other.

You can move to the next cell to your right by clicking on it or by pressing the right arrow → or tab key.

You are beginning to see the makings of a budget at this point.

You have rows for the 12 months of the year and columns for your five major monthly expenses.

Remember the fill handle feature we used to easily fill out the months in our workbook? Excel offers similar time-saving techniques for entering numbers.

In our budget, rent, car and utilities will be the same every month. Rather than manually typing in the amount for each row for the next 11 months, we can use the fill handle.

With cell B2 selected, click on the box in the lower right hand corner of the cell and drag your mouse down to cell B13. Once you release the mouse button, 600 will fill the entire column. We will do the same to the next two columns (car and utilities).

Food and other expenses will likely change a little from month to month, so we will manually enter data for these rows.

For cells E2:E13, enter in this order: 125, 90, 90, 100, 100, 100, 125, 100, 90, 125.

For cells F2:F13, enter in this order: 100, 125, 125, 125, 100, 125, 100, 100, 125, 125, 125, 125.

Our spreadsheet should now look like the one in the image to the right. Now we are starting to see a real budget!

	A	B	C	D	E	F
1	Month	Rent	Car	Utilities	Food	Other
2	January	600	300	150	125	100
3	February	600	300	150	90	125
4	March	600	300	150	90	125
5	April	600	300	150	100	125
6	May	600	300	150	100	100
7	June	600	300	150	100	125
8	July	600	300	150	125	100
9	August	600	300	150	100	100
10	September	600	300	150	125	125
11	October	600	300	150	100	125
12	November	600	300	150	90	125
13	December	600	300	150	125	125

Cell Formatting

We will now do a few things to make our spreadsheet easier to read and interpret now.

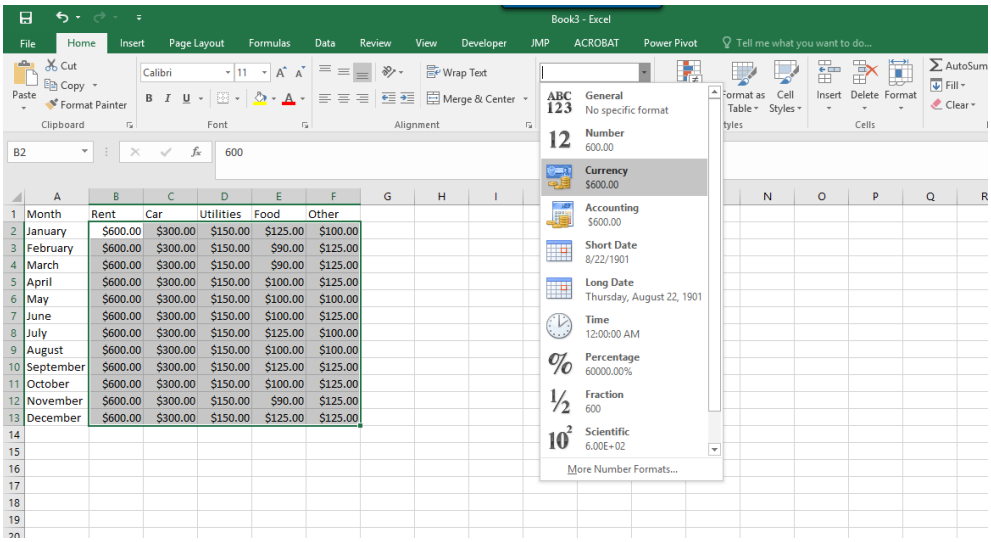
First, let's highlight cells B2:F13 (all the numbers in our worksheet).

Start by clicking in cell B2. Hold down the control button on your keyboard and press the down arrow ↓ at the same time. Your cursor will move to cell B13.

With the control button still pressed, now use the right arrow key → to maneuver over to cell F13.

Stop pressing control now. A box should appear around the entire selection at this point.

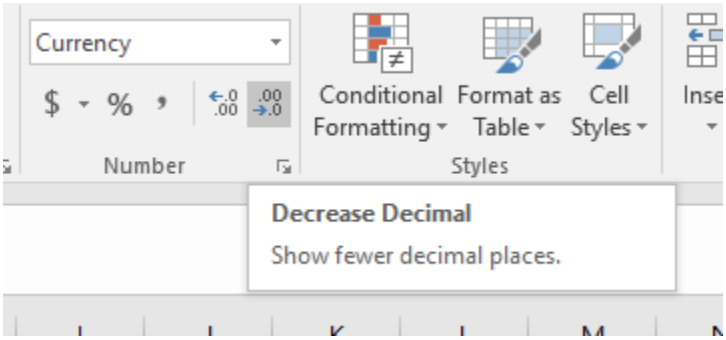
Now, move up to the Number group on the Home tab. You will see a drop down box that currently says “General.” Click on it.



	A	B	C	D	E	F
1	Month	Rent	Car	Utilities	Food	Other
2	January	$600.00	$300.00	$150.00	$125.00	$100.00
3	February	$600.00	$300.00	$150.00	$90.00	$125.00
4	March	$600.00	$300.00	$150.00	$90.00	$125.00
5	April	$600.00	$300.00	$150.00	$100.00	$125.00
6	May	$600.00	$300.00	$150.00	$100.00	$100.00
7	June	$600.00	$300.00	$150.00	$100.00	$125.00
8	July	$600.00	$300.00	$150.00	$125.00	$100.00
9	August	$600.00	$300.00	$150.00	$100.00	$100.00
10	September	$600.00	$300.00	$150.00	$125.00	$125.00
11	October	$600.00	$300.00	$150.00	$100.00	$125.00
12	November	$600.00	$300.00	$150.00	$90.00	$125.00
13	December	$600.00	$300.00	$150.00	$125.00	$125.00

You are given a list of different ways to display the content in your cells. We are working with money, so we’ll choose the “Currency” option. This changes all of the values in our highlighted cells to numbers with a currency display. It also adds two decimal places to the numbers. The spreadsheet should now look like the image below.

Adding the cents places to our numbers makes this report look a little cluttered. To remove the two decimal places, head back to the Number group and select the button at the far right, “Decrease Decimal.”

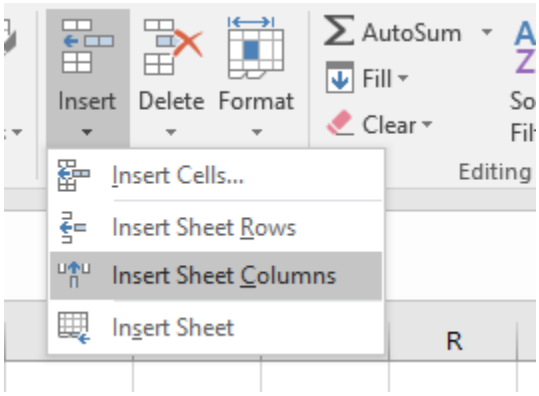


One more thing: now we will add Income to our budget.

To do this, move your cursor to cell B1. Under the Home tab, go to the Cells group, Now select Insert and Insert Sheet Columns. This will add a blank column that we will title Income.

Type 1500 in cell B2 and again use the auto-fill to fill this down all months.

Now we are getting somewhere.



Working with Formulas

The next step is to let Excel do what it does best – crunch numbers so we don’t have to. This is best done with formulas.

Excel has many automatic formulas built into it. We will learn some of the shortcuts in the next few pages, but it’s also important to understand how these formulas work so as we go we will dissect and explain them. The start with basic arithmetic and move to a variety of topics ranging from scientific measurement to investment calculation.

The basic mathematical formulas in Excel are as follows:

- + means to add
- - means to subtract
- * means to multiply
- / means to divide

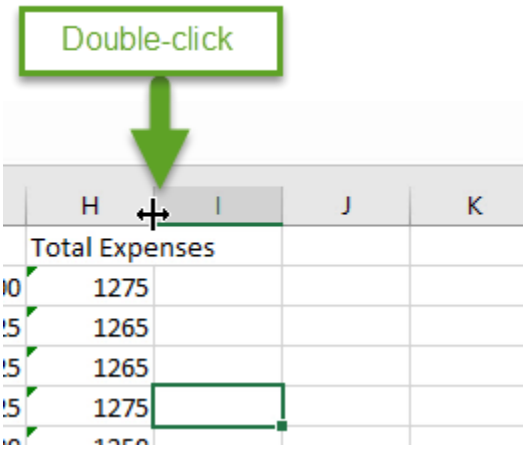
A good rule of thumb: when Excel sees an equal (=) sign in the formula bar, it tells Excel to get working.

Adding cells together

First, we will figure out what our total monthly expenses are.

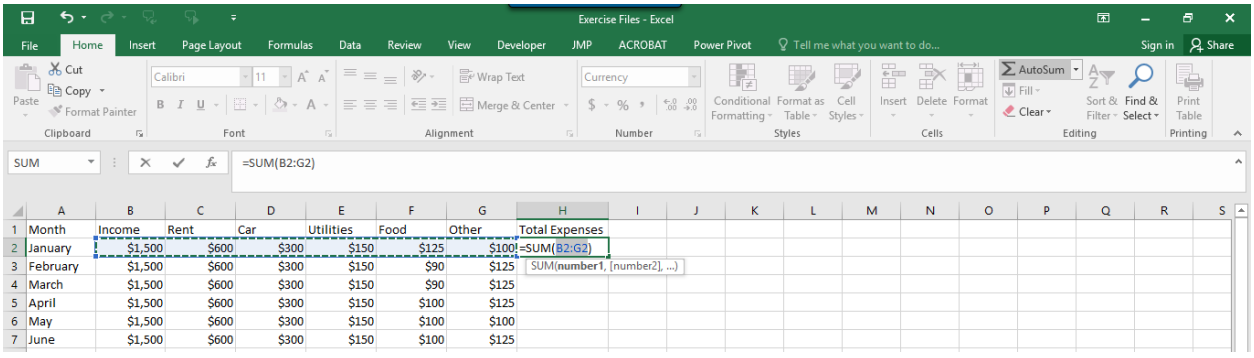
To do this, we need to add up the amounts in each monthly row (excluding the Income column). In cell H1, let's type in the words "Total Expenses".

You might see the two words bleed over into the next cell (I1). Go the line that divides cell H from I (shown in the diagram to the right). When you see the cursor change to a line with two arrows, either click-and-drag to resize manually, or double-click to resize automatically.



To get our total monthly expenses for January, we want to add up all of the bills in cells C2:G2. We will start by highlighting that group of cells AND the empty cell (H2) to the right of the bills under the Total Expenses column.

Once these cells are highlighted, we can use the *AutoSum* feature to get a total. On the home tab, move to the editing group and choose AutoSum. Excel will automatically add up the amounts in C2:G2 and place the total in H2!



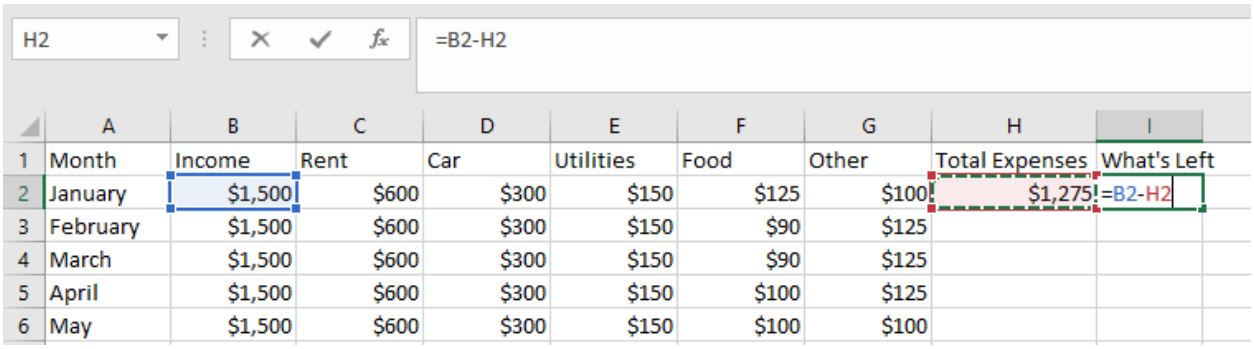
To get the total for each month, use the fill handle again to drag this formula down across all twelve months.

We will now do the same to get the totals by category. Type “Total” in cell A14. Then place your cursor across cells B2-B13 and use the AutoSum feature. Drag the result across cell C14-H14.

What’s a budget without comparing revenues against expenses? We will now take the difference between the two in Excel.

First, in cell I1, type in the words “What’s left.” Now, click to cell I2. We want to calculate the amount of money we have left over from our Income (column B) after our Total Expenses (column H) have been taken out.

To make this happen we will create a formula. So in cell I2, type in this formula =B2-H2. Notice how as you type the formula, Excel highlights in blue the cells that you are working with. Also notice in the Formula Bar across the top of Excel that what you type is showing up there as well as in the cell itself.



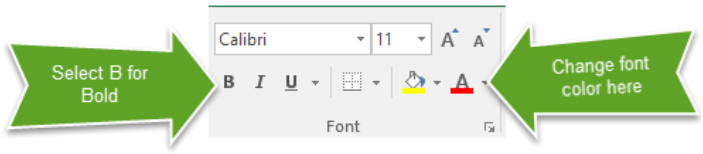
	A	B	C	D	E	F	G	H	I
1	Month	Income	Rent	Car	Utilities	Food	Other	Total Expenses	What's Left
2	January	$1,500	$600	$300	$150	$125	$100	$1,275	=B2-H2
3	February	$1,500	$600	$300	$150	$90	$125		
4	March	$1,500	$600	$300	$150	$90	$125		
5	April	$1,500	$600	$300	$150	$100	$125		
6	May	$1,500	$600	$300	$150	$100	$100		

Your worksheet should now look like the below:

	A	B	C	D	E	F	G	H	I
1	Month	Income	Rent	Car	Utilities	Food	Other	Total Expenses	What's Left
2	January	$1,500	$600	$300	$150	$125	$100	$1,275	$225
3	February	$1,500	$600	$300	$150	$90	$125	$1,265	$235
4	March	$1,500	$600	$300	$150	$90	$125	$1,265	$235
5	April	$1,500	$600	$300	$150	$100	$125	$1,275	$225
6	May	$1,500	$600	$300	$150	$100	$100	$1,250	$250
7	June	$1,500	$600	$300	$150	$100	$125	$1,275	$225
8	July	$1,500	$600	$300	$150	$125	$100	$1,275	$225
9	August	$1,500	$600	$300	$150	$100	$100	$1,250	$250
10	September	$1,500	$600	$300	$150	$125	$125	$1,300	$200
11	October	$1,500	$600	$300	$150	$100	$125	$1,275	$225
12	November	$1,500	$600	$300	$150	$90	$125	$1,265	$235
13	December	$1,500	$600	$300	$150	$125	$125	$1,300	$200
14	Total	$18,000	$7,200	$3,600	$1,800	$1,270	$1,400	$15,270	$2,730
15									

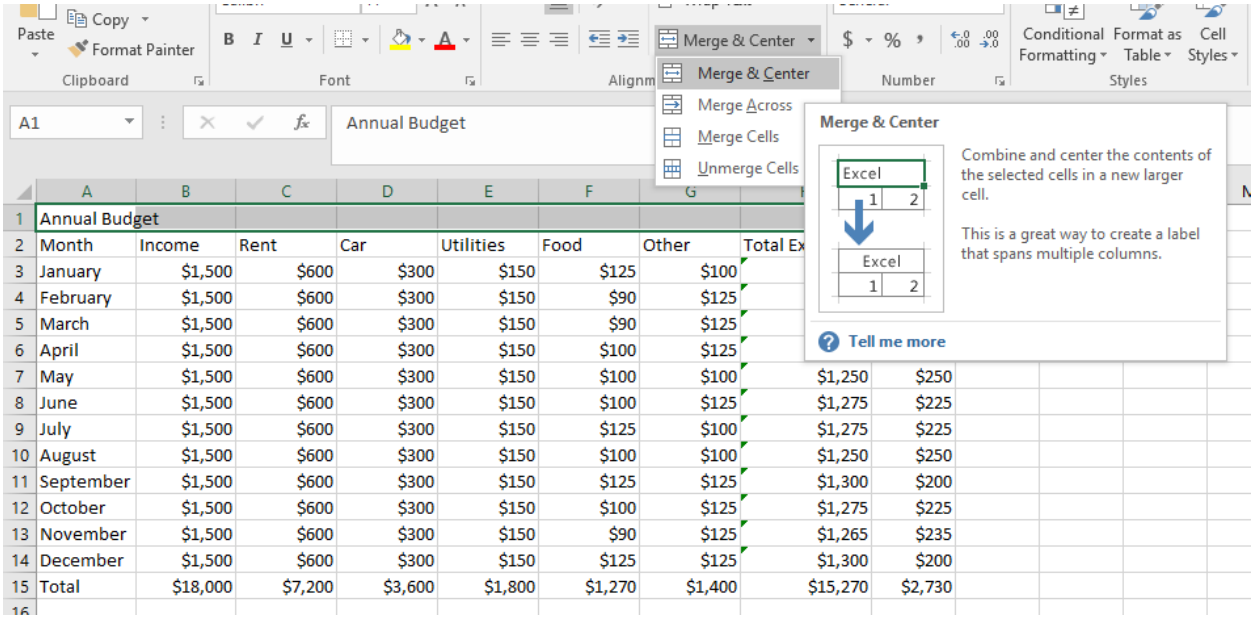
We will use some of Excel’s formatting tools to make our budget more readable.

Let's highlight cells A14:I14. On the Home tab, under the Font group, let's change our color to blue and make this row bold.



We'll also give our budget a title. Move back to cell A1. Still on the Home tab, go to the Cells group and select Insert Sheet Rows.

In cell A1, type "Annual Budget." Use the font group to underline the selection. Currently, this title is not centered over our budget. To fix that, highlight cells A1:I1. Staying on the Home tab, move to the Alignment group and click the upside down triangle next to Merge & Center.

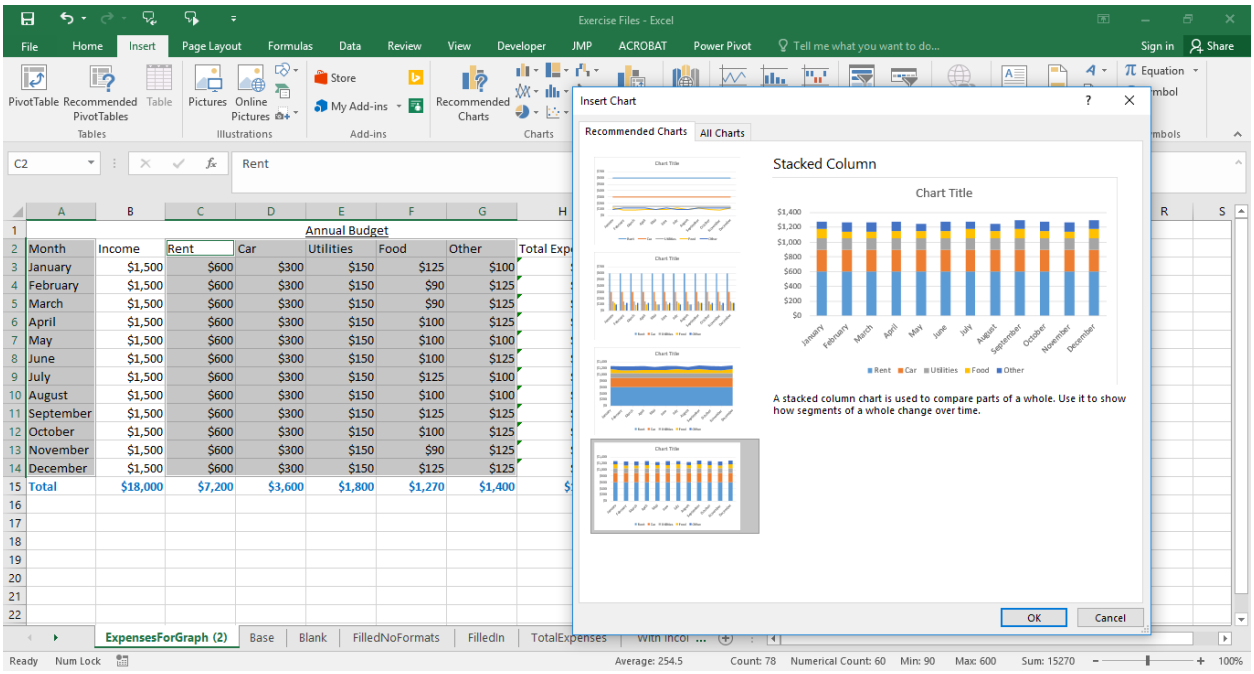


	A	B	C	D	E	F	G	H	I
1	Annual Budget								
2	Month	Income	Rent	Car	Utilities	Food	Other	Total Ex	
3	January	$1,500	$600	$300	$150	$125	$100		
4	February	$1,500	$600	$300	$150	$90	$125		
5	March	$1,500	$600	$300	$150	$90	$125		
6	April	$1,500	$600	$300	$150	$100	$125		
7	May	$1,500	$600	$300	$150	$100	$100	$1,250	$250
8	June	$1,500	$600	$300	$150	$100	$125	$1,275	$225
9	July	$1,500	$600	$300	$150	$125	$100	$1,275	$225
10	August	$1,500	$600	$300	$150	$100	$100	$1,250	$250
11	September	$1,500	$600	$300	$150	$125	$125	$1,300	$200
12	October	$1,500	$600	$300	$150	$100	$125	$1,275	$225
13	November	$1,500	$600	$300	$150	$90	$125	$1,265	$235
14	December	$1,500	$600	$300	$150	$125	$125	$1,300	$200
15	Total	$18,000	$7,200	$3,600	$1,800	$1,270	$1,400	$15,270	$2,730
16									

	A	B	C	D	E	F	G	H	I
1					Annual Budget				
2	Month	Income	Rent	Car	Utilities	Food	Other	Total Expenses	What's Left
3	January	$1,500	$600	$300	$150	$125	$100	$1,275	$225
4	February	$1,500	$600	$300	$150	$90	$125	$1,265	$235
5	March	$1,500	$600	$300	$150	$90	$125	$1,265	$235
6	April	$1,500	$600	$300	$150	$100	$125	$1,275	$225
7	May	$1,500	$600	$300	$150	$100	$100	$1,250	$250
8	June	$1,500	$600	$300	$150	$100	$125	$1,275	$225
9	July	$1,500	$600	$300	$150	$125	$100	$1,275	$225
10	August	$1,500	$600	$300	$150	$100	$100	$1,250	$250
11	September	$1,500	$600	$300	$150	$125	$125	$1,300	$200
12	October	$1,500	$600	$300	$150	$100	$125	$1,275	$225
13	November	$1,500	$600	$300	$150	$90	$125	$1,265	$235
14	December	$1,500	$600	$300	$150	$125	$125	$1,300	$200
15	Total	$18,000	$7,200	$3,600	$1,800	$1,270	$1,400	$15,270	$2,730

Inserting Charts

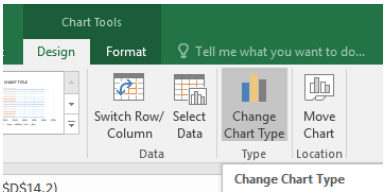
A simple chart in Excel can say more than a sheet full of numbers. As you will see, creating a chart is very easy. We will use a chart to visualize changes in expenses over months.



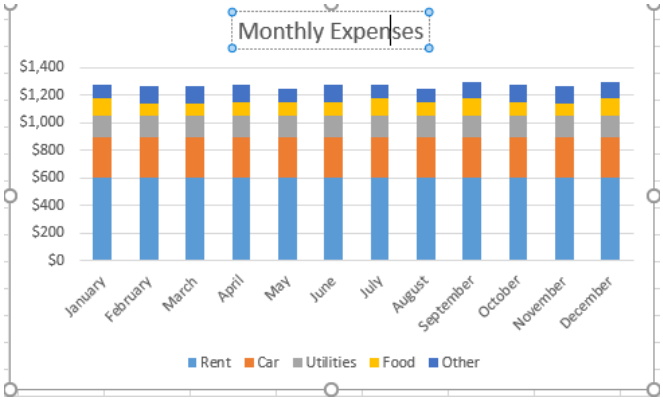
First, highlight cells A2-A14. Then hold down the Control key and select cells C2-G14.

Next, we will go to Insert and Recommended Charts. This menu gives us a preview of the different charts available in Excel. We will scroll down to Stacked Column.

Want to change the type of chart? Clicking anywhere inside the current chart, you will see a new tab called Design. Click inside that and Select Change Chart Type.

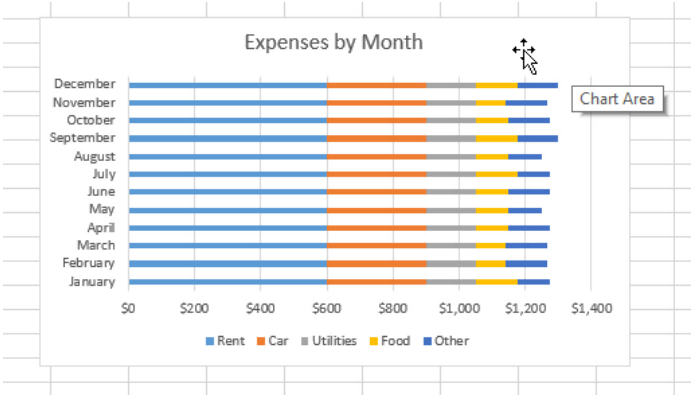


"Chart Title" isn't a very descriptive name. I am going to rename it to something like Monthly Expenses.



Finally, you can flip-flop the rows and columns in a chart. Start by selecting the chart. The Chart Tools tab becomes accessible. On the Design tab, click Switch Row/Column. The same information is displayed, but now it is grouped by expense rather than by month.

Last, I will move the chart below the annual budget numbers. Hover your mouse anywhere inside the white space of your chart until you see four arrows. Then click to move the chart.



Our final product should look like this. Very nice!

	A	B	C	D	E	F	G	H	I	J
1					Annual Budget					
2	Month	Income	Rent	Car	Utilities	Food	Other	Total Expenses	What's Left	
3	January	$1,500	$600	$300	$150	$125	$100	$1,275	$225	
4	February	$1,500	$600	$300	$150	$90	$125	$1,265	$235	
5	March	$1,500	$600	$300	$150	$90	$125	$1,265	$235	
6	April	$1,500	$600	$300	$150	$100	$125	$1,275	$225	
7	May	$1,500	$600	$300	$150	$100	$100	$1,250	$250	
8	June	$1,500	$600	$300	$150	$100	$125	$1,275	$225	
9	July	$1,500	$600	$300	$150	$125	$100	$1,275	$225	
10	August	$1,500	$600	$300	$150	$100	$100	$1,250	$250	
11	Septembe	$1,500	$600	$300	$150	$125	$125	$1,300	$200	
12	October	$1,500	$600	$300	$150	$100	$125	$1,275	$225	
13	Novembe	$1,500	$600	$300	$150	$90	$125	$1,265	$235	
14	Decembe	$1,500	$600	$300	$150	$125	$125	$1,300	$200	
15	**Total**	**$18,000**	**$7,200**	**$3,600**	**$1,800**	**$1,270**	**$1,400**	**$15,270**	**$2,730**	
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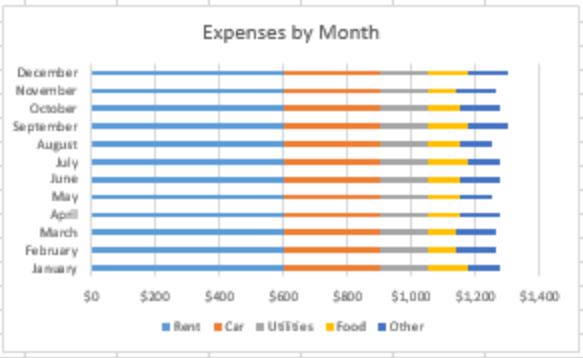


Printing your report

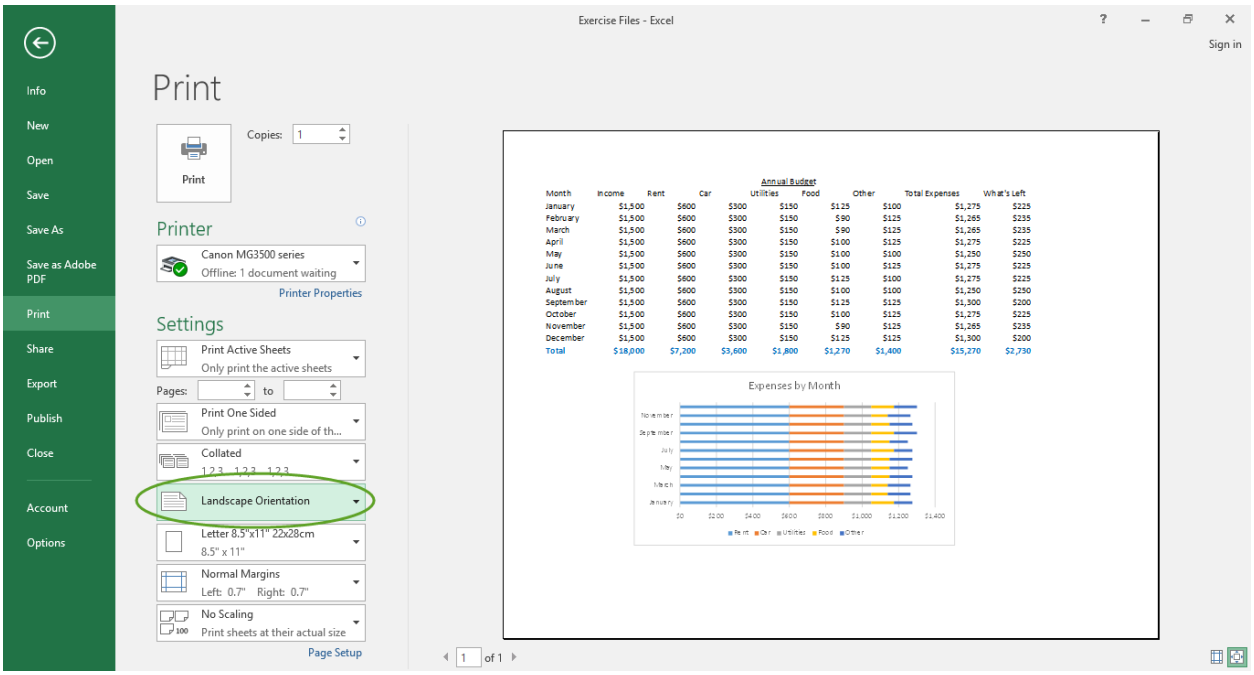
Page Layout

What good is a spreadsheet if you can print it out (presumably to frame it)? Printing in Excel is the same as in other Office applications. You can click through to File → Print or key Ctrl + P.

It can sometimes be a challenge to print an Excel workbook, and this example is no exception. You likely see that your workbook would print across two pages, haphazardly cut in half.

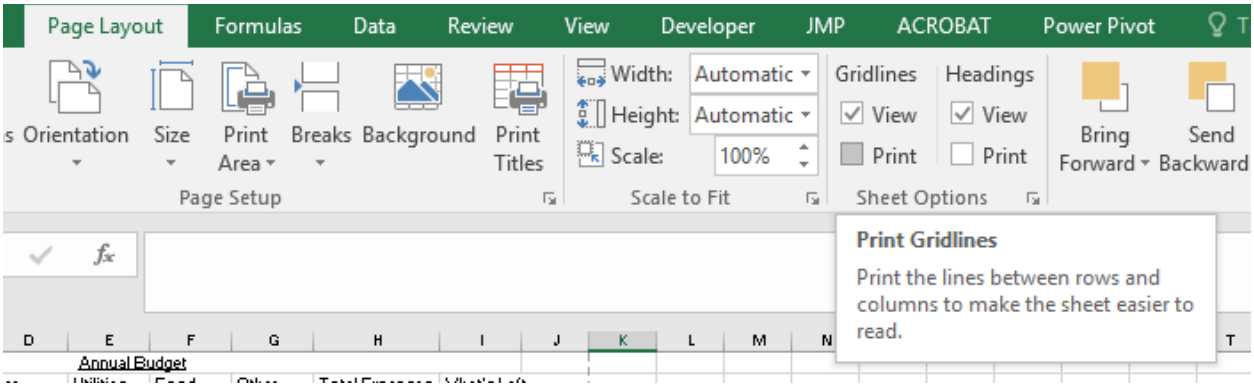
There are many ways to reconfigure how your workbook prints. For this example, simply changing the orientation will suffice.

Under Settings on the left-hand side of the print menu, change orientation from Portrait to Landscape.



Printing Gridlines

Sticking with the Page Layout tab, move to the Sheet Options group. You can print a spreadsheet showing the gridlines (those are all the lines you see on the spreadsheet) by clicking in the box beside gridlines. This can be a busy looking spreadsheet and not easy to read, however. You can print a spreadsheet showing the column headings (A-Z+) and rows (1-1000) by clicking in the box beside row and column headings. This may be a busy looking spreadsheet too.



You will now receive the same thing with printed gridlines. Some find this easier to see.

Wrap-up and what's next

Thank you for reading. I hope this gave you a glimpse into what is possible in Excel. Be sure to continue checking out the blog for content on Excel and data analysis more generally.