📘 Module 5: Data Tools

🔷 1. Sorting, Filtering & Data Validation

🔁 Sorting in Excel

🔷 Purpose:

To arrange data **alphabetically**, **numerically**, or by **custom order**.

✅ Types:

- A → Z / Z → A (Text)
- Smallest → Largest / Largest → Smallest (Numbers)
- Custom (User-defined order)

🪜 Steps to Sort Data:

1. Click **any cell** in the column you want to sort.
2. Press **Ctrl + Shift + ↓** to select full column.
3. Go to **Home → Sort & Filter** or **Data → Sort**.
4. Choose one of the following:
    - Sort A to Z (ascending)
    - Sort Z to A (descending)
    - Custom Sort → Add multiple levels (e.g., sort by Region, then by Sales)
5. Click **OK**.

🔍 Filtering in Excel

🔷 Purpose:

To **temporarily hide** rows that don't meet specific criteria.

✅ Types:

- **Text Filter** (Contains, Begins with)
- **Number Filter** (Greater Than, Between)
- **Date Filter**
- **Custom Filter** (Multiple conditions)

🪜 Steps to Apply a Filter:

1. Select the **header row** of your data.
2. Go to **Data → Filter** (or Home → Sort & Filter → Filter).

3. Drop-down arrows will appear in each column header.

4. Click the arrow on a column and apply your filter:

   • Use checkboxes or filter by condition.

5. View the filtered results instantly.
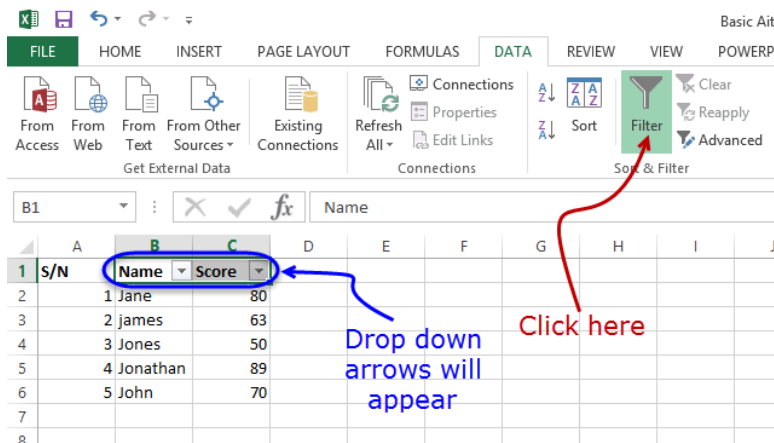


✅ Data Validation in Excel

🔷 Purpose:

To **restrict user input** and prevent invalid entries.

✅ Common Validation Rules:

• Whole numbers only

• A list of items (dropdown)

• Maximum character length

• Custom formulas

🪜 Steps to Apply Data Validation:

1. Select the cell(s) you want to validate.

2. Go to **Data → Data Validation**.

3. In the dialog box:

   • Under **Allow**, choose type (e.g., List, Whole Number, Text Length).

   • Define criteria (e.g., min = 1, max = 100).

4. (Optional) Add:

   • **Input Message**: Tooltip to guide the user.

   • **Error Alert**: Message shown when invalid data is entered.

5. Click **OK**.
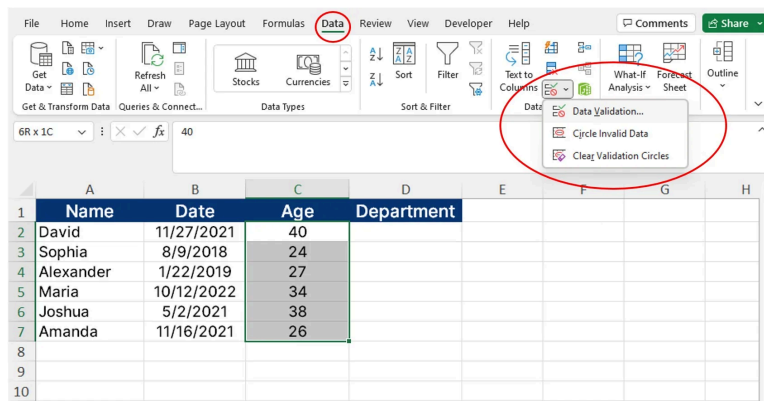
🔷 2. Text to Columns & Remove Duplicates

✂️ Text to Columns

🔷 Purpose:

Split data in a single column into **multiple columns**.

✅ Two Options:

- **Delimited** (separated by comma, space, tab)
- **Fixed Width** (split by character position)

🪜 Steps to Use Text to Columns:

1. Select the column containing the data you want to split.
2. Go to **Data → Text to Columns**.
3. Choose:
    - **Delimited** → click Next → choose delimiter (comma, tab, etc.)
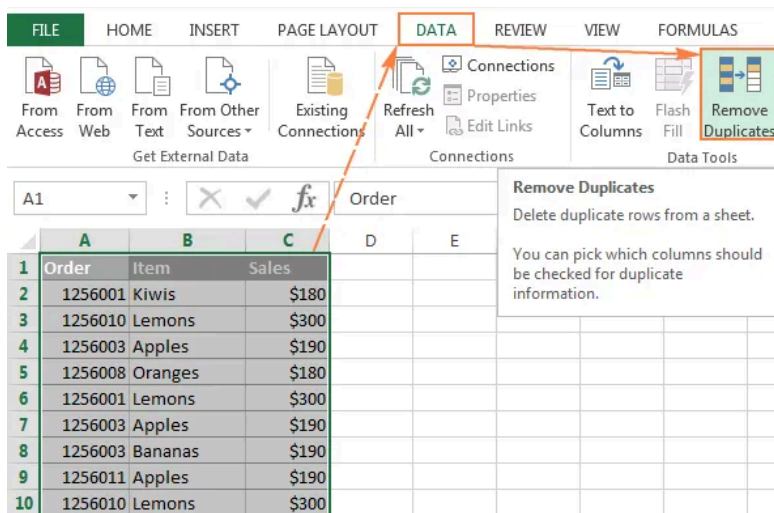   - **Fixed Width** → click Next → set the break lines
4. Click **Finish**.

🧹 Remove Duplicates

🔷 Purpose:

Remove **exact duplicate rows** based on selected columns.

🪜 Steps to Remove Duplicates:

1. Select your full data range.
2. Go to **Data → Remove Duplicates**.
3. In the dialog:
    - Tick the columns you want to check for duplicates.
4. Click **OK** → Excel will remove duplicates and show how many were removed.

◆ 3. Advanced Filter Options

🎯 Purpose:

Filter data using **complex conditions**, **wildcards**, or show **unique records**, with output in a **new location**.

✅ Special Features:

- AND/OR logic using criteria range

- Copy result to new location

- Use of wildcards (, ?)

- Show only unique records

🪜 Steps to Use Advanced Filter:

1. Create a **criteria range** above or beside your dataset with headers and conditions.

2. Select your original dataset.

3. Go to **Data → Advanced** under the "Sort & Filter" group.

4. In the dialog:

   - Set **List Range** (your main data)

   - Set **Criteria Range** (your condition area)

   - Choose to filter in place or copy to another location

   - Check **Unique records only** if needed

5. Click **OK** → The filtered result will appear.

🔷 4. Formatting Data as Tables

🎯 Purpose:

Convert your data into a **structured Excel table** with enhanced features.

🪜 Steps to Format as Table:

1. Select the full dataset.

2. Go to **Home → Format as Table**.

3. Choose a table style from the dropdown.

4. Check "My table has headers" if your data has headers.

5. Click **OK**.

📌 Table Tools Available:

- Enable **Total Row** (adds auto-calculated summary)

- Add filters automatically

- Auto-expand when new rows/columns are added

- Use **structured references** in formulas

🌟 Best Practices

Tool	Best Practice
Sorting	Always include headers; avoid sorting partial tables
Filtering	Avoid filtering across merged cells
Data Validation	Use for controlling user input (e.g., restrict to list only)
Text to Columns	Backup data before splitting
Remove Duplicates	Select only columns that should be checked
Advanced Filter	Test logic first with small dataset
Format as Table	Use for cleaner formatting + dynamic tables

📌 Key Points to Remember

- ✅ Use **Ctrl + Shift + Arrow keys** to select large datasets quickly
- ⚠️ Removing duplicates cannot be undone – always back up data
- 🔎 Use **Data Validation** to prevent entry mistakes
- 🧠 Advanced Filter is more powerful than normal filter (supports multiple rules)
- 📈 Tables automatically support filtering, sorting, and totals
- 🎨 Formatting as a table makes data easier to manage and present