## Sort & Filter in Excel

**Sort** and **Filter** are two of the most fundamental tools in Excel for data management and analysis.

* **Sort** arranges your data in a specific order, making it easier to read and find information.
* **Filter** temporarily hides rows that you don't want to see, allowing you to focus on a specific subset of your data.

You can find both options in the **Data** tab on the Excel ribbon.

## Sorting Data 📊

Sorting allows you to organize a range of data by one or more columns. You can sort in ascending (A to Z, smallest to largest, oldest to newest) or descending (Z to A, largest to smallest, newest to oldest) order.

### Quick Sort (Single Column)

This is the fastest way to sort your data based on the values in a single column.

1. **Select a cell** in the column you wish to sort by. You don't need to select the entire column or table.
2. Go to the **Data** tab.
3. In the **Sort & Filter** group, click:
   * **AZ ↓** (Sort A to Z) for ascending order.
   * **ZA ↓** (Sort Z to A) for descending order.

Excel will automatically detect your entire data range and sort it based on the selected column.

### Custom Sort (Multi-Level Sorting)

Use this when you need to sort by more than one column (e.g., sort by Department, then by Last Name within each department).

1. **Select a single cell** anywhere within your data range.
2. Go to the **Data** tab and click the large **Sort** button. This opens the Sort dialog box.
3. The dialog box will automatically select your entire data range. Ensure the "**My data has headers**" box is checked if your columns have titles.
4. **First Level Sort**:
   * In the "**Sort by**" dropdown, choose the first column you want to sort by (e.g., "Department").
   * Set the "**Sort On**" criteria (usually "Cell Values").
   * Choose the "**Order**" (e.g., "A to Z").
5. **Add More Levels**:
   * Click the "**Add Level**" button to add another sorting criterion.
   * In the new "**Then by**" row, select the next column to sort by (e.g., "Last Name").
   * Set the "Sort On" and "Order" for this level.
6. You can add multiple levels. The data will be sorted in the order the levels appear in the dialog box. Use the **Up** and **Down** arrows to reorder levels.
7. Click **OK** to apply the sort.

### Sorting by Cell Color, Font Color, or Icon

You can also sort data based on formatting.

1. Open the **Sort** dialog box (**Data > Sort**).
2. Choose the column containing the formatting in the "**Sort by**" dropdown.
3. In the "**Sort On**" dropdown, select **Cell Color**, **Font Color**, or **Cell Icon**.
4. In the "**Order**" dropdown, select the specific color or icon you want to appear first.
5. Use the "**On Top**" or "**On Bottom**" option to specify its position.
6. Click **OK**.

## Filtering Data 🔍

Filtering allows you to display only the rows that meet certain criteria and hide the rest. This is useful for analyzing specific parts of a large dataset without deleting any information.

### Applying and Removing a Filter

1. **Select a cell** within your data range.
2. Go to the **Data** tab and click the **Filter** button (it looks like a funnel).
3. Dropdown arrows (▼) will appear in each header cell of your data.

To remove the filter, simply click the **Filter** button again.

### Using Filter Options

Click the dropdown arrow (▼) in a column header to see the filtering options for that column.

#### 1. Filter by Text

When a column contains text:

* **Checkbox List**: Uncheck "(Select All)" and then check the boxes next to the specific text values you want to display.
* **Text Filters**: Hover over this menu to see options like:
  + **Equals...**: Shows rows with an exact match.
  + **Does Not Equal...**: Hides rows with an exact match.
  + **Begins With... / Ends With...**: For partial matches.
  + **Contains...**: Shows rows where the cell includes the specified text anywhere within it.
  + **Does Not Contain...**: Hides rows that include the specified text.

#### 2. Filter by Numbers

When a column contains numbers:

* **Checkbox List**: Select specific numbers you want to see.
* **Number Filters**: This menu provides powerful options like:
  + **Equals... / Does Not Equal...**
  + **Greater Than... / Less Than...**
  + **Between...**: To specify a range.
  + **Top 10...**: Shows the top or bottom number of items or a percentage (e.g., top 5 items, bottom 20%).

#### 3. Filter by Dates

When a column contains dates, Excel automatically groups them by year, month, and day in the checkbox list.

* **Date Filters**: This menu gives you dynamic filtering options, such as:
  + **Before... / After... / Between...**
  + **Tomorrow, Today, Yesterday**
  + **Next Week, This Week, Last Week**
  + **This Month, Last Quarter, Next Year**
  + **All dates in the period**: e.g., show all entries from January.

#### 4. Filter by Color

If you have manually colored cells or used conditional formatting, you can filter by it.

* Click the dropdown arrow (▼).
* Select **Filter by Color**.
* Choose the **Cell Color** or **Font Color** you want to display. Only rows with that specific formatting will be shown.

### Clearing a Filter

* **Clear a single column filter**: Click the filter icon (a funnel with a down arrow) in the column header and select "**Clear Filter From [Column Name]**".
* **Clear all filters**: On the **Data** tab, click the **Clear** button in the **Sort & Filter** group.

**Conditional Formatting: Making Data Stand Out**

This tool automatically changes a cell's format (like its color) based on the data inside it. Think of it as automatic highlighting.

1. **Select the cells** you want to format.
2. Go to the **Home** tab and click **Conditional Formatting**.
3. Choose a rule. Here are some popular ones:
   * **Highlight Cells Rules:** This is the most common. You can highlight cells that are **Greater Than...**, **Less Than...**, have **Text that Contains...** a specific word (like "Urgent"), or have a certain **Date Occurring...**.
   * **Top/Bottom Rules:** Automatically find the **Top 10 Items**, **Bottom 10%**, etc. This is great for sales reports.
   * **Data Bars:** This adds a small colored bar inside the cell, making it easy to see which numbers are bigger or smaller at a glance.

**How to Remove Conditional Formatting**

1. Select the cells.
2. Go to **Home > Conditional Formatting > Clear Rules**.
3. Choose "**Clear Rules from Selected Cells**" or "**Clear Rules from Entire Sheet**".

**Text to Columns: Splitting Text into Different Columns**

Use this feature when you have data in a single column that you need to break apart into multiple columns. The most common example is splitting a full name into "First Name" and "Last Name".

Let's say you have a column with names like this:

* Smith,John
* Jones,Mary
* Williams,Peter

Here's how to split them:

1. **Select the entire column** that you want to split.
2. Go to the **Data** tab and click **Text to Columns**. A new window will open.
3. **Step 1 of 3: Choose File Type**
   * Select **Delimited**. This means your data is separated by a specific character (like a comma, space, or tab).
   * Click **Next**.
4. **Step 2 of 3: Set the Delimiters**
   * Uncheck **Tab** and check the box for the character that separates your data. In our example, it's a **Comma**.
   * You'll see a preview of how your data will be split.
   * Click **Next**.
5. **Step 3 of 3: Set Destination**
   * This step asks where you want to put the new columns. By default, it will start in the column you selected. Make sure you have empty columns to the right so you don't overwrite any data.
   * Click **Finish**.

**Excel's Conditional Formatting**

Conditional Formatting automatically changes the appearance of cells (like background color, font color, or adding icons) based on the data inside them. It's like giving Excel a set of highlighters and rules to make important data visually stand out.

You can find all these options on the **Home** tab of the Excel ribbon.

**1. Highlight Cells Rules**

This is the most common type of formatting. It's used to highlight individual cells that meet a specific condition you set.

**How to use it:**

1. Select the range of cells you want to format.
2. Go to **Home > Conditional Formatting > Highlight Cells Rules**.
3. Choose one of the following options:

* **Greater Than... / Less Than... / Between...**: Perfect for numbers. For example, you can highlight all sales figures **greater than 5000** in red.
* **Equal To...**: Highlights cells that exactly match a specific number or word. For example, highlight all cells that are **equal to "Completed"** in green.
* **Text that Contains...**: Finds and highlights cells that include a specific piece of text. For example, find all product names that **contain "Pro"**.
* **A Date Occurring...**: A powerful tool for dates. You can highlight cells with dates from **"Yesterday"**, **"Next Week"**, or **"Last Month"**.
* **Duplicate Values...**: An excellent way to find errors. It can instantly highlight all **duplicate** or **unique** values in a list.

[Image showing the Highlight Cells Rules dropdown menu]

**2. Top/Bottom Rules**

Use this to compare cells to each other and find the highest or lowest values in your selected range.

**How to use it:**

1. Select a range of cells with numbers.
2. Go to **Home > Conditional Formatting > Top/Bottom Rules**.
3. Choose an option:

* **Top 10 Items...**: Highlights the highest values. You can change the "10" to any number you want (e.g., find the Top 5).
* **Top 10%...**: Highlights the top percentile of values. For example, in a list of 200 salespeople, this would highlight the top 20.
* **Bottom 10 Items... / Bottom 10%...**: The opposite of the above; finds the lowest-performing values.
* **Above Average / Below Average**: Excel calculates the average of your selected cells and highlights all values that are either above or below that average.

**3. Data Bars**

Data bars add a mini bar chart inside each cell, making it incredibly easy to compare numbers visually. A larger number gets a longer bar.

**How to use it:**

1. Select your cells with numbers.
2. Go to **Home > Conditional Formatting > Data Bars**.
3. Choose either a **Gradient Fill** (fades from dark to light) or a **Solid Fill**.

[Image showing cells formatted with different colored Data Bars]

**4. Color Scales**

Color scales apply a background color to a range of cells, where the color's shade represents the cell's value. This is great for creating "heat maps" of your data.

**How to use it:**

1. Select your range of numbers.
2. Go to **Home > Conditional Formatting > Color Scales**.
3. Choose a color scheme. The most common is the **Green - Yellow - Red Color Scale**, where high values are green, average values are yellow, and low values are red.

[Image showing cells formatted with a Green-Yellow-Red Color Scale]

**5. Icon Sets**

Icon sets add a small icon (like an arrow, a traffic light, or a star) inside each cell to categorize its value relative to the others in the selection.

**How to use it:**

1. Select your cells.
2. Go to **Home > Conditional Formatting > Icon Sets**.
3. Choose a set of icons that fits your data:

* **Directional Arrows**: Great for showing if a value is trending up, down, or staying the same.
* **Shapes (like Traffic Lights)**: Used to group data into three or five categories (e.g., Green for good, Yellow for warning, Red for bad).
* **Ratings**: Uses stars, checkmarks, or pie charts to show progress or a rating level.

[Image showing cells with Traffic Light and Arrow Icon Sets]

**6. New Rule (Using a Custom Formula)**

This is the most powerful feature. It lets you create your own rule using a formula. A very common use is to **highlight an entire row based on the value in one cell of that row.**

**Example:** Highlight every row where the "Status" column says "Overdue".

1. Select your entire data range (e.g., A2:E50), but **do not include the headers**.
2. Go to **Home > Conditional Formatting > New Rule**.
3. In the window that opens, select "**Use a formula to determine which cells to format**".
4. In the formula box, write your rule. The trick is to lock the column but not the row. If your "Status" column is column C, your formula would be: =$C2="Overdue"
   * The $ before the C locks the column, so Excel always looks at column C.
   * The 2 has no $ so it changes for each row (C3, C4, etc.).
5. Click the "**Format...**" button to choose your formatting (e.g., a light red fill).
6. Click **OK** on both windows.

Now, any row that has "Overdue" in column C will be highlighted completely.

**Excel's Advanced Filter**

The Advanced Filter is a powerful tool that goes beyond the standard filter. It lets you:

1. Use complex criteria (like AND, OR, and formulas).
2. Extract a unique list of items from a column.
3. Copy the filtered results to a completely different location on your worksheet.

To use it, you first need to set up three key areas on your sheet.

**Step 1: Set Up Your Worksheet**

Before you even open the Advanced Filter tool, you need to prepare your sheet with three distinct ranges. It's best practice to have at least one blank row and column between each range.

**1. The Data Range (Your Table)**

This is your main table of data. The only rule is that it **must have a header row** with unique names for each column (e.g., "Region", "Sales", "Date").

**2. The Criteria Range (Your Rules)**

This is where you tell Excel exactly what you're looking for.

1. **Copy the Headers:** Find the column headers from your data that you want to filter by. Copy them and paste them somewhere else on your sheet (e.g., above your data). **The copied headers must match the original headers exactly.**
2. **Enter Your Criteria:** In the rows directly below these copied headers, you will type your conditions.

**3. The Extract Range (Where Results Go)**

This is the location where you want to paste the filtered data. You can either:

* Leave this area blank and just select a single cell where you want the results to start.
* Copy and paste the specific headers from your data that you want to be included in the results.

**Step 2: Building Your Criteria (The Conditions)**

This is the most important part. How you structure the criteria range determines the filter's logic.

**Greater Than (>) / Less Than (<) Condition**

To find numbers or dates, use comparison operators directly in the criteria cell.

* **Example:** To find all sales greater than $1,000.

| Sales |
| --- |
| >1000 |

**AND Condition (All criteria must be true)**

To link multiple criteria with AND, place them in the **same row**.

* **Example:** Find all records from the "**East**" region **AND** where sales were **greater than $1,000**.

| Region | Sales |
| --- | --- |
| East | >1000 |

**OR Condition (Any criterion can be true)**

To link multiple criteria with OR, place them in **different rows**.

* **Example:** Find all records where the region is "**East**" **OR** the region is "**West**".

| Region |
| --- |
| East |
| West |

**BETWEEN Condition (An AND for the same field)**

To find values between two numbers, you must use the same header twice.

* **Example:** Find all sales that are **greater than or equal to $500** AND **less than or equal to $1,000**.

| Sales | Sales |
| --- | --- |
| >=500 | <=1000 |

**Step 3: Using the Advanced Filter Tool**

Once your three ranges are set up, you're ready to run the filter.

1. Click on any single cell inside your main **Data Range**.
2. Go to the **Data** tab and click **Advanced** in the "Sort & Filter" group.
3. The Advanced Filter dialog box will appear.
4. **Action:**
   * Choose "**Filter the list, in-place**" to hide rows in your original table.
   * Choose "**Copy to another location**" to extract the results, leaving your original data untouched.
5. **List range:** Excel usually auto-selects your data table correctly. If not, click in the box and select your entire data table, including the headers.
6. **Criteria range:** Click in this box and select your criteria range, including the headers you copied and the condition rows below them.
7. **Copy to:** (This is only active if you chose "Copy to another location"). Click in this box and select the single cell or the range of headers you prepared for your results.
8. Click **OK**.

Excel will instantly filter your data based on your complex criteria and display the results.