



Excel Hot Topics and Data Analysis Best Practices for CPAs

Custom Designed BLI Seminar

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Microsoft Excel 2016

Hot Topics and Data Analysis Best Practices for CPAs

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Microsoft Excel 2016 offers many new and improved productivity features. In this presentation you will learn: tips for new calculations and functions; quicker ways to cleanup data; improved interactive data visualization features; improved reporting techniques with the Table and Pivot Table, steps to load data into the PowerPivot Data Model from one or more data sources, steps to create Pivot Tables from the Data Model, and how to automate with the macro recorder. These tips will help you and your team work more efficiently in Excel. Even if you thought you knew it all in Excel, there will be something for you in this information.

Topics

1. Explore new features in Excel 2016
 - a. Use FlashFill instead of concatenate and text to columns
 - b. Incorporate Slicers and Timeline into data analysis
 - c. Load data into the Data Model with PowerPivot

Click the links for online tutorials:

<https://support.office.com/en-us/article/Excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb>

https://support.office.com/en-us/article/Use-slicers-to-filter-PivotTable-data-249f966b-a9d5-4b0f-b31a-12651785d29d?wt.mc_id=otc_tips&ui=en-US&rs=en-US&ad=US

<https://support.office.com/en-us/article/Power-Pivot-Overview-and-Learning-f9001958-7901-4caa-ad80-028a6d2432ed?ui=en-US&rs=en-US&ad=US>

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2. Explore calculation tips and tricks that apply to cost analysis and cost allocation

a. Use IF and VLOOKUP variations

Click the links for online tutorials of IF and VLOOKUP:

<https://support.office.com/en-us/article/VLOOKUP-function-0bbc8083-26fe-4963-8ab8-93a18ad188a1>

<https://support.office.com/en-us/article/IF-function-69AED7C9-4E8A-4755-A9BC-AA8BBFF73BE2>

3. Use Excel's table feature for quick data analysis

a. Add subtotals automatically

b. Filter and sort visible cells

c. Apply Slicers

d. Use the new interactive range name to track the list size for

Pivot Table ranges

Click the link for an online tutorial:

https://support.office.com/en-us/article/Overview-of-Excel-tables-7ab0bb7d-3a9e-4b56-a3c9-6c94334e492c?wt.mc_id=otc_tips&ui=en-US&rs=en-US&ad=US

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4. Allocate costs with Excel's Pivot Table Reporting features

- a. Generate multiple reports by cost category automatically
- b. Use clickable Slicer filters, clickable Date Filters, and interactive new graph types

Click the links for online tutorials:

<https://support.office.com/en-us/article/Video-Create-PivotTables-74ce8afc-2446-4816-80ee-20ca7fb71793?ui=en-US&rs=en-US&ad=US>

https://support.office.com/en-us/article/Use-slicers-to-filter-PivotTable-data-249f966b-a9d5-4b0f-b31a-12651785d29d?wt.mc_id=otc_tips&ui=en-US&rs=en-US&ad=US

5. Use enhanced Pivot Table features and formats

- a. Add custom formulas within the Pivot Table
- b. Change format defaults
- c. Apply color banding
- d. Group data in Pivot Tables
- e. Filter data in Pivot Tables
- f. Create a Pivot Chart

Click the links for online tutorials:

<https://support.office.com/en-us/article/Video-Create-PivotTables-74ce8afc-2446-4816-80ee-20ca7fb71793?ui=en-US&rs=en-US&ad=US>

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6. More Pivot Table Features

a. Add a calculated field to a Pivot Table

<https://support.office.com/en-gb/article/calculate-values-in-a-pivottable-11f41417-da80-435c-a5c6-b0185e59da77>

b. PivotTable data analysis using a Data Model in Excel

<https://support.office.com/en-us/article/Tutorial-PivotTable-data-analysis-using-a-Data-Model-in-Excel-f9ad8310-3b5b-48a3-913d-5cc1b364ee46>

7. Use Conditional Formatting to show trends in data

a. Find duplicates in data automatically

b. Use sensitivity analysis with Conditional Formatting

c. Show trends of data with color patterns and graphs

Click the link for an online tutorial:

<https://support.office.com/en-us/article/Quick-Reference-Card-Understand-data-at-a-glance-with-conditional-formatting-51f3cecc-468d-494e-9010-dd6a923efdfa?ui=en-US&rs=en-US&ad=US>

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8. Use Data Validation interactivity to make selection changes for what-if analysis

- a. Set parameters on date ranges, percentages, and select from lists

Click the link for the online tutorial for data validation:

<https://support.microsoft.com/en-us/help/211485/description-and-examples-of-data-validation-in-excel>

9. Save time with your own automation using the Macro Recorder

- a. Plan, record, and run macros
- b. Set relative vs. absolute recorded movement of the cell pointer
- c. Repeat macro actions

Click the links for online tutorials about macros:

<https://support.office.com/en-us/article/Automate-tasks-with-the-Macro-Recorder-974ef220-f716-4e01-b015-3ea70e64937b>

<https://support.office.com/en-us/article/Run-a-macro-5e855fd2-02d1-45f5-90a3-50e645fe3155>

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10. What's new in Excel 2016 for Windows

Click the link for online information on features added to Excel 2016.

<https://support.office.com/en-us/article/What-s-new-in-Excel-2016-for-Windows-5fdb9208-ff33-45b6-9e08-1f5cdb3a6c73>

Waterfall Chart

<https://www.microsoft.com/en-us/microsoft-365/blog/2015/08/04/introducing-the-waterfall-chart-a-deep-dive-to-a-more-streamlined-chart/>

Pareto Chart

<https://www.microsoft.com/en-us/microsoft-365/blog/2015/08/18/visualize-statistics-with-histogram-pareto-and-box-and-whisker-charts/>

Sunburst Chart

<https://www.microsoft.com/en-us/microsoft-365/blog/2015/08/11/breaking-down-hierarchical-data-with-treemap-and-sunburst-charts/>

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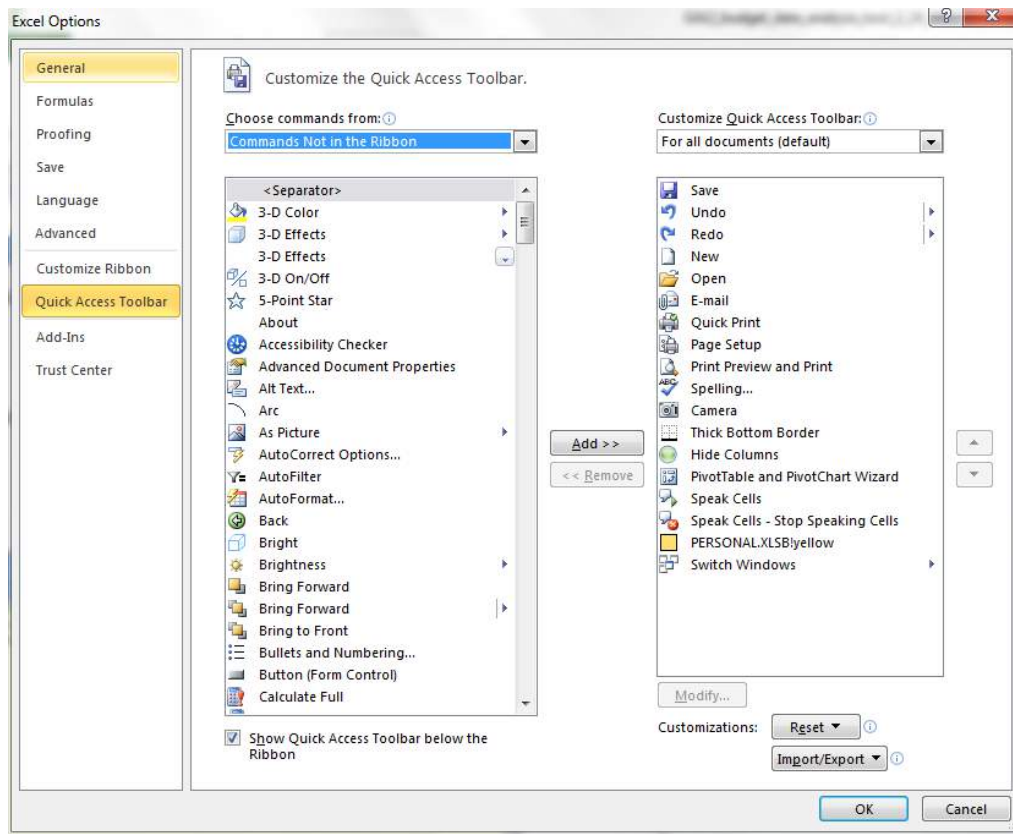
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QUICK ACCESS TOOLBAR (QAT)

Click on the downward pointing triangle at the right end of the QAT. Select commands listed to add the tools for single-click features.

You can also right-click on any tool on the Ribbon and add to the QAT. To remove a tool from the QAT, right-click the tool and select remove.

Click on the downward pointing triangle at the right end of the QAT and click “More Commands” to add any command tool to the QAT. From the “**Choose commands from:**” list select **Commands Not on the Ribbon**.



STATUS BAR CALCULATIONS

Whenever you select cells with formulas or values, the Excel status bar shows the Sum, Count and Average of the values. You can right-click the status bar and select and deselect other calculations and other features.

FORMULA VIEW

To display all formulas on a sheet at the cell level on a sheet press the key combination **CTRL + `** or select the Show Formulas tool from the Formulas Auditing group on the Formulas ribbon tab.

To turn off the display of the formulas, select the same key combination.

GO TO DIALOG BOX FEATURES

Press the F5 function key to open the Go To dialog box. Click the **Special** button and notice the choices.

Useful choices include:

- Formulas
- Comments
- Constants
- Blanks
- Visible Cells Only (keyboard equivalent ALT + ;)

ERROR INDICATORS IN CELLS

In Excel, if a cell contains a formula that breaks one of the error checking rules (even though the formula is correct), a green triangle appears in the top-left corner of the cell. You can prevent these indicators from being displayed.

To deactivate the green triangle error notification:

1. Click File, Options and then click Formulas.
2. Clear the Enable background error checking check box.

NEW HELP FEATURES

Pressing the F1 function key is the quickest way to get help. Type a word phrase and press Enter.

If you are connected to the Internet, the help choices will appear from both the installed help features of Excel as well as Excel information located at the Microsoft website.

HELP FOR FUNCTIONS

- Type the function name in the Help window and press Enter. Choose the link to the Help article for that function.
- Type = followed by a function name and left parenthesis in a cell and a convenient screen tip appears. Press the insert function tool on the formula bar to go directly to the help article.
- With the cell pointer on an empty cell, click the fx tool on the Formula Bar. In the Insert Function dialog box, type a natural language query, such as "How do I determine the monthly payment for a car loan" or select a function from the category listings and the Function Wizard returns a list of recommended functions you can use to accomplish your task and then will detail the use of the selected function.

You can also click on the link to "Help on this function" to go directly to the help article.

FUNCTION EXAMPLES

At the bottom of the Help article for every function you will find at least one real-life example of how to use the function.

You can copy-and-paste function examples onto a sheet.

- Click and drag the example, "not" selecting the column letters or row numbers.
- Select CTRL+C for copy.
- Paste on a worksheet.
- You will need to adjust the column widths and row heights for proper display.

The example is active and usable.

You can replace the sample data with your data.

FORMAT PAINTER, REPEAT COMMANDS, AND SELECT VISIBLE CELLS ONLY

Format Painter: Click the cell(s) with the formats and then single-click the Format Painter tool. The mouse pointer will be in the shape of a paint brush. When you select a different cell or cells, the selection receives the same formatting features. Double-click the Format Painter tool to keep it on for repetitive painting.

Repeat Commands: To repeat commands such as formatting or inserting rows or columns, use the F4 function key.

Select Visible Cells Only: After selecting cells, press ALT+;

LIST OF EXCEL FUNCTIONS

Database

Microsoft Excel includes worksheet functions that analyze data stored in lists or databases. Each of these functions, referred to collectively as the Dfunctions, uses three arguments: database, field, and criteria. These arguments refer to the worksheet ranges that are used by the function.

DAVERAGE Returns the average of selected database entries
DCOUNT Counts the cells that contain numbers in a database
DCOUNTA Counts nonblank cells in a database
DGET Extracts from a database a single record that matches the specified criteria
DMAX Returns the maximum value from selected database entries
DMIN Returns the minimum value from selected database entries
DPRODUCT Multiplies the values in a particular field of records that match the criteria in a database
DSTDEV Estimates the standard deviation based on a sample of selected database entries
DSTDEVP Calculates the standard deviation based on the entire population of selected database entries
DSUM Adds the numbers in the field column of records in the database that match the criteria
DVAR Estimates variance based on a sample from selected database entries
DVARP Calculates variance based on the entire population of selected database entries

Date and Time

DATE Returns the serial number of a particular date
DATEVALUE Converts a date in the form of text to a serial number
DAY Converts a serial number to a day of the month
DAYS360 Calculates the number of days between two dates based on a 360-day year
EDATE Returns the serial number of the date that is the indicated number of months before or after the start date
EOMONTH Returns the serial number of the last day of the month before or after a specified number of months
HOUR Converts a serial number to an hour
MINUTE Converts a serial number to a minute
MONTH Converts a serial number to a month
NETWORKDAYS Returns the number of whole workdays between two dates
NOW Returns the serial number of the current date and time
SECOND Converts a serial number to a second
TIME Returns the serial number of a particular time
TIMEVALUE Converts a time in the form of text to a serial number
TODAY Returns the serial number of today's date
WEEKDAY Converts a serial number to a day of the week

WEEKNUM Converts a serial number to a number representing where the week falls numerically with a year
WORKDAY Returns the serial number of the date before or after a specified number of workdays
YEAR Converts a serial number to a year
YEARFRAC Returns the year fraction representing the number of whole days between start_date and end_date

Financial

ACCRINT Returns the accrued interest for a security that pays periodic interest
ACCRINTM Returns the accrued interest for a security that pays interest at maturity
AMORDEGRC Returns the depreciation for each accounting period by using a depreciation coefficient
AMORLINC Returns the depreciation for each accounting period
COUPDAYBS Returns the number of days from the beginning of the coupon period to the settlement date
COUPDAYS Returns the number of days in the coupon period that contains the settlement date
COUPDAYSNC Returns the number of days from the settlement date to the next coupon date
COUPNCD Returns the next coupon date after the settlement date
COUPNUM Returns the number of coupons payable between the settlement date and maturity date
COUPPCD Returns the previous coupon date before the settlement date
CUMIPMT Returns the cumulative interest paid between two periods
CUMPRINC Returns the cumulative principal paid on a loan between two periods
DB Returns the depreciation of an asset for a specified period using the fixed-declining balance method
DDB Returns the depreciation of an asset for a specified period using the double-declining balance method or some other method you specify
DISC Returns the discount rate for a security
DOLLARDE Converts a dollar price, expressed as a fraction, into a dollar price, expressed as a decimal number
DOLLARFR Converts a dollar price, expressed as a decimal number, into a dollar price, expressed as a fraction
DURATION Returns the annual duration of a security with periodic interest payments
EFFECT Returns the effective annual interest rate
FV Returns the future value of an investment
FVSCHEDULE Returns the future value of an initial principal after applying a series of compound interest rates
INTRATE Returns the interest rate for a fully invested security
IPMT Returns the interest payment for an investment for a given period

IRR Returns the internal rate of return for a series of cash flows
ISPMT Calculates the interest paid during a specific period of an investment
MDURATION Returns the Macauley modified duration for a security with an assumed par value of \$100
MIRR Returns the internal rate of return where positive and negative cash flows are financed at different rates
NOMINAL Returns the annual nominal interest rate
NPER Returns the number of periods for an investment
NPV Returns the net present value of an investment based on a series of periodic cash flows and a discount rate
ODDFPRICE Returns the price per \$100 face value of a security with an odd first period
ODDFYIELD Returns the yield of a security with an odd first period
ODDLPRICE Returns the price per \$100 face value of a security with an odd last period
ODDLYIELD Returns the yield of a security with an odd last period
PMT Returns the periodic payment for an annuity
PPMT Returns the payment on the principal for an investment for a given period
PRICE Returns the price per \$100 face value of a security that pays periodic interest
PRICEDISC Returns the price per \$100 face value of a discounted security
PRICEMAT Returns the price per \$100 face value of a security that pays interest at maturity
PV Returns the present value of an investment
RATE Returns the interest rate per period of an annuity
RECEIVED Returns the amount received at maturity for a fully invested security
SLN Returns the straight-line depreciation of an asset for one period
SYD Returns the sum-of-years' digits depreciation of an asset for a specified period
TBILLEQ Returns the bond-equivalent yield for a Treasury bill
TBILLPRICE Returns the price per \$100 face value for a Treasury bill
TBILLYIELD Returns the yield for a Treasury bill
VDB Returns the depreciation of an asset for a specified or partial period using a declining balance method
XIRR Returns the internal rate of return for a schedule of cash flows that is not necessarily periodic
XNPV Returns the net present value for a schedule of cash flows that is not necessarily periodic
YIELD Returns the yield on a security that pays periodic interest
YIELDDISC Returns the annual yield for a discounted security; for example, a Treasury bill
YIELDMAT Returns the annual yield of a security that pays interest at maturity

Information

CELL Returns information about the formatting, location, or contents of a cell
ERROR.TYPE Returns a number corresponding to an error type
INFO Returns information about the current operating environment
ISBLANK Returns TRUE if the value is blank
ISERR Returns TRUE if the value is any error value except #N/A
ISERROR Returns TRUE if the value is any error value
ISEVEN Returns TRUE if the number is even
ISLOGICAL Returns TRUE if the value is a logical value
ISNA Returns TRUE if the value is the #N/A error value
ISNONTEXT Returns TRUE if the value is not text
ISNUMBER Returns TRUE if the value is a number
ISODD Returns TRUE if the number is odd
ISREF Returns TRUE if the value is a reference
ISTEXT Returns TRUE if the value is text
N Returns a value converted to a number
NA Returns the error value #N/A
TYPE Returns a number indicating the data type of a value

Logical

AND Returns TRUE if all its arguments are TRUE
FALSE Returns the logical value FALSE
IF Specifies a logical test to perform
IFERROR Returns a specified value if the expression is an error and calculates the formula if there is no error
NOT Reverses the logic of its argument
OR Returns TRUE if any argument is TRUE
TRUE Returns the logical value TRUE

Lookup and Reference

ADDRESS Returns a reference as text to a single cell in a worksheet
AREAS Returns the number of areas in a reference
CHOOSE Chooses a value from a list of values
COLUMN Returns the column number of a reference
COLUMNS Returns the number of columns in a reference
GETPIVOTDATA Extracts data stored in a Pivot Table
HLOOKUP Looks in the top row of an array and returns the value of the indicated cell
HYPERLINK Creates a shortcut or jump that opens a document stored on a network server, an intranet, or the Internet
INDEX Uses an index to choose a value from a reference or array
INDIRECT Returns a reference indicated by a text value
LOOKUP Looks up values in a vector or array
MATCH Looks up values in a reference or array
OFFSET Returns a reference offset from a given reference
ROW Returns the row number of a reference
ROWS Returns the number of rows in a reference
RTD Retrieves real-time data from a program that supports COM automation
TRANSPOSE Returns the transpose of an array
VLOOKUP Looks in the first column of an array and moves across the row to return the value of a cell

Math and Trigonometry

ABS Returns the absolute value of a number
ACOS Returns the arccosine of a number
ACOSH Returns the inverse hyperbolic cosine of a number
ASIN Returns the arcsine of a number
ASINH Returns the inverse hyperbolic sine of a number
ATAN Returns the arctangent of a number
ATAN2 Returns the arctangent from x- and y-coordinates
ATANH Returns the inverse hyperbolic tangent of a number
CEILING Rounds a number to the nearest integer or to the nearest multiple of significance
COMBIN Returns the number of combinations for a given number of objects
COS Returns the cosine of a number
COSH Returns the hyperbolic cosine of a number
DEGREES Converts radians to degrees
EVEN Rounds a number up to the nearest even integer
EXP Returns e raised to the power of a given number
FACT Returns the factorial of a number
FACTDOUBLE Returns the double factorial of a number
FLOOR Rounds a number down, toward zero
GCD Returns the greatest common divisor
INT Rounds a number down to the nearest integer
LCM Returns the least common multiple

LN Returns the natural logarithm of a number
LOG Returns the logarithm of a number to a specified base
LOG10 Returns the base-10 logarithm of a number
MDETERM Returns the matrix determinant of an array
MINVERSE Returns the matrix inverse of an array
MMULT Returns the matrix product of two arrays
MOD Returns the remainder from division
MROUND Returns a number rounded to the desired multiple
MULTINOMIAL Returns the multinomial of a set of numbers
ODD Rounds a number up to the nearest odd integer
PI Returns the value of pi
POWER Returns the result of a number raised to a power
PRODUCT Multiplies its arguments
QUOTIENT Returns the integer portion of a division
RADIANS Converts degrees to radians
RAND Returns a random number between 0 and 1
RANDBETWEEN Returns a random number between the numbers you specify
ROMAN Converts an arabic numeral to roman, as text
ROUND Rounds a number to a specified number of digits
ROUNDDOWN Rounds a number down, toward zero
ROUNDUP Rounds a number up, away from zero
SERIESSUM Returns the sum of a power series based on the formula
SIGN Returns the sign of a number
SIN Returns the sine of the given angle
SINH Returns the hyperbolic sine of a number
SQRT Returns a positive square root
SQRTPI Returns the square root of (number * pi)
SUBTOTAL Returns a subtotal in a list or database
SUM Adds its arguments
SUMIF Adds the cells specified by a given criteria
SUMIFS Adds the cells specified by a given set of criteria
SUMPRODUCT Returns the sum of the products of corresponding array components
SUMSQ Returns the sum of the squares of the arguments
SUMX2MY2 Returns the sum of the difference of squares of corresponding values in two arrays
SUMX2PY2 Returns the sum of the sum of squares of corresponding values in two arrays
SUMXMY2 Returns the sum of squares of differences of corresponding values in two arrays
TAN Returns the tangent of a number
TANH Returns the hyperbolic tangent of a number
TRUNC Truncates a number to an integer

Statistical

AVEDEV Returns the average of the absolute deviations of data points from their mean

AVERAGE Returns the average of its arguments

AVERAGEA Returns the average of its arguments, including numbers, text, and logical values

AVERAGEIF Finds the arithmetic mean for the cells specified by a given criteria

AVERAGEIFS Finds the arithmetic mean for the cells specified by a given set of criteria

BETADIST Returns the cumulative beta probability density function

BETAINV Returns the inverse of the cumulative beta probability density function

BINOMDIST Returns the individual term binomial distribution probability

CHIDIST Returns the one-tailed probability of the chi-squared distribution

CHIINV Returns the inverse of the one-tailed probability of the chi-squared distribution

CHITEST Returns the test for independence

CONFIDENCE Returns the confidence interval for a population mean

CORREL Returns the correlation coefficient between two data sets

COUNT Counts how many numbers are in the list of arguments

COUNTA Counts how many values are in the list of arguments

COUNTIF Counts the number of nonblank cells within a range that meet the criteria

COUNTIFS Counts the number of nonblank cells within a range meeting the set of criteria

COUNTBLANK Counts the number of empty cells in a specified range

COVAR Returns covariance, the average of the products of paired deviations

CRITBINOM Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value

DEVSQ Returns the sum of squares of deviations

EXPONDIST Returns the exponential distribution

FDIST Returns the F probability distribution

FINV Returns the inverse of the F probability distribution

FISHER Returns the Fisher transformation

FISHERINV Returns the inverse of the Fisher transformation

FORECAST Returns a value along a linear trend

FREQUENCY Returns a frequency distribution as a vertical array

FTEST Returns the result of an F-test

GAMMADIST Returns the gamma distribution

GAMMAINV Returns the inverse of the gamma cumulative distribution

GAMMALN Returns the natural logarithm of the gamma function, $\Gamma(x)$

GEOMEAN Returns the geometric mean

GROWTH Returns values along an exponential trend

HARMEAN Returns the harmonic mean

HYPGEOMDIST Returns the hypergeometric distribution

INTERCEPT Returns the intercept of the linear regression line

KURT Returns the kurtosis of a data set

LARGE Returns the k-th largest value in a data set

LINEST Returns the parameters of a linear trend

LOGEST Returns the parameters of an exponential trend

LOGINV Returns the inverse of the lognormal distribution

LOGNORMDIST Returns the cumulative lognormal distribution

MAX Returns the maximum value in a list of arguments

MAXA Returns the maximum value in a list of arguments, including numbers, text, and logical values
MEDIAN Returns the median of the given numbers
MIN Returns the minimum value in a list of arguments
MINA Returns the smallest value in a list of arguments, including numbers, text, and logical values
MODE Returns the most common value in a data set
NEGBINOMDIST Returns the negative binomial distribution
NORMDIST Returns the normal cumulative distribution
NORMINV Returns the inverse of the normal cumulative distribution
NORMSDIST Returns the standard normal cumulative distribution
NORMSINV Returns the inverse of the standard normal cumulative distribution
PEARSON Returns the Pearson product moment correlation coefficient
PERCENTILE Returns the k-th percentile of values in a range
PERCENTRANK Returns the percentage rank of a value in a data set
PERMUT Returns the number of permutations for a given number of objects
POISSON Returns the Poisson distribution
PROB Returns the probability that values in a range are between two limits
QUARTILE Returns the quartile of a data set
RANK Returns the rank of a number in a list of numbers
RSQ Returns the square of the Pearson product moment correlation coefficient
SKEW Returns the skewness of a distribution
SLOPE Returns the slope of the linear regression line
SMALL Returns the k-th smallest value in a data set
STANDARDIZE Returns a normalized value
STDEV Estimates standard deviation based on a sample
STDEVA Estimates standard deviation based on a sample, including numbers, text, and logical values
STDEVP Calculates standard deviation based on the entire population
STDEVPA Calculates standard deviation based on the entire population, including numbers, text, and logical values
STEYX Returns the standard error of the predicted y-value for each x in the regression
TDIST Returns the Student's t-distribution
TINV Returns the inverse of the Student's t-distribution
TREND Returns values along a linear trend
TRIMMEAN Returns the mean of the interior of a data set
TTEST Returns the probability associated with a Student's t-test
VAR Estimates variance based on a sample
VARA Estimates variance based on a sample, including numbers, text, and logical values
VARP Calculates variance based on the entire population
VARPA Calculates variance based on the entire population, including numbers, text, and logical values
WEIBULL Returns the Weibull distribution
ZTEST Returns the two-tailed P-value of a z-test

Text

BAHTTEXT Converts a number to text, using the ฿ (baht) currency format
CHAR Returns the character specified by the code number
CLEAN Removes all nonprintable characters from text
CODE Returns a numeric code for the first character in a text string
CONCATENATE Joins several text items into one text item
DOLLAR Converts a number to text, using the \$ (dollar) currency format
EXACT Checks to see if two text values are identical
FIND Finds one text value within another (case-sensitive)
FIXED Formats a number as text with a fixed number of decimals
LEFT Returns the leftmost characters from a text value
LEN Returns the number of characters in a text string
LOWER Converts text to lowercase
MID Returns a specific number of characters from a text string starting at the position you specify
PROPER Capitalizes the first letter in each word of a text value
REPLACE Replaces characters within text
REPT Repeats text a given number of times
RIGHT Returns the rightmost characters from a text value
SEARCH Finds one text value within another (not case-sensitive)
SUBSTITUTE Substitutes new text for old text in a text string
T Converts its arguments to text
TEXT Formats a number and converts it to text
TRIM Removes spaces from text
UPPER Converts text to uppercase
VALUE Converts a text argument to a number

NOTES

RANGE NAMES

To add a range name:

- Select the cell or cells.
- Click in the name box and type the name.
Spaces are not allowed.
The underscore symbol is used for word separation.
- Press Enter.

To delete or modify a range name or to see all the range names:

- Select Formulas | Name Manager
- Single-click a name and read the reference which can be modified.
- Click the delete button to delete the name.

GO TO a range name:

- Select the drop-down list on the name box and click a name.
The cell-pointer will jump to the named cell or range.

Reference a name in a formula:

- When building the formula, either type the range name, click on the cell(s) which will type in the name, or press the F3 function key to see all the names and select one.

NOTE: Range names in Excel are absolute references by default !

NOTES

IF FUNCTION

=IF(condition,true,false)

The logical function enables you to perform a calculation only if a certain condition is true, and to perform a different calculation if that condition is false.

- The logical function has three parts separated by commas.
- The condition is an expression such as $B5>E5$ or $SUM(E1:E10)=100$.
Comparison operators:
=
< > (less than and greater than symbols with no space means not equal to)
> > = (greater than or equal to with no space between)
< < = (less than or equal to with no space between)
" "(null or empty is represented by double quotes with no space between)
- The middle true expression occurs if the condition tests true.
- The false expression occurs if the condition tests false.
- The true and false expressions can be values, formulas or text.
- If using text it *must* be enclosed in double quotes.

Examples:

1. =IF(B5>E5,100,200)
2. =IF(sum(F5:F9)=sum(B10:E10),sum(F5:F9),"error")
3. =IF(AND(test,test,test,test...),100, 200)
4. =IF(OR(test,test,test,test...),100, 200)
5. =IF(B5>E5,100,IF(B5>F5,200, IF(B5>G5,300,400)))

The limit of nested functions in one cell in a .xls format is 7.

In .xlsx the limit is 64 nested functions in one cell.

NOTES

LOOKUP FUNCTION

=VLOOKUP(cell reference on sheet , location of list , column number in list with the answer , false)

- The list must contain the information to be found in the first column. Columns may need to be rearranged in order to use VLOOKUP.
- The **false argument** “requires” that an exact match is found or no answer is given and the false argument overlooks the fact that the list is not sorted by the first column.
- When omitting the false argument, an exact match is “not” required and the list *must* be sorted in ascending order by the first column or an incorrect choice may result.

NOTES

CONDITIONAL FORMATTING

Home | Conditional Formatting | New Rule

You can monitor formula results or other cell values by applying conditional formats. Excel automatically applies a format to cells if a specified condition is true. For example, you can apply green text color to the cell if sales exceed forecast and red shading if sales fall short. If you select **“Format only cells that contain”** with the **Cell Value** option you are comparing the value within the cell to a criteria. Set the criteria and click the Format button.

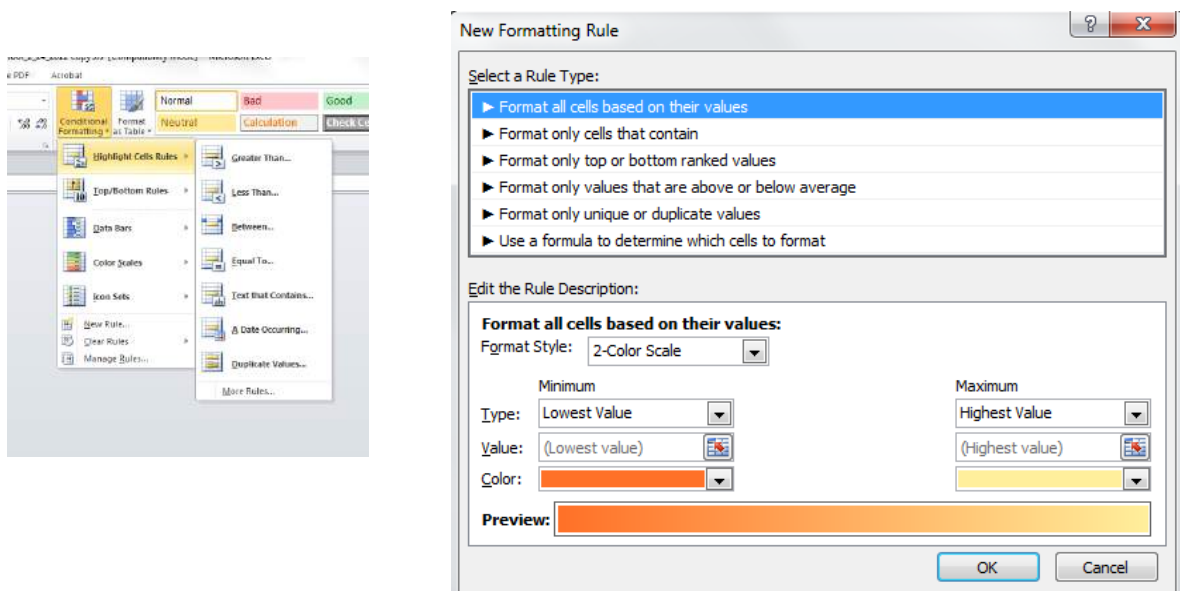
You can compare the values of the selected cells to a constant or to the results of a formula. To evaluate data in cells outside the selected range or to examine multiple sets of criteria, you can use a logical formula to specify the formatting criteria. *Begin the logical formula with an equal sign =.*

Examples: $=B6 >= 600$ $=B6 >= 600$

If you select the **Use a Formula** option, the formula you specify must return a logical value of TRUE (1) or FALSE (0). You must start the formula with an equal sign (=). The formula can evaluate data only on the “active” worksheet.

Home | Conditional Formatting | Manage Rules

If you are intending to add multiple rules, start in the Manage Rules dialog box. You can add up to 64 rules for a variety of formatting results based on number ranges.



Data Bars, Color Scales, Icon Sets

Selecting one of these features assigns preset rules. To see the actual rule, select the feature and then read the Manage Rules dialog box.

With Data Bars, Excel uses the highest and lowest values in the range to draw the shortest and longest bar. With Color Scales, Excel uses the lowest, highest, and midpoint values in the range to determine the color scales. With Icon Sets, Excel uses percentiles to calculate the break between icon sets.

	Column Labels	FY Q1	FY Q2	FY Q3	FY Q4
3	Sales Amount				
4	Accessories	\$345,630	\$326,471	\$249,029	\$350,928
5	Bike Racks	\$76,832	\$60,437	\$37,134	\$62,693
6	Bike Stands	\$8,745	\$11,925	\$0,268	\$10,653
7	Bottles and Cages	\$13,577	\$15,952	\$16,104	\$18,642
8	Cleaners	\$4,427	\$4,700	\$3,357	\$4,922
9	Fenders	\$10,001	\$11,759	\$11,583	\$13,276
10	Helmets	\$130,573	\$125,812	\$89,198	\$138,466
11	Sport-100 Helmet, Red	\$2,766	\$3,674	\$1,474	\$3,472
12	Sport-100 Helmet, Red	\$10,633	\$7,391	\$3,008	\$8,000
13	Sport-100 Helmet, Red	\$29,174	\$29,403	\$24,710	\$34,070
14	Sport-100 Helmet, Black	\$2,826	\$3,856	\$1,514	\$3,902
15	Sport-100 Helmet, Black	\$11,008	\$8,441	\$4,004	\$8,413
16	Sport-100 Helmet, Black	\$29,962	\$30,457	\$23,450	\$33,036
17	Sport-100 Helmet, Blue	\$2,947	\$4,167	\$1,950	\$4,259
18	Sport-100 Helmet, Blue	\$11,271	\$8,958	\$4,643	\$6,924
19	Sport-100 Helmet, Blue	\$29,987	\$29,466	\$24,437	\$34,390
20	Hydration Packs	\$32,858	\$26,931	\$17,897	\$28,141
21	Locks	\$6,305	\$3,780	\$2,205	\$3,936
22	Pumps	\$5,143	\$3,226	\$1,763	\$3,382
23	Tires and Tubes	\$56,170	\$61,948	\$61,519	\$66,517
24	Bikes	\$22,913,312	\$24,594,858	\$22,031,016	\$25,081,540
25	Clothing	\$681,541	\$536,599	\$355,419	\$544,054
26	Components	\$4,795,124	\$2,881,352	\$1,291,618	\$2,920,992
27	Grand Total	\$28,645,607	\$28,339,080	\$23,927,073	\$28,897,514
28					\$109,009,274

CONDITIONAL FORMATTING EXAMPLES

1) To change color of the grand total cell if the user enters data for a budget that exceeds the total budget limit:

1. Select the budget total cell holding the formula adding the budget numbers.
2. From the ribbon select CONDITIONAL FORMATTING on the Home tab.
3. Select New Rule. Select “Format only cells that contain”.
4. In the box to the right of cell value, select the phrase “greater than or equal to.”
5. In the right-hand box enter the budget total limit.
6. Click the Format button on the right.
7. Click on Fill and select a fill color.
8. Click OK.

Result: When the budget total exceeds the limit, the cell shows the color.

2) **To change color of the budget input cells if the user enters data for a budget that exceeds the total budget limit:**

1. Select the range including the budget data input cells.
 2. From the ribbon select CONDITIONAL FORMATTING on the Home tab.
 3. Select New Rule. Select “Use a formula to determine...”.
 4. In the box to the right enter the following equation
 $=\$F\$10 >= 100000$
- This equation assumes the budget total is in cell F10 and the budget limit is 100,000.*
5. Click the Format button on the right.
 6. Click on Fill and select a fill color.
 7. Click OK.

Result: *When the budget total exceeds the limit, the input cells show the color.*

3) **Find Duplicate entries:**

1. Select the range to be evaluated for duplicate entries.
2. From the ribbon select CONDITIONAL FORMATTING on the Home tab.
3. Select Highlight Cell Rules.
4. Select Duplicate Values. Immediately the color red identifies duplicate entries.
5. If desired, change the color from red to another color.
6. The list or table can now be sorted or filtered by color.

DATA VALIDATION

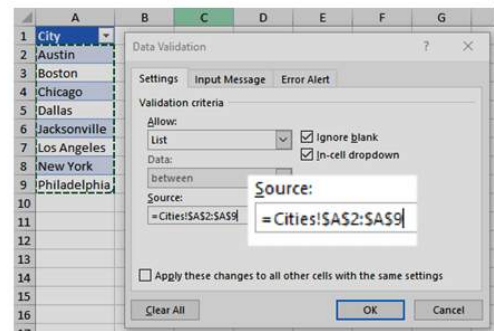
The **Data | Data Tools | Data Validation** dialog box allows you to control what the user can enter in cells without programming.

Instead of allowing Any Value, pick from the selections in the dialog box such as Date or List of choices. The list choice adds a drop-down list to the cell and entries are case sensitive.

Always enter an Error Alert message so the user knows what to enter in the cell if they make a mistake.

The list (for the user to choose from) can be typed into the Data Validation dialog box with entries separated by comma symbols.

As an alternative, instead of typing the list into the dialog source box, you can click and drag a range of cells that are already filled in on the same sheet or on a different sheet.



FORMULA AUDITING FEATURES

AUDITING to trace formula dependencies or precedents can be accomplished by using the Formula Auditing features. Choose **Formulas | Formula Auditing**. Select a formula and click **Trace Dependents** or **Trace Precedents** or **Remove Arrows**.

Each time you click the trace dependents or precedents tool, markers will display the first immediate dependents/precedents, then the next level of dependents/precedents, etc...

Tip: Trace formula dependencies to another worksheet.

- To trace a formula dependency to a cell on another worksheet, you will see a table object appear with a black arrow pointing to it.
- Point at the black arrow, notice the mouse pointer shape of the arrow and double-click. This activates the **GOTO** dialog box. This **GOTO** dialog box displays all the formula dependencies on other sheets within the same file and also on sheets of other "open" files.
- Double-click on a formula reference to go to that cell with the formula dependency.

FORMULA EVALUATOR

You can see the various parts of a simple or nested formula evaluated in the order the formula is calculated by Excel. This is called the order of operations.

Select Formulas | Formula Auditing | Evaluate Formula to open the dialog box and then click evaluate. The underlined part of the formula is the part to be evaluated next.

WATCH WINDOW

Keep track of cells and their formulas on the Watch Window toolbar, even when the cells are out of view. This moveable toolbar tracks cell properties including workbook, worksheet, name, cell, value, and formula.

Select Formulas | Formula Auditing | Watch Window, then click on “Add Watch” and select the cell or range. Using this feature, you will be able to “watch” formula calculations from anywhere in the file.

COMMENTS FOR DOCUMENTATION

Add documentation to worksheet cells by inserting comments. Select a cell and select Review | Comments | New Comment. Right-clicking will also allow the user to insert, edit, show, hide, and delete comments.

To print comments, select the choice in the Page Setup dialog box on the Sheet tab.

To deactivate the display of comments while working on a file, select File, Options, Advanced and select “For cells with comments” and select “No comments.” This is a program level change, so be sure to turn it back on when finished working on the sheet or file. Turn comment display on again by selecting “Indicators only” in the same dialog box.

SMART TAGS

- Objects that appear automatically on your worksheet can help you with tasks such as automatic correction options, paste options, automatic fill options, insert options, and formula error checking. With a click of a button you can choose from options related to your task without leaving the worksheet or the cells you're working on. To turn these rules on or off individually select File, Options, Advanced dialog box and check or uncheck the choices for Show Paste Options and Show Insert Options.
- You can retain column widths after a paste procedure by clicking the Paste Options Smart Tag, and then clicking Keep Source Column Widths option.
- When inserting a row, Excel automatically follows the formatting of the row above. By selecting from the drop-down choices on the SmartTag, you can instruct Excel to follow the formatting of the row below.

PASTE ICONS

The new icons correspond to the options found in the dialog when selecting "Paste special" from the Ribbon or on a right-click on a cell when pasting.



Paste all values and formats to the new range



Paste only the value without any formats



Paste the values/functions and number formats




Paste the values/functions and formats




Paste the values and formats, however do not paste the border lines





Also paste the widths of the source columns

 Transpose the copied cells


In the group Paste Values the following icons appear:


 Just copy the values only, not functions


 Copy and paste the values only and number formats


 Copy and paste the values and formats

In the group, Other Paste Options, the following icons appear:

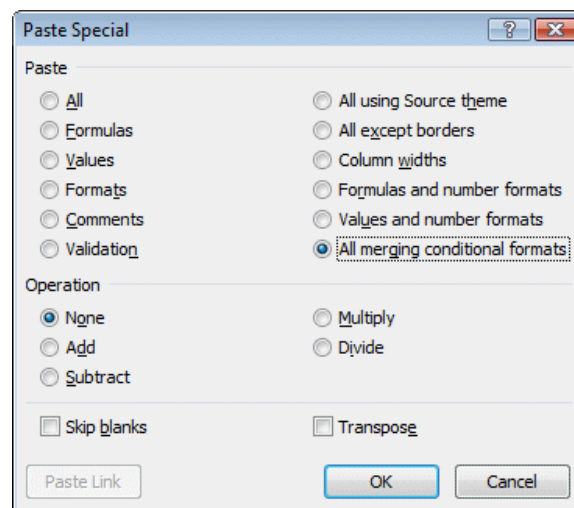
 Just paste the formats.

 Paste links to the source cells.

 Paste a picture.

 Paste a linked picture.

The "Paste special" dialog box has not been changed, however a new option "All merging conditional formats" has been added. This option copies the conditional formats and adds them to the paste range.



LIST DESIGN RULES

- ◆ The list must be a continuous rectangle with no skipped columns or rows.
- ◆ Separate any formulas below the list with one empty row.
- ◆ Column headings must be on one row only
- ◆ Column headings must have at least one format across them.

SORT A LIST

Quick Sort Tools – Sort Ascending and Sort Descending

The quick sort tools can be used to perform a one key sort in ascending or descending order. Simply place the cell pointer in the column within the list to be sorted and click the Sort Ascending or the Sort Descending tool on the Data tab.

Multiple key sorting

Multiple key sorting can be accomplished by sorting by the “lowest” priority key (column) to the highest priority key (column) one column at a time using the quick sort tools or by using the SORT dialog box on the Data tab. *The new data sort dialog box allows for up to 64 columns to be sorted at one time!*

Sort by Date or Color

Using the Filter, you can choose:

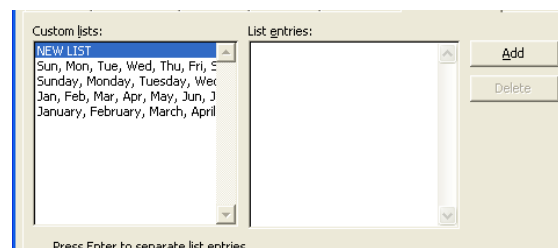
- date sorting and
- asort by color.

Expense date	Employee	Food	Hotel
6/7/2018	Jackie	\$21	\$3,820
6/6/2018	Mark	\$62	\$2,112
6/3/2018	Dave	\$25	\$1,611
6/9/2018	Tricia	\$30	\$3,085
6/5/2018	Jeff	\$69	\$528
6/4/2018	Laura	\$45	\$5,050

CUSTOM SORTING

The Data Sort dialog box allows control over sort orders.

Excel has several custom lists built in which include days of the week and months of the year. In addition, your own custom lists, used to control sort orders, can be created in the Sort dialog box, under Order and Custom List. Type an entry in the box under List entries and press Enter to place each item below the other. Then click the Add button. Choose this list from the Order choices when sorting by the column containing your custom list entries.



AUTOFILTER

Using criteria to display matching information within the list

Click the cell pointer in the list or select the whole list.
Click the **FILTER** tool on the Data tab.

Click one of the non-printing drop-down markers on a column heading cell and select a unique item from the list. This choice results in an exact match. Notice that only rows matching your selection will be displayed. All other rows are temporarily hidden.

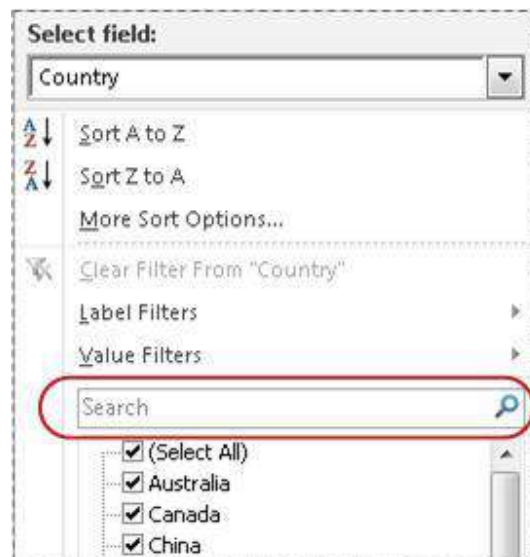
By selecting a choice from more than one column, autofilter is selecting based on an “And” condition and fewer results will be displayed.

To reset the filter(s) and display all rows, either click the same marker(s) and select “Clear Filter” or select the Clear tool on the Data tab.

Turn off Autofilter by clicking the FILTER tool.

Newer features in Excel:

- ◆ Like matching is accomplished by using the new number and text filters.
- ◆ Sort and filter by color are now choices in Filter.
- ◆ Any number of selections can be made within a column.
- ◆ The new search box helps you to find what you need in long lists. Start by typing your search term, and relevant items instantly appear in the list. You can narrow the results further by deselecting the items you don't want to see.



AUTOMATIC SUBTOTALS

Microsoft Excel can automatically calculate subtotal and grand total values in a list. The first row of the list has labels for the columns. When you insert automatic subtotals, Excel outlines the list so that you can display and hide the detail rows for each subtotal.

To insert subtotals, you first sort your list so that the rows are grouped together in the pattern for Excel to follow. Excel will insert rows when a change appears in the contents of cells within a column you select.

Excel calculates subtotal values with a summary function. Examples of summary functions include Sum, Count, and Average.

Grand total values are derived from *detail* data. Detail data is typically adjacent to and either above or to the left of the summary data. For example, if you use the Sum summary function, the grand total row displays a Sum of all *detail* rows in the list, not a sum of the values in the subtotal rows.

When you add subtotals to a list, the list is outlined so that you can see its structure. You can create a summary report by clicking the outline symbols and hide the details and show only the totals.

SUBTOTAL worksheet function

SUBTOTAL(function_num , reference to range of cells)

Function_Num defined:

1 Average 2 Count 3 CountA 4 Max 5 Min 9 Sum

Note:

The subtotal function will not double-count other subtotal functions in the cell range and it will calculate only visible cells within the cell range.

The Subtotal worksheet function also triggers the outlining feature to show and hide detail.

DATABASE STATISTICAL FUNCTIONS

Dsum

DSUM(database,field,criteria)

Database is the range of cells that makes up the list or database. The first row of the list contains labels for each column.

Field indicates which column is used in the function. Field can be given as text with the column label enclosed between double quotation marks, such as "Age" or "Yield," or as a number that represents the position of the column within the list: 1 for the first column, 2 for the second column, and so on.

Criteria is the range of cells that contains the conditions you specify. You can use any range for the criteria argument, as long as it includes at least one column label and at least one cell below the column label for specifying a condition for the column.

	A		B		C	D
1	Region		Salesperson		Type	Sales
2	South		Buchanan		Beverages	3571
3	West		Davolio		Dairy	3338
4	East		Suyama		Beverages	5122
5	North		Suyama		Dairy	6239
6	South		Dodsworth		Produce	8677
7	South		Davolio		Meat	450
8	South		Davolio		Meat	7673
9	East		Suyama		Produce	664
10	North		Davolio		Produce	1500
11	South		Dodsworth		Meat	6596
12	Region		Salesperson		Type	Sales
13	South				Meat	
14					Produce	

Formula	Description (Result)
=DSUM(A1:D11, "Sales", A12:D13)	Sum of Meat sales in the South region (14719)
=DSUM(A1:D11, "Sales", A12:D14)	Sum of Meat and Produce sales in the South region (25560)

Dcount

DCOUNT(database,field,criteria)

Database is the range of cells that makes up the list or database. The first row of the list contains labels for each column.

Field indicates which column is used in the function. Field can be given as text with the column label enclosed between double quotation marks, such as "Age" or "Yield," or as a number that represents the position of the column within the list: 1 for the first column, 2 for the second column, and so on.

Criteria is the range of cells that contains the conditions you specify. You can use any range for the criteria argument, as long as it includes at least one column label and at least one cell below the column label for specifying a condition for the column.

	A		B		C	D	E	F
1	Tree		Height		Age	Yield	Profit	Height
2	Apple	>10						<16
3	Pear							
4	Tree		Height		Age	Yield	Profit	
5	Apple	18			20	14	105.00	
6	Pear	12			12	10	96.00	
7	Cherry	13			14	9	105.00	
8	Apple	14			15	10	75.00	
9	Pear	9			8	8	76.80	
10	Apple	8			9	6	45.00	

Formula	Description (Result)
=DCOUNT(A4:E10,"Age",A1:F2)	This function looks at the records of apple trees between a height of 10 and 16 and counts how many of the Age fields in those records contain numbers. (1)
=DCOUNTA(A4:E10,"Profit",A1:F2)	This function looks at the records of apple trees between a height of 10 and 16 and counts how many of the Profit fields in those records are not blank. (1)

Newer functions in Excel:

The calculations above can more easily be accomplished with the new SUMIFS, AVERAGEIFS, and COUNTIFS functions.

SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...)

AVERAGEIFS(average_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...)

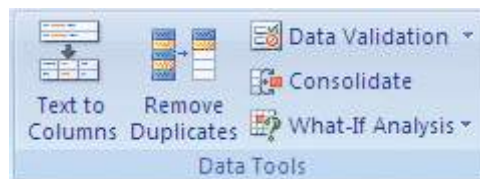
COUNTIFS(criteria_range1, criteria1, [criteria_range2, criteria2]...)

TEXT TO COLUMNS

To open a .csv or .txt file into an Excel sheet, select File, Open within Excel and browse for the file. The Text to Columns feature will appear. Select Delimited or Fixed Width to split the data into columns. In Step 3, notice that you are able to change the format of a column.

With the Text to Columns feature, you can also split the contents of cells in a column and distribute those contents as individual parts across other cells in adjacent columns. For example, your worksheet contains a column of full names that you want to split into separate first name and last name columns.

1. Select the cell, range, or entire column that contains the text values that you want to split.
On the Data tab, in the Data Tools group, click Text to Columns.



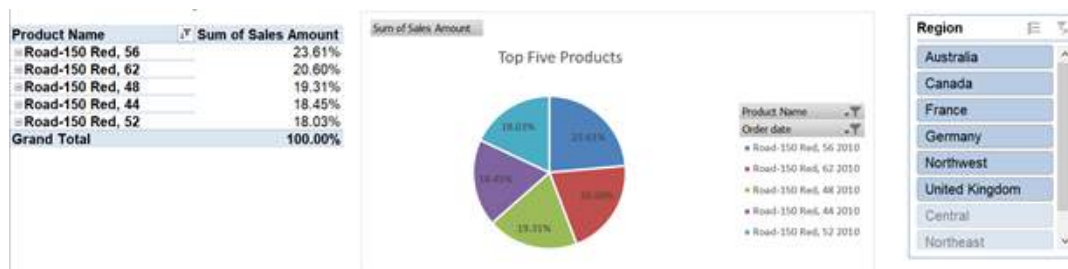
2. Follow the instructions in the Convert Text to Columns Wizard to specify how you want to divide the text into columns.

THE EXCEL TABLE

**Click the cell-pointer on one cell in a list of data and select:
Insert | Tables | Table Click OK**

This newer feature is located on the insert tab on the Ribbon. Select a single cell in a list and select Insert Table. The Table adds an interactive range name that expands as the list expands. Note the object in the lower right corner cell of the table.

Once the Table is created, you can change the table name to the list and it will be interactive also. Use the table name instead of coordinates to define the Pivot Table range so that when the list is updated or appended, the pivot table range adjusts automatically.



A table can include the following elements:

Header row

By default, a table has a header row. Every table column has filtering enabled in the header row so that you can filter or sort your table data quickly.

Product	Qtr 1	Qtr 2	Grand Total
Chocolate			\$ 907.16
Gummibär			\$ 6,328.80
Scottish Lo			\$ 2,330.00
Sir Rodney			\$ 2,174.00
Tarte au s			\$ 9,275.92
Chocolate			\$ 1,293.49
Total			\$ 22,309.37

Banded rows

By default, alternate shading or banding has been applied to the rows in a table to better distinguish the data.

Calculated columns

By entering a formula in one cell in a table column, you can create a calculated column in which that formula is instantly applied to all other cells in that table column.

Total row

You can add a total row to your table that provides access to summary functions (such as the AVERAGE, COUNT, or SUM function). A drop-down list appears in each total row cell so that you can quickly calculate the totals that you want.

Sizing handle

A sizing handle in the lower-right corner of the table allows you to drag the table to the size that you want. The sizing handle automatically captures additional rows typed or pasted at the bottom of the list.

The Table Name

The name of the table is found on the Design tab on the ribbon. Use the table name for a pivot table range so that data added to the list with extra rows or columns will automatically be recalculated into the pivot table.

Note: It is now considered a best practice to use the table name as the range for Pivot Tables if the data is likely to be changed. By using the table name, the source range of the Pivot Table will not need to be adjusted because the table name automatically includes additional data added in the table..

PIVOT TABLE REPORTING

**Click the cell-pointer on one cell in a list of data and select:
Insert | Tables | PivotTable Click OK**

A PivotTable report is an interactive table that quickly combines and compares large amounts of data. You can rotate its rows and columns to see different summaries of the source data, and you can display the details for areas of interest.

When should I use a PivotTable report?

Use a PivotTable report when you want to analyze related totals, especially when you have a long list of figures to sum and you want to compare several facts about each figure. Because a PivotTable report is interactive, you can change the view of the data to see more details or calculate different summaries, such as counts or averages.

How does it organize my data?

In a PivotTable report, each column or field in your source data becomes a PivotTable field that summarizes multiple rows of information.

How do I create a PivotTable report?

Once you activate the feature on a list of data or point to an external data source, Excel will add a new sheet for the pivot table report. You can then check and uncheck the field names and if necessary drag the field from one box to another.

- The **Values box** performs calculations. Excel summarizes and calculates the report for you automatically.
- The **Column and Row Labels** boxes are for descriptive fields and also to identify the direction of the presentation of the calculations from either the column or row perspective.
- The **Report Filter** box will add a filter to control calculations based on specific choices such as accounts or time periods.



After you create a PivotTable report, you can customize it to focus on specific information by changing the layout, changing the format, or double-clicking on a number to drill down to display more detailed data. The drill down actually copies the underlying data from the original list to a separate sheet. The detail data is stored in the pivot cache.

To **recalculate** the Pivot Table if underlying data is changing, select Analyze | Data | Refresh or Refresh All.

To **format cells** in a Pivot Table, right-click a field within the Pivot Table and select Number format.

To set many **options** for the Pivot Table, right-click within the Pivot Table and select the Pivot Table Options dialog box. The setting to control the Pivot Cache is within this dialog box.

Reporting Tip: *Replicate the Pivot Table on separate sheet tabs for each unique item in the Report Filter. This tip is useful to have Excel automatically create a separate pivot tables for categories such as accounts, locations, offices, owners, customers, etc.*

- *Drag the appropriate field into the Report Filter box*
- *Select Analyze | PivotTable | Click the drop-down triangle on the Options button.*
- *Select Show Report Filter Pages.*
- *Select the Page Field to replicate.*
- *Click OK.*

The result is that separate PivotTables are automatically created on separate sheets. Each Pivot Table is based on the next choice in the Report Filter and the sheet tabs are named appropriately.

Newer Pivot Table features in Excel using the .xlsx format:

PivotTable labels

Now fill down labels in a PivotTable. You can also repeat labels in PivotTables to display item captions of nested fields in all rows and columns.

Enhanced filtering

You can use slicers to quickly filter data with the click of a button and quickly see which filters are applied. The Timeline filter allow quick selection of time periods of days, months, or years to show results over time.

Show Values As feature

The **Show Values As** feature includes new, automatic calculations, such as:

% of Parent Row Total, % of Parent Column Total, % of Parent Total, % Running Total, Rank Smallest to Largest, and Rank Largest to Smallest.

EXTERNAL FORMULA LINKS

- Open all interacting files. Build your formulas starting in the dependent file and when building formulas click on referenced cell coordinates in the other opened files.
- When opening the dependent (parent) file that has the external formula references, you will be asked to recalculate to the source files.
- To manage the links, select Data | Edit Links. The Edit Links dialog box allows you to check the status of the links in your worksheet and make changes. Select Change Source to redirect a broken link.
- In the Edit Links dialog box, a newer workbook option allows you to control whether to update links in your dependent file automatically. Click the Startup Prompt button to make adjustments.

TIP: A workspace file can save time opening all the related separate files. To create a workspace file, open all files and select View | Window | Save Workspace and enter a name. The extension .xlw is given to the Workspace file. Close all files and open the Workspace file. All the files open automatically.

WORKSHEET GROUPING

Three-dimensional typing, cell formatting and page layout changes can be performed when tabs are grouped.

- To group specific sheets, select the first sheet tab of the group, hold the CTRL key and click on other tabs.
- To group many sheets quickly, select the first sheet tab of the group, hold the SHIFT key and click on the last tab.
- To group all sheets, right-click on a sheet tab and click “Select All Sheets.”
- To deselect the grouped sheets, click on a tab that is not part of the group. If all tabs are grouped, click on any one tab, other than the one used to group.

3D SUM FUNCTION

Functions can be built that reference cells of other worksheets.
The 3D Sum is built with the following steps:

- Enter `=SUM(` at the starting formula cell.
- Click the starting point cell of the SUM on the first sheet to be added.
- Hold the SHIFT key to anchor and click the last sheet tab to add across.
- Press ENTER.

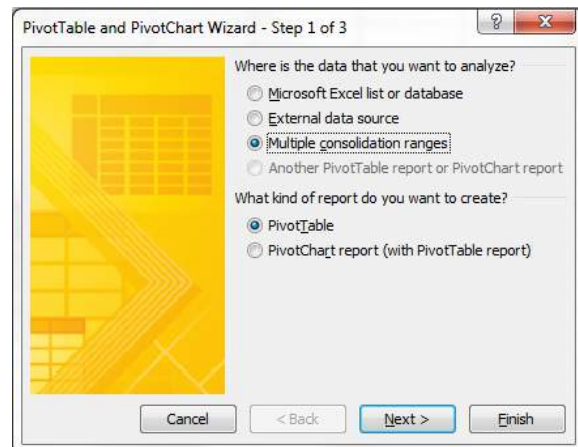
NOTE: The sheet tabs must stay in order and the summary sheet must be before or after the sheets being added.

MULTIPLE CONSOLIDATED RANGES

To consolidate report ranges across sheet tabs when the line items are not on the same rows, use the multiple consolidated ranges feature.

To use this feature, you must add the Pivot Table and Pivot Chart wizard tool to the QAT.

1. Click the tool.
2. In the dialog box, mark Multiple Consolidated Ranges and click the Next button.
3. In Step 2a, click the Next button.
4. In Step 2b, select each range to be consolidated and add to the dialog box.
Be sure to include the column and row headings.
Click the Next button.
5. In Step 3, select where to place the report. Click the Finish button.



Note: Excel will consolidate based on the text in the row and column headings.

SUPPRESS THE DISPLAY OF FORMULA ERROR MESSAGES

Display a zero in place of an error value.

Use the IF and ISERROR functions to suppress the display of error messages.

1. Select the first cell in the row or column where the errors are displayed.
2. Wrap this formula around the formula in the cell, where *formula* is the formula that was previously in the cell by itself.

=IF(ISERROR(formula),0,formula)

3. Copy this formula down the column or across the row.
(“” instead of zero will have the effect of making the cell appear empty.)

Excel now uses a simpler approach with the new IFERROR function.

1. Select the first cell in the row or column where the errors are displayed.
2. Wrap this formula around the formula in the cell, where *formula* is the formula that was previously in the cell by itself.

=IFERROR(formula,0)

3. Copy this formula down the column or across the row.
(“” instead of zero will have the effect of making the cell appear empty.)

GROUP AND OUTLINE

You can outline worksheets automatically if they have summary formulas that reference cells in the detail data. Detail data is typically adjacent to and either above or to the left of the summary formulas. All columns containing summary formulas must be either to the right or to the left of the detail data, or rows containing summary formulas must be either below or above the detail data.

To outline the data automatically by summary formula structure:

- Select the range of cells you want to outline.
TIP To outline the entire worksheet, click any cell on the worksheet.
- Select Data | Outline | Group | Auto Outline

To outline the data manually:

- Select the rows or columns that contain detail data.
Detail rows or columns are usually adjacent to the row or column that contains the summary formula or a heading. For example, if row 6 contains totals for rows 3 through 5, select rows 3 through 5. If row 8 contains a heading that describes rows 9 through 12, select rows 9 through 12.
- Select Data | Outline | Group

The outline symbols appear. You can show or hide detailed data by pressing the plus sign, minus sign, and the numbers 1, 2, 3, or 4, indicating the outline level.

Continue selecting and grouping detail rows or columns until you have created all of the levels you want in the outline.

The Show Detail and Hide Detail tools help to show all or hide all quickly.

COPY AND LINK FROM EXCEL TO WORD

To copy from Excel to Word:

- Select Excel cells and copy.
- Switch to a Word document.
- Select the PASTE SPECIAL dialog box.
- Select PICTURE (Windows Metafile).
- Select OK.

The result is a picture of the worksheet in the Word document.

To link from Excel to Word where the content updates:

- Select Excel cells and copy.
- Switch to a Word document.
- Select the PASTE SPECIAL dialog box.
- Select LINK and also PICTURE (Windows Metafile).
- Select OK.

The result is a picture of the worksheet range in the Word document that is linked to the source Excel file. When the Excel information is changed, the content in the picture updates automatically.

To link from Excel to Word where the content and picture size update:

- Select the Excel range, click in the name box, and enter a range name.
- Select the same range that was just named and copy.
- Switch to a Word document.
- Select the PASTE SPECIAL dialog box.
- Select LINK and Excel worksheet object.
- Select OK.

The result is a picture of the worksheet range in the Word document that is linked to the source Excel file. When the Excel information is changed, the picture updates automatically, and if rows or columns are inserted or deleted in the source Excel range, the picture dynamically adjusts size.

EMAIL FILE ATTACHMENTS FROM EXCEL

To attach the current Excel file to an Outlook message:

- Select File | Share | Email | Send Using E-mail. Click Send as Attachment.
An Outlook email message is created with the file attached and ready to send.

To attach the current Excel file as a pdf to an Outlook message:

- Select File | Share | Email | Send Using E-mail. Click Send as PDF.
An Outlook email message is created with the file attached and ready to send.

WORKSHEET PROTECTION

STEP 1 -

Cell UNLocking

By default, all cells in a worksheet are locked. Lock is a format of a cell.

- To unlock specific cells, select the cells and select Home | Cells | Format.
- Click Lock Cell to toggle to unlocked. When the tool is pushed in the cell format is locked. When the tool is released the cell format is unlocked.

When the worksheet is protected, locked cells cannot be changed.

STEP 2 -

Protecting the Sheet

- To protect the worksheet, select Review | Changes | Protect Sheet. Excel allows you to choose from a list of features to restrict. Passwords are case sensitive. And you must enter the password twice.
- To unprotect a worksheet, select Review | Changes | UnProtect Sheet. Enter the password.

WORKBOOK PROTECTION

To protect the worksheet *tabs* from being changed, moved, inserted, deleted, hidden or unhidden:

- Select Review | Changes | Protect Workbook. Keep structure checked. Passwords are case sensitive. And you must enter the password twice.

FILE PROTECTION

To keep a file from being opened:

- File, Info, click the Protect Workbook button and select Encrypt with Password.
- Enter a Password to Open. You will be prompted to enter the password twice. Passwords are case sensitive. Save, close and reopen the file to see the prompt.
- Remove the password with the same steps.

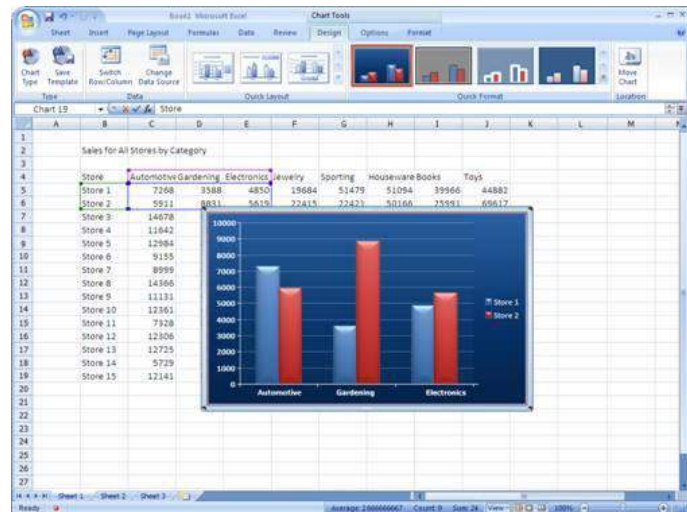
To keep a file from being modified:

- File, Info, click the Protect Workbook button and select Mark as Final. No password is required and a security prompt appears below the Ribbon discouraging editing.

EXCEL CHARTS

1. Select the data that you want to chart. To select separate ranges, use the CTRL key after selecting the first range. Include column and row headings.
2. Click the **Insert** tab, in the **Charts** group, select the chart type for the chart you want to create, and then click the chart subtype.

Tip To change the chart type after the chart is created, click inside the chart. On the **Design** tab, in the **Type** group, click **Change Chart Type**, and select another chart type.



After your chart is inserted, the **Chart Tools** appear, with three tabs: **Design**, **Layout**, and **Format**.

On these tabs you'll find the commands you need to work with charts. When you complete the chart, click outside the chart. The **Chart Tools** disappear when you click away from the chart. The tabs reappear when you click on the chart.

After you create a chart, you can change the perspective of the x axis categories and legend. Click in the chart. On the **Design** tab, in the **Data** group, click **Switch Row/Column**.

Tip You can add chart and axis titles, add a data table, delete gridlines, or add data labels quickly by changing the chart layout. Click in the chart. Then on the **Design** tab, in the **Chart Layouts** group, click the **More** button to see all the layouts. Click the one you want.

Using additional steps, you can click the **Layout** tab and make selections individually in the **Labels** and **Axes** groups.

To change chart colors, click in the chart. Then on the **Design** tab, in the **Chart Styles** group, click the **More** button to see all available colors. Then click the ones you want.

If you don't see colors you want, you can get other colors by clicking the **Page Layout** tab, and then clicking **Colors** in the **Themes** group. When you rest the pointer over a theme, the theme is shown in a temporary preview on the chart. You see the theme's effect before you apply it, saving you the step of undoing it if you don't like it. Click the one you like to apply it to the chart.

Important The colors from the theme will be applied to other elements you add to the worksheet, such as tables, or cell styles.

Tip To modify the color of individual chart elements, right click and select Format Data Series. Select Fill to modify the fill color. Select Border to adjust the border color or indicate no border.

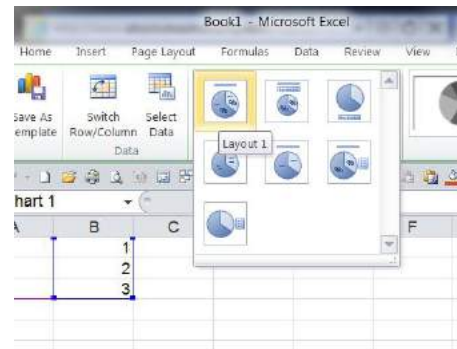
There are many options to add formatting to **chart or axis titles**.

1. First, select a title.
2. Then, on the Format tab, in the WordArt Styles group, click the arrow beside Text Fill to add a color. You can also pick a gradient, or a texture. Or you can click the arrow beside **Text Outline** or **Text Effects** in the **WordArt Styles** group to add visual style to titles.

Tip To make font changes, such as making the font larger or smaller, or to change the font face, click the **Home** tab, and then go to the **Font** group. Or you can make the same formatting changes by using the **Mini toolbar**. The toolbar appears in a faded fashion after you select text. If you point at the toolbar it becomes solid, and then you can select formatting options.

CREATE A PIE CHART IN EXCEL

1. Select the single series of data that you want to chart.
2. Click the **Insert** tab, in the **Charts** group, select the pie chart type, and then click the chart subtype. The pie appears as an embedded graph.
3. To complete the pie, on the **Chart Tools Design** tab, in the **Chart Layouts** group of tools, click **Layout 1** to automatically add the percentages and the title box.



CONVERT A PIE CHART TO A SIDEWAYS BAR CHART

1. Click the chart to select it.
2. On the Chart Tools Design tab, in the Type group of tools, Change chart type and select bar, clustered bar.

RANKING OR SORTING IN A SIDEWAYS BAR CHART

To rank highest to lowest in a sideways bar chart, the source data would have to be sorted to affect the chart. An alternative would be to build a pivot table from the source data, sort the data in the pivot table, and build a pivot graph with the pivot table as the data source.

SAVE A CHART AS A TEMPLATE

1. Click in the chart you want to save as a template.
2. On the **Design** tab, in the **Type** group, click **Save As Template**.
3. In the **Save Chart Template** dialog box, in the **File name** box, type a name for the template.
4. To use the template, select data for the chart. On the **Insert** tab, in the **Chart** group, click any chart type.
5. Click **All Chart Types**. In the **Change Chart Type** dialog box, click **Templates**. Select the template.

CHART TIPS AND TRICKS

Alternate the position of labels on the X axis

In the cell where the label is located, press ALT+ENTER in front of the text which forces the text to move to the second line in the label position.

Create a second vertical axis and assign a set of data to the secondary axis

When the range of values for different data series in a 2-D chart varies widely, or when you have mixed types of data (such as price and volume), you can plot one or more data series on a secondary value (y) axis. The scale of the secondary axis reflects the values for the associated series.

Create a line graph of all the data series. The line representing the series with the smaller values will be on the X axis at zero or close to zero. Right-click the line on the X axis representing data series you want to plot along a secondary value axis. Choose **Format Data Series**. In the dialog box, select **Secondary Axis**. Click **Close**.

Show data labels above bars

Right-click on a bar to select the series. Select **Add Data Labels**.

Remove all but one data label

Click a data label to select all data labels in the series. Then click once on a single data label and your selection becomes that one data label. Press the **DELETE** key on the keyboard. Repeat to select other individual data labels and delete. Optionally, you can then format this item individually.

Show lines and columns on the same chart

To make a combination chart, make a standard chart. Then select a series in the chart and change the Chart Type. The Chart type will only apply to the series selected. Different chart types are not available in a 3-D chart.

Link the Chart Title box to a cell

Once created, click the chart title, press the equal symbol and select a cell on the worksheet. Press Enter.

Add a text box to a chart

Click the chart and start typing text. Press Enter when finished. A text box is created.

Add a text box text linked to a cell

From the Insert tab, click Text Box.

Select the Text Box, and press F2.

In the Formula Bar, create a link to a cell by typing = and then selecting the cell.

The contents of the cell are displayed in the Text Box.

Spread apart Data Labels

Repositioning data labels is a manual process. Click a label to select all and then click again to select one label. Drag it to its new position. Repeat the process.

Add a Trendline

Right-click a series in the chart and click Add Trendline.

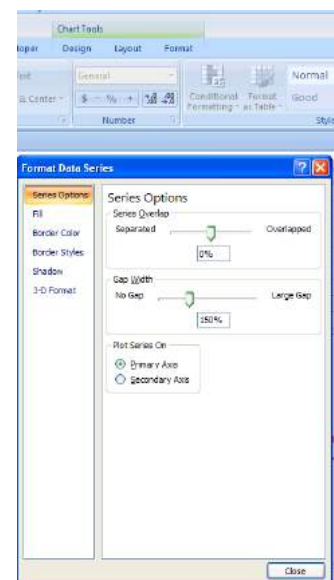
Use Polynomial if the data changes direction. The order indicates how many times the data changes direction. You can select to display the R^2 value indicating predictability of the data.

Change the spacing between data markers in bar and column charts

Right-click a bar and select Format Data Series. In the dialog box, adjust the **Overlap** and **Gap Width**.

To change the overlap of the data markers in each category, enter a value between -100 and 100 in the Overlap box. The higher the value, the greater the overlap within the category.

To change the spacing between categories of data markers, enter a value between 0 (zero) and 500 in the Gap width box. The higher the value, the greater the distance between each category.



Replace empty cells with zero or let Excel interpolate

Empty cells will create a gap in the line chart. In the zero or empty cells, enter =NA() to have the line ignore the missing data point and continue the line.

Close the gap between the beginning of the line and the X axis

Right-click the horizontal axis to display the Format Axis dialog box. Click Axis Options and under Position, select between tick marks.

Turn off Auto Sizing so when resizing a chart, the font stays unchanged

Right-click a blank area of the chart. Select Format Chart Area. In the Font tab, clear the Auto Scale check box, and click OK. Now when you resize the chart, the font size will not change.

Remove vertical or horizontal axis lines

Click the numbers or categories on an axis and press the DELETE key.

Remove or add the legend

Click the Legend and click the DELETE key. To add a Legend, select the Chart Tools Layout tab, click Legend and select the placement.

Remove or add gridlines

Click the chart grid and click the DELETE key. To add the grid, select the Chart Tools Layout tab, click Gridlines and select the placement.

Change the color of the gridlines to be light gray

Right click on a gridline and select Format Gridlines. Click Line Color, Solid Line and select the color and transparency.

Change the scale of the vertical axis

Double-click the Y axis to display the Format Axis dialog box and select the Axis Options. Change the display units by selecting fixed and entering a value.

Copy chart formats to another chart

Select a chart and select Copy. Select another chart and click the bottom half of the Paste tool in order to select Paste Special. Select Formats, OK. The second chart is formatted the same as the first chart in chart type, fonts and colors.

Tips to select objects

- Single click normally selects an object.
- Double click normally opens the Format dialog box for that object.
- Two separate clicks will select one object within a series. For example, to select one bar in a series of bars.
- Triple click will select all text in a text box or title box.
- Right click displays commands for that object and is the quickest way to find and activate commands.

Tips to resize objects

- Dragging the corner handle will make the object larger or smaller but not necessarily maintain its aspect ratio or proportion.
- Use the SHIFT key while resizing an object to hold its aspect ratio.
- Use the CTRL key while resizing an object to hold its center point.

Tips to move objects

- Click and drag the outside edge of an object.
- Click the outside edge to select the object and use the arrow keys to nudge the object.
- Click the outside edge to select the object and hold the CTRL key and use the arrow keys to nudge the object in smaller increments.

FLOWCHART TIPS AND TRICKS

Add Shapes

On the Insert tab on the Ribbon, click Shapes. Click a shape on the shapes stencil and then click and drag to draw the shape.

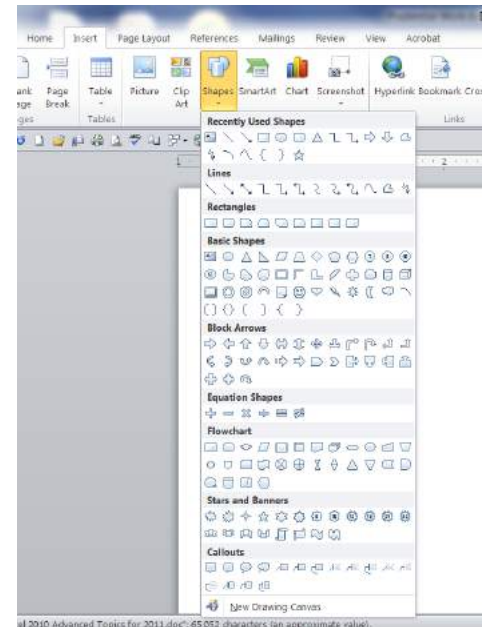
Select shapes

Use CTRL key to select multiple shapes. Use CTRL+A to select all shapes.

Draw a Connector

Click a connector shape on the shapes stencil.

Point to the first shape; click a hot point; point to the second shape; click a hot point which turns red. The connector is glued to the shapes so that when you move a shape, the connector stays attached.



Align and distribute shapes

Select the shapes; then, on the Drawing tools Format tab, select Align. To align shapes on the left, click Align Left. To evenly distribute selected shapes, select Distribute Horizontally or Distribute Vertically.

Duplicate shapes

Select the shape and press CTRL+D.

Size shapes

Click the shape to select it. Then drag the corner handle.

- Hold the CTRL key while dragging the corner handle to keep the shape centered.
- Hold the SHIFT key while dragging the corner handle to keep the shape proportioned.
- Hold both the CTRL+SHIFT keys while dragging the corner handle to keep the shape both centered and to hold the aspect ratio.

To repeat formatting

Click the shape to select it and then click the Format Painter tool. The mouse pointer will be in the shape of a paint brush. When you click another object, it receives the same formatting features.

Add text to a shape

To add text to most shapes, click the shape and begin typing.

INTRODUCTION TO VBA AND MACROS

As part of Microsoft Office, Excel uses the Visual Basic for Applications (VBA) programming language. Most actions you perform in Excel can be recorded with the macro recorder. This course emphasizes code that cannot be recorded.

In Excel, VBA focuses actions on objects such as ranges, cells, sheets, rows, columns, etc... Objects are manipulated. This is called object-oriented programming.

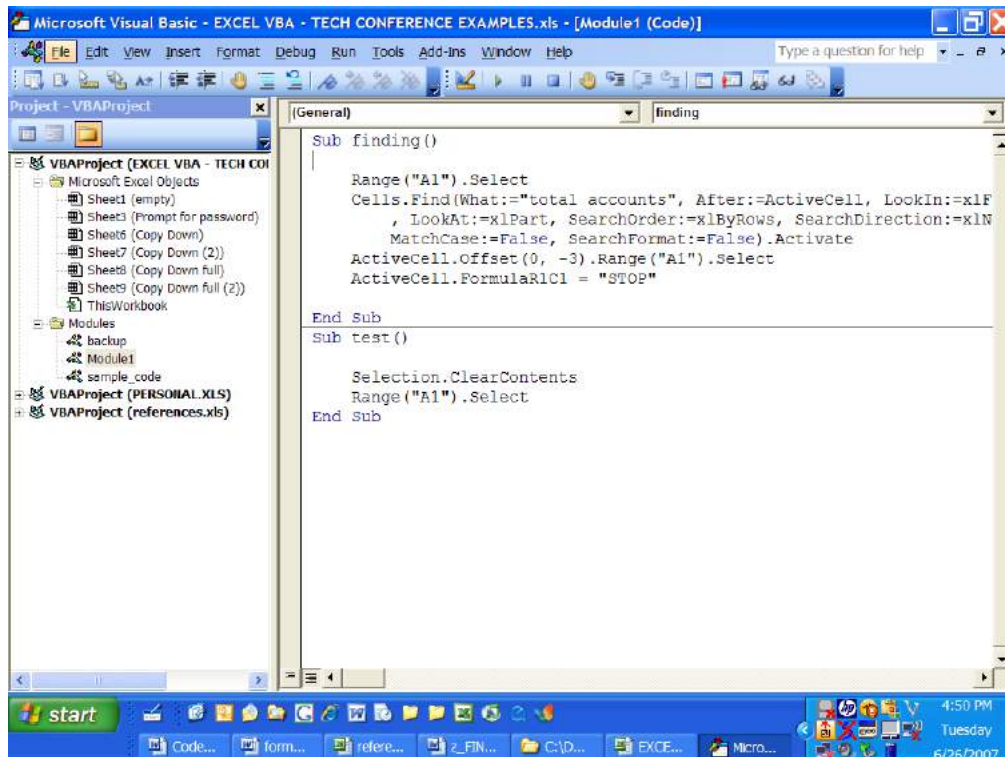
THE VISUAL BASIC EDITOR

Show the Visual Basic Editor by pressing ALT + F11.

You must see the project explorer window on the left to browse the code in the modules.

Double-click on Modules to display the modules.

Double-click on a module name to display the code window on the right.



MACROS

Macros are series of VBA commands that take actions in Excel. The term macro means a VBA sub procedure that is run from the worksheet.

The first line of macro code starts with the **Sub** command followed by the macro name and a pair of empty parentheses. The last line of code is always the **End Sub** command.

Executable code appears black. Comments begin with an apostrophe and are green.

A sub procedure can be called by another sub procedure just by entering a sub procedure's name within another sub procedure. The sub procedure that is called is run and then visual basic returns to the sub procedure that made the call.

The sub procedure that is called must be within the same module. Sub procedure calls offer a way to break down a long running macro into sections and run them in sequence.

MACRO SECURITY LEVEL

To change the security level for macro virus protection

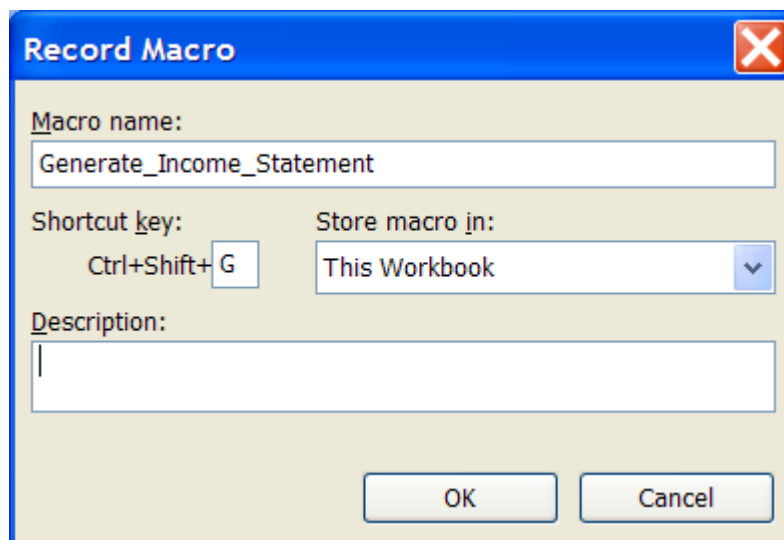
1. Click File.
2. Select Options.
3. Under Trust Center Settings you can change the security level.

It is recommended to keep the security level set to Disable All Macros with notification, to allow you to have them allowed upon opening each file.

MACRO RECORDER

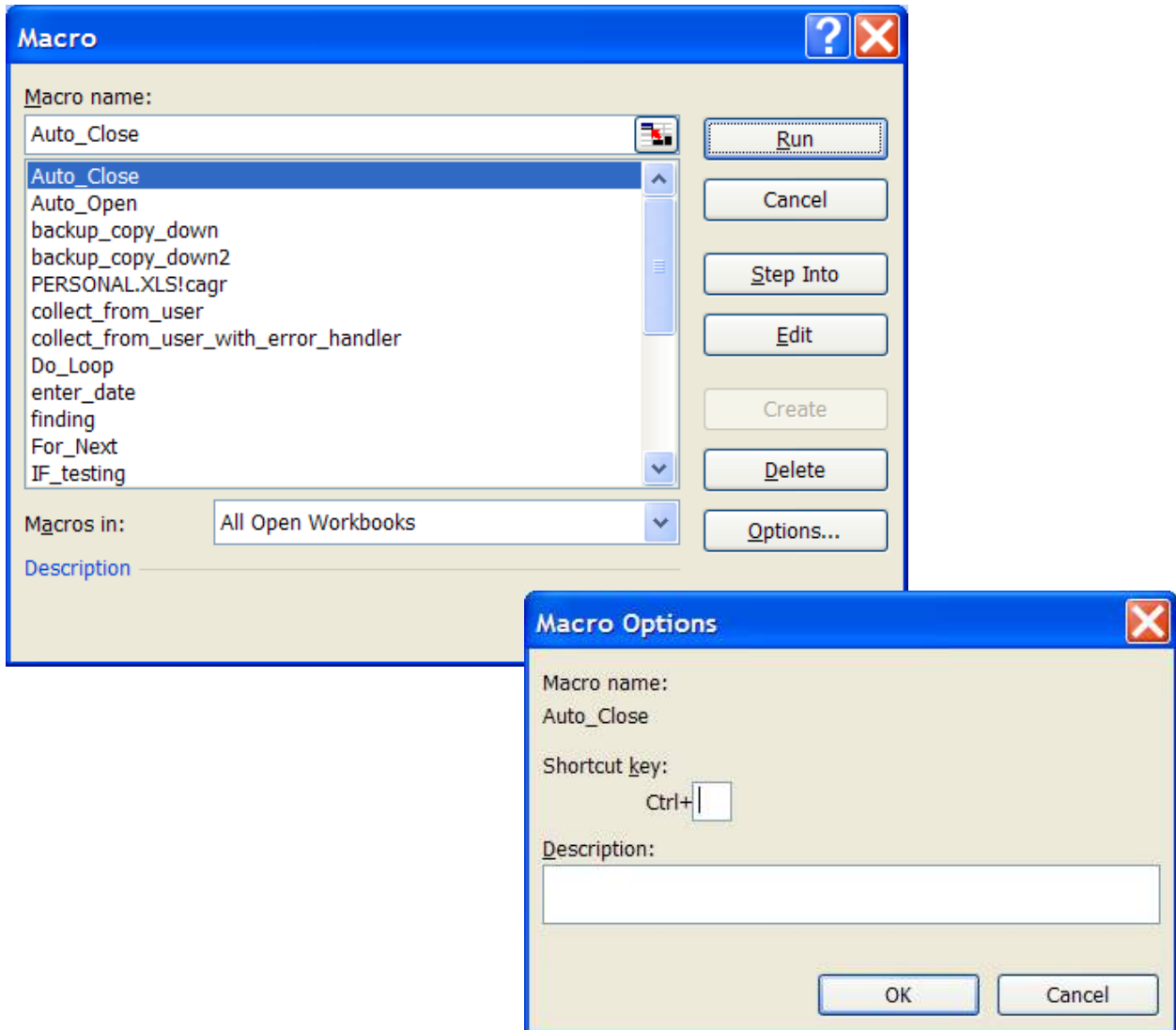
Before you record a macro, plan the steps that you want the macro to perform. If you make a mistake when you record the macro, corrections you make will also be recorded.

1. On the View tab on the Ribbon, click the Macro tool and select Record Macro.
2. Type a name without spaces.
3. Insert a shortcut key.
(CTRL + lowercase or uppercase alpha character)
4. Select OK.
5. Perform the actions to be recorded and then click the square Stop Recording button in the lower left corner of the Excel window.



NOTE 1 To rerecord if mistakes are made, start over with the same macro name but a different shortcut key. Excel will overwrite the existing macro.

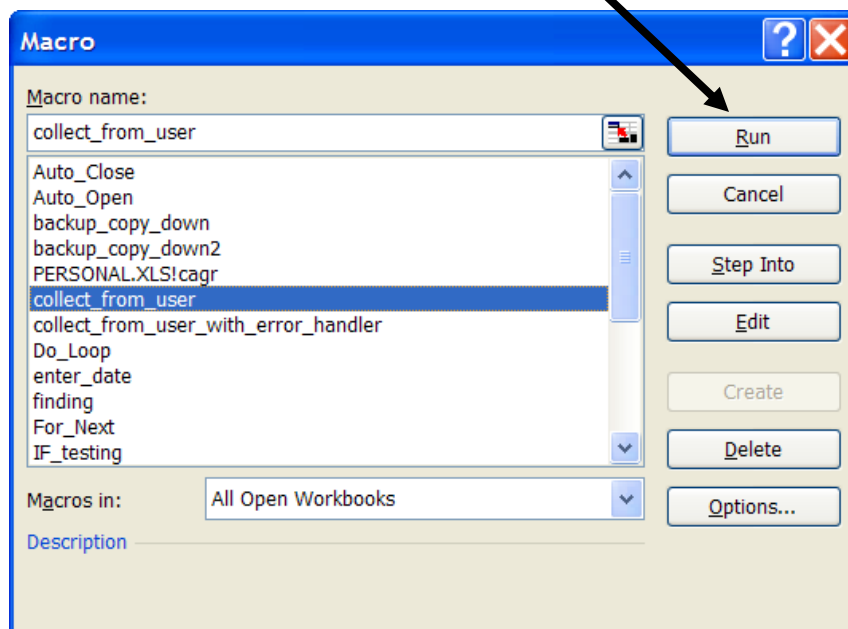
NOTE 2 A shortcut key can be added or modified after recording a macro. In the macro dialog box, highlight the macro name and click the Option button.



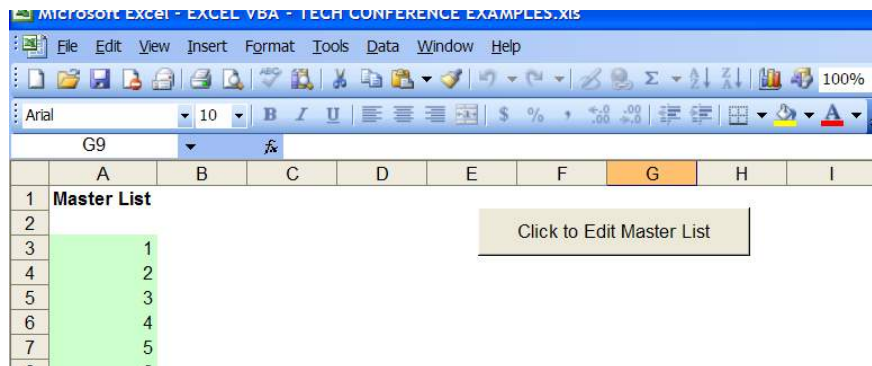
You can run a macro:

1. From the Macro dialog box. On the View tab on the Ribbon, click the Macro tool and select View Macros.

Highlight the macro name and click the RUN button.



2. Using the SHORTCUT KEY.
3. Using a TOOL you place on the Quick Access Toolbar.
4. From a macro button or drawn object on the worksheet.



RECORDING RELATIVE VS. ABSOLUTE CELL SELECTION

On the Developer toolbar, use the Relative Reference Tool that controls whether cell-pointer movement is recorded as an absolute cell selection such as “B12” or as a relative offset movement such as “one cell down.” This tool has the description “Relative Reference.” When this tool is pushed in (orange background) relative offset code is entered.

DEVELOPER RIBBON TAB

Show the Developer tab on the ribbon by selecting File, Options, Customize Ribbon and place a check mark next to Developer. The Developer tab holds the tools that were on the Visual Basic toolbar in Excel 2003.

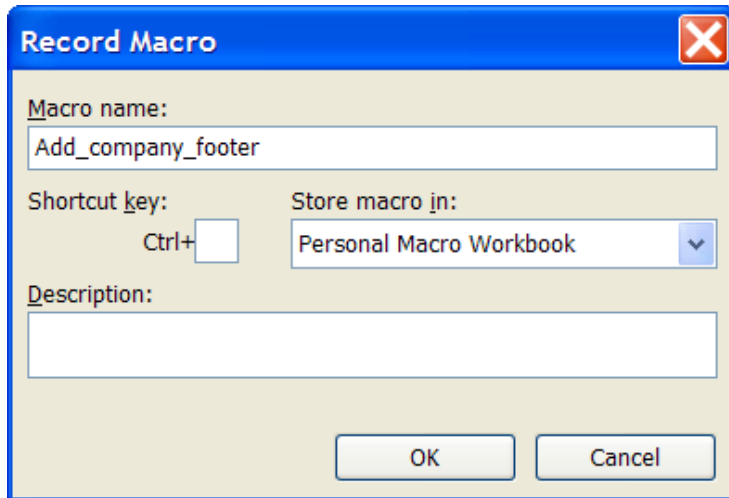
CREATE A MACRO BUTTON ON THE WORKSHEET

1. On the Developer tab, click Insert.
2. Single-click the first Tool called “Button”.
3. Click and drag diagonally to draw the button size.
(Holding the ALT key will snap to cell size.)
4. When you release the mouse, the dialog box appears for the macro assignment.
Select the macro to assign to the button.
5. Click to change the wording on the button.
6. Click away from the button and then point to the button.
You will see the pointing hand indicating that there is a macro assignment.
7. To run the macro, click on the button.
8. To edit the button text or size or location of the button, right-click on the button and select Edit Text. To change the size of the button, use the 2-headed arrow mouse pointer shape on a corner handle. To move the button, use the 4-headed mouse pointer shape on the border of the button.
9. To assign a different macro to a button, right-click and select Assign Macro.
10. To delete a button, right-click the button and select Cut.
11. To copy a button, right-click on the button and select Copy.
Right-click where you want to place the button copy and select Paste.

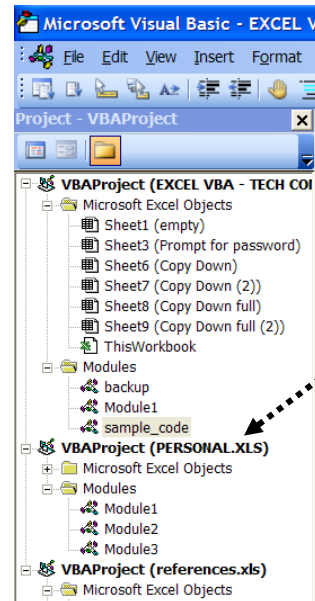
PERSONAL MACRO WORKBOOK

The Personal Macro Workbook is a hidden file that is always opened when Excel runs. When you add sub procedures to the Personal Macro Workbook, Excel will prompt you to save the file when exiting from Excel. Be sure to select Yes.

To create the Personal Macro Workbook, record a macro into it.



In the Visual Basic Editor, you will see a file opened called Personal.xls and it will contain at least one module with your sub procedures. You can copy and paste from one module to another even if they are in different files.



CREATE A MACRO DRIVEN QAT TOOL

1. Record a macro into the Personal Macro Workbook, which is a hidden file that holds “generic” macros that apply to any worksheet.
2. Select File, Options, Customize the Quick Access Toolbar.
3. Select Macros in the commands lists.
4. Click the macro name and click Add.
5. Click the macro symbol and click the modify button. Assign a picture and/or change the name. Click OK.
6. Test the button.

Quick Start Guide

Microsoft Excel 2013 and 2016 looks different from previous versions, so we created this guide to help you minimize the learning curve.

Add commands to the Quick Access Toolbar

Keep favorite commands and buttons visible, even when you hide the ribbon.

Explore commands on the ribbon

Each ribbon tab has groups, and each group has a set of related commands.

Show or hide the ribbon

Click **Ribbon Display Options** or press **Ctrl+F1** to hide or show the ribbon.

Manage files

Open, save, print and share your files. Also change options and account settings in this view.

Get visual cues

Watch for action buttons that appear in the sheet and animations that show data changes.

Create sheets

Start with one sheet and add more sheets as needed.

Show shortcut menus

Get in the habit of right-clicking your sheet, chart, or PivotTable data. Excel will show you commands that are relevant for your data.

Open a dialog box

Click the launcher icon to show more options for a group.

Show Key Tips

If you'd rather use the keyboard, press **Alt** to show keys that let you access commands on the ribbon.

And yes — the keyboard shortcuts you've used before will still work.

Access other tabs

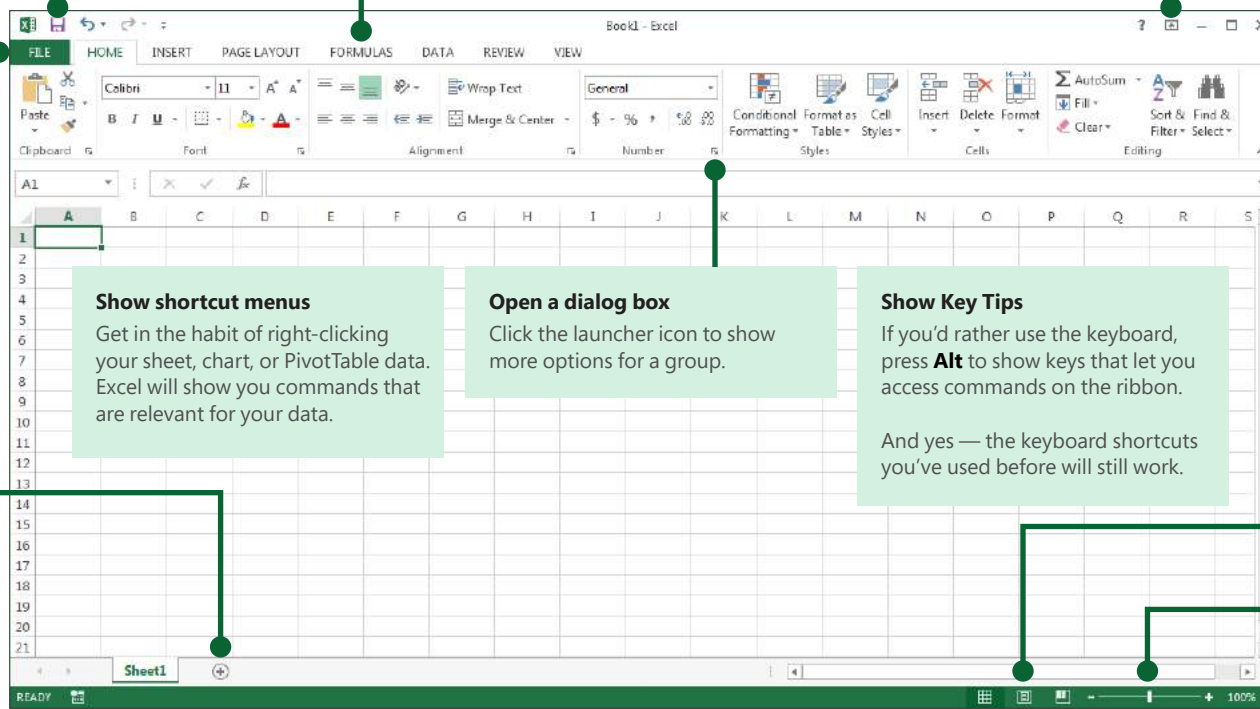
More tabs appear on the ribbon when you need them, like chart or PivotTable tabs.

Change views

Work faster in the right view. Choose **Normal**, **Page Layout**, or **Page Break Preview**.

Zoom in or out

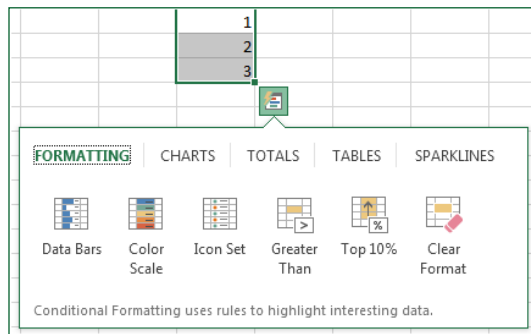
Drag the zoom slider to change the zoom level.



Apply features without the ribbon

In Excel, we've placed some frequently used but hard to find commands and buttons within easy reach.

When you select data on your worksheet, the **Quick Analysis** button appears. It gives you quick access to many useful features you may not have been aware of, and lets you preview them on your data before you make them stick.



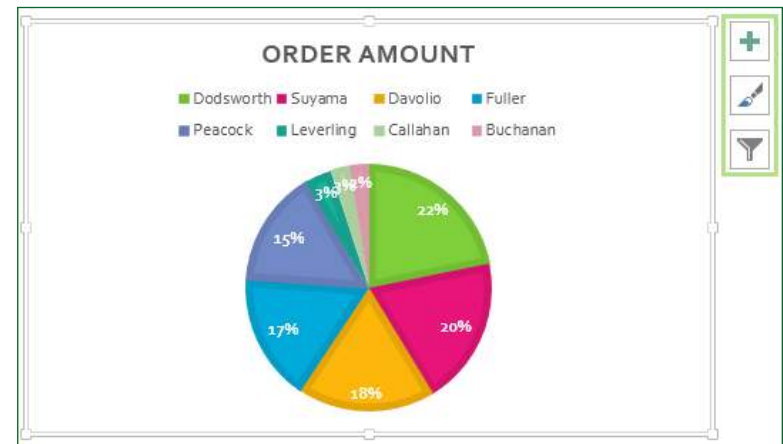
When entering data, you might notice that Excel fills values automatically as it detects a pattern. You'll get the **Flash Fill Options** button to make further decisions.

Transaction	Budget	Department	Contact
801010-Ads-Advertising-John	1300	Ads	
802100-Evs-Events-Jenny	1830	Evs	
804020-Dmg-Digital Marketing-Bill	600	Dmg	
807800-Pro-Promotions-Sally	1800	Pro	
801010-Ads-Advertising-Paul	2730	Ads	
802100-Evs-Events-Paul	1750	Evs	
804020-Dmg-Digital Marketing-John	1200	Dmg	
806002-Prs-Public Relations-John	3500	Prs	
807800-Pro-Promotions-Jenny	2500	Pro	

Better access to chart features

Creating a recommended chart is great way to get started, but you'll still want to customize the style and show the exact data you need to make it your own.

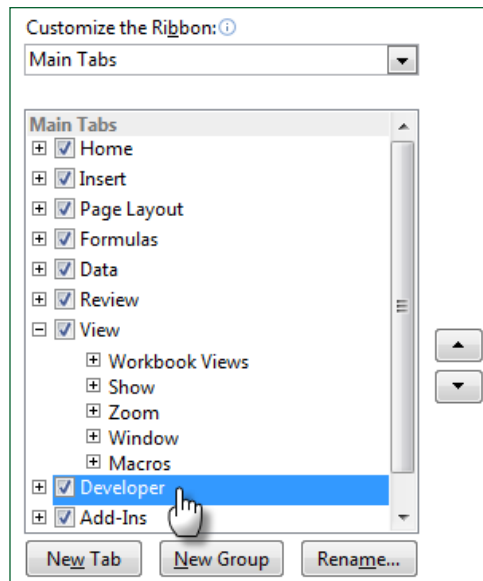
Excel 2016 gives you these options right next to the chart. Just click the **Chart Elements**, **Chart Styles**, or **Chart Filters** buttons to fine-tune your chart.



Find advanced features

To record an occasional macro, you can use the **Macros** button on the **View** tab. But if you plan to routinely create or edit macros and forms, or use XML or VBA solutions, you'll want to add the **Developer** tab to the ribbon.

You can select it on the **Customize** tab of the **Excel Options** dialog box (click **File > Options > Customize Ribbon**).

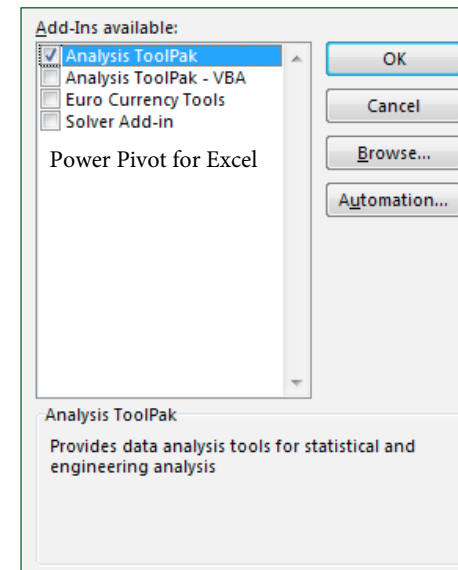


The **Developer** tab appears on the ribbon to the right of the **View** tab.

Enable add-ins that come with Excel

Excel 2016 comes with several add-in programs that let you do some advanced data analysis. There are common Excel add-ins, such as the Analysis ToolPak or the Solver add-in.

Enabling add-ins adds them to the ribbon. Just select them in the **Manage** box on the **Add-ins** tab of the **Excel Options** dialog box (click **File > Options > Add-ins**), and then click **Go**.



If you have a Professional Plus version of Office, you'll also have some new add-ins, such as the Inquire, PowerPivot for Excel, or Power View add-in. The Power View add-in even has a designated button on the **Insert** tab. Clicking that button the first time enables the add-in.



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Judy Borsher is the principal of SCG Training and Consulting Corporation, a technology firm creating and presenting instructor-led training programs and providing consulting and programming services to help organizations attain core competencies in technology skills as well as achieve financial reporting results. She also is a national presenter of SCG's technology CPE programs for the accounting community and has delivered more than 1,900 technology lectures with consistently high ratings.

Prior to establishing SCG, Judy worked for KPMG in Washington DC with a focus on small business information systems, in nonprofit CFO positions and also with a national training company under contract with IBM and AT&T where she developed, managed and presented technology training programs.

Judy served on the Computer Training Committee of the MACPA and was instrumental in establishing the hands-on computer training program which has been meeting technology needs of members for many years.

Judy has been a featured speaker at the Maryland Association of CPAs Technology Conference for the past 20 years; a presenter at the AICPA Technology Conference; and a presenter at Virginia Society of CPAs and Greater Washington Society of CPAs conferences. Certifications include: Certified Public Accountant (Licensed in NY and MD); Certified Information Technology Professional (AICPA); Microsoft Certified Professional; and Microsoft Certified Trainer.

Judy is a member in good standing of the American Institute of CPAs, the Greater Washington Society of CPAs, the Virginia Society of CPAs and the Maryland Association of CPAs. Judy holds a B.A. degree from Cornell University and an MBA degree from the Johnson Graduate School of Management at Cornell University.

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