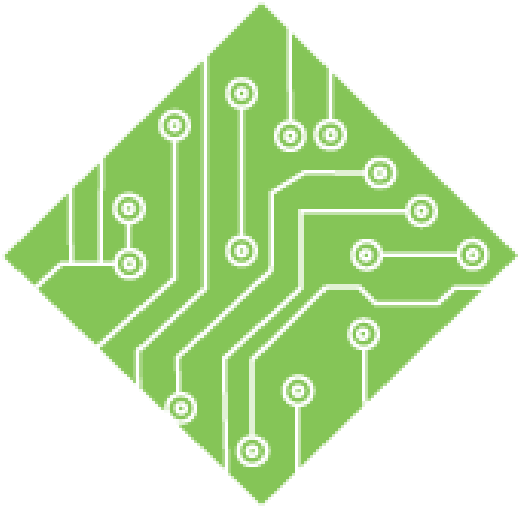
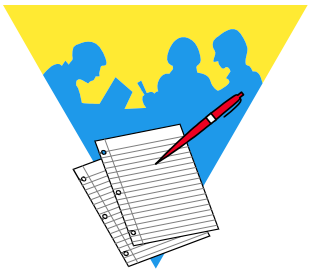


Lesson 1: Tables & Data Management

Lesson Overview

You will cover the following concepts in this chapter:

- Data Management
- Locating Blanks
- Removing Blank Rows
- Removing Duplicates
- Combining Cell Values
- Splitting Cell Values
- Flash Fill
- Tables
- Creating a Table
- Autofilters
- Advanced Filter
- Data Forms



Lesson Notes

Data Management

Understanding Structured Data

While data in *Excel* can be laid out in many different ways some analytical features require the data be in a specific structure. As an example: creating tables, sorting, and /or filtering data will not work properly if there are gaps in the data. Since *Excel* recognizes adjacent rows and columns of data as a dataset, a blank row or column indicates the end of the data set, which can give partial views of the complete data set.

Guidelines for Data Structure

- Only one row of labels for the header row.
- Each column contains only one type of data.
- Continuous rows and columns of data; *no gaps and no decorative rows or columns*.
- Break data down into the smallest value necessary for sorting or filtering.
  - An address should be broken down into columns **Address | Appt | City | State | Zip**
- Each row of data represents only one record.
  - A spreadsheet containing a list of employees personal information, one employee per row.
- No duplicate rows of data.

Cleaning Up Raw Data

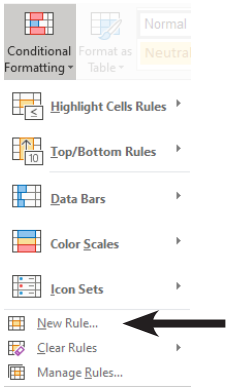
Before you are able to begin working with data, it may be necessary to ensure there are no problems within the data. *Excel* offers several tools to speed this process up significantly; duplicate removal, splitting combined elements into component data, and combining data into new columns of required information. It is a good idea to quickly check for and correct possible issues early on to avoid issues further down the road.

Locating Blanks

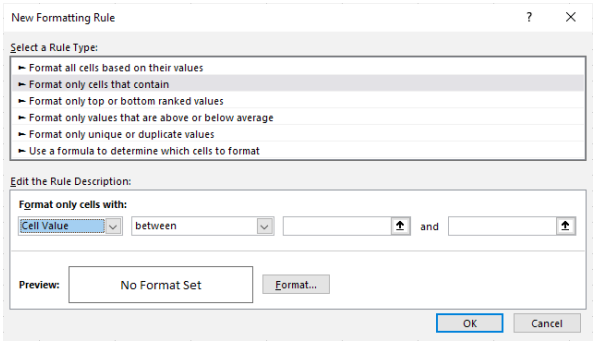
While removing blank rows can be easily managed, you may need to see where the blanks are before removing the entire row. This can be done for an individual column or the entire data set by using the Conditional Formatting tool.

Conditional Formatting Blanks

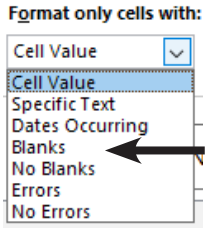
- Select the column or data set to be searched.
- On the ***Home Tab*** in the **Styles Group**, click the **[Conditional Formatting]** button drop-down.



- Choose *New Rule...* from the menu.
- The *New Formatting Rule* dialog opens.

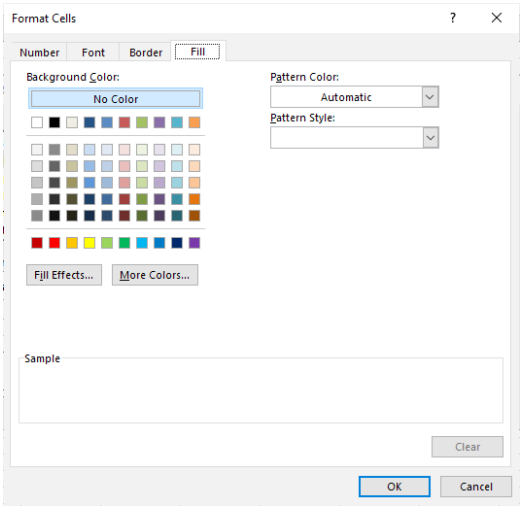


- From the list of Rule Type, select *Format only cells that contain*.
- In the **Edit the Rule Description** section, click the first field drop-down and select *Blanks* from the list.



Locating Blanks, continued

- Click the [Format...] button.
- The *Format Cells* dialog opens.



  - Activate the ***Fill Tab*** in the *Format Cells* dialog.
  - Choose an easily noticed color and click **[OK]**.
- Click the **[OK]** button to close the dialog and apply the formatting.

Sorting Based On Cell Color

- If the ***Conditional Formatting*** has been applied in a single column, right-click a colored cell in the column.
- Choose *Put Selected Color On Top* from the ***Sort*** options in the menu.

- OR -

- If the data set has been ***Conditionally Formatted***, right-click any cell in the data set.
- Choose *Custom Sort...* from the ***Sort*** options in the menu.
- The *Sort* dialog opens.
  - Click the **Sort by** field drop-down and choose the first column to sort by.
  - Click the **Sort on** field drop-down and choose *Cell Color*.
  - Click the **Order** field drop-down and choose the color and set the location to On Top.

Note

Sort tools can also be accessed from the ***Home Tab*** in the **Editing Group** in the **[Sort & Filter]** button, or on the ***Data Tab*** in the **Sort & Filter Group**.

Locating Blanks, continued

- Click the **[Add Level]** button.
- Repeat the setting for this level just as before.

(If there is no color listed in the **Order** field drop-down, change the **Sort by** field value to the next column.)

- Repeat until all columns containing colored cells are included in the custom sort.

- Then click the **[OK]** button to apply the sort.

You are now able to see what information is missing and decide wether or not to remove the record.

Removing Blank Rows

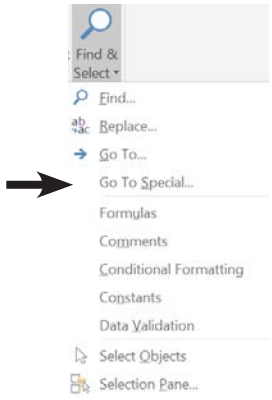
Removing Blank Rows

When managing the data, the first thing to consider is eliminating any blank rows or columns which are breaking up the data set. Using the Conditional Formatting tools to locate individual blanks cells allow you to see what data can be removed based on the entire record.

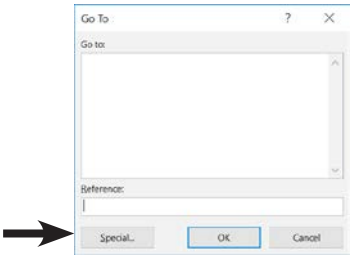
There are times when a columns' data is integral to a valid record, a blank in this column on a row would completely negate the entire record. This type of situation makes the need to search every column for blanks unnecessary. In cases such as these, removing rows based on a blank is eaily done by selecting the blanks and deleting the entire row.

Selecting Blank Cells

- Select a key column. (An ID column would be a prime example.)
- Open the *Go To* dialog by:
  - On the ***Home Tab***, in the **Edit Group** click the *Go To Special* option from the **[Find & Select]** drop-down button.

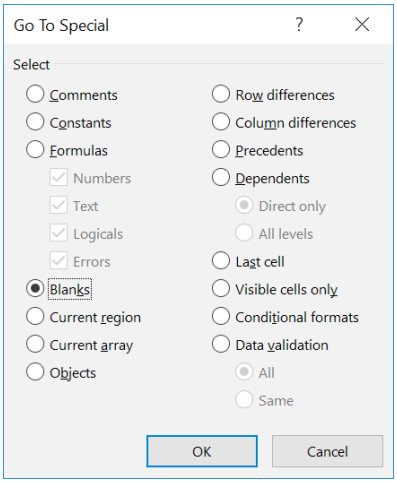


  - Use the **[F5]** key to open the *Go To* dialog and click the **[Special]** button.

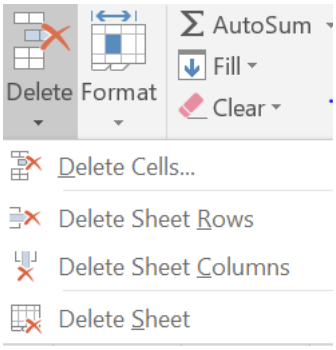


Removing Blank Rows, continued

- In the *Go To Special* dialog, choose *Blanks,* and click the **[OK]** button.



- Any blank cells are selected.
- On the ***Home Tab*** in the **Cells Group** click the **[Delete]** drop-down and choose *Delete Sheet Rows*.



- All blanks rows are removed.

Counting Blanks

To help in getting an idea of how many blanks exist within a data set, you can use the Count, CountA, or CountBlank formulas.

- ***Count:*** This returns the number of cell containing numeric data from a range.

=COUNT(range1,[range2])

- ***CountA:*** this function returns the number of cell containing data from a range.

=COUNTA(rangee1,[range2])

- ***CountBlank:*** This returns the number of empty cells from a range.

=COUNTBLANK(range)

Action 1:1 - Locating Blank Cells

Instructions:	Results/ Comments:
1. Open the **EmployeeStart.xlsx** file.	This is an example of messy data which needs to be cleaned up before beginning to work.
2. Save the file as **MyEmployeeStart.xlsx**	**[F12]**.
3. Active the ***MissingDataPoints*** worksheet.	
4. Select cell **A8**.	The first cell in the data set.
5. Holding both the **Ctrl** and **Shift** keys down, tap the **Right Arrow** key once, then the **Down Arrow** key three times.	Using the **Ctrl** And **Shift** keys allows for quick and efficient directional selection.
6. Activate the ***Home Tab***.	If necessary.
7. In the **Style Group**, click the **[Conditional Formatting]** button drop-down and choose *New Rule..* from the menu.	The *New Formatting Rule* dialog opens.
8. Select the *Format only cells that contain* in the list of rule types at the top of the dialog.	The options below in the ***Edit the Rule Description*** section change, offering control associated with the selection of rule type.
9. In the first field, change the ***Cell Value*** to *Blanks*.	The controls change again to reflect your choice.
10. Click the **[Format]** button.	The *Format Cells* dialog opens.
11. Activate the ***Fill Tab***, choose a color, and click the **[OK]** button.	This will be the color used to highlight blank cells.
12. Click the **[OK]** button to apply the formatting.	All blank cells are now highlighted.

Instructions:	Results/ Comments:
13. Select cell **A24**.	This is the cell the sort will be based on.
14. Right-click the colored cell, hover on the ***Sort*** option and choose *Put Selected Cell Color On Top* from the menu.	All the records are sorted with all blanks in the column A on top.
15. Re-select all the data in the data set.	Cells **A8:N78**.
16. On the ***Home Tab***, click the **[Sort & Filter]** button drop-down, then select *Custom Sort* from the menu.	The *Sort* dialog opens. Using the right-click method would also give access to the custom sort. This will allow you to set blanks across all the columns top the top of the data set.
17. The first level sort should already be set.	If not then set the first sort level to **Sort By** to **Column A,** the **Sort On** to *Cell Color,* the **Order** to color, and leave the locate set to *On Top*
18. Click the **[Add Level]** button.	This will allow for a secondary search and sort. Each new level will be run after the previous level is completed.
19. Continue adjusting the parameters of each sort level. Add levels related to columns **A**, **D**, **E**, **H**, and **J**. When done, click the **[OK]** button.	All records with blank cells are shown at the top of the data set in descending order of importance.
20. Right-click the row header for row 8 and choose *Delete* from the menu.	Since this record is invalid without an ID, the record needed to be removed.
21. On the ***Home Tab***, click the **[Conditional Formatting]** button and choose to *Clear Rules from Entire Sheet*.	All highlights are removed.
22. Save the file.	**[Ctrl+S]**.

Action 1:2 - Removing Blank Rows

Instructions:	Results/ Comments:
1. **MyEmployeeStart.xlsx** file should still be open.	If not, re-open the file.
2. Activate the ***InvalidRecords*** worksheet.	In this case, any records without an ID must be removed.
3. Select column **A**.	
4. On the ***Home Tab*** click the **[Find & Select]** button drop-down in the **Editing Group** and choose *Go To Special*.	Use the **[F5]** key to open the *Go To* dialog and click the **[Special]** button to open the *Go To Special* dialog.
5. Click the *Blanks* radio button and click **[OK]**.	Only blank cells are selected.
6. On the ***Home Tab***, click the **[Delete]** button drop-down in the **Cells Group** and choose *Delete Sheet Rows*.	All the blank rows have been removed. Note: if there are blank cells within the data set doing this could remove records from the data set. This is another reason why having blank cells in the data can cause problems.
7. Click into any cell containing data.	To deselect the current selection.
8. Save the file.	**[Ctrl+S]**.

Removing Duplicates

Note

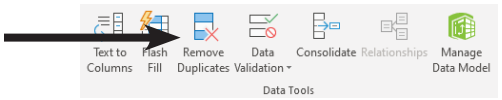
When removing duplicates, only the first instance of the duplicate is retained.

Remove Duplicates

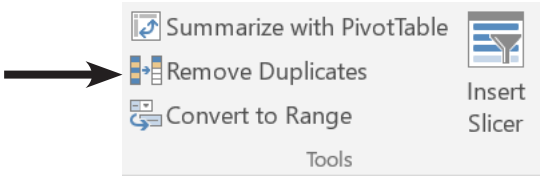
One feature that makes restructuring data simpler is **Remove Duplicates**. It is available for regular or tabular data. It examines selected data and removes duplicate lines based on a repeated values within column values. Data can have empty cells here and there, but the column value used to find duplicates cannot have any empty cells. The first record found in the process is maintained while all subsequent records are removed.

Since only the first record is retained when a duplicate is found. You can also consider using conditional formatting to identify duplicates before removal to ensure the correct record is being removed. *More on this later.*

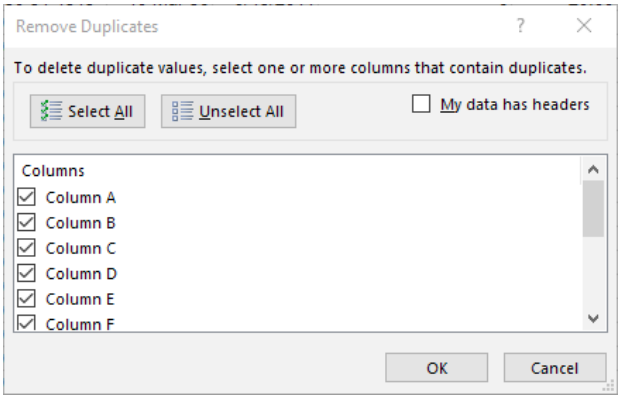
- Click any cell in the range of data that contains duplicates.
- For Normal Data:
  - On the ***Data Tab***, click the **[Remove Duplicates]** button in the **Data Tools Group**.



- For Tabular Data:
  - On the ***Table Tools Design Tab***, click the **[Remove Duplicates]** button in the **Tools Group**.



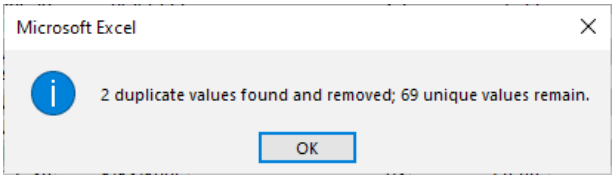
- In either case, the *Remove Duplicate* dialog opens.



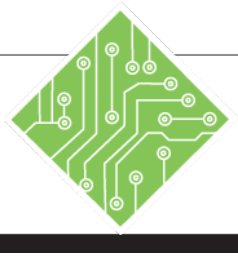
Removing Duplicates, continued

- If the data set has headers be sure to check the My data has headers checkbox. (It may already be checked.)
- If you are looking for a complete duplication of a record, leave all the Column checkboxes checked to include them in the comparison.
- If you are looking for certain aspects of the records to be duplicates then click the **[Unselect All]** button and check the box next to each column to be compared.

- Click the **[OK]** button.
- A message box appears indicating the number of duplicate rows to be removed and how many rows will remain in the list. Click **[OK].**



Action 1.3 - Removing Duplicates



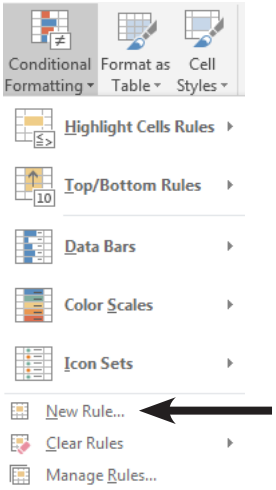
Instructions:	Results/ Comments:
1. The **MyEmployeeStart** file should still be open.	If not, re-open the file.
2. Select the ***InvalidRecords*** sheet then click and drag it beside the original sheet while holding the **[Ctrl]** key.	Holding the **[Ctrl]** as sheet tab is dragged to a new position will duplicated the entire spreadsheet. You should now see a second sheet tab labeled as ***InvalidRecords(2)***.
3. Repeat step 2 to create a third copy of the sheet.	There should now be three copies of the same sheet in the workbook.
4. Save the file.	**[Ctrl+S]**.
5. Select the first ***InvalidRecords*** sheet tab.	The original sheet is active.
6. Click any cell containing data.	If necessary.
7. On the ***Data Tab***, click the **[Remove Duplicates]** button in the **Data Tools Group**.	The *Remove Duplicate* dialog opens and all connected cells are selected.
8. Ensure that the ***My data has headers*** checkbox is checked in the *Remove Duplicates* dialog.	If the data set does not have headers, then the ***My data has headers*** checkbox should not be checked. Which will include the first row within the search for duplicates.
9. Click the **[Unselect All]** button.	All the check marks in the checkboxes beside each column are removed.
10. Click the checkbox for *Emp#* and click **[OK]** the button.	This will be the only column being searched for duplicate entries. A message window opens, stating; "**7 duplicate values found and removed; 64 unique values remain.**"
11. Read the message and click the **[OK]** button to close the message window.	
12. Save the file.	**[Ctrl+S]**.

Removing Duplicates, continued

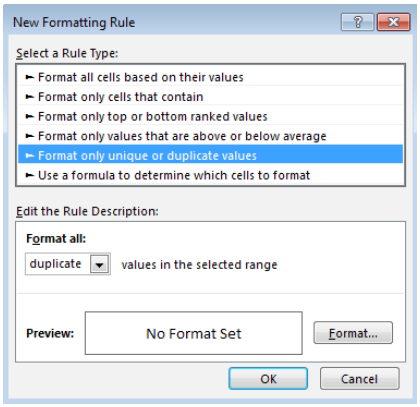
When using the Remove Duplicate function, the first record of many found will be the only one kept, all others are removed. While this will work in most cases there will be times when you need to see the duplicates in order to determine which is the correct one to be retained. The Conditional Formatting tool allows for this to be done in a quick and efficient manner.

Using Conditional Formatting To Find Duplicates

- Select the range of cells to be searched and formatted.
  - Think of this as selecting the column in the *Remove Duplicates* dialog.
- On the ***Home Tab***, click the **[Conditional Formatting]** button drop-down and choose *New Rule* from the menu.



- In the *New Formatting Rule* dialog choose *Format only unique or duplicate values* from the list of **Rule Types**.



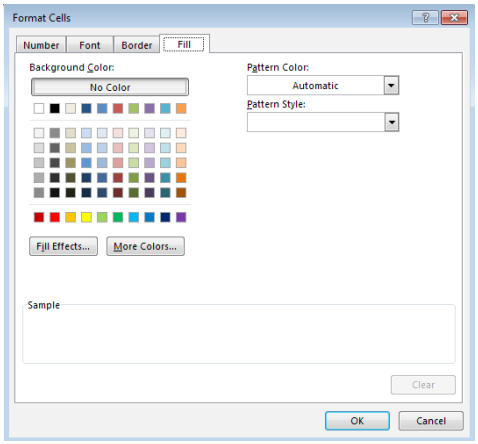
- In the **Format All** drop-down field choose *Duplicate*.

Note

Select the top cell in the column and hold the **[CTRL]** and **[SHIFT]** keys then tap the down arrow key to extend the selection to the last cell containing data in the column.

Removing Duplicates, continued

- Click the **[Format]** button.



- In the *Format Cells* dialog, click the ***Fill Tab*** and choose any color you want.
  - You can choose to apply any formatting changes to the Numbers, Text, Borders, and/or Fill.
- Click the **[OK]** button to close the *Format Cells* dialog.
- Click the **[OK]** button to close the *New Formatting Rule* dialog and apply the your formatting to the duplicate values.

Once the duplicate values are formatted you can sort the data set based on the cells color and examine the duplicate records to determine which are the ones to be deleted. Select the unwanted rows and delete them by right-clicking the selection and choosing *Delete* from the menu.

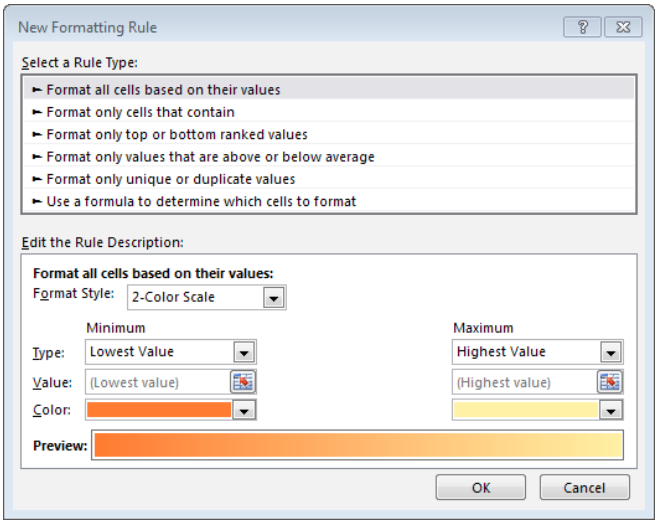
Comparing Two Lists With Conditional Formatting

There will be times when you have data in two tables or worksheets that require a comparison to find duplicate values. This can be done by using a Countif formula within conditional formatting.

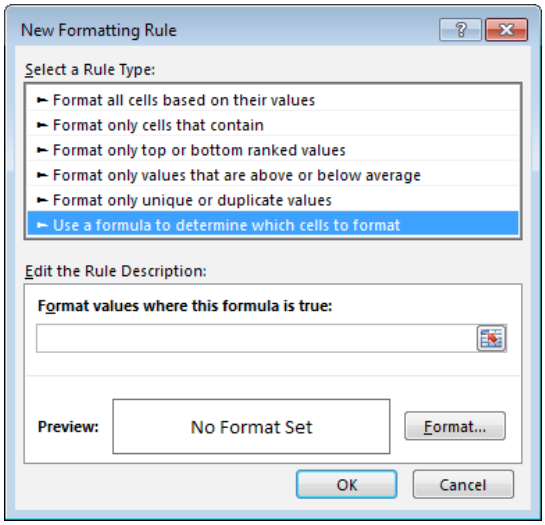
- Select the data in the column which may contain duplicate values
- Click the **[Conditional Formatting]** button drop-down in the **Styles Group** on the ***Home Tab***.
- Choose *New Rule* from the menu.

Removing Duplicates, continued

- The *New Formatting Rule* dialog opens.



- Choose *Use a formula to determine which cells to format* in the **Select a Rule Type:** field.



- In the **Format values where this formula is true:** field, enter the following formula
  - **=countif(**
  - Click the worksheet or table containing the comparison data,
  - Select the cell range containing the data,
  - Type in a comma,
  - Click back to the first cell of the data being formatted,

Removing Duplicates, continued

- This will be an absolute address which needs to be converted into a relative address. Use the **F4** key to cycle through the cell addressing until all **$** are removed.
- Type in the **)**.
- This will apply formatting to all matching cells.

- Click the **[Format]** button to open the *Format Cells* dialog.
  - Choose what ever formatting options you want and click the **[OK]** button.
- Click the **[OK]** button to apply the formatting to all cells that match the other cell range.

Now you are able to sort the data in the column based on cell color, select either the unwanted duplicates or unique value rows and delete them. Once your unwanted data has been removed clear the Conditional Formatting.

Note

Do not use the **[Arrow]** keys to move forward or backwards in the formula. It will change the cells being referenced in the formula. Use the mouse to reposition the cursor in the formula if necessary.

Action 1.4 - Conditionally Formatting Duplicate Values

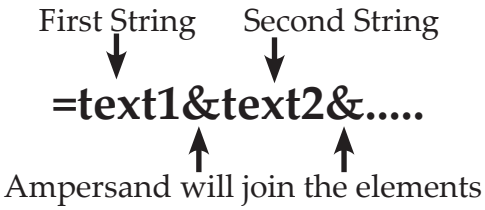
Instructions:	Results/ Comments:
1. Select the ***InvalidRecords(3)*** sheet.	This is the third sheet created earlier.
2. Select cell **A2**.	The first cell containing the data to be formatted, In this case the unique employee ID number.
3. Hold the **[Ctrl]** and **[Shift]** keys then tap the **[Down Arrow]** key	The rest of the column is selected.
4. On the ***Home Tab***, click the **[Conditional Formatting]** button drop-down in the **Style Group**.	The Conditional Formatting options are displayed.
5. Choose *New Rule...* from the menu.	The *New Formatting Rule* dialog opens.
6. Choose the *Format only unique or duplicate values* option in the **Select a Rule Type:** field.	The options related to the *Format only unique or duplicate values* are displayed.
7. Choose *Duplicate* from the **Format All** field drop-down.	You can choose to apply formatting to either unique or duplicate values form the drop-down.
8. Click the **[Format]** button.	The *Format Cells* dialog opens.
9. Click the ***Fill Tab*** in the *Format Cells* dialog.	The fill cells options are displayed.
10. Choose any color from the list and click the **[OK]** button.	This will be the color applied when a duplicate is found. Choose a color that will stand out from the rest of the formatted data set.
11. Click the **[OK]** button in the *New Formatting Rule* dialog.	The dialog is closed and the formatting applied to all duplicates.
12. Save and close the file.	**[Ctrl+S]** and **[Ctrl+W]**.

Combining Cell Values

Data can come broken down into the smallest usable parts but that may not what is required in the current file, it would be better to re-combine the data into a single cell. Excel offers several methods to assist in this type of undertaking; a simple add formula, the new CONCAT function, or TEXTJOIN function.

Simple Combining Formula

This is a very basic formula used to combine content into a single cell. If the contents are in cells, use the cell addresses.



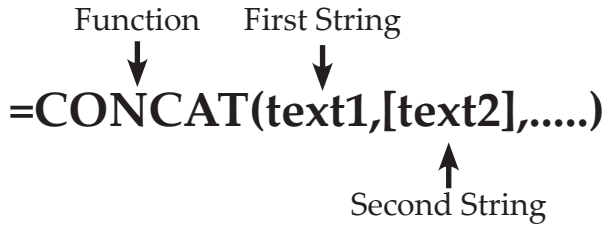
You can add strings of your own by wrapping the string in quotation marks.

CONCAT Function

A new function which replaces the Concatenate function. Although the Concatenate function will still work, ensuring older files using that function continue to work as excepted.

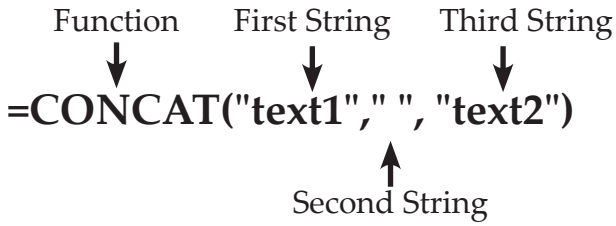
The Concat function is used to combine text strings from multiple cells. The text strings can be held in cells or added from within the formula itself. Should a delimiter such as a blank space, be required, it must be added within the formula.

Syntax



If the string is held within a cell, the formula will use the cell addresses. To add the subsequent strings, use a comma to separate one string from the next.

Combining Cell Values,
continued



When required text or a required delimiter is not in a cell, wrapping it inside quotation marks will add those into the results of the formula.

TEXTJOIN Function

Similar in function to the CONCAT formula, this can add a delimiter directly into the returned value. Instead of having to add a quoted space or comma to separate each string the TEXTJOIN functions first argument allows you to define a delimiter once..

Syntax

=TEXTJOIN(delimiter,ignore_empty,text1,.....)

- ***Delimiter:*** as a text entry it should be held inside of quotation marks. for a space you would enter- " " for a comma with a space you would enter - ", "
- ***Ignore_Empty:*** this will be either True or False. True will ignore empty cells in the returned value while False would add empty cells as blank spaces in the formula results.
- ***Text1,Text2,..:*** these are the cell addresses that are to be joined by the formula.

Combining Cell Values,
continued

Case Functions

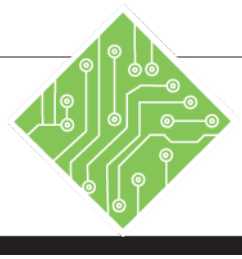
When raw data has a mix to cases, creating issues of inconsistent formatting, *Excel* has other text functions to help correct those issue.

- ***PROPER:*** will capitalize the first letter in each text string.
- ***UPPER:*** will capitalize the entire text string.
- ***LOWER:*** will remove any capitals from the text strings.

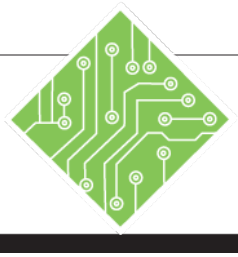
These are often used to apply text formatting by nesting other formulas inside of the argument. As an example, see the formula below:

=PROPER(CONCAT(text1,text2))

Action 1.5 - Combining Cells



Instructions:	**Results/ Comments:**
1. Open the **CleanUp** file from the data files folder.	
2. Select the ***Names*** sheet.	
3. Select cell **E3**.	You will combine the first name in this cell.
4. Enter the following formula: **=A3&", "&B3&" "&C3** **[Ctrl+Enter]** to apply the formula.	This is a simple combination formula. Using the **[Ctrl+Enter]** keys applies the formula and keeps cell **E3** selected.
5. Use the autofill to combine the other names.	Double clicking the autofill handle runs the formula down
6. Select cell **M3**.	This cell will use a CONCAT function to combine the names.
7. Enter the following formula: **=CONCAT(J3," ",K3," ",I3)** **[Ctrl+Enter]** to apply the formula.	The " " are used to add the blank space delimiters between the the cell values.
8. Use the autofill to combine the other names.	
9. Select cell **E22**.	This cell will use a TEXTJOIN function to combine the names.
10. Enter the following formula: **=TEXTJOIN(" ",True,B22,C22,A22)** **[Ctrl+Enter]** to apply the formula.	The first argument of this formula defines what the delimiter will be, TRUE will ignore any blank cells in the returned value, then the list of cell addresses are what will be joined.
11. Use the autofill to combine the other names.	



Instructions:	Results/ Comments:
12. Re-select cell **M3**.	The data is using a mix of upper and lower case text and the formula result reflect these inconsistences.
13. Enter the following formula: **=PROPER(CONCAT (J3," ",K3," ",I3))** **[Ctrl+Enter]** to apply the formula.	Nesting the CONCAT function inside a PROPER function will return the data formatted in the desired manner.
14. Use autofill to correct the rest of the names in this list.	
15. Save the file.	**[Ctrl+S]**.

Splitting Cell Values

It may become necessary to split a cell into smaller data components spanning adjacent columns. Excel offers a variety of tools and methods to accomplish this task. Just as there are function formula used to combine cells, there are function used to extract data from cells; LEFT, MID, RIGHT, the [Text to Columns] button, and Flash Fill.

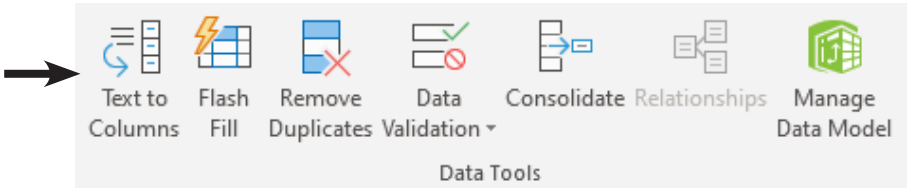
Text to Columns

This tool works best when the data has a consistent structure with a common character to use as the delimiter.

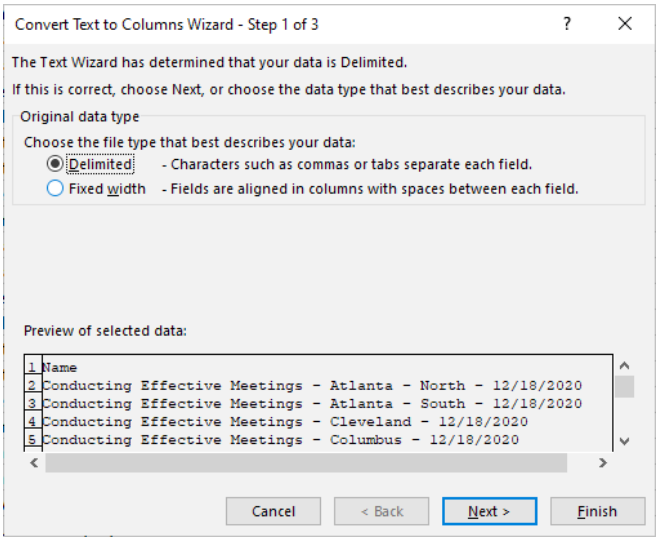
- Examine the Column to be broken into multiple columns in order to determine how many columns will be needed.
- Select that number of columns to the right of the column being separated, right-click on the selected columns and choose Insert from the menu.
- Select the column to be separated.
- Activate the ***Data Tab***.
- Click the **[Text to Columns]** button.

Note

If columns are not added before completing the Text to Columns, existing data will be replaced to accommodate the additional columns.

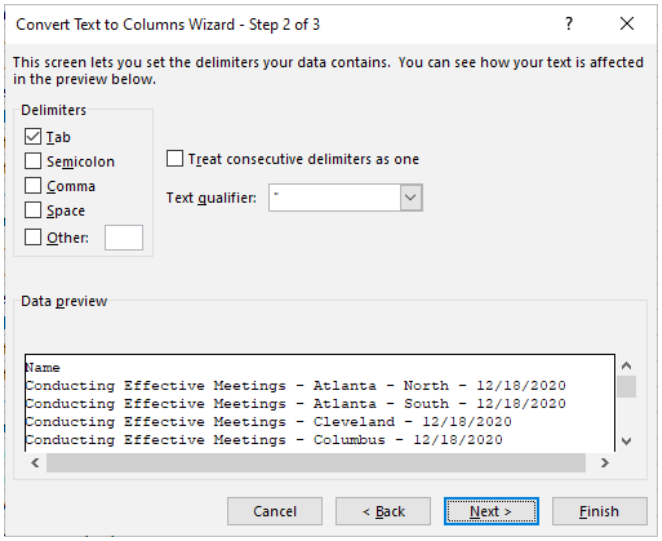


- The *Convert Text to Columns Wizard* dialog opens to *Step 1 of 3*.



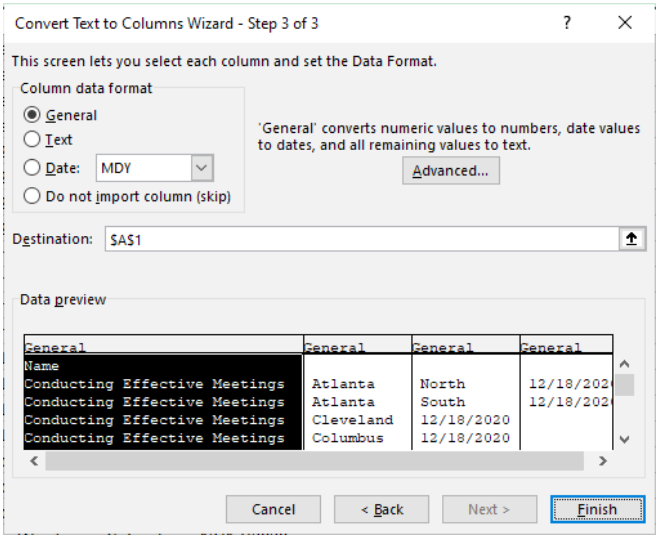
Splitting Cell Values, continued

- If necessary, select the **Delimited** radio button, and click the **[Next]** button to advance to *Step 2 of 3*.



  - Check the checkbox for the appropriate delimiter.
  - Other will allow you to define the delimiter.
  - Watch the ***Data preview*** window to see how the data will be broken apart.
  - When the data has empty adjacent cells, checking the **Treat consecutive delimiters as one** will combine empty cells into a single cell.

- Once the delimiter is set, click the **[Next]** button to advance to *Step 3 of 3*.



  - Select each column to set the data type with the **Column data format** radio buttons.

Splitting Cell Values, continued

- Unnecessary columns can be selected and skipped by choosing the Do not import column (skip) radio button.
- Once the data formatting is done, you are able to set the Destination of where the data will be placed.
- Click the **[Finish]** button.

Function Formulas

Right: This function returns the right-most character or characters from a string. The number of characters specified will be what is returned.

Syntax

=RIGHT(text,[num_chars])

- ***Text:*** The cell address which contains the text string to be extracted.
- ***Num_chars:*** if this is not included in the formula, then only the last character is extracted from the string. Entering a value will return that number of characters from the string, blanks are considered characters.

Left: this function returns the left most character or characters from a text string. The number of character specified will be what is returned.

Syntax

=LEFT(text,[num_chars])

- ***Text:*** The cell address which contains the text string to be extracted.
- ***Num_chars:*** if the is not included in the formula, then only the first character is extracted from the string. Entering a value will return that number of characters from the string, blanks are considered characters.

Splitting Cell Values, continued

Mid: This function will return a specific number of characters from a text string. You are able to set the starting position, in number of character from the left. as well as the number of character being extracted.

Syntax

=MID(text,start_num,num_chars)

- ***Text:*** The cell address which contains the text string to be extracted.
- ***Start_num:*** The number of chacters over from the left where the extraction is to begin. (Blank spaces are chacters)
- ***Num_chars:*** Sets to number of characters to be extracted from the text string.

When dealing with text string of variable lengths which do also contain fixed parts, the Len functions can prove a useful addition to a Left or Right function.

Len: returns the number of characters in a string.

Syntax

=LEN(cell)

- ***Cell:*** contains the string whose characters are to be counted. Spaces are included in the results as thet are hidden characters.

Nesting Len Inside Left or Right

Syntax

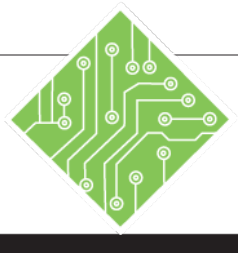
=LEFT(cell,LEN(cell)-value)

- ***LEFT(cell,:*** where the left characters will be extracted from.
- ***LEN(cell):*** counts the number of characters in the Left functions cell.
- ***-value):*** sets the starting point of left character extraction from the cell. This completes the LEFT function.

Action 1.6 - Splitting Cells- Text to Columns

Instructions:	Results/ Comments:
1. The **CleanUp** file should still be open.	If not, re-open it.
2. Activate the ***Splitting_TextToColumn***s worksheet.	The first column of data needs to be broken up into Class, Location, and Date.
3. Select columns **B:D**.	
4. Right-click the selected columns and choose *Insert* from the menu.	To avoid replacing data, it is a good idea to set up space for the new columns to be added before splitting up the data.
5. Select column **A**.	This is the column to be split apart.
6. On the ***Data Tab***, in the **Data Tools Group**, click the **[Text to Columns]** button.	The *Text to columns* dialog opens.
7. Check to see the ***Delimited*** radio button is active and click the **[Next]** button.	Step 1 is completed and the dialog advances to step 2.
8. In the **Delimiters** section, check only the *Other* checkbox and in the field enter a **-** .(Hyphen) Check the ***Treat consecutive delimiters as one*** checkbox, then click the **[Next]** button.	As delimiter checkboxes are modified, the preview of how the data is separated changes. Since a hyphen separates each component part of the data, that is the delimiter needed to break the data into the desired sections. Step 2 is completed and the dialog advances to step 3.
9. Select the third column in the preview and in the **Column data format** section, choose the *Date:* radio button.	This ensures the data type is correctly set and formatted.
10. Set the cursor into the **Destination:** field and set the cell address to **B1**. Then click the **[Finish]** button.	By not using cell **A1** as the destination, the original data is not replaced and lost.
11. Add the headers for columns **C:D**.	Location and Date
12. Save the file.	**[Ctrl+S]**.

Action 1.7 - Splitting Cells- Using Functions



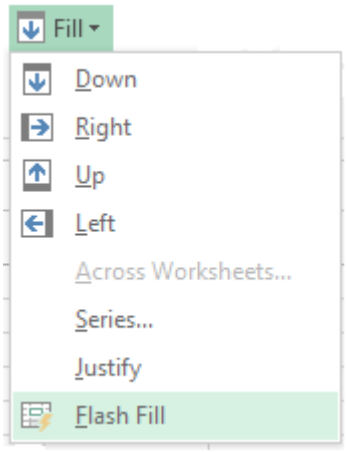
Instructions:	Results/ Comments:
1. The **CleanUp** file should still be open.	If not, re-open it.
2. Activate the ***Splitting_Functions*** worksheet.	
3. Select column **K:L**.	
4. Right-click the selected columns and choose *Insert* from the menu.	To add space before splitting up data.
5. Select cell **K1** and type in: **Course_Category_Number**.	This is the column header.
6. Select cell **K2** and enter the following formula: **=LEFT(J2,4)** **[Ctrl+Enter]** when done.	This formula will extract the first four characters from the value in cell **J2**. The **[Ctrl+Enter]** keys apply the formula and keep call **K2** selected.
7. Use Autofill to complete the rest of the column.	Double -click the autofill handle.
8. Select cell **L1** and tpye in: **Course_Application_Version_Number**.	This column header.
9. Select cell **L2** and enter the following formula: **=RIGHT(J2,4)** **[Ctrl+Enter]** when done.	This formula extracts the last four characters from the string in cell **J2**.
10. Use Autofill to complete the rest of the column.	
11. Save the file.	**[Ctrl+S]**.

Flash Fill

Flash Fill to Combine or Separate Data

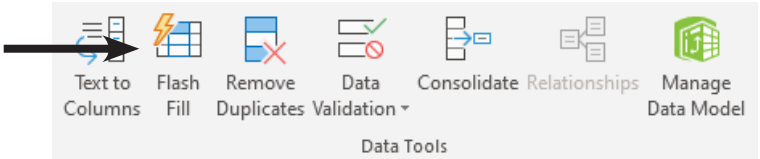
Flash Fill can often replace the need for formulas like PROPER, CONCAT, TEXTJOIN, LEFT, and RIGHT. **Flash Fill** recognizes patterns to combine, separate, or reformat data based on an example created by the user. **Flash Fill** uses multiple applications and lines of code in the background of *Excel* to anticipate the data you want it to fill in the list. If it cannot get a complete list because the pattern is not recognizable, you can add additional examples to expand the list and *Excel* will apply them along with the previous examples to create a more complete list.

- Click in a blank cell next to the data. *Do not leave an empty column between the data and the flash fill column.* Type the content you want to extract from your list and press **[Ctrl+Enter]**.
- Make sure the active cell is still the one with the example data or the active cell is below the example data. Click the **[Fill]** button from the **Editing Group** on the ***Home Tab***, and select *Flash Fill***.**



- OR -

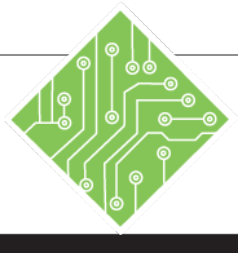
- Click on the ***Data Tab*** to activate it.
- Select the **[Flash Fill]** button in the **Data Group.**



Note

You can be at any row in the column where the Flash Fill is to be run in order to use this feature. Although, the sample data you create must be from the same row you are in.

Action 1.8 - Using Flash Fill



Instructions:	**Results/ Comments:**
1. Click the ***FlashFill*** sheet tab.	
2. Select cell **I1** and type: **Full Name**.	This will be the header for the new column
3. Select cell **I2** and type: **Jones, Alan**.	This is how the fisrt and last names will be combined.
4. Select cell **I3** and begin typing: **Adams** when the Flash Fill list is displayed, tap the **[Enter]** key.	As you begin entering the second entry, Flash Fill recognizes the pattern and prompts to apply it.
5. Auto adjust the width of column **I**.	Set the cursor between columns I and J, double-click when the cursor is a double-headed arrow.
6. Select cell **J1** and type: **Email**.	A new column header is added.
7. Select cell **J2** and type: **a.jones@twc.com**.	This will both extract and combine data from existing data with addition you have entered.
8. Select cell **J3** and use the **[Ctrl+E]** shortcut.	Flash fill is run and the column of email addresses has been added.
9. Save and close the file.	**[Ctrl+S]** and **[Ctrl+W]**.

Tables

Managing and analyzing related data is made easier when the range is converted into an Excel table. Tables are comprised of adjacent columns of data, each with unique labels or headings, and each row represents an individual entry within the table. Another way to consider the structure of a table is that the columns are fields and rows are records. When creating tables, it is recommended to not include any blanks rows or columns.

Note

Other *Excel* features, like **Filters** and **PivotTables**, may not work efficiently if the data is separated by blank rows or columns.

Tables offer a variety of tools to assist in managing of the data they hold. When any cell in a table is active the ***Table Tools Design Tab*** are active in the ribbon, this tab has tools for formatting, adding or removing table elements, exporting, or refreshing table data. Filtering is automatically engauged as tables are created. A type of freezing panes is also in play, when you scroll down in a table the table headers replace the column headers.

Table Elements

Header Row: Tables can have a header row. When the header row is enabled, filtering is also turned on by default. Filtering offers the ability to both sort and filter data in the data.

Calculated Columns: When entering a formula in a cell within in a table column or in a blank column beside the table, the formula is instantly applied to all other cells in the column. If the column was not part of the table, it is added to the table.

Total Row: Tables can have a total added, the row comes with a drop-down which offers a list of common built-in formulas. These are similar to using the AutoSum functions found on the Home and Formula Tabs.

Banded Rows or Columns: To make the table easier to read cell shading can be added to alternating rows and/or columns. (Do not apply both since it will make it hard to understand the data.)

When using the Get Data tools, Excel will automatically bring the data in as a Table by default. Although, you are able to choose to bring the data in as a PivotTable, or PivotChart with Table.

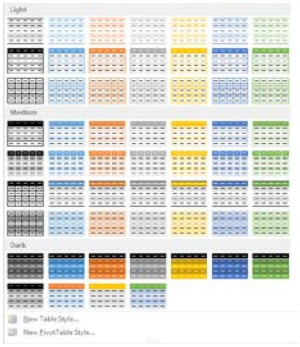
Creating a Table

Using Home Tab

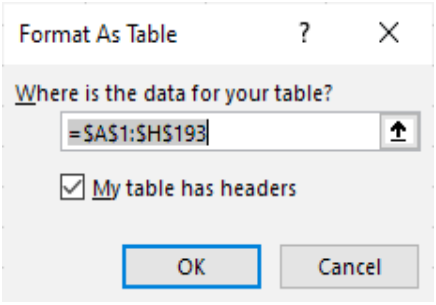
Note

[Ctrl + T] will also create a table from the dataset.

- Select a cell in the range of data to be included in the **Table.** *It is not necessary to select all the data but all the data must be connected.*
- Activate the ***Home Tab,***
- Click on the **[Format as Table]** button in the **Styles Group.**
- This will display a gallery of **Table** styles.



- Click one of the **Table** style options to format the selected range as a **Table**.
- The *Format as Table* dialog will be displayed.



- If there are column headings in the first row of the range you selected for your **Table**, check the box that says, **My table has headers**.
- Make sure the cell range shown is the range that you want for your **Table**; if it is not, just type the correct range in the **Where is the data for your table** field.

Creating a Table,
continued

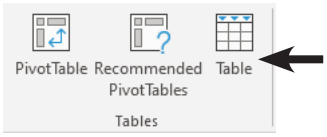
- Click the **[OK]** button to create your **Table**.
  - In the example here, note the Autofilter buttons are automatically added to a **Table**.

Autofilter button

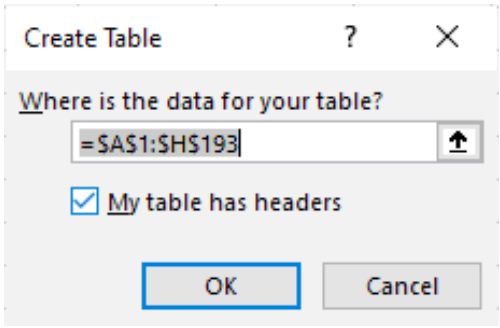
	A	B	C	D	E	F	G	H
1	EMP	M/M	FIRST NAME	LAST NAME	ADDRESS	CITY	ST	ZIP
2	1001	Mr.	Clem	**Jones**	435 Ionosphere St.	North Brunswick	NJ	08902
3	1002	Ms.	Clarissa	Stanley	1017 Arthropod Ln.	Belisle	MA	02689
4	1003	Ms.	Monica	Nitron	1849 Turtle Hwy.	Bozeman	MT	59757
5	1004	Miss	Pixie	Davis	73 Elm Rd.	Hillsville	VA	24348
6	1005	Ms.	**Sandy**	Smothers	1444 Eastern St.	New Brunswick	NJ	08929
7	1006	Dr.	Marilyn	Zale	514 Manganese Ave.	Belisle	MA	02611
8	1007	Mr.	Merlin	**Target**	1037 Prosimian Hwy.	Tampa	FL	33696
9	1008	Ms.	Harry	Mauger	1881 Lute Rd.	Atlanta	GA	30380
10	1009	Ms.	Rosie	Zukus	837 Prehensile Ct.	**Charlotte**	NC	28293
11	1010	Dr.	Teresa	Belmont	1401 Bacillus Rd.	Redlands	CA	92381
12	1011	Mr.	Wally	Ozello	1044 Pro Forma St.	Bozeman	MT	59725
13	1012	Mr.	Miles	Rinack	1613 Main Ln.	Irvine	CA	92781
14	1013	Dr.	Charles	Hern	258 Southern Hwy.	Bozeman	MT	59764
15	1014	Miss	Kenneth	Gortz	1316 Central Ln.	Belisle	MA	02653
16	1015	Ms.	David	Fuss	256 Hyperbolic Hwy.	Bozeman	MT	59711

Using the Insert Tab

- Select a cell in the range of data to be included in the **Table**
- Activate the ***Insert Tab***.
- Click on the **[Table]** button in the **Tables Group.**



- The *Create Table* dialog.

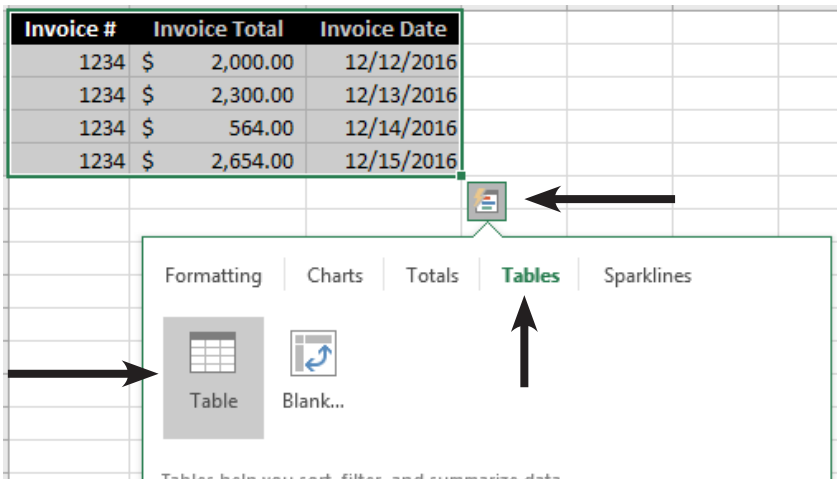


  - If there are column headings in the first row of the range you selected for your **Table**, check the box that says, **My table has headers.**
  - Make sure the cell range shown is the range that you want for your **Table**; if it is not, just type the correct range in the **Where is the data for your table** field.

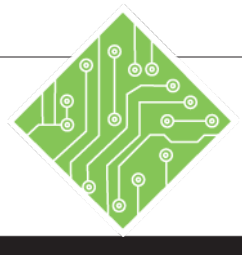
Creating Tables, continued

Using the Quick Analysis Tool

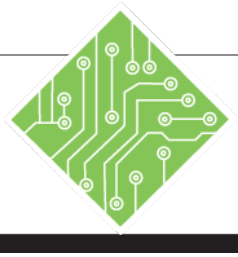
- Select the range to be converted into a table.
- Point to the lower right corner of the range and click the **Quick Analysis Tool** pop-up.
- Select the ***Tables*** tab and click the **[Table]** button.



Action 1.9– Creating a Table Using



Instructions:	Results/ Comments:
1. Open the **SalesTables** file.	This file is found in the data files folder.
2. Save the file as **MySalesTables**.	**[F12]**.
3. Select the **SalesData** spreadsheet and click on any cell containing data.	Notice there are no blank columns or rows included in this dataset.
4. On the ***Home Tab*** in the **Styles Group**, click the **[Format As Table]** button.	A gallery of styles will be displayed.
5. Choose the first style from the gallery.	The *Format As Table* dialog is displayed.
6. In the *Format As Table* dialog, check to see **=$A$1:$H$193** is displayed in the **Where is the data for your table** field.	Since all the data is contiguous, *Excel* should recognize all the connected data as the source for the table.
7. Also, make sure the **My table has headers** checkbox is selected.	*Excel* automatically checks this option since the first row of the dataset is not necessarily in-line with the data beneath. If you remove the checkmark, your headers will be replaced with **Column 1**, **Column 2**, etc.
8. Click **[OK].**	The selected table style is now applied and the data is in a table format.
9. Observe the ***Table Tools Design Tab*** which has been added to the Ribbon.	This is a contextual tab that is only available when any cell in the table is actively selected.
10. Click any empty cell.	Notice that the ***Table Tools Design Tab*** is gone.
11. Click any cell in the table.	Notice that the ***Table Tools Design Tab*** is back although, it may not be the active tab.
12. Save your workbook. Leave it open.	**[Ctrl+S]**.



Instructions:	Results/ Comments:
1. Make the ***SalesData(2)*** spreadsheet active.	This is the second sheet in the workbook.
2. Click any cell containing data.	
3. On the ***Insert Tab***, click the **[Table]** button in the **Table Group**.	The *Create Table* dialog is displayed.
4. Make sure the **Where is the data for your table** field is displaying the range **$A$1:$H$193**.	This defines the contiguous range of cells that make up the table.
5. Make sure the **My data has headers** checkbox is checked.	*Excel* will automatically add Autofilter drop-downs to each header in the table.
6. Click the **[OK]** button.	The table is created.
7. Notice the ***Table Tools Design Tab*** is active.	
8. Save the file.	**[Ctrl+S]**.
9. Make the ***SalesData(3)*** spreadsheet active.	This is the third sheet in the workbook.
10. Select all the cells containing data.	Click into any cell containing data and use the keyboard shortcut **[Ctrl+A]** to select all connected data.
11. Click the ***Quick Analysis*** smart tag.	It will be located at the bottom right corner of the selected range. You can also use the shortcut of **[Ctrl+Q]** to bring the smart tag into view without having to scroll to it.
12. Click the ***Table*** category at the top of the ***Quick Analysis*** options.	It is the fourth option.
13. Click the **[Table]** button.	The table is created.
14. Save the file.	**[Ctrl+S]**.

Autofilters

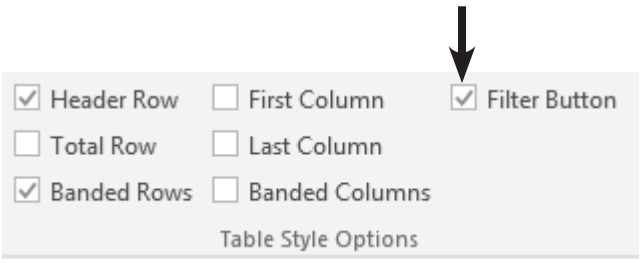
An **Autofilter** is an *Excel* feature that lets you filter out records from a **Table**. When you select an **Autofilter** option, only records that meet the specified criteria will be shown. When you create a table from raw data or import data into *Excel* as a table, filtering is automatically turned on. Each column header displays a drop-down that allows you to filter the data quickly.

Model No:	1995	1996	1997
200	500952	703618	803594

Note

Table now have Filter Buttons on by default.

If the Table does not have Filters turned on, go to the ***Table Tools Design Tab*** and in the **Table Styles Options Group** click the checkbox for *Filters*.

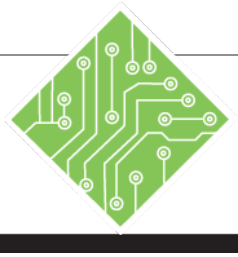


Basic Filtering

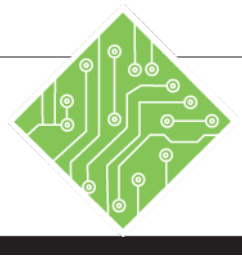
To filter a **Table** based on a specific criteria do the following:

- Click the **Autofilter** arrow next to the column heading you want to filter.
  - Filtering options will correspond to the type of data held in the field (column).
  - Data can be ***Text***, ***Numbers***, or ***Dates***.
- You will see the corresponding field values from your **Table** in ascending order. Notice that each unique field entry is present in the list. If you have a lot of records in your **Table**, the **Autofilter** list will scroll to show all of the fields.
- Remove the checkmarks by the list items you want filtered out, and leave checkmarks by list items you want shown.
  - Unchecking *Select All* will allow for speedier filtering since you will not have to uncheck as many boxes.

Action 1.10 - Basic Filtering



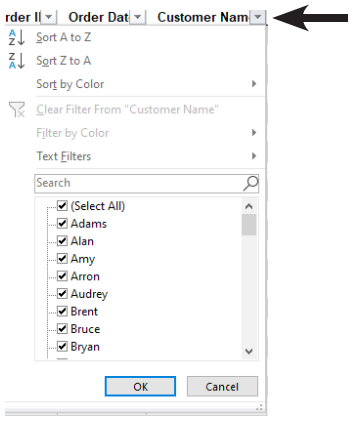
Instructions:	**Results/ Comments:**
1. Activate the ***SalesData*** sheet.	The first sheet with the data formatted as a table.
2. If the Autofilter drop-downs are not visible, check the *Filters* checkbox on the ***Table Tools Design Tab***.	The Autofilters should be active.
3. Click the Autofilter drop-down for the **Sales Rep** column.	The Autofilter options are displayed.
4. From the drop-down menu uncheck the *Select All* checkbox and check the *Clotts* checkbox and click the **[OK]** button.	Since you are picking only one specific item, unchecking all the unwanted items would be very time consuming. By unchecking the *Select All* option you will only need to find the individual item to filter for. Only records where Clotts was the sales rep are displayed in the table. All the other data is hidden, not deleted.
5. Click the Autofilter drop-down on the **Product ID** header.	
6. Uncheck the *Select All* checkbox and check the *3227*. checkbox and click **[OK]**.	Now only sales of product 3227 made by Clotts are displayed.
7. On the ***Data Tab,*** in the **Sort & Filter Group,** click the **[Clear]** button.	All filter are cleared and all the data is re-displayed in the table.
8. Save the file.	**[Ctrl+S]**.
9. Select the ***SalesData(4)*** sheet.	The last sheet that doesn't have the data in a table.
10. Select any cell with data.	It is not necessary to select the entire data set before applying filtering.
11. On the ***Data Tab***, in the **Sort & Filter Group,** click the **[Filter]** button.	The Autofilter drop-downs are placed in the header row.



Instructions:	Results/ Comments:
12. Click the Autofilter drop-down on the **Sales Rep** header.	The Autofilter options are displayed.
13. Uncheck the *Select All* checkbox and check the *Adams* checkbox.	Only sales by Adams are displayed, just as before. You can also applying filter to multiple columns as when in the Table.
14. On the ***Data Tab*** in the **Sort & Filter Group,** click the **[Clear]** button.	All the data is re-displayed. You can also click the Autofilter button on the State column and choose ***Clear Filter From "Sales Rep"***.
15. Save the file.	**[Ctrl+S]**.

Autofilters,
continued

If you display the **Autofilter** menu for a column you will see either **Text Filters, Date Filters** or **Number Filters** depending on the type of data held in the column. If you click on any of these **Filter** options, you will see a submenu of further filtering selections.



Note

A **Number** filter allows you to apply a filter to numerical data. A **Text** filter allows you to apply a filter to textual data referred to in the records. A **Date** filter allows you to apply a filter to date or time data referred to in the records.

Clicking one of these options will display the *Custom Autofilter* dialog box. Using the ***Custom Autofilter*** options, you can set up a customized **Filter** for your **Table**.

Creating a Custom Autofilter

- Select the **Autofilter** drop-down button for the field that you want to filter.
- Choose either *Text Filters, Date Filters* or *Number Filters*.
- Click ***Custom Filter*** from the submenu**.** This will open the *Custom Autofilter* dialog.

- Use the drop-down arrows and option buttons to establish filtering criteria for your records. The options in the drop-down include;

Text & Number Options	
Equals	Does not equal
Is greater than	Is less than
Is greater than or equal to	Is less than or equal to
Begins with	Does not begin with
Ends with	Does not end with
Contains	Does not contain

Autofilters, continued

Date Options	
Equals	Does not equal
Is After	Is after or equal to
Is before	Is before or equal to
Begins with	Does not begins with
Ends with	Does not end with
Contains	Does not contain

- The next drop-down list will contain values from your **Table** belonging to the current field.
- Select the ***And*** option button or the ***Or*** option button to incorporate additional criteria into your **Filter**.

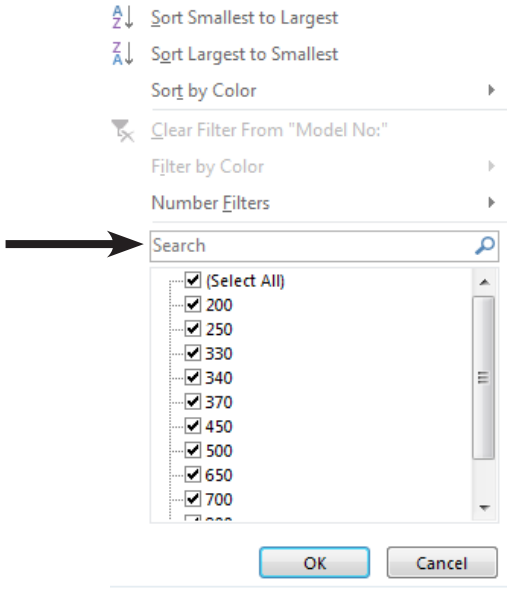
- When you use the ***And/Or*** option buttons to build **Custom Filters**, remember:
  - When using the ***And*** option, both conditions (A and B) must be satisfied for the record to be shown.
  - When using the ***Or*** option, records that satisfy either condition will be shown.
- Use the option buttons to combine filtering conditions, or just filter based on options from the first two drop lists.
- Clicking the **[OK]** button will remove from view any data that does not fit within the parameters of your Custom Filtering.

Autofilters,
continued

When the data is filtered, the column header will show a funnel icon next to the drop-down list button. You are able to filter by one or as many columns as needed to find specific data within the dataset.

Using the Search Feature

There are times when you know what to filter for, in these cases it is easiest to simply click into the search field and type in what is needed.



Using Wildcards

There are times when you want to search for a set of variables. Using wildcards in the search allows for boarder searches. There are two character used as wildcards;

- * represents any number of any characters.
- ? represents any single character.

If you where to enter a search of PRO*: the results would be any words that simply begin with PRO, no matter how long the word is.

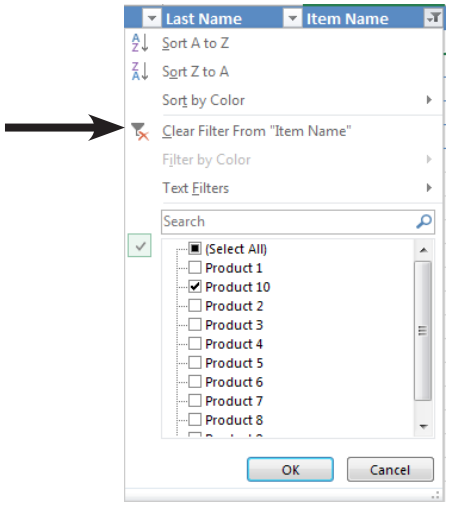
If you entered PRO????: the results would be any word that begins with PRO and contains four more letters.

Autofilters,
continued

Clearing Filters

Once you have found specific data and now need to see all the data in the dataset, you will need to clear any or all applied filters.

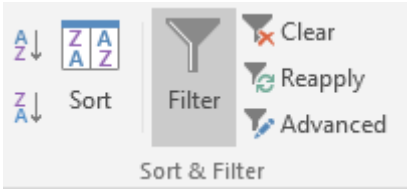
- Click the filtered column Autofilter drop-down and click the ***Clear Filter*** option on the menu.



- If multiple columns are filtered you would do it for each column.

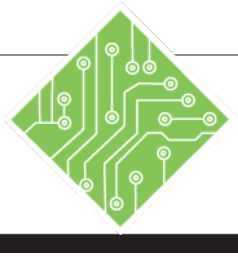
- OR -

- Use the **Filter** controls in the **Sort & Filter Group** on the ***Data Tab***.



- Click either the **Clear** or the **Filter** button to clear all the filers at once.

Action 1.11 - Using Filtering Tools



Instructions:	**Results/ Comments:**
1. Select the ***SalesData*** sheet.	
2. Select the Autofilter drop-down for the **Unit Price** column.	
3. Select *Number Filters* and choose *Between* from the menu.	The *Custom Autofilter* dialog is displayed.
4. In the *Custom Autofilter* dialog box, Under the **is greater than or equal to** field, type: **20** and under the **is less than or equal to** field, type: **35**	This establishes the parameters of the data you wish to view based on information in the **Unit Price** column.
5. Click **[OK]** and examine the filtered data.	Only information matching the defined parameters ares displayed. All the other data is hidden, not deleted.
6. Click the Autofilter drop-down for the **Unit Price** column.	
7. Choose *Clear Filter* from the menu**.**	This removes filtering from this column. If several columns were being filtered, you could use the **[Clear]** button on the ***Data Tab*** in the **Sort & Filter Group** to clear all the filters.
8. Click the Autofilter drop-down for the **Customer Name** field.	
9. In the **Search** field type in: **Merlin.**	
10. Clear the filter.	Use the Autofilter drop-down or the **[Clear] button on the *Data Tab*.**
11. Save your workbook.	**[Ctrl+S]**.

Advanced Filter

If you can't get the results you want from a **Custom Filter**, you can construct an **Advanced Filters** to create a query that can extract specified information from the dataset. This is a two step process; the first step is to create a set of cells to define which columns in the dataset are being search and then the define parameters of the search within the specified columns.
The second step in the process uses the Advanced Filters to extract the desired information.

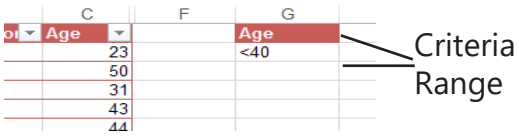
Note

To use an **Advanced Filter**, your data does not necessarily need to be in an *Excel* **Table**, but it should adhere to the basic dataset principles, excluding blank rows and columns.

Using an Advanced Filter

Establish a Criteria Range

- Type or copy the column headings that correspond to the **Fields** in the dataset on which you want to **Filter**. Paste or type them into a cell outside the **Table** range. *This heading must be exactly the same as the corresponding heading in the Data Table that you want to base the Filter on; so it may be easiest to copy and paste.*

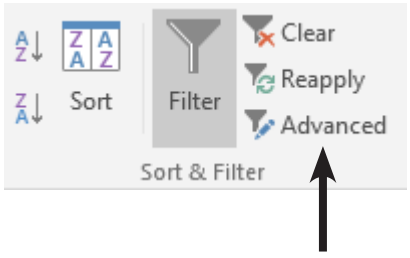


- Type the constraints below the Column Heading in the *Criteria Range*.

In this example, you want to show only the **Records** where the Age **Field** is less than 40.

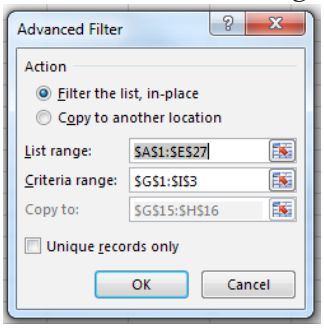
Applying the Advanced Filter

- Click on any cell in the **Data Table,** and then click the **[Advanced]** button on the ***Data Tab***.



Advanced Filter,
continued

- The Data Table will be outlined with a marquee, and the *Advanced Filter* dialog opens.

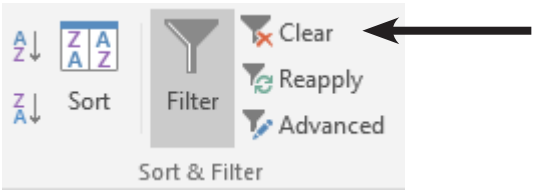


  - Make sure the **Table** range is the range you want to **Filter**. It should already be defined by default.
  - Click into the *Criteria range:* field and select the cells that contain your filtering criteria (cells **F1:F2** in this example).
- If ***Filter the list, in-place*** option button is selected, the **Filtered Records** will appear in the same location as the original **Table**. The rows that do not fit the criteria will simply be hidden.
- Click **[OK]** to filter the dataset using the constraints specified in the *Criteria Range.*

Clearing the Filter

After examining or working with the filtered data, you will need to clear the advanced filter.

- To display the full **Table** again, select the ***Data Tab*** and in the **Sort and Filter Group**, click the **[Clear]** button.



Advanced Filter,
continued

You may want to extract your **Filtered Records** to a new place in the worksheet or even to a different worksheet altogether. Copying your **Filtered Records** to a new location leaves the view of your original dataset unchanged.

Copying Filtered Records to a New Location

- Set up a *Criteria Range* as before, with column headings and the constraints you need. Make sure the **Field** names match those in the dataset exactly.
- Prepare a range for the **Filtered Records** to be copied to.
  - Add the column headings for the result set in the range you will be copying to. You do not have to use all of the **Fields** in the entire **Record**, just the **Fields** of your choice.

If you do not put column headings in the copy to range, all of the Fields specified in the Table range will be copied.

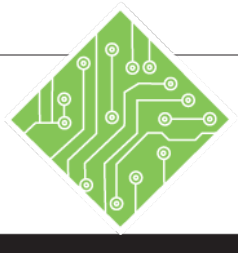
Note

You can also specify *Unique records only* by clicking the appropriate checkbox in the *Advanced Filter* dialog. This will ensure that duplicate **Records** are not selected or copied.

- Click a cell in the dataset. Select the ***Data Tab*** and in the **Sort and Filter Group**, click the **[Advanced]** button. The *Advanced Filter* dialog will be displayed.
- Set your options as before, but this time, choose ***Copy to Another Location*** from the option buttons in the **Action** section of the dialog.
- In the *Copy to:* text box, select the range that you have prepared for the copied **Records** with your mouse or type it in directly. *If you don't know how large a range to include, just select the column headings in the destination area.*
- Click **[OK]** to copy the **Filtered Records** to the destination range. The example at below shows only the **Fields** for weight and age filtered based on a criteria of people with a height less than 70.

	A	B	C	D	E	F	G	H	I	J	K
1	Name	Eye Color	Age	Height	Weight			Height		Weight	Age
2	Bert	brown	23	63	167			<65		167	23
3	Bob	blue	50	64	200					200	50
4	Brenda	green	31	59	109					109	31
5	Charles	green	43	62	178					178	43
6	Chuck	green	44	66.5	175					110	34
7	Frank	blue	38	65.5	197					120	25
8	Helen	blue	34	59.5	110					102	43
9	Janet	green	25	58	120					145	46
10	Jessica	brown	50	67.5	140					136	45
11	Jill	blue	56	68.5	130					175	44

Action 1.12 - Using an Advanced Filter, Filtering In PLace



Instructions:	**Results/ Comments:**
1. Select the ***SalesData(2)*** sheet.	The second sheet in the workbook.
2. Select cell **D1**.	This will be the first filed of the Advanced Filter.
3. Copy the cell and paste it into cell **K1**.	Copy / pasting will ensure there are no discrepancies with the headers in the data set.
4. Select cell **H1**.	This will be the second field of the Advanced Filter.
5. Copy the cell and paste it into cell **L1**.	Our goal is to construct an Advanced Filter to retrieve the records where a specific Sales Rep sold more than 25 units per sale.
6. Select cell **K2**, and type: **Clotts.**	The Sales Rep the filter will search for.
7. Select cell **L2**, and type: **>25**	This is the second criteria that must be met in the filter. When the criteria are in the same row it means AND.
8. Select the ***Data Tab***, and in the **Sort & Filter Group**, click the [**Advanced]** button.	The *Advanced Filter* dialog opens.
9. In the *Advanced Filter* dialog, set the following: *Filter the list*: **in-place** *List range:* **$A$1:$H$193** *Criteria range:* **$K$1:$L$2**	
10. Click **[OK]**.	Only records where Clotts sold more than 25 units are displayed.
11. On the ***Data Tab*** in the **Sort & Filter Group**, click the **[Clear]** button.	All the records in the data set are re-displayed.

Action 1.13 - Using an Advanced Filter, Copy to Another Location

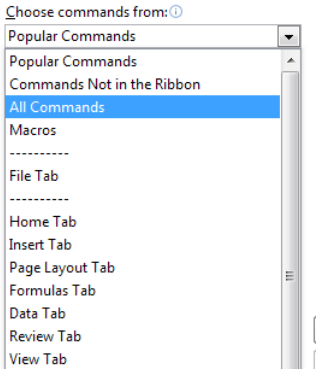
Instructions:	**Results/ Comments:**
1. Select the ***Data Tab,*** and in the **Sort & Filter Group,** click the **[Advanced]** button.	The *Advanced Filer* dialog opens.
2. In the *Advanced Filter* dialog, set the following: - *Copy to another location* - *List range:* **$D$1:$D$193** - *Criteria range:* blank - *Copy to:* **O1** - Unique Values Only = *Checked*	
3. Click **[OK].**	A list of Sales Reps is added starting in cell **O1**.
4. Save your workbook.	**[Ctrl+S].**

Data Forms

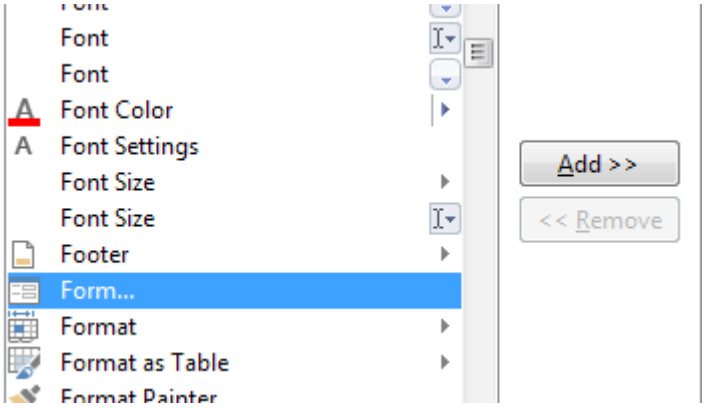
You can use a **Data Form** to add, find, change, and delete rows in a range or table. To add the **Form**, you need to use the **Form Tool**. The **Form Tool** is not included on the **Ribbon** or in the **QAT** by default.

Adding the Form Tool to the QAT

- Click on the **[More]** button on the **QAT**. 
- Select *More Commands* from the drop-down menu. This will open the *Excel Options* dialog.
- Click on the drop-down arrow of the *Choose Commands from* text box.
- Select ***All Commands***.



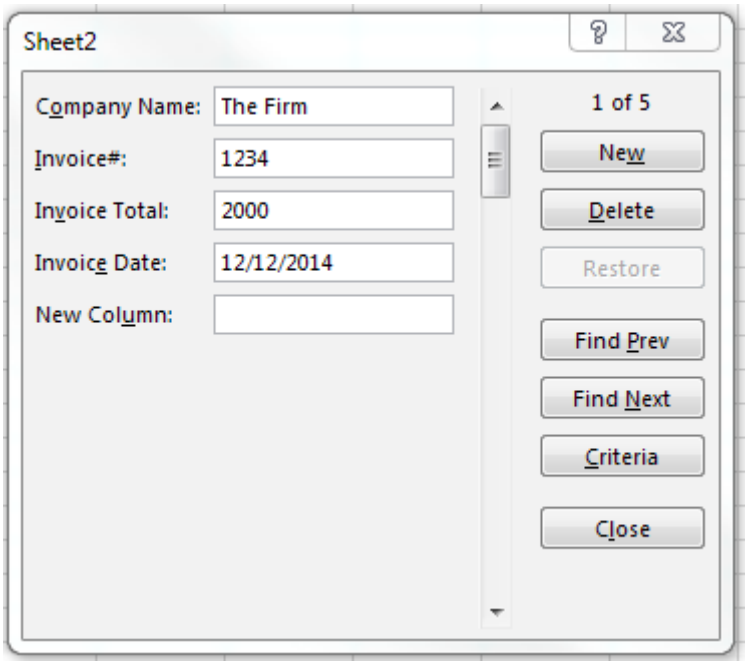
- Find the **[Form]** button in the command list and double-click on it or click on **[Add]** to add it to the **QAT**.



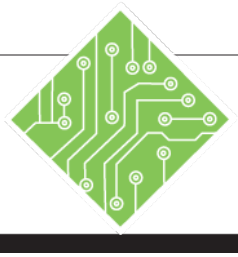
Data Forms,
continued

Using a Form to Enter Records

- Select a cell in the table or data set.
- Click on the **[Form]** button in the **QAT**. A dialog appears with the **Field** names and fields to enter information related to the **Record**.
- Click on the **[New]** button to add a new **Record**.
- Use the **[Find Prev]** and **[Find Next]** buttons to navigate between **Records**.
- Use the **[Criteria]** button to find specific **Records**.
- Wildcards and search criteria can be used to locate specific **Records**. For example, typing **F*** in the *Comapny Name:* field will find all **Records** where the Company Name begins with an "F". Or typing **>2000** in the *Invoice Total:* field will find all invoices with amounts greater than $2,000.
- Click the **[Find Next]** button after typing in the **Criteria**, to locate the required **Record**



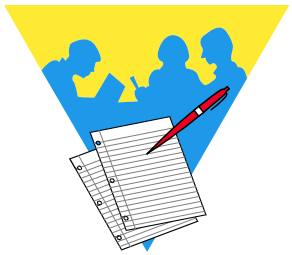
Action 1.14- Adding the Form Command to The QAT



Instructions:	**Results/ Comments:**
1. Click the ***File Tab***.	The Backstage view is displayed.
2. Click the *Options* command.	The *Excel Options* dialog is opened.
3. Select the ***Quick Access Toolbar*** category.	The ***Quick Access Toolbar*** modifications are available.
4. Change the **Choose commands from**: field to *All Commands* from the drop-down list.	The list of available commands is changed, every command in *Excel* is displayed in the left panel. The list is laid out in an alphabetical manner.
5. Find the **Form...** in the list of ***All Commands***.	Scroll through the list to find the command.
6. Click the **[Add]** button.	The command is added in the right panel that shows any commands already on the ***QAT***. Double-clicking the command in the left panel will also add the command to the right panel.
7. Click the **[OK]** button.	The *Excel Option* dialog is closed and the command is now on the ***QAT***.

Action 1.15- Using The Form Command

Instructions:	Results/ Comments:
1. The **SalesData** sheet should still be active and select any cell in the table.	Click the first sheet in the workbook sheet list if necessary.
2. Click the **Form** command on the ***QAT***.	The *Form* dialog opens, notice that the dialog is named the same as the active sheet. It is displaying the first record in the table.
3. Click the **[Find Next]** button.	The second record is displayed in the *Form* dialog.
4. Click the **[Criteria]** button.	All the fields are cleared, allowing you to enter search criteria.
5. In the **Sales Rep** field, type in; **<Clotts>** and click the **[Find Next]** button.	In this case you are looking for any records where *Clotts* was the Sales Rep.
6. Click the **[Find Next]** button.	The next record where *Clotts* was the Sales Rep is displayed.
7. Click the **[New]** button	All the fields are cleared, allowing you to enter a new record into the table.
8. Enter the following information; **Order ID= 194** **Order Date = (today's date)** **Customer Name = (your first name)** **Sales Rep = Smith** **Product Name = Product 1** **Product ID = 3223** **Unit Price = 32** **Qty= 19**	This represents a new purchase record.
9. Click the **[New]** button.	The record is added to the table and you are ready to begin entering another new record.
10. Click the **[Close]** button.	The *Form* dialog closes.
11. Save the file.	**[Ctrl+S]**.



Tips and Notes