<u>**Module -1**</u>

Features of ms-excel
1. **Hyperlink.** We can link one file to another file or page.
2. **Clip art.** We can add images and also audio and video clips.
3. **Charts.** With charts, we can clearly show a product(s) evaluation to a client. For example, you can display a chart showing which product is selling more or less by month, week, and so forth.
4. **Tables.** Tables are created with different fields (e.g. name, age, address, roll number, and so forth). You can add a table to fill these values.
5. **Functions.** There are both mathematical functions (add, subtract, divide, multiply), and logical ones (average, sum, mod, product).
6. **Images and backgrounds.** You can incorporate images and backgrounds into each sheet.
7. **Macros.** Macros are used for recording events for future use.
8. **Database:** With the data feature, you can add any database from other sources to it.
9. **Sorting and filtering.** We can sort and/or filter our data so that anything redundant or repetitive can be removed more easily.
10. **Data validations.** This tool can helps you to enter valid data into your spreadsheet.
11. **Data consolidation.** This tool helps you to consolidate your data of different spreadsheets.
12. **Grouping.** The grouping feature helps you both to group your data and ungroup it so that you have subtotals and so forth.
13. **Page layout.** Themes, colors, sheets, margins, size, backgrounds, breaks, print, titles, sheets height, width, scaling, grids, headings, views, bring to front of font or back alignment, and many more are available for you to lay out your page.

Worksheet

An Excel worksheet is a single spreadsheet that contains cells organized by rows and columns. A worksheet begins with row number one and column A. Each cell can contain a number, text or formula. A cell can also reference another cell in the same worksheet, the same workbook or a different workbook. In Excel 2010, the maximum size of a worksheet is 1,048,576 rows by 16,384 columns.

Workbook

A workbook is an Excel file that contains one or more worksheets. Each of the workbook and worksheets are in separate tabs on the bottom of the Excel window. By default, a new Excel workbook will contain three worksheets. You can switch between worksheets by clicking on the worksheet tab on the bottom of the Excel window. In Excel 2010 the number of worksheets in workbooks is limited only by your computer available memory.

Definition of worksheet and workbook

A work book is the ms-excel file in which you enter and store related data. A worksheet (also known as a spreadsheet) is a collection of cells on a single sheet where you can actually keep and manipulate the data. Each workbook can contain many worksheets.

Benefits of Multiple Worksheets

The ability to have multiple worksheets in an Excel workbook allows you to organize your data. Each worksheet can contain a different set of data. For example, one worksheet can contain your business sales data, a second can contain your inventory and a third can contain your expenses.

Adding and Renaming Worksheets

To add a new worksheet, click on the plus sign next to the last worksheet tab. A new blank worksheet will be created. Alternatively, you can click on "Sheet" under "Insert" on the top menu bar of Excel. To change the name of a worksheet right click on a worksheet tab, select "rename" and type in a new name followed by the Enter key.

Printing Worksheets and Workbooks

Excel gives you the option of printing a single worksheet or the entire workbook. To print a single worksheet select "Print" in the File menu then click the radio button next to "Active Worksheet" under the heading "Print what." To print the entire workbook, choose the radio button next to "Entire Workbook."

Labeling

The term label has a number of meanings in spreadsheet programs. A label most often refers to a text entry such as a heading used to identify a column of data. The term is also used to refer to the headings and titles in charts - such as the horizontal and vertical axis titles.

LABELS IN EXCEL
In versions of Excel up to Excel 2003, labels could also be used in formulas to identify a range of data. The label was the column heading and by entering it into a formula, the data beneath the heading would be taken as a range of data for the formula.

Using labels in formulas was very similar to using named ranges.
Named ranges, or *defined names* as they are also called, can still be used in the newer versions of Excel, have the advantage of allowing you to define a name for any cell or group of cells in a worksheet regardless of location.

In the past, the term *label* was used to define a type of data used in spreadsheet programs. This use has been largely replaced by the term text data although certain functions in Excel, such as the CELL function still make reference to label as a type of data.
To add, delete, worksheet we have options like to right click the mouse and select insert option or by selecting the same option under Home menu. To save we use short cut key Ctrl+S.
These are same like insert, delete, and rename options.

Format sheet tabs
Select the data in the cell and click on format in menu bar or conditional formatting, in that select new rule in that select the features 2color /3color scale and accept.
Format Worksheet Tab You can rename a worksheet or change the color of the tabs to meet your needs. To rename a worksheet: • Open the sheet to be renamed • Click the Format button on the Home tab • Click Rename sheet • Type in a new name • Press Enter

3 ways to rename a worksheet

1. Double-click the sheet tab, and type the new name.
2. Right-click the sheet tab, clicks **Rename**, and type the new name.
3. Use the keyboard shortcut **Alt**+**H** > **O** > **R**, and type the new name.

Reposition Worksheets in a Workbook

To move worksheets in a workbook: • Open the workbook that contains the sheets you want to rearrange •
Click and hold the worksheet tab that will be moved until an arrow appears in the left corner of the sheet •
Drag the worksheet to the desired location

Print a worksheet or workbook
You can print entire or partial worksheets and workbooks, one at a time, or several at once. And if the data that
you want to print is in a Microsoft Excel table, you can print just the Excel table.
You can also print a workbook to a file instead of to a printer. This is useful when you need to print the
workbook on a different type of printer from the one that you originally used to print it.

Before you print anything in Excel, do remember that there are many options available for an optimal print
experience.

1.   Select the worksheets that you want to print.
2.   Click **File**, and then click **Print**, press Ctrl+P.
3.   Click the **Print** button or adjust **Settings** before you click the **Print** button.

Print one or several workbooks
1. All workbook files that you want to print must be in the same folder.
2. Click **File**, and then click **Open**.
3. Hold down Ctrl and then click the name of each workbook that you want to print, and then click **Print**.

Print all or part of a worksheet

1. Click the worksheet, and then select the range of data that you want to print.
2. Click **File**, and then click **Print**.
3. Under **Settings**, click the arrow next to **Print Active Sheets** and select the appropriate option.
4. Click **Print**.

Print an Excel table

1.   Click a cell within the table to enable the table.
2.   Click **File**, and then click **Print**.
3.   Under **Settings**, click the arrow next to **Print Active Sheets** and select **Print Selected Table**.
4.   Click **Print**.

Print a workbook to a file

1.   Click **File**, and then click **Print**, or press Ctrl+P.
2.   Under **Printer**, select **Print to File**.
3.   Click **Print.**
4.   In the **Save Print Output As** dialog box, enter a file name and then click **OK**. The file will be saved in
your *Documents* folder

FORMATTING WORKSHEET

Keyboard shortcuts in excel

Arrow keys	One cell in the direction of the arrow
Tab	One cell to the right
Shift+Tab	One cell to the left
Ctrl+arrow key	To the edge of the current data region (the first or last cell that isn't empty) in the direction of the arrow
End	To the cell in the lower-right corner of the window*
Ctrl+End	To the last cell in the worksheet, in the lowest used row of the rightmost used column
Home	To the beginning of the row containing the active cell
Ctrl+Home	To the beginning of the worksheet (cell A1)
Page Down	One screen down
Alt+Page Down	One screen to the right
Ctrl+Page Down	To the next sheet in the workbook
Page Up	One screen up
Alt+Page Up	One screen to the left
Ctrl+Page Up	To the previous sheet in the workbook

Protect a worksheet

To prevent other users from accidentally or deliberately changing, moving, or deleting data in a worksheet, you can lock the cells on your Excel worksheet and then protect the sheet with a password. Say you own the team status report worksheet, where you want team members to add data in specific cells only and not be able to modify anything else. With worksheet protection, you can make only certain parts of the sheet editable and users will not be able to modify data in any other region in the sheet.

Choose what cell elements you want to lock. Here's what you can lock in an unprotected sheet:

- **Formulas**: If you don't want other users to see your formulas, you can hide them from being seen in cells or the Formula bar.
- **Ranges**: You can enable users to work in specific ranges within a protected sheet.

Enable worksheet protection

Worksheet protection is a two-step process: the first step is to unlock cells that others can edit, and then you can protect the worksheet with or without a password.

Step 1: Unlock any cells that needs to be editable

1. In your Excel file, select the worksheet tab that you want to protect.
2. Select the cells that others can edit.
3. Right-click anywhere in the sheet and select **Format Cells** (or use **Ctrl+1**, or **Command+1** on the Mac), and then go to the **Protection** tab and clear **Locked**.

Step 2: Protect the worksheet

Next, select the actions that users should be allowed to take on the sheet, such as insert or delete columns or rows, edit objects, sort, or use AutoFilter, to name a few. Additionally, you can also specify a password to lock your worksheet. A password prevents other people from removing the worksheet protection—it needs to be entered to unprotect the sheet.

Given below are the steps to protect your sheet.

1. On the **Review** tab, click **Protect Sheet**.
2. In the **Allow all users of this worksheet to** list, select the elements you want people to be able to change.

Option	Allows users to
Select locked cells	Move the pointer to cells for which the **Locked** box is checked on the **Protection** tab of the **Format Cells** dialog box. By default, users are allowed to select locked cells.
Select unlocked cells	Move the pointer to cells for which the **Locked** box is unchecked on the **Protection** tab of the **Format Cells** dialog box. By default, users can select unlocked cells, and they can press the TAB key to move between the unlocked cells on a protected worksheet.
Format cells	Change any of the options in the **Format Cells** or **Conditional Formatting** dialog boxes. If you applied conditional formatting before you protected the worksheet, the formatting continues to change when a user enters a value that satisfies a different condition.
Format columns	Use any of the column formatting commands, including changing column width or hiding columns (**Home** tab, **Cells** group, **Format** button).
Format rows	Use any of the row formatting commands, including changing row height or hiding rows (**Home** tab, **Cells** group, **Format** button).
Insert columns	Insert columns.
Insert rows	Insert rows.
Delete rows	Delete rows.
Sort	Use any commands to sort data (**Data** tab, **Sort & Filter** group).

Option	Allows users to
Use AutoFilter	Use the drop-down arrows to change the filter on ranges when AutoFilters are applied.
Use PivotTable reports	Format, change the layout, refresh, or otherwise modify PivotTable reports, or create new reports.
Edit objects	Doing any of the following: Make changes to graphic objects including maps, embedded charts, shapes, text boxes, and controls that you did not unlock before you protected the worksheet. For example, if a worksheet has a button that runs a macro, you can click the button to run the macro, but you cannot delete the button. Make any changes, such as formatting, to an embedded chart. The chart continues to be updated when you change its source data. Add or edit comments.
Edit scenarios	View scenarios that you have hidden, making changes to scenarios that you have prevented changes to, and deleting these scenarios. Users can change the values in the changing cells, if the cells are not protected, and add new scenarios.

3.   Optionally, enter a password in the **Password to unprotect sheet** box and click **OK**. Reenter the password in the **Confirm Password** dialog box and click **OK**

Sorting Data

As you add more content to a worksheet, organizing this information becomes especially important. You can quickly **reorganize** a worksheet by **sorting** your data. For example, you could organize a list of contact information by last name. Content can be sorted alphabetically, numerically, and in many other ways.

Types of sorting

When sorting data, it's important to first decide if you want the sort to apply to the **entire worksheet** or just a **cell range**.

Sort sheet organizes all of the data in your worksheet by one column. Related information across each row is kept together when the sort is applied. In the example below, the **Contact Name** column (column **A**) has been sorted to display the names in alphabetical order.

Customer Contact List

	CONTACT NAME	BILLING ADDRESS	PHONE	EMAIL ADDRESS
3	Chaturvedi, Rick	2428 S Redding St #2 B	360-555-5422	info@newhaventraders.com
4	Dean, Hank	3034 Foggy Wharf Loop	308-555-1050	hdean@venturebrewing.com
5	Figgis, Mallory	3520 Sleepy Hearth Dr	425-555-5370	malloryf@archerproperties.com
6	Finn, Jake	1407 Dusty Fawn Ln So	605-555-6435	jake@adventureoutfitters.com
7	Kinkade, Chris	1028 Quiet Dale Rd Ho	443-555-4942	chris.kinkade@placervilleins.com
8	Lawson, Miranda	5316 Colonial Pkwy Est	575-555-9255	mlawson@massairlines.com
9	Reyes, Felicia	8544 Lazy Bluff Ave Wh	316-555-3256	felicia@everlypublishing.com
10	Sebastian, Lil	9060 Easy Evening Ln V	207-555-7225	lil@knopeequestrian.com
11	Silva, Vivica	8595 Thunder Brook Cil	360-555-4289	vivica@rileygardensupply.com
12	Stark, Katie	971 Cinder Butterfly St	603-555-2460	katie.stark@ariarealestate.com
13	Torrance, Jill	3160 Amber Gate Rd Ro	605-555-4495	jtorrance@overlookinn.com
14	Yuen, Phillip	5108 Crystal Gate Blvd	913-555-5928	yuenp@corepharmaceuticals.com

- **Sort range** sorts the data in a range of cells, which can be helpful when working with a sheet that contains several tables. Sorting a range will not affect other content on the worksheet.

	A	B	C	D	E
2	EXERCISES		SET 1		SET 2
3		REPS	WEIGHT (lbs)	REPS	WEIGHT (lbs)
4	Bench Press	14	65	12	75
5	Bench Press (Decline)	10	60	8	70
6	Triceps Extension	15	35	20	35
7	Average	13.9	50.5	12.5	54

	Running Log		
Date	Distance (miles)	Time (hrs:mins)
25-Jun	2.8	0:45
26-Jun	3	0:44
27-Jun	2.75	0:42
29-Jun	3.25	0:44
30-Jun	3.25	0:45
2-Jul	2.5	0:44
3-Jul	3	0:30
Total	20.55	

To sort a sheet: In our example, we'll sort a T-shirt order form alphabetically by **Last Name** (column **C**).

1. Select a **cell** in the column you want to sort by. In our example, we'll select cell**C2**.

	A	B	C	D	E
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method
2	105	Christiana	Chen	Medium	Check Bounced
3	105	Derek	MacDonald	Large	Cash
4	105	Esther	Yaron	Small	Pending
5	105	Melissa	White	Small	Debit Card
6	105	Nathan	Albee	Medium	Check
7	105	Sidney	Kelly	Medium	Check
8	110	Gabriel	Del Toro	Medium	Cash
9	110	Kris	Ackerman	Large	Money Order

2. Select the **Data** tab on the **Ribbon**, then click the **A-Z command** to sort A to Z, or the **Z-A command** to sort Z to A. In our example, we'll sort A to Z.
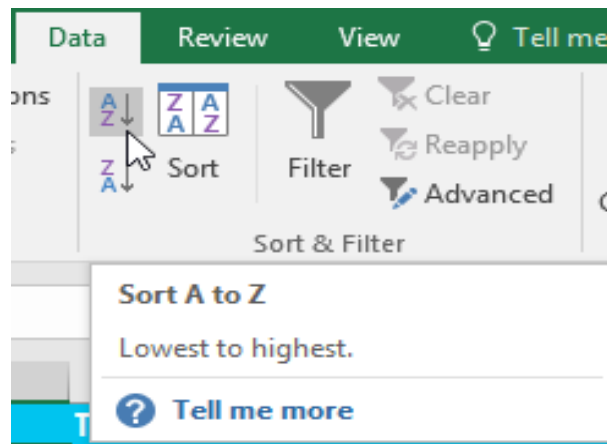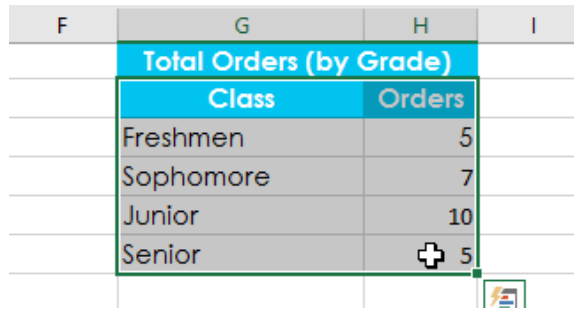
3. The worksheet will be **sorted** by the selected column. In our example, the worksheet is now sorted by **last name**.

	A	B	C	D	E
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method
2	110	Kris	Ackerman	Large	Money Order
3	105	Nathan	Albee	Medium	Check
4	220-B	Samantha	Bell	Medium	Check
5	110	Matt	Benson	Medium	Money Order
6	105	Christiana	Chen	Medium	Check Bounced
7	110	Gabriel	Del Toro	Medium	Cash
8	220-A	Brigid	Ellison	Small	Cash
9	220-A	Juan	Flores	X-Large	Pending

To sort a range: In our example, we'll select a **separate table** in our T-shirt order form to sort the number of shirts that were ordered on different dates.

1. Select the **cell range** you want to sort. In our example, we'll select cell range **G2:H6**.

 | F | G | H | I |
   |---|---|---|---|
   | | **Total Orders (by Grade)** | | |
   | | **Class** | **Orders** | |
   | | Freshmen | 5 | |
   | | Sophomore | 7 | |
   | | Junior | 10 | |
   | | Senior | ✛ 5 | |

2. Select the **Data** tab on the **Ribbon**, and then click the **Sort** command.
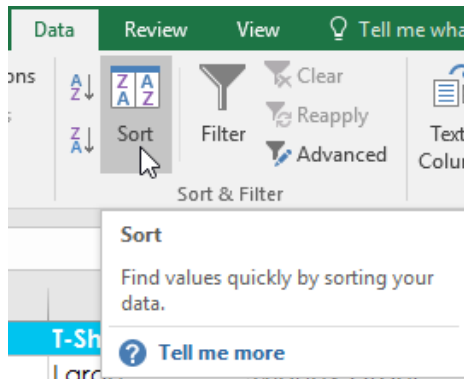
3. The **Sort** dialog box will appear. Choose the **column** you want to sort by. In our example, we want to sort the data by the number of T-shirt orders, so we'll select **Orders**.
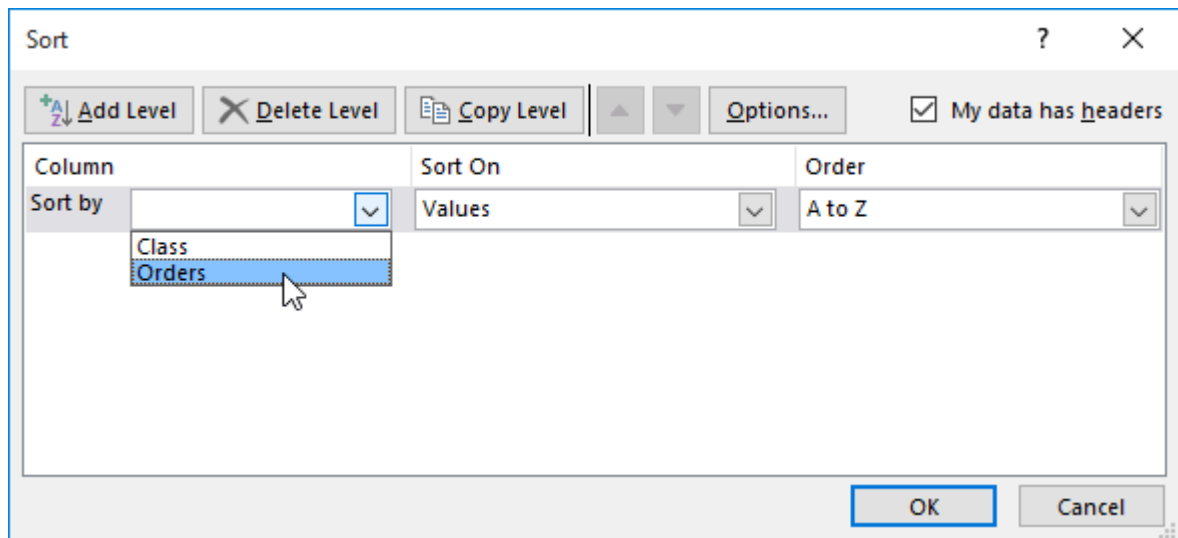
4. Decide the **sorting order** (either ascending or descending). In our example, we'll use **Largest to Smallest**.

5. Once you're satisfied with your selection, click **OK**.
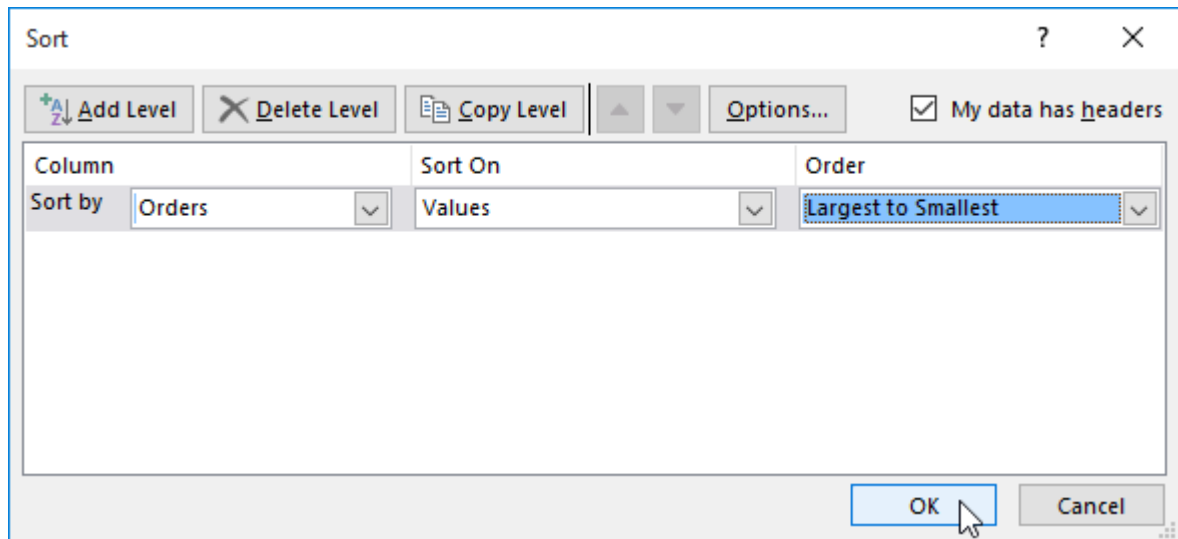
6. The cell range will be **sorted** by the selected column. In our example, the Orders column will be sorted from **highest to lowest**. Notice that the other content in the worksheet was not affected by the sort.

If your data isn't sorting properly, double-check your cell values to make sure they are entered into the worksheet correctly. Even a small typo could cause problems when sorting a large worksheet. In the example below, we forgot to include a hyphen in cell A18, causing our sort to be slightly inaccurate.

	A	B	C	D
1	Homeroom #	First Name	Last Name	T-Shirt Size
16	135	Jordan	Weller	Large
17	135	Alex	Yuen	Large
18	220A	Christopher	Peyton-Gomez	Small
19	220-A	Brigid	Ellison	Small
20	220-A	Juan	Flores	X-Large
21	220-A	Chevonne	Means	Medium

Custom sorting: Sometimes you may find that the default sorting options can't sort data in the order you need. Fortunately, Excel allows you to create a **custom list** to define your own sorting order.

To create a custom sort:

In our example below, we want to sort the worksheet by **T-Shirt Size** (column **D**). A regular sort would organize the sizes alphabetically, which would be incorrect. Instead, we'll create a custom list to sort from smallest to largest.

1. Select a **cell** in the column you want to sort by. In our example, we'll select cell**D2**.

	A	B	C	D	E
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method
2	110	Kris	Ackerman	Large	Money Order
3	105	Nathan	Albee	Medium	Check
4	220-B	Samantha	Bell	Medium	Check
5	110	Matt	Benson	Medium	Money Order
6	105	Christiana	Chen	Medium	Check Bounced
7	110	Gabriel	Del Toro	Medium	Cash
8	220-A	Brigid	Ellison	Small	Cash
9	220-A	Juan	Flores	X-Large	Pending
10	220-B	Tyrese	Hanlon	X-Large	Debit Card

2. Select the **Data** tab, and then click the **Sort** command.
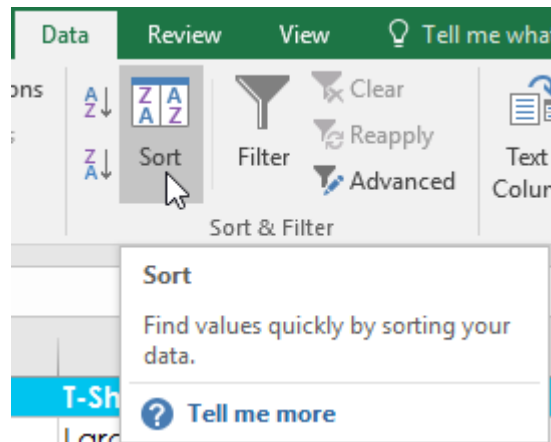
3. The **Sort** dialog box will appear. Select the **column** you want to sort by, and then choose **Custom List...** from the **Order** field. In our example, we will choose to sort by **T-Shirt Size**.
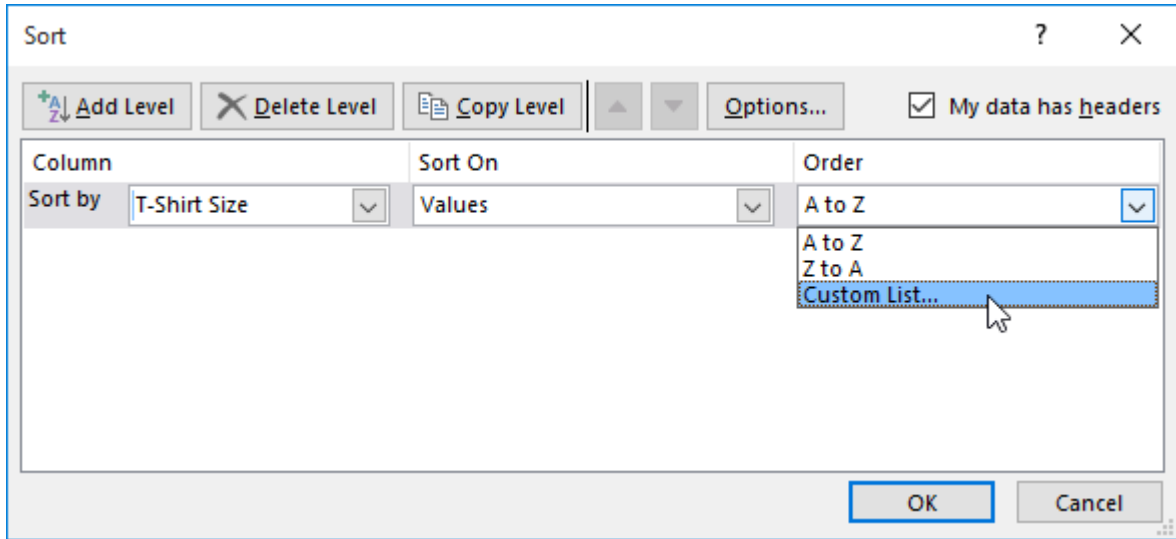
4. The **Custom Lists** dialog box will appear. Select **NEW LIST** from the **Custom Lists:** box.

5. Type the items in the desired custom order in the **List entries:** box. In our example, we want to sort our data by T-shirt size from **smallest** to **largest**, so we'll type **Small**, **Medium**, **Large**, and **X-Large**, pressing **Enter** on the keyboard after each item.
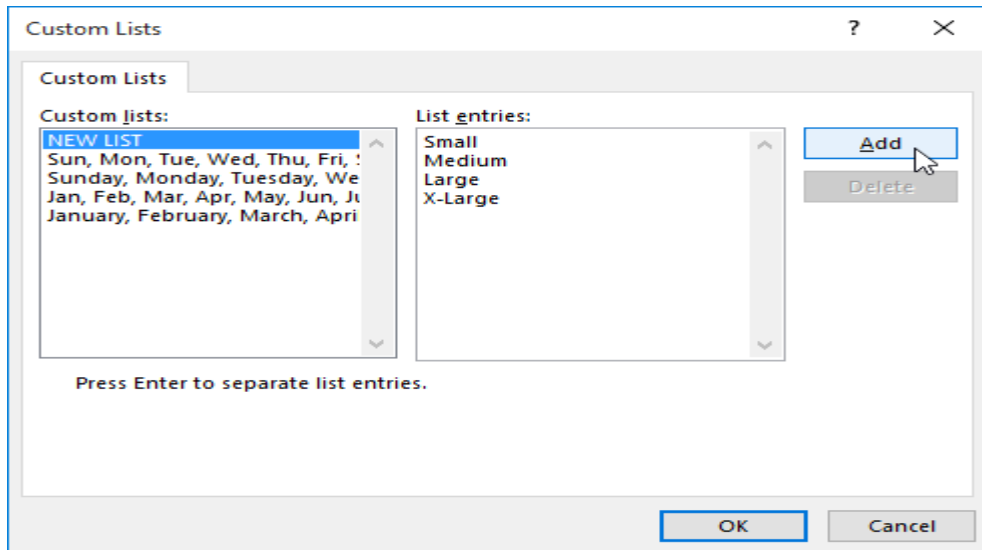
6. Click **Add** to save the new sort order. The new list will be added to the **Custom lists:** box. Make sure the new list is **selected**, and then click **OK**.
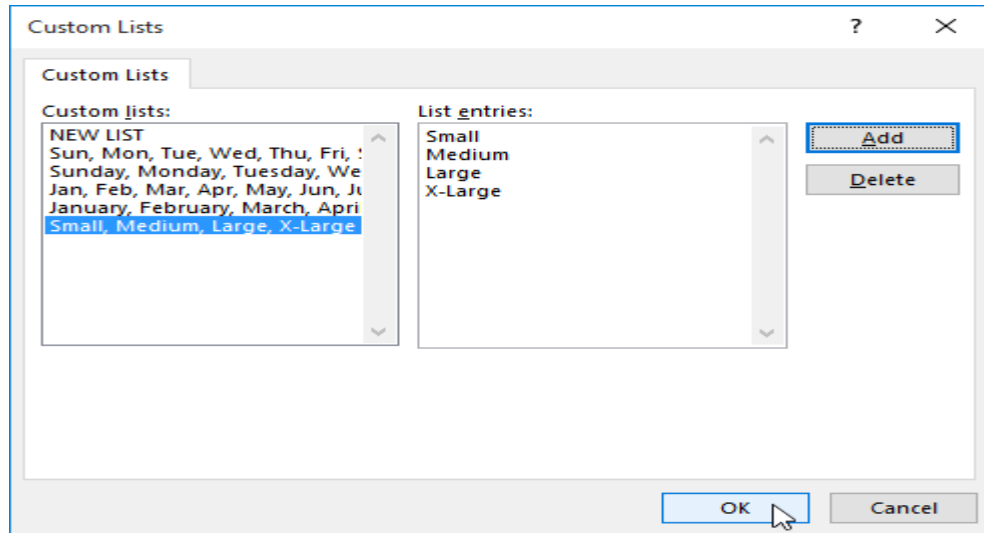
7. The **Custom Lists** dialog box will close. Click **OK** in the **Sort** dialog box to perform the custom sort.
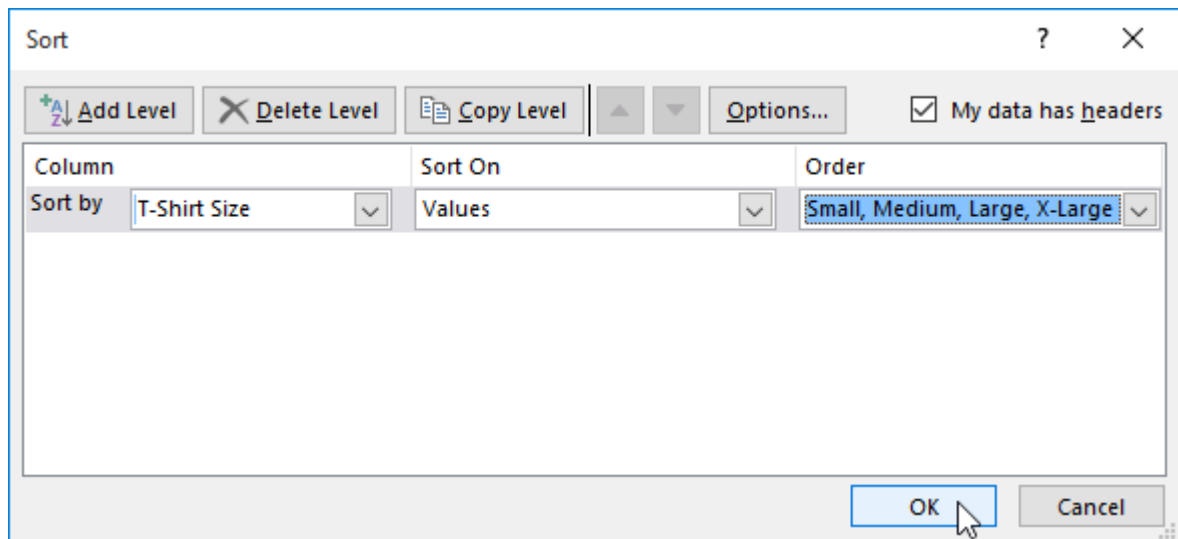
8. The worksheet will be **sorted** by the custom order. In our example, the worksheet is now organized by T-shirt size from smallest to largest.

	A	B	C	D	E
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method
2	220-A	Brigid	Ellison	Small	Cash
3	220-B	Michael	Lazar	Small	Cash
4	135	Anisa	Naser	Small	Check Bounced
5	220-A	Christopher	Peyton-Gomez	Small	Check
6	220-B	Malik	Reynolds	Small	Cash
7	220-B	Wendy	Shaw	Small	Cash
8	105	Melissa	White	Small	Debit Card
9	105	Esther	Yaron	Small	Pending
10	105	Nathan	Albee	Medium	Check
11	220-B	Samantha	Bell	Medium	Check
12	110	Matt	Benson	Medium	Money Order
13	105	Christiana	Chen	Medium	Check Bounced
14	110	Gabriel	Del Toro	Medium	Cash
15	105	Sidney	Kelly	Medium	Check
16	220-B	Avery	Kelly	Medium	Debit Card
17	220-A	Chevonne	Means	Medium	Money Order
18	135	James	Panarello	Medium	Check
19	135	Chantal	Weller	Medium	Debit Card
20	110	Kris	Ackerman	Large	Money Order
21	105	Derek	MacDonald	Large	Cash

Sorting levels: If you need more control over how your data is sorted, you can add multiple **levels** to any sort. This allows you to sort your data by **more than one column**.

To add a level:

In our example below, we'll sort the worksheet by **T-Shirt Size** (Column **D**), and then by **Homeroom Number** (column **A**).

1. Select a **cell** in the column you want to sort by. In our example, we'll select cell**A2**.

	A	B	C	D	E
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method
2	220-A	Brigid	Ellison	Small	Cash
3	220-B	Michael	Lazar	Small	Cash
4	135	Anisa	Naser	Small	Check Bounced
5	220-A	Christopher	Peyton-Gomez	Small	Check
6	220-B	Malik	Reynolds	Small	Cash
7	220-B	Wendy	Shaw	Small	Cash
8	105	Melissa	White	Small	Debit Card
9	105	Esther	Yaron	Small	Pending
10	105	Nathan	Albee	Medium	Check

2. Click the **Data** tab, and then select the **Sort** command.
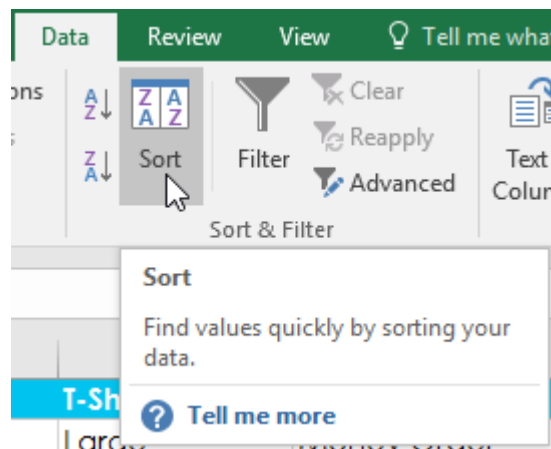
3. The **Sort** dialog box will appear. Select the first column you want to sort by. In this example, we will sort by **T-Shirt Size** (column **D**) with the custom list we previously created for the Order field.

4. Click **Add Level** to add another column to sort by.
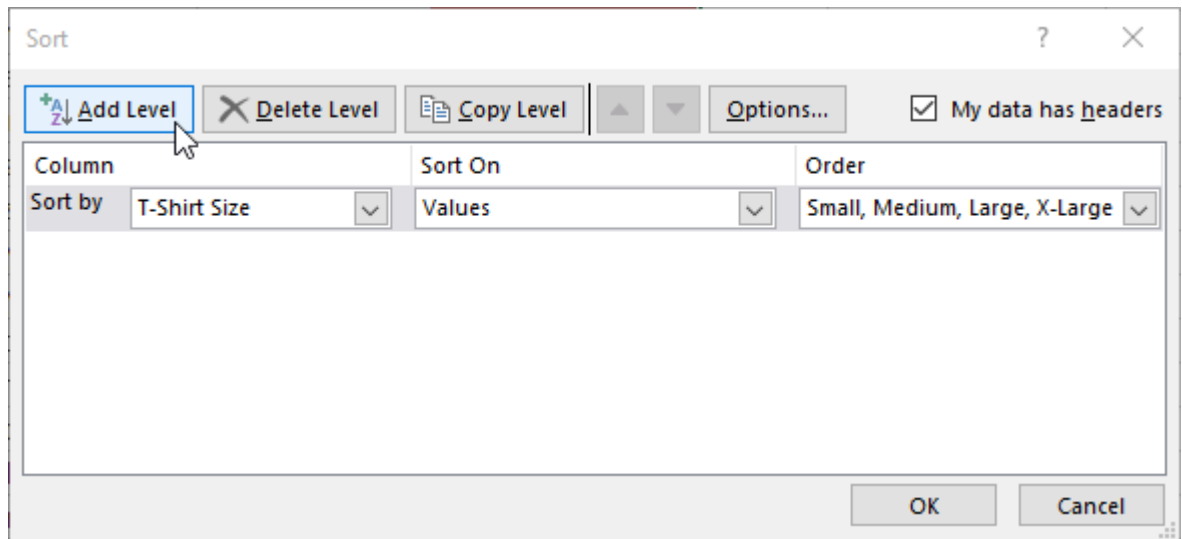
5. Select the next column you want to sort by, and then click **OK**. In our example, we'll sort by **Homeroom #** (column **A**).
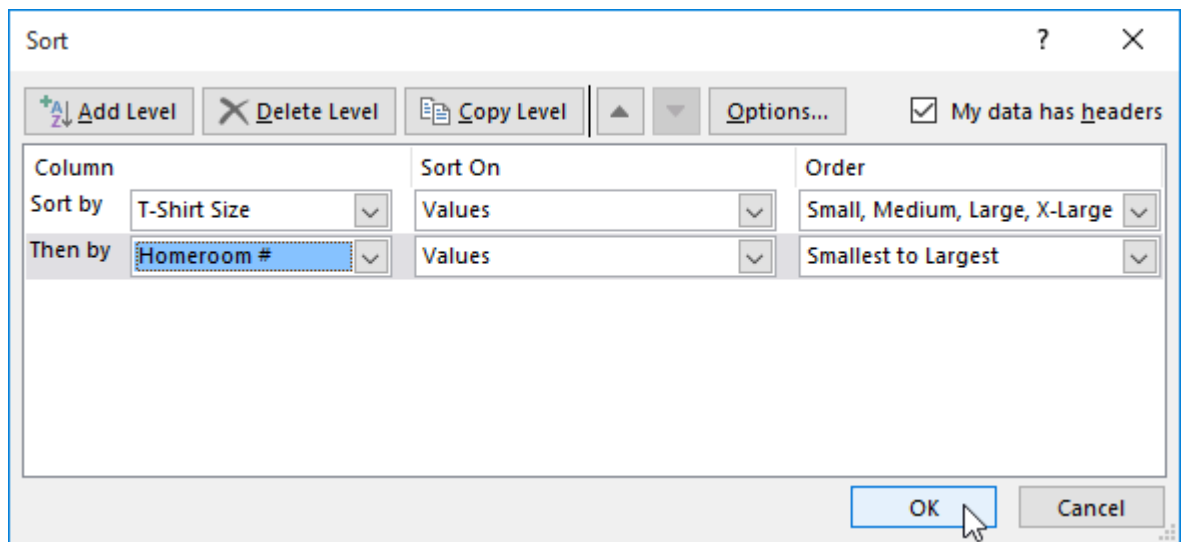
6. The worksheet will be **sorted** according to the selected order. In our example, the orders are sorted by T-shirt size. Within each group of T-shirt sizes, students are sorted by homeroom number.

	A	B	C	D	E
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method
2	105	Melissa	White	Small	Debit Card
3	105	Esther	Yaron	Small	Pending
4	135	Anisa	Naser	Small	Check Bounced
5	220-A	Brigid	Ellison	Small	Cash
6	220-A	Christopher	Peyton-Gomez	Small	Check
7	220-B	Michael	Lazar	Small	Cash
8	220-B	Malik	Reynolds	Small	Cash
9	220-B	Wendy	Shaw	Small	Cash
10	105	Nathan	Albee	Medium	Check
11	105	Christiana	Chen	Medium	Check Bounced
12	105	Sidney	Kelly	Medium	Check
13	110	Matt	Benson	Medium	Money Order
14	110	Gabriel	Del Toro	Medium	Cash
15	135	James	Panarello	Medium	Check
16	135	Chantal	Weller	Medium	Debit Card
17	220-A	Chevonne	Means	Medium	Money Order
18	220-B	Samantha	Bell	Medium	Check
19	220-B	Avery	Kelly	Medium	Debit Card
20	105	Derek	MacDonald	Large	Cash
21	110	Kris	Ackerman	Large	Money Order

If you need to change the order of a multilevel sort, it's easy to control which column is sorted first. Simply select the desired **column**, and then click the **Move Up** or **Move Down** arrow to adjust its priority.
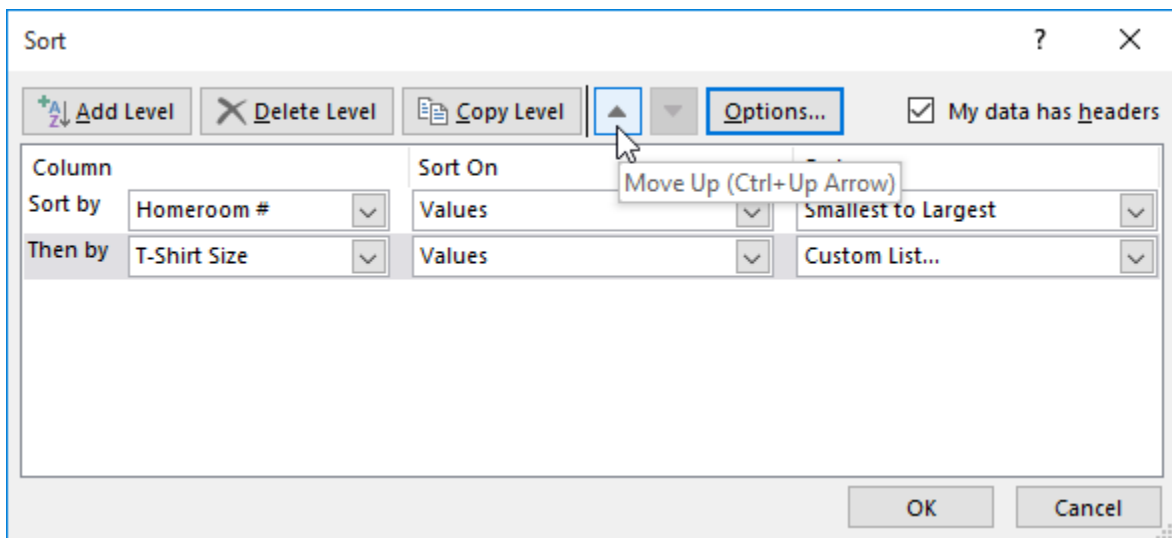
Filtering Data: If your worksheet contains a lot of content, it can be difficult to find information quickly. **Filters** can be used to **narrow down** the data in your worksheet, allowing you to view only the information you need.

To filter data: In our example, we'll apply a filter to an equipment log worksheet to display only the laptops and projectors that are available for checkout.

1. In order for filtering to work correctly, your worksheet should include a **header row**, which is used to identify the name of each column. In our example, our worksheet is organized into different columns identified by the header cells in row 1: **ID#**, **Type**, **Equipment Detail**, and so on.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta

2. Select the **Data** tab, and then click the **Filter** command.
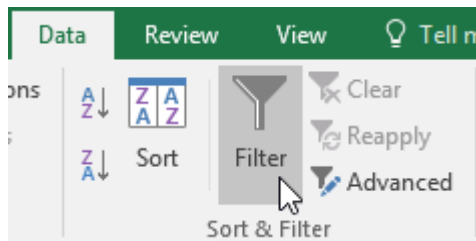
3. A **drop-down arrow** will appear in the header cell for each column.

4. Click the **drop-down arrow** for the column you want to filter. In our example, we will filter column **B** to view only certain types of equipment.

5. The **Filter menu** will appear.

6. **Uncheck** the box next to **Select All** to quickly deselect all data.

7. **Check** the boxes next to the data you want to filter, and then click **OK**. In this example, we will check **Laptop** and **Projector** to view only these types of equipment.
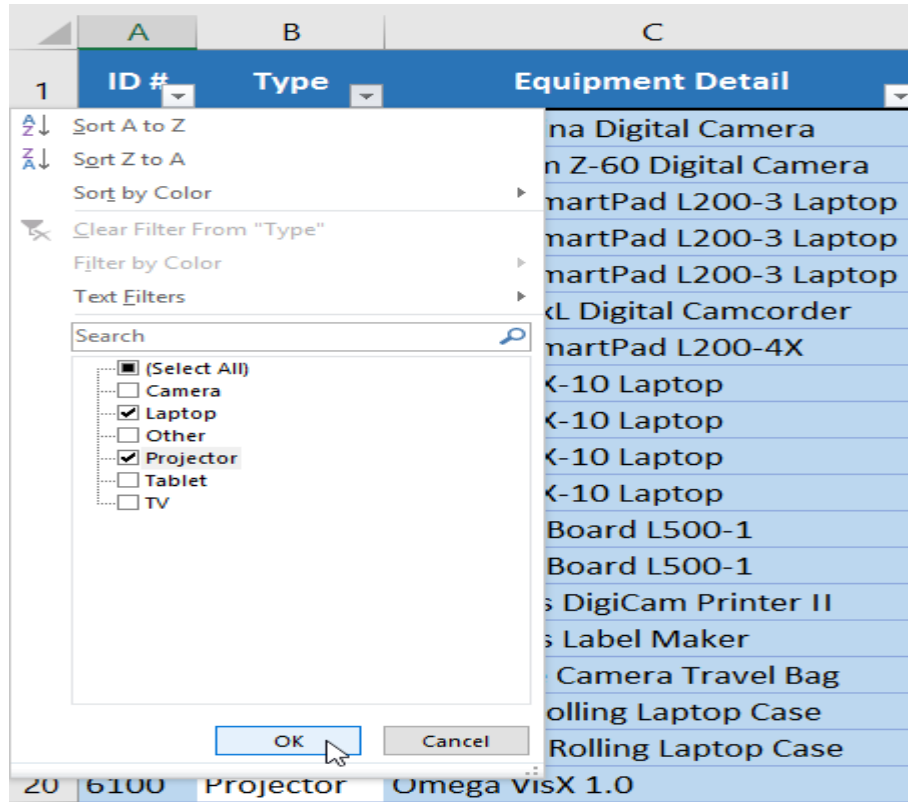
8. The data will be **filtered**, temporarily hiding any content that doesn't match the criteria. In our example, only laptops and tablets are visible.

	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
20	6100	Projector	Omega VisX 1.0	28-Sep-15	01-Oct-15	Win Armitage
21	6101	Projector	Omega VisX 1.0	26-Sep-15	27-Sep-15	Michael Earley
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle
23	6200	Projector	Saris Lux T-80	01-Sep-15	04-Sep-15	Jolie Chaturvedi
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-15		Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-15	15-Sep-15	Dean Sorenson
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Filtering options can also be accessed from the **Sort & Filter** command on the **Home**tab.
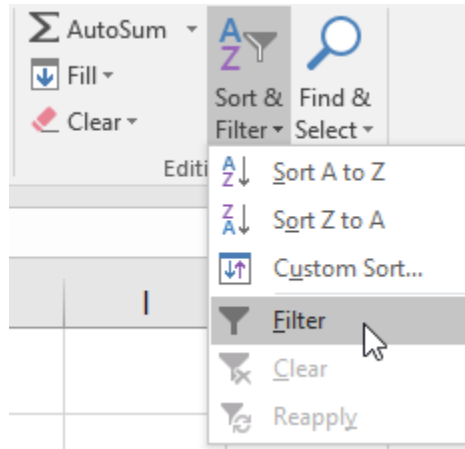
To apply multiple filters: Filters are **cumulative**, which means you can apply **multiple filters** to help narrow down your results. In this example, we've already filtered our worksheet to show laptops and projectors, and we'd like to narrow it down further to only show laptops and projectors that were checked out in August.

1. Click the **drop-down arrow** for the column you want to filter. In this example, we will add a filter to column **D** to view information by date.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
20	6100	Projector	Omega VisX 1.0	28-Sep-15	01-Oct-15	Win Armitage
21	6101	Projector	Omega VisX 1.0	26-Sep-15	27-Sep-15	Michael Earley
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle
23	6200	Projector	Saris Lux T-80	01-Sep-15	04-Sep-15	Jolie Chaturvedi
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-15		Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-15	15-Sep-15	Dean Sorenson
31						
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(Tooltip near column D header 1: "Checked Out: (Showing All)")

2. The **Filter menu** will appear.

3. **Check** or **uncheck** the boxes depending on the data you want to filter, then click **OK**. In our example, we'll uncheck everything except for **August**.
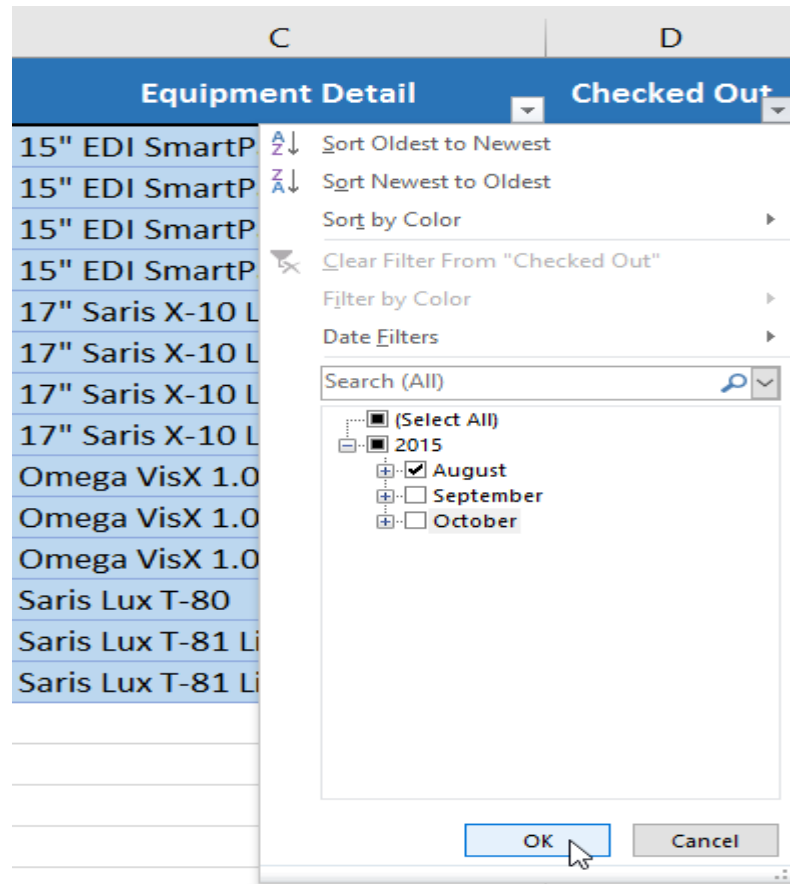
4. The new filter will be applied. In our example, the worksheet is now filtered to show only laptops and tablets that were checked out in August.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle
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To clear a filter: After applying a filter, you may want to remove—or **clear**—it from your worksheet so you'll be able to filter content in different ways.

1. Click the **drop-down arrow** for the filter you want to clear. In our example, we'll clear the filter in column **D**.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16 Aug 15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	Checked Out: Equals "August 2015"	Jennifer Weiss
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle
31						
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2. The **Filter menu** will appear.

3. Choose **Clear Filter from [COLUMN NAME]** from the Filter menu. In our example, we'll select **Clear Filter from "Checked Out"**.

C	D
Equipment Detail	Checked Out

- ⌃↓ Sort Oldest to Newest
- ⌄↓ Sort Newest to Oldest
- Sort by Color ▶
- ▼✗ Clear Filter From "Checked Out"
- Filter by Color ▶
- Date Filters ▶

Search (All) 🔍 ⌄

- ☑ (Select All)
  - ☑ 2015
    - ☑ August
    - ☐ September
    - ☐ October

[OK]   [Cancel]
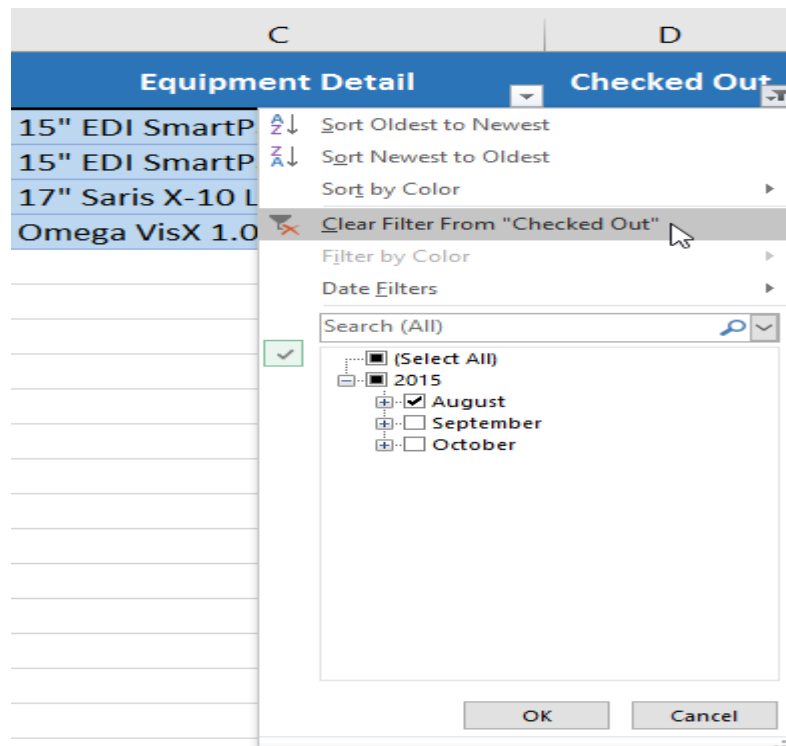
4. The filter will be cleared from the column. The previously hidden data will be displayed.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01 Oct 15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
20	6100	Projector	Omega VisX 1.0	28-Sep-15	01-Oct-15	Win Armitage
21	6101	Projector	Omega VisX 1.0	26-Sep-15	27-Sep-15	Michael Earley
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle
23	6200	Projector	Saris Lux T-80	01-Sep-15	04-Sep-15	Jolie Chaturvedi
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-15		Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-15	15-Sep-15	Dean Sorenson
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Checked Out: (Showing All)

To remove all filters from your worksheet, click the **Filter** command on the **Data** tab.
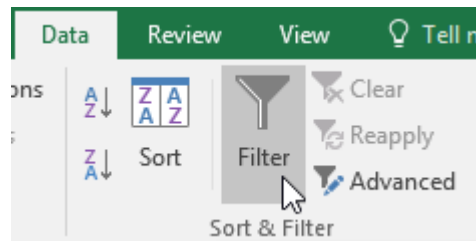
Advanced filtering: If you need a filter for something specific, basic filtering may not give you enough options. Fortunately, Excel includes many **advanced filtering tools**, including **search**, **text**, **date**, and **number filtering**, which can narrow your results to help find exactly what you need.

To filter with search: Excel allows you to **search** for data that contains an exact phrase, number, date, and more. In our example, we'll use this feature to show only **Saris** brand products in our equipment log.

1. Select the **Data** tab, and then click the **Filter** command. A **drop-down arrow** will appear in the header cell for each column. **Note**: If you've already added filters to your worksheet, you can skip this step.

2. Click the **drop-down arrow** for the column you want to filter. In our example, we'll filter column **C**.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	Equipment Detail: (Showing All)	06-Aug-15	Sela Shepard
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer

3. The **Filter menu** will appear. Enter a **search term** into the **search box**. Search results will appear automatically below the **Text Filters** field as you type. In our example, we'll type **saris** to find all Saris brand equipment. When you're done, click **OK**.

4. The worksheet will be **filtered** according to your search term. In our example, the worksheet is now filtered to show only Saris brand equipment.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-15	05-Aug-15	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-15	20-Jun-15	Clint Gosse
23	6200	Projector	Saris Lux T-80	01-Sep-15	04-Sep-15	Jolie Chaturvedi
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-15		Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-15	15-Sep-15	Dean Sorenson
26	1011	Tablet	Saris SlimPro	04-Oct-15		Jay Peralta
27	1012	Tablet	Saris SlimPro	29-Sep-15		August Zorn
31						
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To use advanced text filters: **Advanced text filters** can be used to display more specific information, like cells that contain a certain number of characters or data that excludes a specific word or number. In our example, we'd like to exclude any item containing the word **laptop**.

1. Select the **Data** tab, and then click the **Filter** command. A **drop-down arrow** will appear in the header cell for each column. **Note**: If you've already added filters to your worksheet, you can skip this step.

2. Click the **drop-down arrow** for the column you want to filter. In our example, we'll filter column **C**.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	Equipment Detail: (Showing All)	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera		06-Aug-15	Sela Shepard
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer

3. The **Filter menu** will appear. Hover the mouse over **Text Filters**, and then select the desired text filter from the drop-down menu. In our example, we'll choose **Does Not Contain** to view data that does not contain specific text.
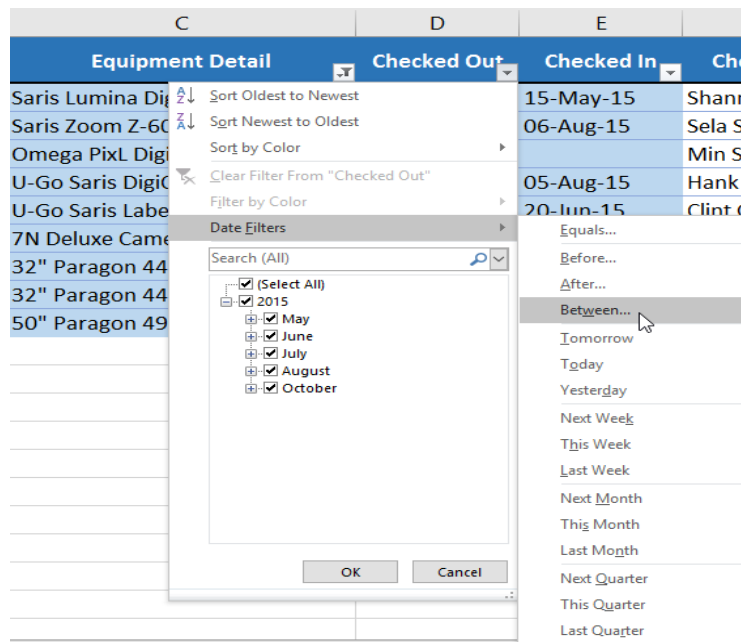

4. The **Custom AutoFilter** dialog box will appear. Enter the **desired text** to the right of the filter, then click **OK**. In our example, we'll type **laptop** to exclude any items containing this word.
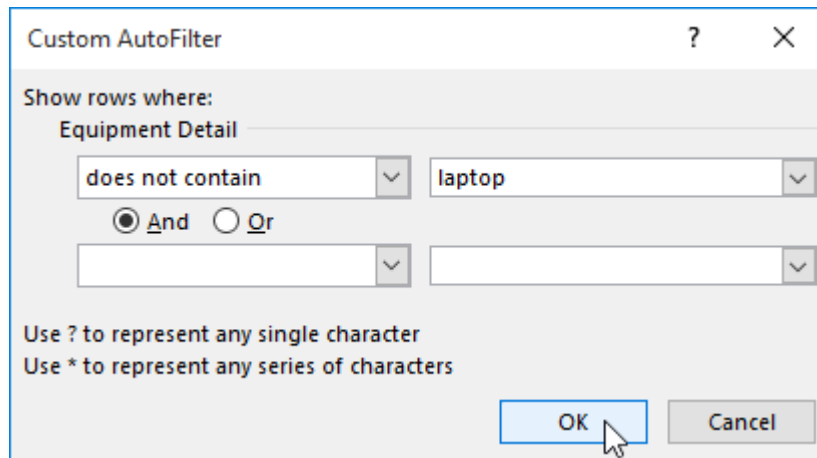
5. The data will be filtered by the selected text filter. In our example, our worksheet now displays items that do not contain the word **laptop**.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
13	2050	Other	EDI SmartBoard L500-1	05-Oct-15	06-Oct-15	Anthony Liddell
14	2051	Other	EDI SmartBoard L500-1	01-Oct-15	05-Oct-15	Sofie Ragnar
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-15	05-Aug-15	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-15	20-Jun-15	Clint Gosse
17	4800	Other	7N Deluxe Camera Travel Bag	27-Jul-15	06-Aug-15	Sela Shepard
20	6100	Projector	Omega VisX 1.0	28-Sep-15	01-Oct-15	Win Armitage
21	6101	Projector	Omega VisX 1.0	26-Sep-15	27-Sep-15	Michael Earley
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle

To use advanced number filters: **Advanced number filters** allow you to manipulate numbered data in different ways. In this example, we'll display only certain types of equipment based on the range of ID numbers.

1. Select the **Data** tab on the Ribbon, then click the **Filter** command. A **drop-down arrow** will appear in the header cell for each column. **Note**: If you've already added filters to your worksheet, you can skip this step.

2. Click the **drop-down arrow** for the column you want to filter. In our example, we'll filter column **A** to view only a certain range of ID numbers.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	(Showing All)	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
13	2050	Other	EDI SmartBoard L500-1	05-Oct-15	06-Oct-15	Anthony Liddell
14	2051	Other	EDI SmartBoard L500-1	01-Oct-15	05-Oct-15	Sofie Ragnar
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-15	05-Aug-15	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-15	20-Jun-15	Clint Gosse
17	4800	Other	7N Deluxe Camera Travel Bag	27-Jul-15	06-Aug-15	Sela Shepard
20	6100	Projector	Omega VisX 1.0	28-Sep-15	01-Oct-15	Win Armitage
21	6101	Projector	Omega VisX 1.0	26-Sep-15	27-Sep-15	Michael Earley

3. The **Filter menu** will appear. Hover the mouse over **Number Filters**, then select the desired number filter from the drop-down menu. In our example, we'll choose **Between** to view ID numbers between a specific number range.
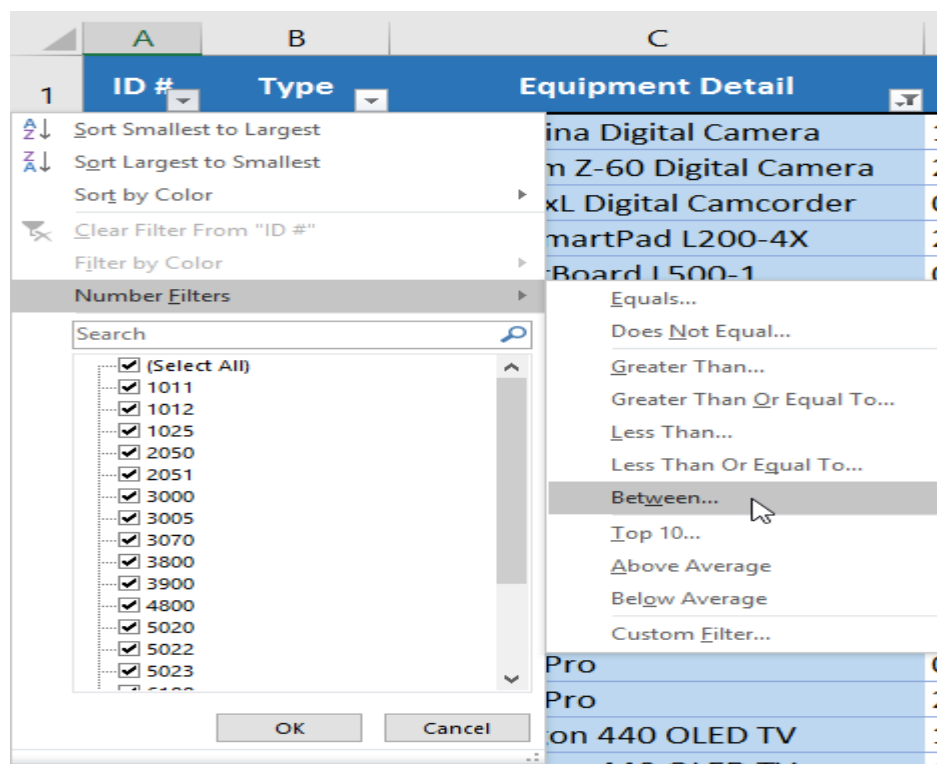
4. The **Custom AutoFilter** dialog box will appear. Enter the desired **number(s)** to the right of each filter, then click **OK**. In our example, we want to filter for ID numbers greater than or equal to **3000** but less than or equal to **6000**, which will display ID numbers in the 3000-6000 range.
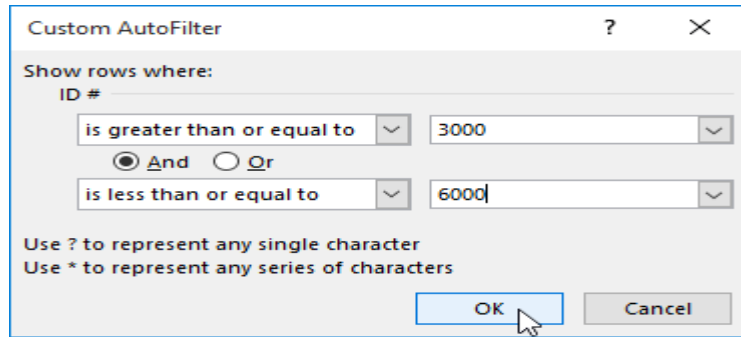
5. The data will be filtered by the selected number filter. In our example, only items with an ID number between **3000** and **6000** are visible.

	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-15	05-Aug-15	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-15	20-Jun-15	Clint Gosse
17	4800	Other	7N Deluxe Camera Travel Bag	27-Jul-15	06-Aug-15	Sela Shepard
28	5020	TV	32" Paragon 440 OLED TV	11-Aug-15	13-Aug-15	Marta Lao
29	5022	TV	32" Paragon 440 OLED TV	17-Jul-15	17-Jul-15	Carl Langer
30	5023	TV	50" Paragon 490L LED TV	01-Oct-15	01-Oct-15	Margaret Lisbon
31						
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1. The **Custom AutoFilter** dialog box will appear. Enter the desired **date(s)** to the right of each filter, and then click **OK**. In our example, we want to filter for dates after or equal to **July 15, 2015**, and before or equal to **August 15, 2015**, which will display a range between these dates.
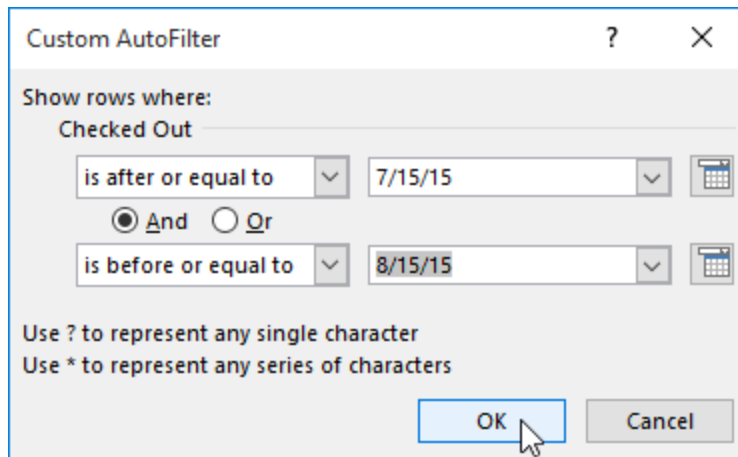
Tables : Once you've entered information into your worksheet, you may want to format your data as a **table**. Just like regular formatting, tables can improve the **look and feel** of your workbook, and they'll also help you **organize** your content and make your data easier to use. Excel includes several **tools** and **predefined table styles**, allowing you to create tables quickly and easily.

To format data as a table:

1. Select the **cells** you want to format as a table. In our example, we'll select the cell range **A2:D9**.

2. From the **Home** tab, click the **Format as Table** command in the **Styles** group.
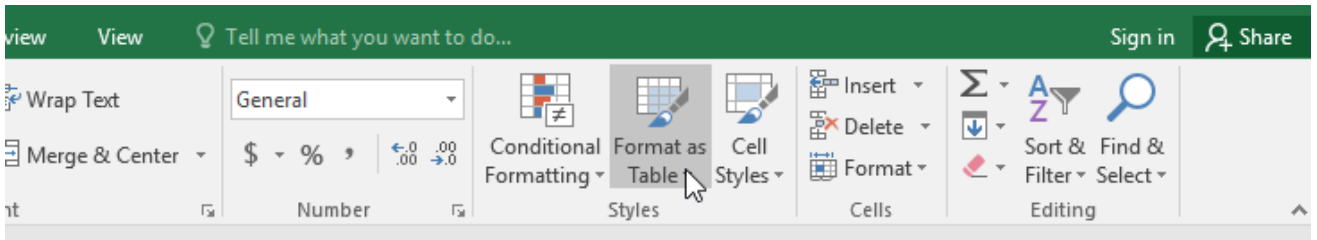
3. Select a **table style** from the drop-down menu.
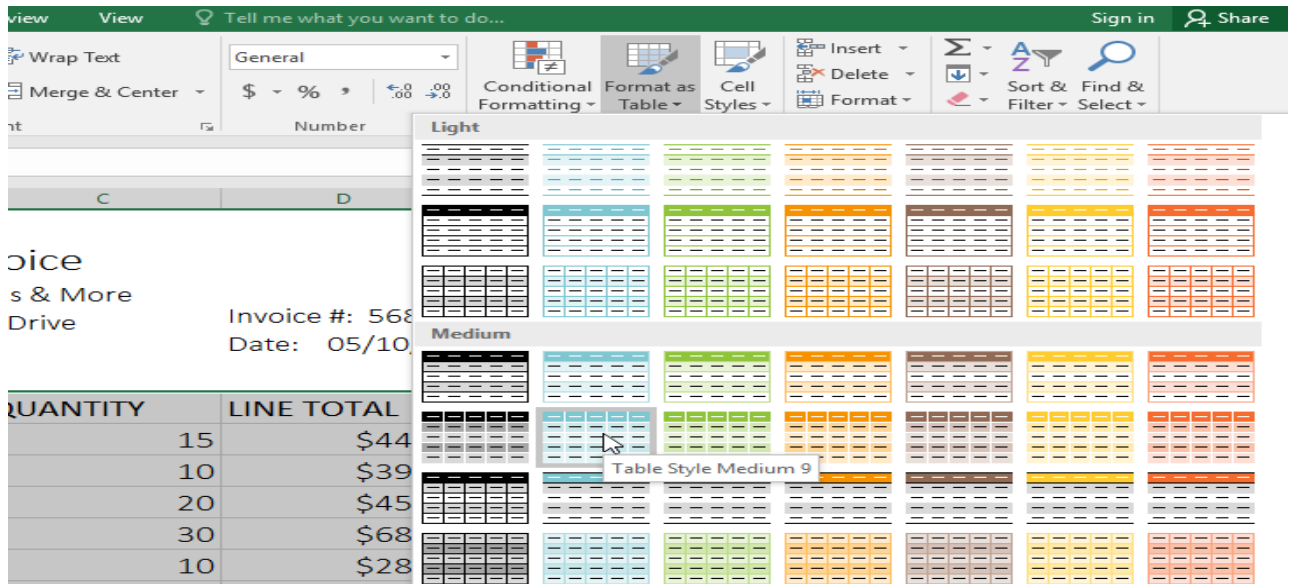
4. A dialog box will appear, confirming the selected **cell range** for the table.

5. If your table has **headers**, check the box next to **my table has headers**, and then click **OK**.
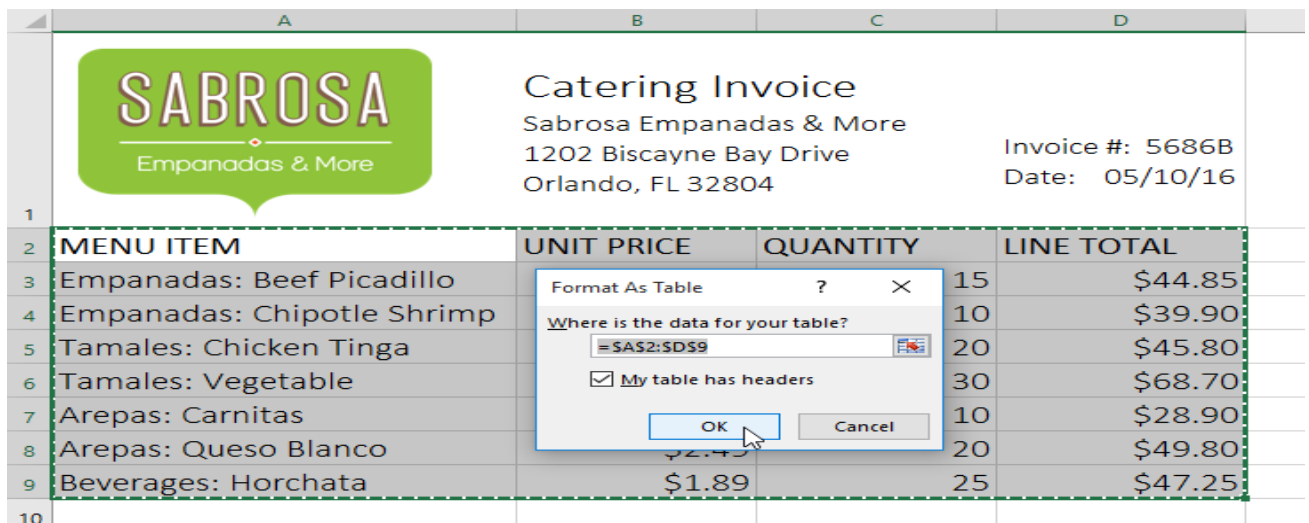
6. The cell range will be formatted in the selected **table style**.

MENU ITEM	UNIT PRICE	QUANTITY	LINE TOTAL
Empanadas: Beef Picadillo	$2.99	15	$44.85
Empanadas: Chipotle Shrimp	$3.99	10	$39.90
Tamales: Chicken Tinga	$2.29	20	$45.80
Tamales: Vegetable	$2.29	30	$68.70
Arepas: Carnitas	$2.89	10	$28.90
Arepas: Queso Blanco	$2.49	20	$49.80
Beverages: Horchata	$1.89	25	$47.25

Tables include **filtering** by default. You can filter your data at any time using the**drop-down arrows** in the header cells. To learn more, review our lesson on **Filtering Data**.

Modifying tables

It's easy to modify the look and feel of any table after adding it to a worksheet. Excel includes many different options for customizing a table, including **adding rows or columns** and changing the **table style**.

To add rows or columns to a table:

If you need to fit more content into your table, Excel allows you to modify the **table size** by including additional rows and columns. There are two simple ways to change the table size:

- Enter **new content** into any adjacent row or column. The row or column will be roped into the table automatically.

MENU ITEM ▾	UNIT PRICE ▾	QUANTITY ▾	LINE TOTAL ▾
Empanadas: Beef Picadillo	$2.99	15	$44.85
Empanadas: Chipotle Shrimp	$3.99	10	$39.90
Tamales: Chicken Tinga	$2.29	20	$45.80
Tamales: Vegetable	$2.29	30	$68.70
Arepas: Carnitas	$2.89	10	$28.90
Arepas: Queso Blanco	$2.49	20	$49.80
Beverages: Horchata	$1.89	25	$47.25
Beverages: Lemonade			

- Click and drag the **bottom-right corner** of the table to create additional rows or columns.

MENU ITEM ▾	UNIT PRICE ▾	QUANTITY ▾	LINE TOTAL ▾
Empanadas: Beef Picadillo	$2.99	15	$44.85
Empanadas: Chipotle Shrimp	$3.99	10	$39.90
Tamales: Chicken Tinga	$2.29	20	$45.80
Tamales: Vegetable	$2.29	30	$68.70
Arepas: Carnitas	$2.89	10	$28.90
Arepas: Queso Blanco	$2.49	20	$49.80
Beverages: Horchata	$1.89	25	$47.25

To change the table style:

1. Select **any cell** in your table, and then click the **Design** tab.
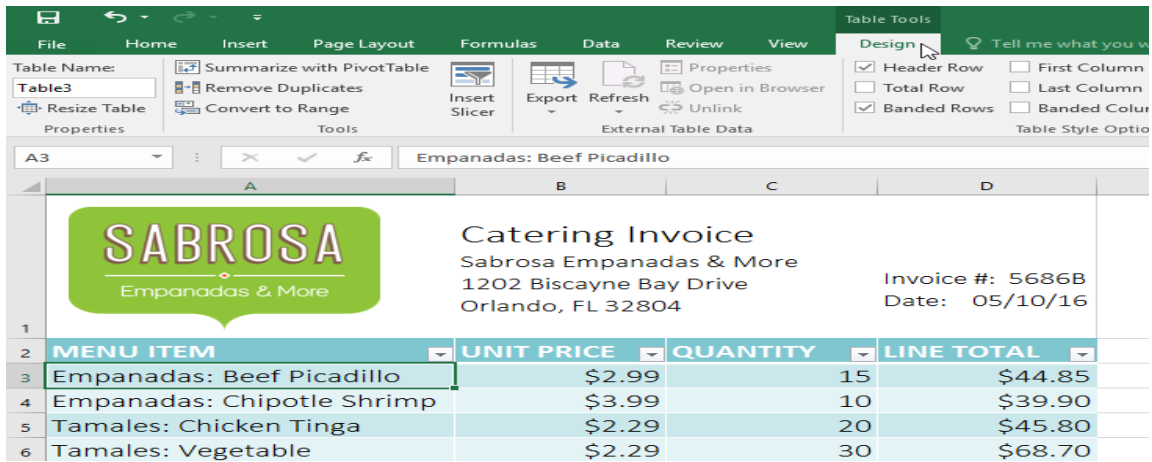
2. Locate the **Table Styles** group, and then click the **more** drop-down arrow to see all available table styles.
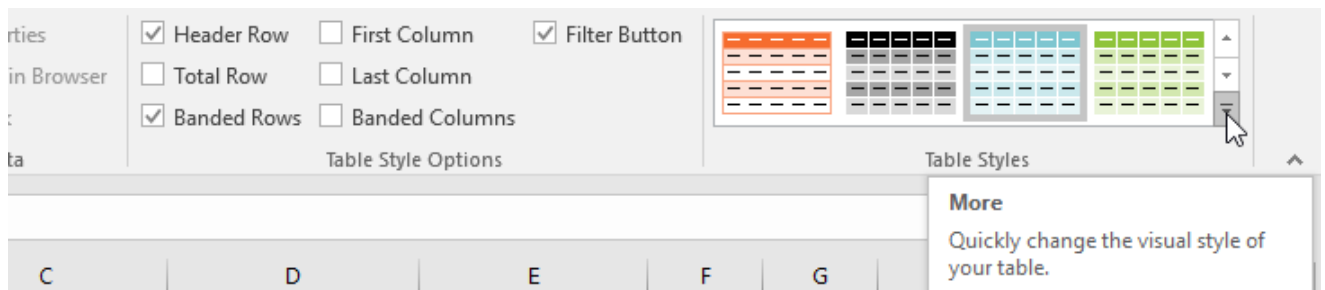
3. Select the desired **table style**.
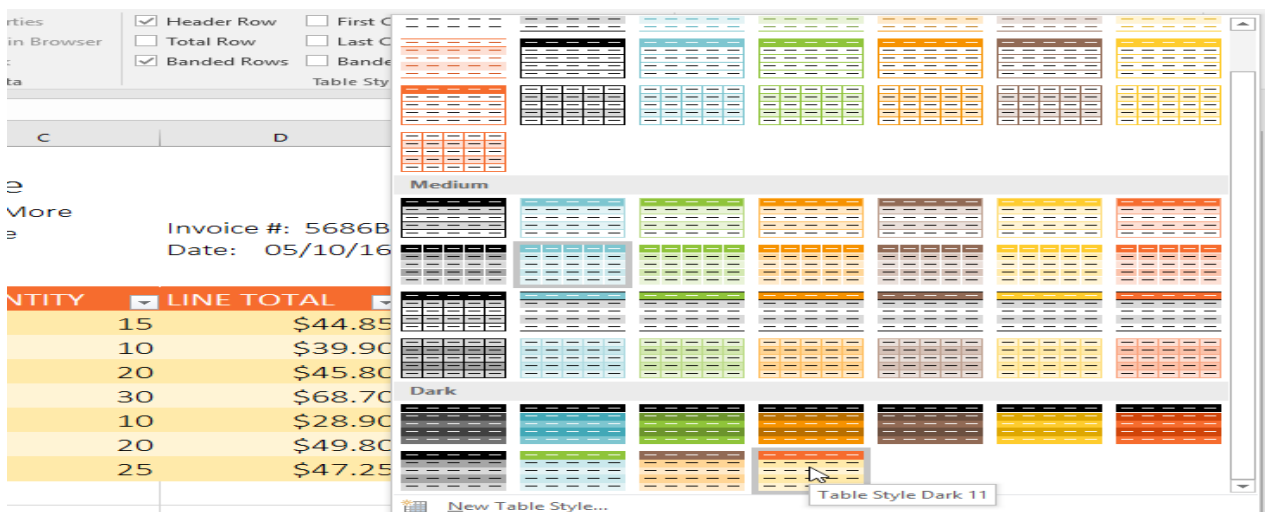
4. The **table style** will be applied.

To modify table style options:

You can turn various options **on** or **off** to change the appearance of any table. There are six options: **Header Row**, **Total Row**, **Banded Rows**, **First Column**, **Last Column**, and **Banded Columns**.

1. Select **any cell** in your table, then click the **Design** tab.

2. **Check** or **uncheck** the desired options in the **Table Style Options** group. In our example, we'll check **Total Row** to automatically include a **total** for our table.
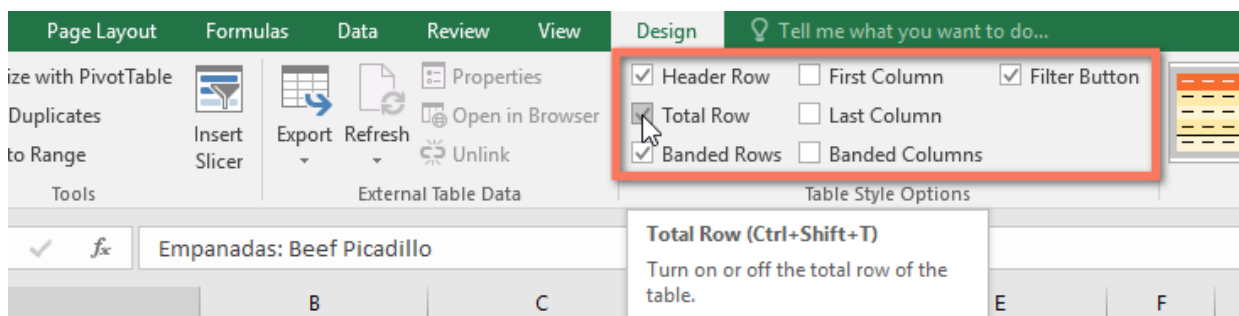
3. The table style will be modified. In our example, a **new row** has been added to the table with a **formula** that automatically calculates the total value of the cells in column D.

MENU ITEM	UNIT PRICE	QUANTITY	LINE TOTAL
Empanadas: Beef Picadillo	$2.99	15	$44.85
Empanadas: Chipotle Shrimp	$3.99	10	$39.90
Tamales: Chicken Tinga	$2.29	20	$45.80
Tamales: Vegetable	$2.29	30	$68.70
Arepas: Carnitas	$2.89	10	$28.90
Arepas: Queso Blanco	$2.49	20	$49.80
Beverages: Horchata	$1.89	25	$47.25
Total			$325.20

Depending on the type of **content** you have—and the **table style** you've chosen—these options can affect your table's appearance in various ways. You may need to experiment with a few different options to find the exact style you want.

To remove a table:

It's possible to remove a table from your workbook without losing any of your data. However, this can cause issues with certain types of **formatting**, including colors, fonts, and banded rows. Before you use this option, make sure you're prepared to reformat your cells if necessary.

1. Select **any cell** in your table, and then click the **Design** tab.

2. Click the **Convert to Range** command in the **Tools** group.

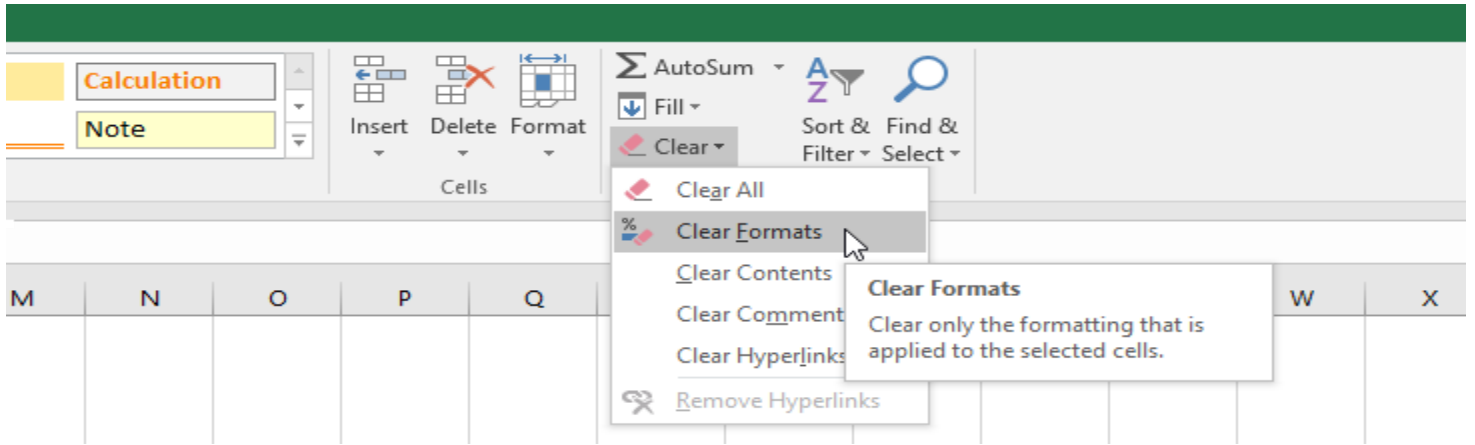3. A dialog box will appear. Click **Yes**.

4. The range will no longer be a table, but the cells will retain their data and formatting.

To restart your formatting from scratch, click the **Clear** command on the **Home** tab. Next, choose **Clear Formats** from the menu.

Understanding Track Changes

When you turn on the **Track Changes** feature, every cell you edit will be **highlighted**with a unique border and indicator. Selecting a marked cell will show the details of the change. This allows you and other reviewers to see what's been changed before accepting the revisions permanently.

In the image below, each edited cell has a blue border and a small triangle in the upper-left corner.

| Length	Item	Facilitator
1:00	Breakfast, welcome	Exec team
0:30	Introduction	Garth
1:00	Work relationships exercise	Garth, Dean, Liz
0:15	Break	
2:00	Cady Falls hike (strategy game?)	Tyler
1:00	Lunch (with strategy game team)	
0:15	Strategy debrief	Julia
1:00	Getting to know your team	See Liz for info
1:00	Strengths exercise	
0:30	Break/Snack	
0:45	Redwoods hike	Dean
1:00	Team-building exercise	Garth, exec team
1:00	Dinner	
11:15		

Javier Flores, 11/12/2015 1:51 PM:
Changed cell E13 from 'TBD' to 'Julia'.

There are some changes Excel **cannot** track. Before using this feature, you may want to review Microsoft's list of **changes that Excel does not track or highlight**.

You cannot use Track Changes if your workbook includes **tables**. To remove a table, select it, click the **Design** tab, then click **Convert to Range**.
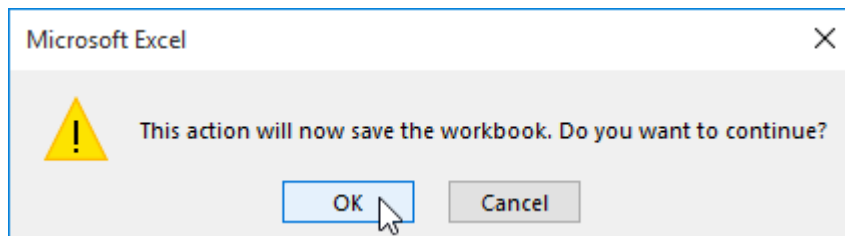
To turn on Track Changes:

1. From the **Review** tab, click the **Track Changes** command, then select **Highlight Changes** from the drop-down menu.
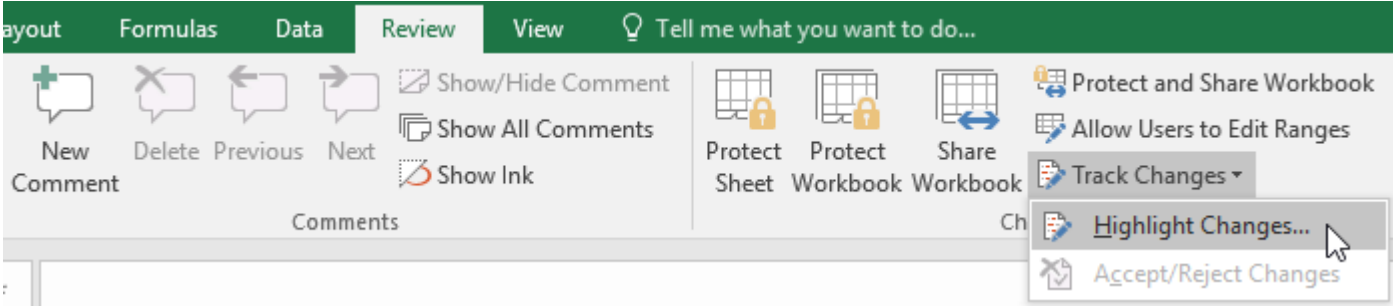
2. The **Highlight Changes** dialog box will appear. Check the box next to **Track changes while editing**. Verify that the box is checked for **Highlight changes on screen**, then click **OK**.
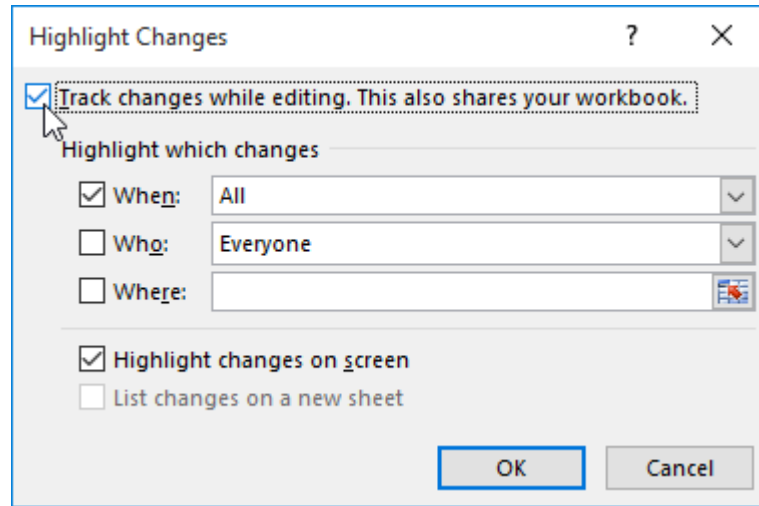
3. If prompted, click **OK** to allow Excel to save your workbook.

4. Track Changes will be **turned on**. A **triangle** and **border color** will appear in any cell you edit. If there are multiple reviewers, each person will be assigned a different color.

5. Select the edited cell to see a summary of the tracked changes. In our example below, we've changed the content of cell D14 from **?** to **Getting to know your team**.

When you turn on Track Changes, your workbook will be **shared** automatically. Shared workbooks are designed to be stored where other users can access and edit the workbook at the same time, such as a network. However, you can also track changes in a local or personal copy, as seen throughout this lesson.

To list changes on a separate worksheet:

You can also view changes on a new worksheet, sometimes called the **Tracked Changes history**. The history lists everything in your worksheet that has been changed, including the **old value** (previous cell content) and the **new value** (current cell content).

1. **Save** your workbook.

2. From the **Review** tab, click the **Track Changes** command, then select **HighlightChanges** from the drop-down menu.
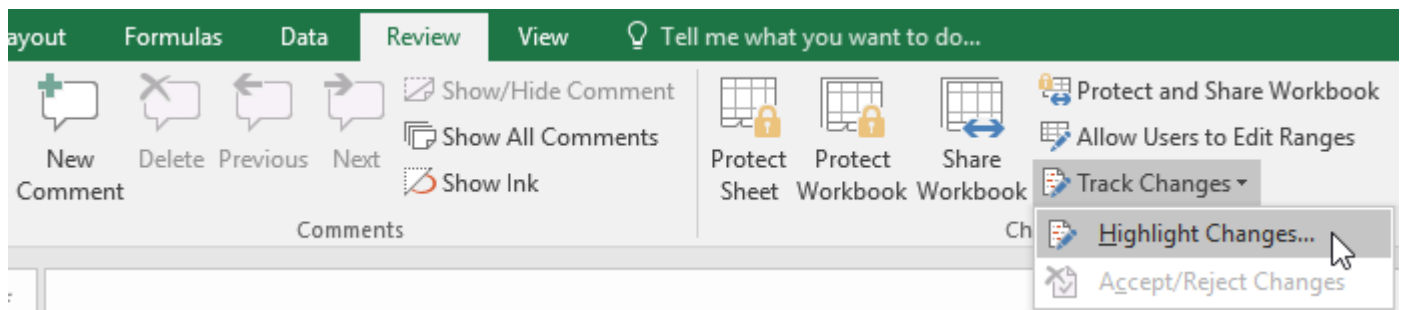
3. The **Highlight Changes** dialog box will appear. Check the box next to **List changes on a new sheet**, then click **OK**.
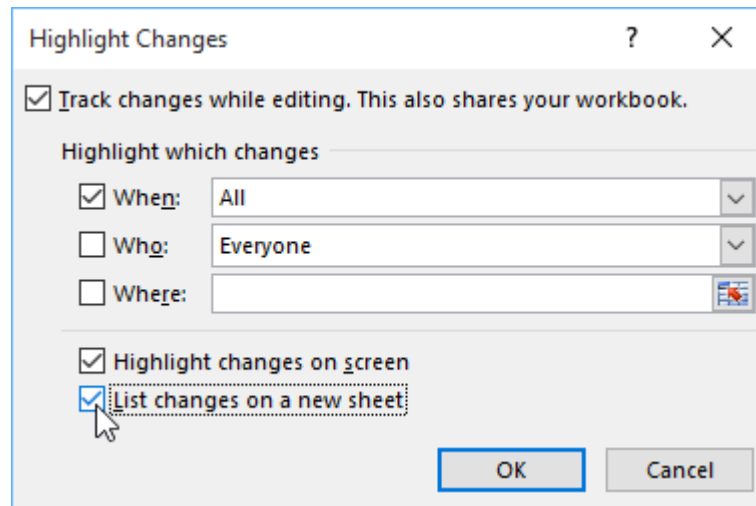
4. The tracked changes will be listed on their own worksheet, called **History**.

|	A	B	C	D	E	F	G	H	I
1	Action Number	Date	Time	Who	Change	Sheet	Range	New Value	Old Value
2	1	11/11/15	4:00 PM	Javier Flores	Cell Change	Agenda Planner	D14	Getting to know your team	?
3	2	11/11/15	4:00 PM	Javier Flores	Cell Change	Agenda Planner	E11	Liz, Julia	<blank>
4	3	11/11/15	4:00 PM	Javier Flores	Cell Change	Agenda Planner	E15	Garth	<blank>
5	4	11/11/15	4:00 PM	Javier Flores	Cell Change	Agenda Planner	E16	Wayne	<blank>
6	5	11/11/15	4:00 PM	Javier Flores	Cell Change	Agenda Planner	A17	4:00 PM	4:15 PM
7	6	11/11/15	4:00 PM	Javier Flores	Cell Change	Agenda Planner	A19	7:00 PM	6:00 PM
8	7	11/11/15	4:00 PM	Javier Flores	Cell Change	Agenda Planner	B19	8:00 PM	7:00 PM
9									
10	The history ends with the changes saved on 11/11/2015 at 4:00 PM.								
11									

| ◄ | ► | Agenda Planner | **History** | ⊕ |

Ready

To **remove** the History worksheet from your workbook, you can either **save** your workbook again or uncheck the box next to **List changes on a new sheet** in the **Highlight Changes** dialog box.
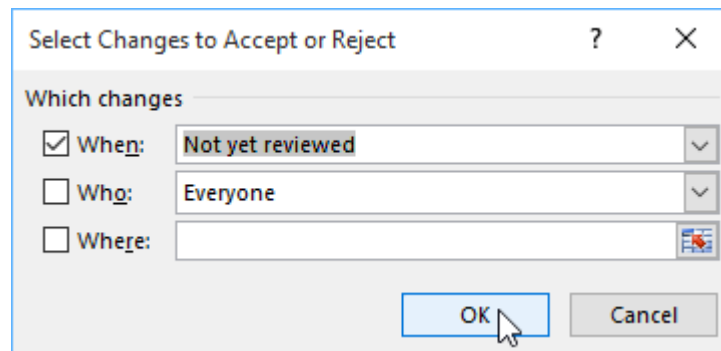
Reviewing changes

Tracked changes are really just **suggested** changes. To become permanent, the changes must be **accepted**. On the other hand, the original author may disagree with some of the tracked changes and choose to **reject** them.

To review tracked changes:

1. From the **Review** tab, click **Track Changes**, then select **Accept/Reject Changes**from the drop-down menu.
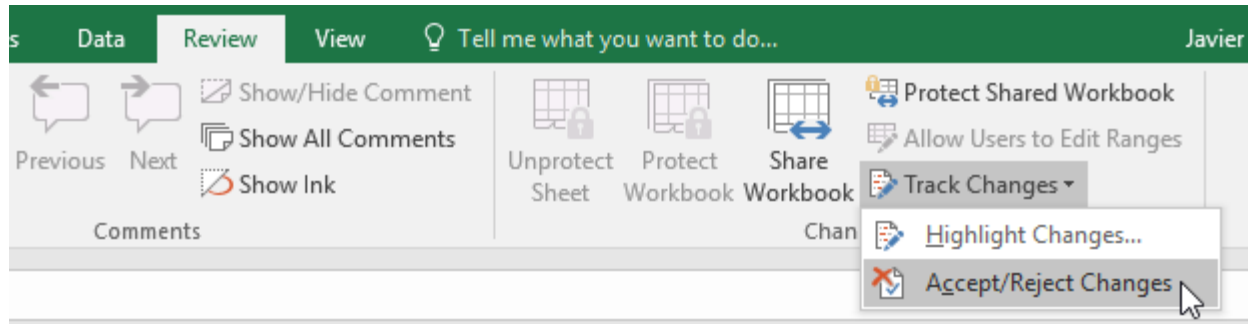
2. If prompted, click **OK** to save your workbook.

3. A dialog box will appear. Make sure the box next to the **When:** field is checked and set to **Not yet reviewed**, then click **OK**.

4. A dialog box will appear. Click **Accept** or **Reject** for each change in the workbook. Excel will move through each change automatically until you have reviewed them all.
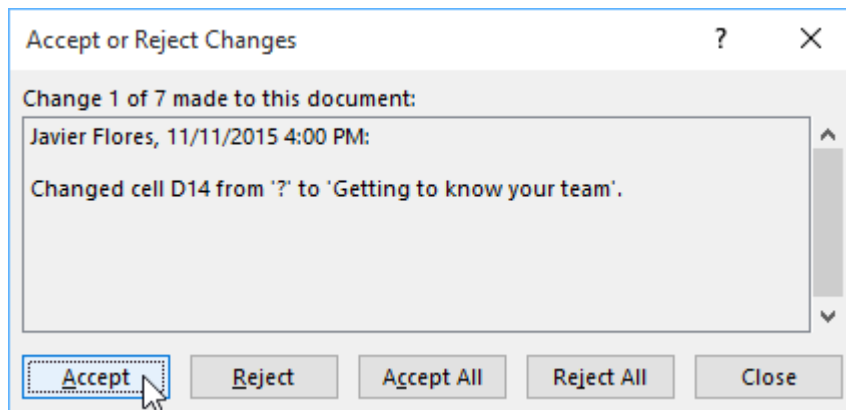
5. Even after accepting or rejecting changes, the tracked changes will still appear in your workbook. To remove them completely, you'll need to **turn off** Track Changes. From the **Review** tab, click **Track Changes**, then select **Highlight Changes** from the drop-down menu.
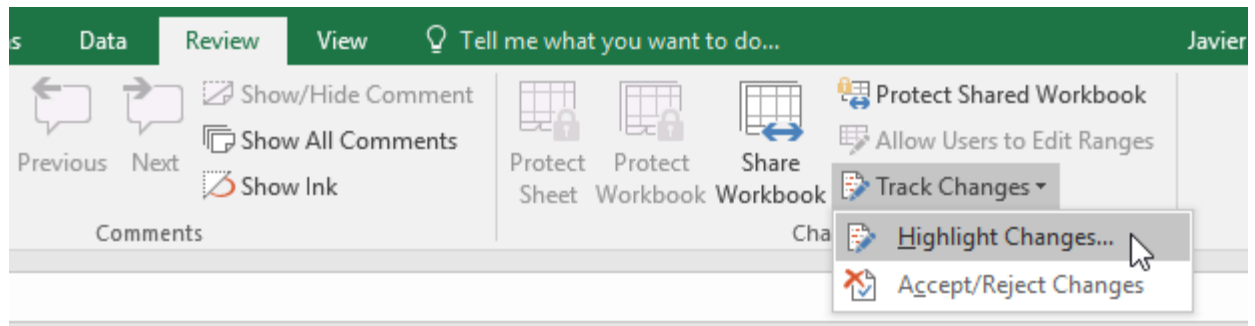

6. A dialog box will appear. Uncheck the box next to **Track changes while editing**, then click **OK**.
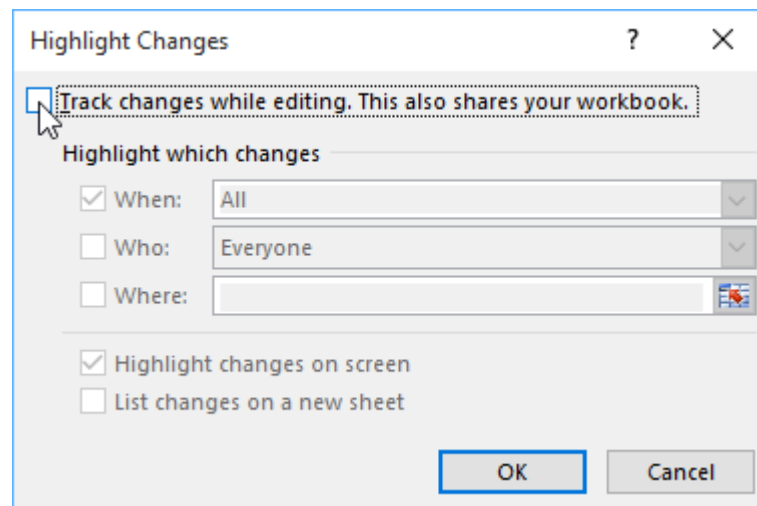
7. Click **yes** to confirm that you want to turn off Track Changes and stop sharing your workbook.
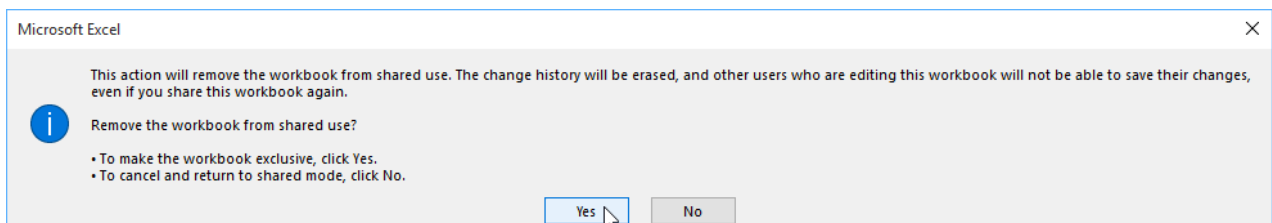
To accept or reject all changes at once, click **Accept All** or **Reject All** in the Accept or Reject Changes dialog box.

Turning off Track Changes will remove any tracked changes in your workbook. You will not be able to view, accept, or reject changes; instead, all changes will be accepted **automatically**. Always review the changes in your worksheet before turning off Track Changes.

1.
   Pivot tables

In this example, because the data is limited and simple I am going to go for **DATA CONSOLIDATION**.

If you have managed to bring all the worksheets into a single workbook then it's worth naming each range as it makes referencing the data a bit simpler. However, it's not a problem if you can't as you can easily pick out ranges from separate worksheets and workbooks.

Click in a blank cell below or to the right of any existing tables or on a blank sheet. This is important otherwise you could end up overwriting a data table by accident when you create the consolidated table.

Go to the **DATA** tab and click on;

This will open the **CONSOLIDATE** window;

Data Consolidation window

At the top you have the option to choose from a list of functions. These are all the usual functions; **SUM**, **AVERAGE**, **COUNT**, **MAX**,**MIN** etc. Select the appropriate function for what you are trying to achieve. In this case I want to add up all the hours people have completed so I'd go for **SUM**. Then you need to select all the tables that people have filled out for you. _Make sure you include all row and column headings._

Click on the range selection button…..

…and then select the ranges. After selecting a range of cells, click on **ADD** to add it to you references list. If you forget to do this (and it's easily done….I've done it many times myself) your consolidation will not happen. So whenever you are consolidating repeat to yourself "Select…..add, select….add".

Keep going until all the table ranges have been added.

Now for the important bit. At the bottom of the **CONSOLIDATION** window there are two little tick boxes.
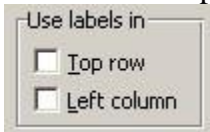
You need to tick at least one of these so that the end result shows you some labels associated with the data you have just consolidated. In this example I want to see both the days and the project numbers against the number of total hours, so here I would tick both boxes. You may well find that in most cases you will do so this anyway.

Click on **OK** and there you have your consolidated data!

	Mon	Tue	Wed	Fri	Thu
Project 1	5		0	5	1
Project 2	0	1	8	6	
Project 3	9	3	13	7	2
Project 4	3	8	5	7	
Project 5	8	5	7	7	2
Project 7	8		7		6

MATHEMATICAL FUNCTIONS IN MS-EXCEL

Functions	What it Does
SUM	Adds its arguments
SUMPRODUCT	**The most powerful and useful function in Excel**
ROUND	Rounds a number to a specified number of digits

ROUNDUP	Rounds a number up, away from zero
SUBTOTAL	Returns a subtotal of a filtered list or database)
TRUNC	Truncates a number to an integer
INT	Rounds a number down to the nearest integer)
ABS	Returns the absolute value of a number
MOD	Returns the remainder from division
POWER	Returns the result of a number raised to a power
SQRT	Returns a positive square root
In Excel 2007 and Up	
SUMIFS	Adds the cells specified by one or many given criteria **(SUMPRODUCT does better**

SUM

=SUM(A1,B6,G6) or **=SUM(A1+B6+G6)** will return the sum of the values in cells A1, B6 and G6
=SUM(A1:A23) will return the sum of the values in cells A1 to A23
=SUM(A1:A23,F3:F34) will return the sum of the values in cells A1 to A23 plus the sum of the values in cells F3 to F34

In cell B2 of a yearly summary you want to sum the values in cells B2 of each of the monthly sheets. You have named your sheets "January" , "February" ....and you have
used:**=January!B2+February!B2+March!B2...+December!B2**
You can also write this:**=SUM(January:December!B2)**

TRUNC

I don't use the INT or ROUNDDOWN functions because TRUNC does the same thing and more. The TRUNC function removes decimals without rounding. If you have 2.2 or 2.7 in cell A1 **=TRUNC(A1,0)** will return 2. Interestingly enough if you have 12,345 in B1 using a minus sign in the second argument of TRUNC=**TRUNC(B1,-3)** will return (12,000). Handy when you don't want to show the hundreds, the tens and units in a report.

ROUND

This function removes decimals rounding up the last decimal if the next one is 5 or over. So if you have 4.126 in cell A1 and use the formula =**ROUND(A1,2)** the result will be 4.13 if the value in A1 is 4.123 the result will be 4.12.

ROUNDUP

This function does the same thing as the function ROUND but always rounds up. So if you have 4.126 in cell A1 and use the formula =**ROUNDUP(A1,2)** the result will be 4.13 if the value in A1 is 4.123 the result will still be 4.13.

ABS

=ABS(A1) will return 5 if in cell A1 you have -5 or 5. This functions removes the sign.

MOD

The modulo is what is left after a division. **=MOD(20,6)** is 2 because you have 3 times 6 in 20 and the rest is 2. Notice the use of the comma to separate the arguments. See an application below in determining the age of a person.

SUMPRODUCT
let's say that you have a series of quantities in cells A1 to A5 and a series of unit prices in B1 to B5. With SUMPRODUCT you can calculate total sales with this formula: **=SUMPRODUCT (A1:A5, B1:B5)**

Basically SUMPRODUCT sums A1 multiplied by B1 plus A2 multiplied by B2.........

In the last 20 years I have used SUMPRODUCT for the purpose presented by Excel once or twice. But I use SUMPRODUCT daily to solve all kinds of other business data problems. It is the most powerful and useful function in Excel.

SUBTOTAL

The function SUBTOTAL allows (among other operations) to count, to sum or to calculate the average of filtered elements of a database. The function requires two arguments, the second is the range covered by the function and the first is a number between "1" and "11" that specifies the operation to be executed (for ex. "1" is for average, "2" is for count and "9" is for sum).
=SUBTOTAL (9,B2:B45)

SQRT

Extracting a square root is finding the number that multiplied by itself will result in the number that you are testing. Extracting a cubic root is finding the number that multiplied by itself two times will result in the number that you are testing. Extracting the fourth root is finding the number that multiplied by itself 3 times will result in the number that you are testing.

To extract the square root of a number you will use a formula like:
=SQRT(16) that will result in 4 because 4 multiplied by 4 is 16 or
=SQRT(A1) that will also result in 4 if the value in cell A1 is 16.

There are no specific Excel function to extract the cubic root or any other root. You have to trick the POWER function into doing it.

POWER

You can raise a number to a power (multiplying it by itself a certain number of times with this function. Hence:
=POWER(4,2) will result in 16 (4 times 4) or
=POWER(A1,2) will also result in 16 if the value in cell A1 is 4.

You can to trick the POWER function into extracting the square root, the cubic root and any other root by submitting a fraction as second argument. For example you can extract the square root of 16 with the formula=**POWER(16,1/2)**, the cubic root with =**POWER(16,1/3)** and so on.

ROUND, SUM
=**ROUND(SUM(A1:A5),2)** will return the sum of A1 to A5 rounded to 2 decimals.

IF, MOD, TRUNC and &
How many dozens are there in 106 units?
With the number of units in cell A1 the formulas in B1:
=**TRUNC(A1/12,0)** will return the number of   complete dozens
this formula in C1:
=**MOD(A1,12)** will return the number of units left when the total number is divided by 12.

If you want to present the result as **"8 dozens and 10 units" in** a single cell you will use the following formula combining math & Trig functions and the ampersand (&) sign:
=**TRUNC(A1/12) & "dozens and " & MOD(A1,12) & " units"**
But what if there are 96 units and you don't want the result to show as "8 dozens and 0 units" but as "8 dozens" . You will then use this formula:
=**IF(MOD(A1,12)=0,TRUNC(A1/12) & " dozens" ,TRUNC(A1/12) & " dozens and " & MOD(A1 12) & " units")**

INT, TRUNC, MOD and &
You want to determine the age of a person. If in cell " A3" you enter the date of birth, and in cell " B3" today's date, the following formula in " C3" would give you a good approximation of the age (plus or minus a few days):
=**INT((B3-A3)/365) & " years and " & TRUNC((MOD((B3-A3) 365))/30) & " months"**

If in cell A3 you enter the date of birth and in B3 you enter the formula =**NOW()** then each day when you open the workbook the age of the person is re-calculated in cell C3.