DATA ANALYTICS

Chapter 3: Data Analytics With Excel				
Teaching Hours: 08	Marks Distribution			
	Remember = 02 M	Understanding= 04M	Applying = 08 M	Total = 12 M

Unit - III Data Analytics with excel

3.1 Excel Dashboard Tables and Data Grids, Dynamic Filters and Controls, Trend Analysis and Forecasting

3.2 Pivot Tables Creating Pivot Table Specifying Pivot Table Data

3.3 Changing a Pivot Tables. Calculation Filtering and Sorting a Pivot Table

3.4 Creating Pivot Chart, Grouping Items

3.5 Updating a Pivot Table, Formatting a Pivot Table using Slicers

3.1 Excel Dashboard: Tables and Data Grids

Excel Dashboard: An Excel dashboard is a visual tool in Microsoft Excel that consolidates and displays data summaries, key metrics, and KPIs from various sources, providing a friendly overview of business data. It helps quickly interpret and analyze data, making it easier to understand key trends and make informed decisions.

Key Features and Benefits of Excel Dashboards:

1. Visual Representation:

Dashboard present data in a visually appealing and easy to understand format, making it simpler to grasp trends and insights.

2. Consolidated Data:

They bring together data from multiple sources into a single, unified view, eliminating need to navigate through separate reports

3. Interactive Elements:

Dashboards often incorporate interactive features like slicers, timelines, and filters, allow users to explore data in more detail

4. Easy to Use:

The intuitive design of dashboards makes it accessible to users of all technical skill levels

5. Time-Saving:

By providing a high-level overview, dashboards save time by allowing users to quick identify important information without having to sift through large datasets

6. Improved Decision-Making:

The clear and concise presentation of data in dashboards enables users to make bettes informed decisions based on accurate and timely information.

Steps to Create an Excel Dashboard:

1. Gather and Organize Data:

Collect data from relevant sources and ensure it is properly organized and formatted in Exce

2. Structure the Workbook:

Design a layout for your dashboard including sections for key metrics, charta, and tables

3. Create Tables and Pivot Tables:

Use Excel tables and PivotTables to organize and summarize your data.

4. Visualize Data:

Incorporate charts, graphs, and other visual elements to enhance the presentation of y data

5. Assemble the Dashboard

Combine all the elements of your dashboard into a cohesive and user-fmeully format.

6. Add Interactive Elements:

Use slicers, timelines, and other interactive features to allow users to explore data in more detail.

Examples of Dashboard Elements:

Charts:

Bar charts, line charts, pie charts, and other types of charts can be used to visualize data trends and relationships.

Tables:

Tables can be used to present data in a structured and organized manner, making it easier to compare different metrics

Metrics:

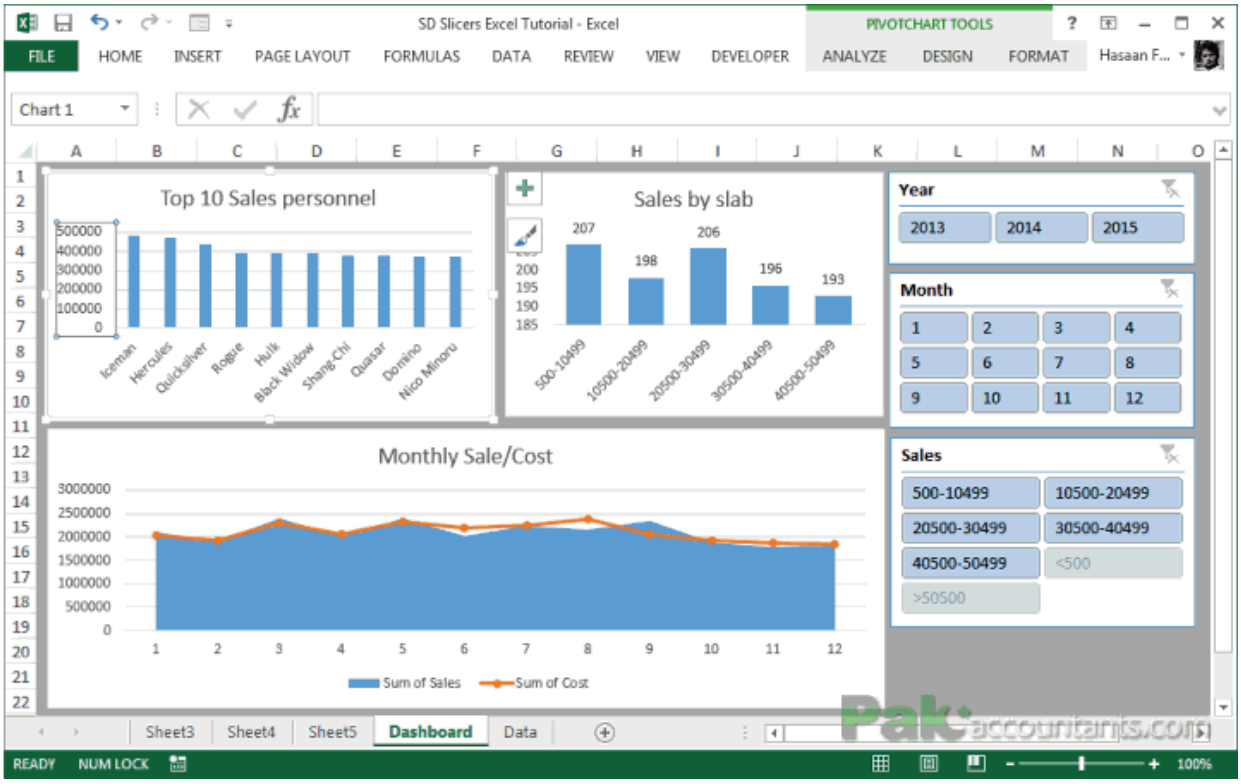
Key Performance Indicators (KPIs) and other relevant metrics can be displayed in a prominent way to highlight important data.

Slicers and Timelines:

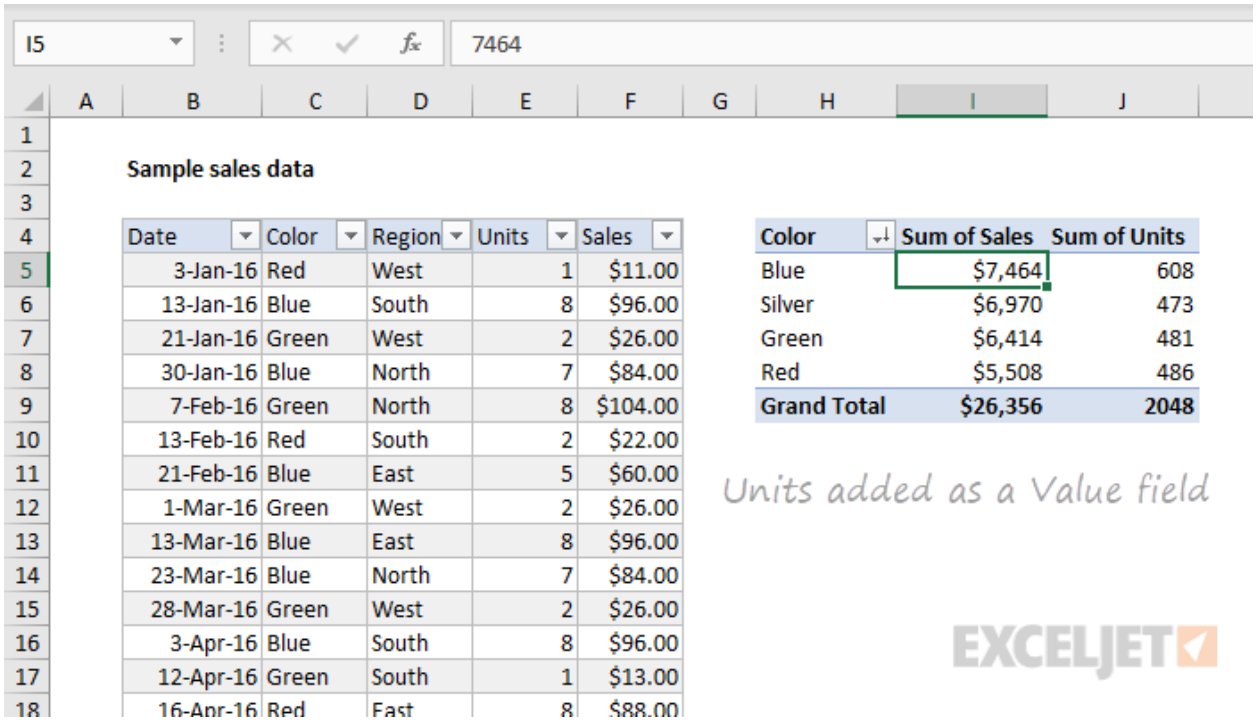
These interactive elements allow users to filter data by different categories and time periods, providing greater control over the information displayed.

Example: Consider an Excel sheet having data in tabular form

	A	B	C	D	E	F	G	H
1	Purchase ID	Last name	First name	Birthday	Country	Date of purchase	Amount of purchase	
2	1	Davidson	Michael	04/03/1986	United States	10/12/2016	37	
3	2	Vito	Jim	09/01/1994	United Kingdom	02/02/2016	85	
4	3	Johnson	Tom	23/08/1972	France	02/11/2016	83	
5	4	Lewis	Peter	18/10/1979	Germany	22/11/2016	27	
6	5	Koenig	Edward	13/05/1983	Argentina	26/03/2015	43	
7	6	Preston	Jack	16/06/1991	United States	06/11/2016	77	
8	7	Smith	David	11/03/1965	Canada	15/11/2016	23	
9	8	Brown	Luis	03/09/1997	Australia	03/07/2015	74	
10	9	Miller	Thomas	07/01/1980	Germany	07/11/2016	13	
11	10	Williams	Bill	26/07/1960	United States	20/11/2015	80	
12	11	Gemini	Alexia	12/09/1995	Canada	11/03/2017	35	
13	12	Bond	James	25/02/1975	United Kingdom	12/08/2017	40	
14	13	Burgle	Patricia	01/12/1990	United States	18/01/2015	55	
15	14	Reding	Michelle	07/04/1985	Canada	23/02/2017	28	
16	15	Harvey	Billy	14/07/1971	United Kingdom	12/01/2016	41	
17								
18								



Now we can Discuss Above example more detail Through Some Graphical Images and Data assign in Excel sheet. Now consider following Excel sheet in which data is given that show Company Size with no of Employee with Revenue Generated in every month with according to country wise



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Sample sales data

Date	Color	Region	Units	Sales
3-Jan-16	Red	West	1	$11.00
13-Jan-16	Blue	South	8	$96.00
21-Jan-16	Green	West	2	$26.00
30-Jan-16	Blue	North	7	$84.00
7-Feb-16	Green	North	8	$104.00
13-Feb-16	Red	South	2	$22.00
21-Feb-16	Blue	East	5	$60.00
1-Mar-16	Green	West	2	$26.00
13-Mar-16	Blue	East	8	$96.00
23-Mar-16	Blue	North	7	$84.00
28-Mar-16	Green	West	2	$26.00
3-Apr-16	Blue	South	8	$96.00
12-Apr-16	Green	South	1	$13.00
16-Apr-16	Red	East	8	$88.00

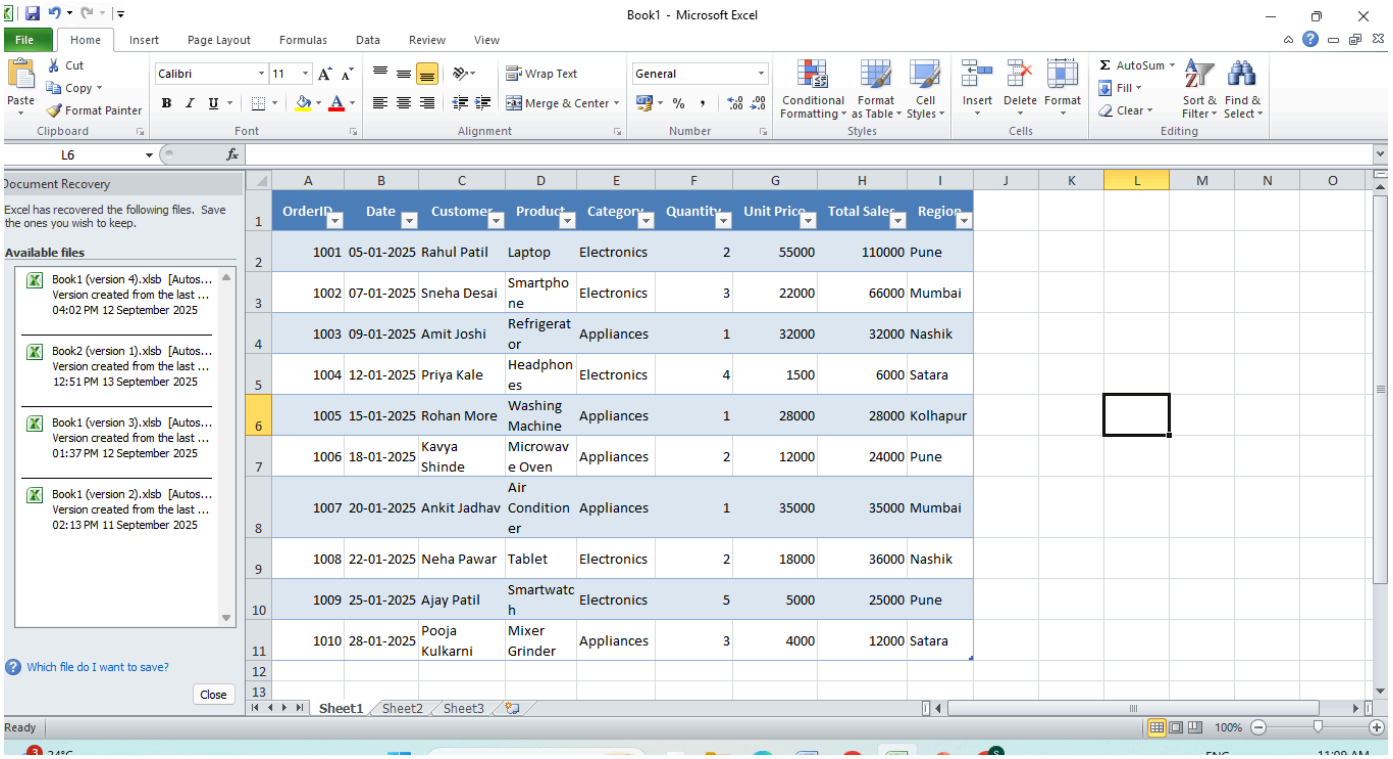
Color	Sum of Sales	Sum of Units
Blue	$7,464	608
Silver	$6,970	473
Green	$6,414	481
Red	$5,508	486
Grand Total	$26,356	2048

Units added as a Value field

EXCELJET

Steps to Create an Excel Dashboard:

- **Step 1:** Prepare Your Data
- Organize data neatly in a table format (no merged cells).
- Include columns like Date, Product, Region, Salesperson, Revenue, etc.
- Select your data Press Ctrl+T to turn it into a Table (easier to manage).



OrderID	Date	Customer	Product	Category	Quantity	Unit Price	Total Sales	Region
1001	05-01-2025	Rahul Patil	Laptop	Electronics	2	55000	110000	Pune
1002	07-01-2025	Sneha Desai	Smartphone	Electronics	3	22000	66000	Mumbai
1003	09-01-2025	Amit Joshi	Refrigerator	Appliances	1	32000	32000	Nashik
1004	12-01-2025	Priya Kale	Headphones	Electronics	4	1500	6000	Satara
1005	15-01-2025	Rohan More	Washing Machine	Appliances	1	28000	28000	Kolhapur
1006	18-01-2025	Kavya Shinde	Microwave Oven	Appliances	2	12000	24000	Pune
1007	20-01-2025	Ankit Jadhav	Air Conditioner	Appliances	1	35000	35000	Mumbai
1008	22-01-2025	Neha Pawar	Tablet	Electronics	2	18000	36000	Nashik
1009	25-01-2025	Ajay Patil	Smartwatch	Electronics	5	5000	25000	Pune
1010	28-01-2025	Pooja Kulkarni	Mixer Grinder	Appliances	3	4000	12000	Satara

Step 2: Create Pivot Tables

Go to Insert PivotTable

Create multiple PivotTables to summarize

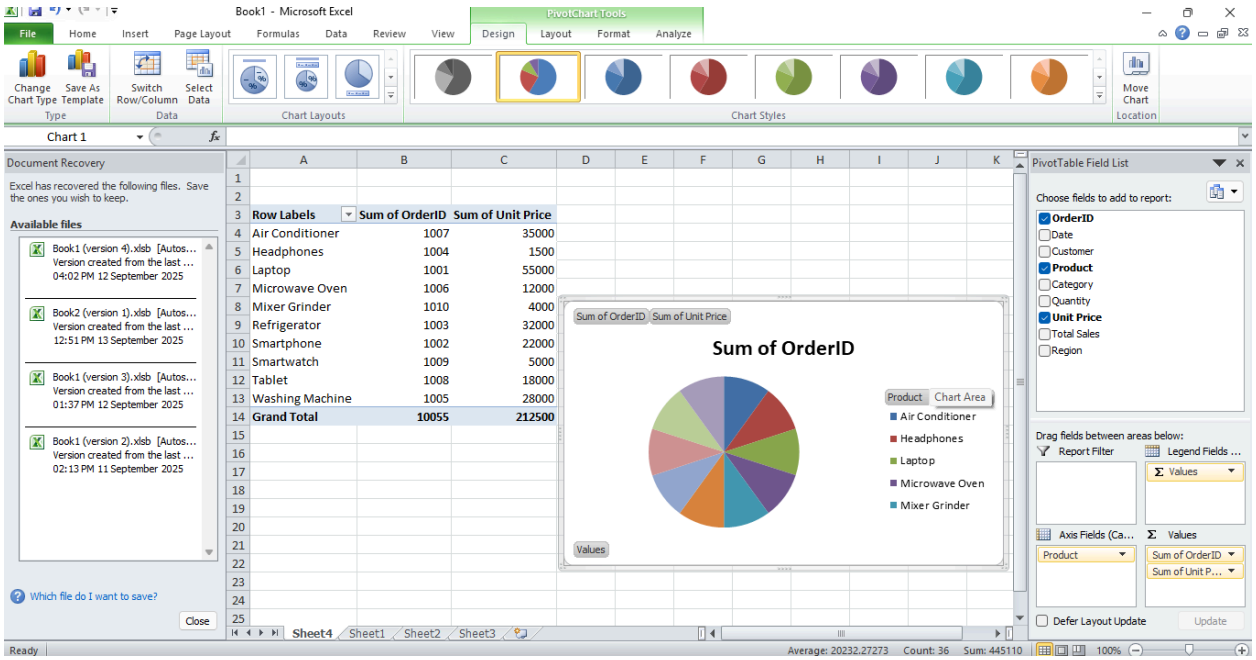
Total Revenue

Revenue by Region

Top Products

Monthly Sales Trend

Top Salespersons



Row Labels	Sum of OrderID	Sum of Unit Price
Air Conditioner	1007	35000
Headphones	1004	1500
Laptop	1001	55000
Microwave Oven	1006	12000
Mixer Grinder	1010	4000
Refrigerator	1003	32000
Smartphone	1002	22000
Smartwatch	1009	5000
Tablet	1008	18000
Washing Machine	1005	28000
Grand Total	**10055**	**212500**

Step 3: Insert Charts

Select PivotTable

Go to Insert Charts

Choose the right type

Pie chart for sales by region

Column/Bar chart for top products

Line chart for trends over time

Donut chart for percentage metrics

Step 4: Design the Dashboard Sheet

Create a new blank sheet called Dashboard

Copy your PivotCharts and important Pivot Tables

Arrange them neatly

KPIs (big numbers) at the top

Charts underneath

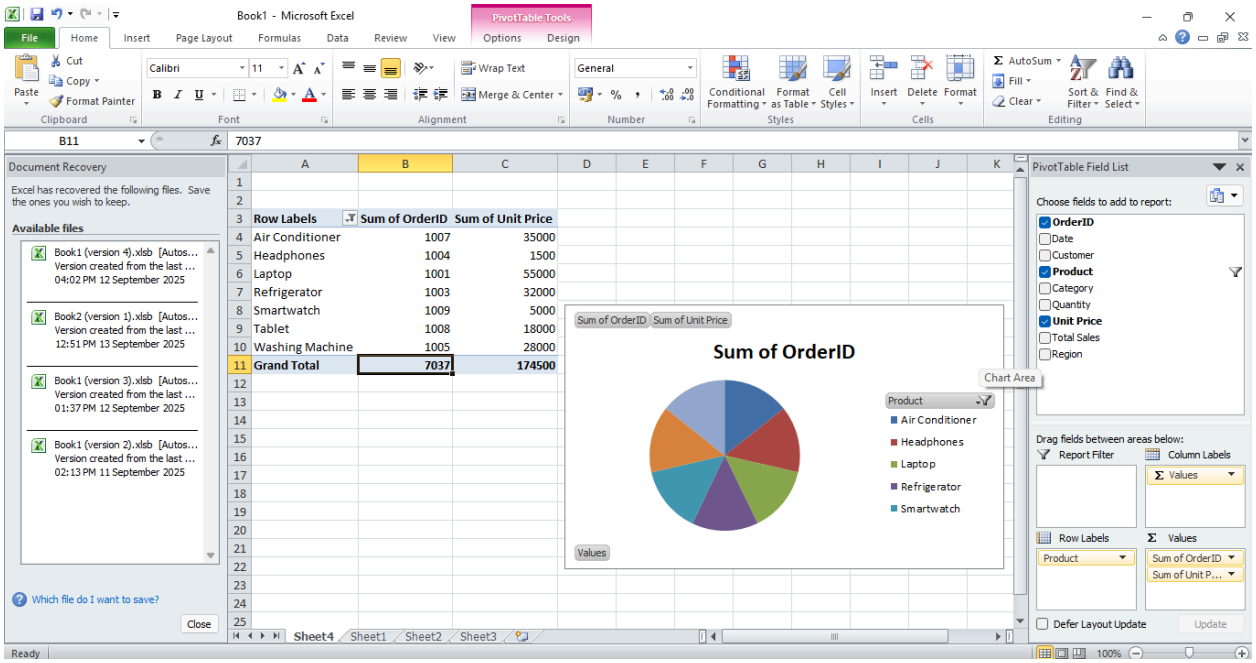
Keep space and alignment clean

Step 5: Add Slicers (Optional but Powerful!)

Select PivotTable Insert Slicer

Choose fields like Region Salesperson, or Product

Slicers are clickable filters (very cool and interactive!)



Step 6: Furmat and Beautify

Add nice titles (Insert-Text Box)

Apply soft colors to charts

Use consistent fonts and colors

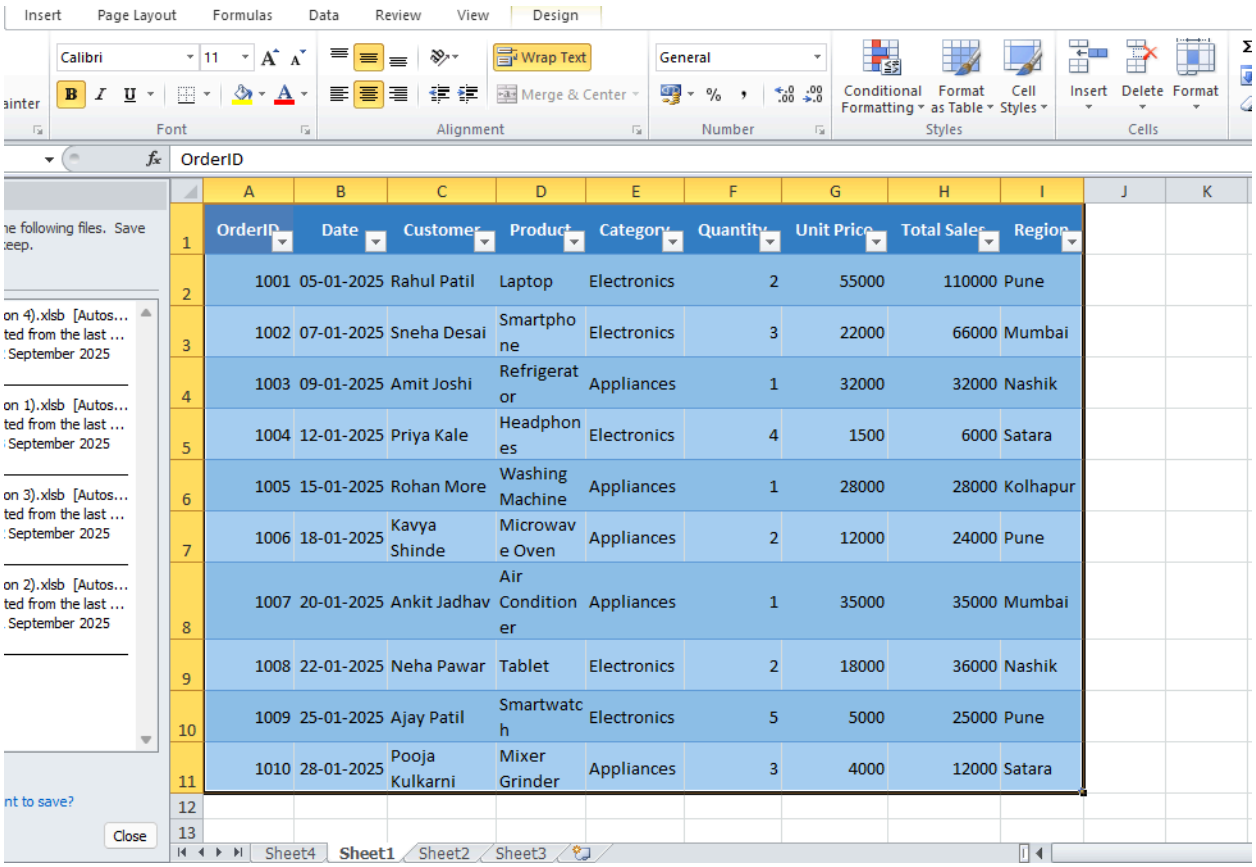
Hide gridlines View Uncheck Gridlines

3.1.1 Tables & Data Grids

Skill	What It Means	Example I'll Show You
Tables and Data Grids	Organized, sortable data	Sales Table (with filters)
Dynamic Filters and Controls	Interactive filtering	Slicers & Dropdowns
Trend Analysis	See how things change over time	Line Chart of Monthly Sales
Forecasting	Predict future based on past	Excel's Forecast Sheet

Tables and Data Grids Example

In Excel : Create a Sales Table like this:



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1007	20-01-2025	Ankit Jadhav	Air Conditioner	Appliances	1	35000	35000	Mumbai
1008	22-01-2025	Neha Pawar	Tablet	Electronics	2	18000	36000	Nashik
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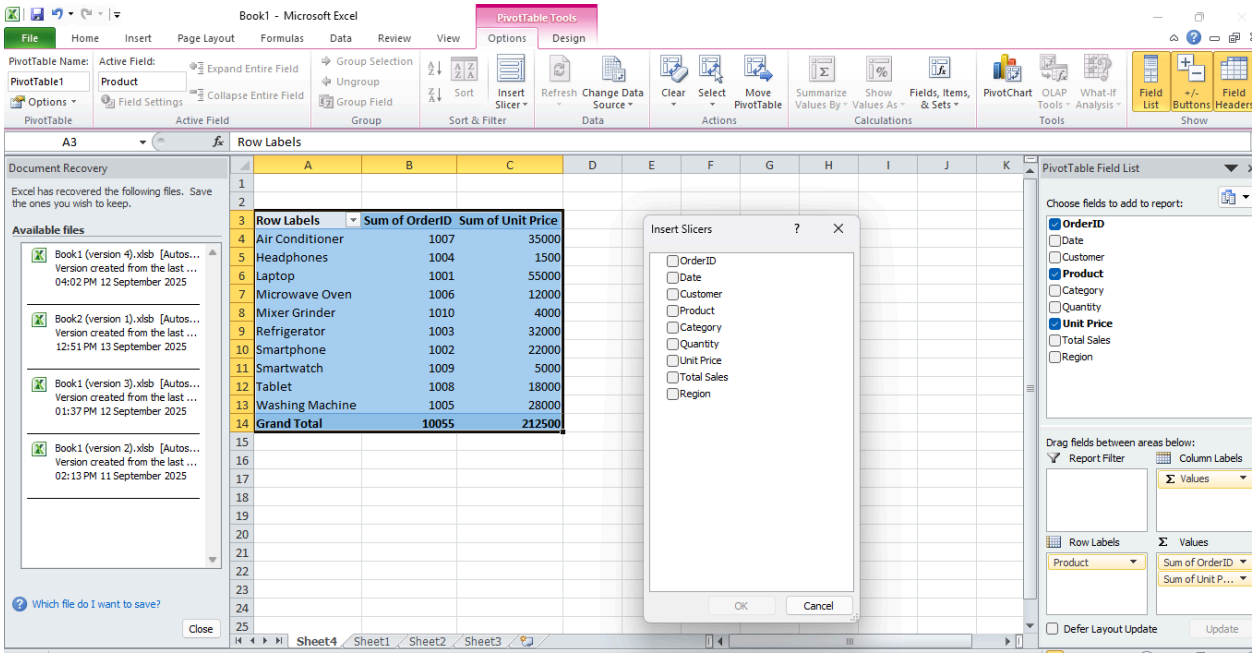
1010	28-01-2025	Pooja Kulkarni	Mixer Grinder	Appliances	3	4000	12000	Satara

3.1.2 Dynamic Filters and Controls Example

After creating PivotTables based on your Sales Table:

Insert Slicer Select Region and Product



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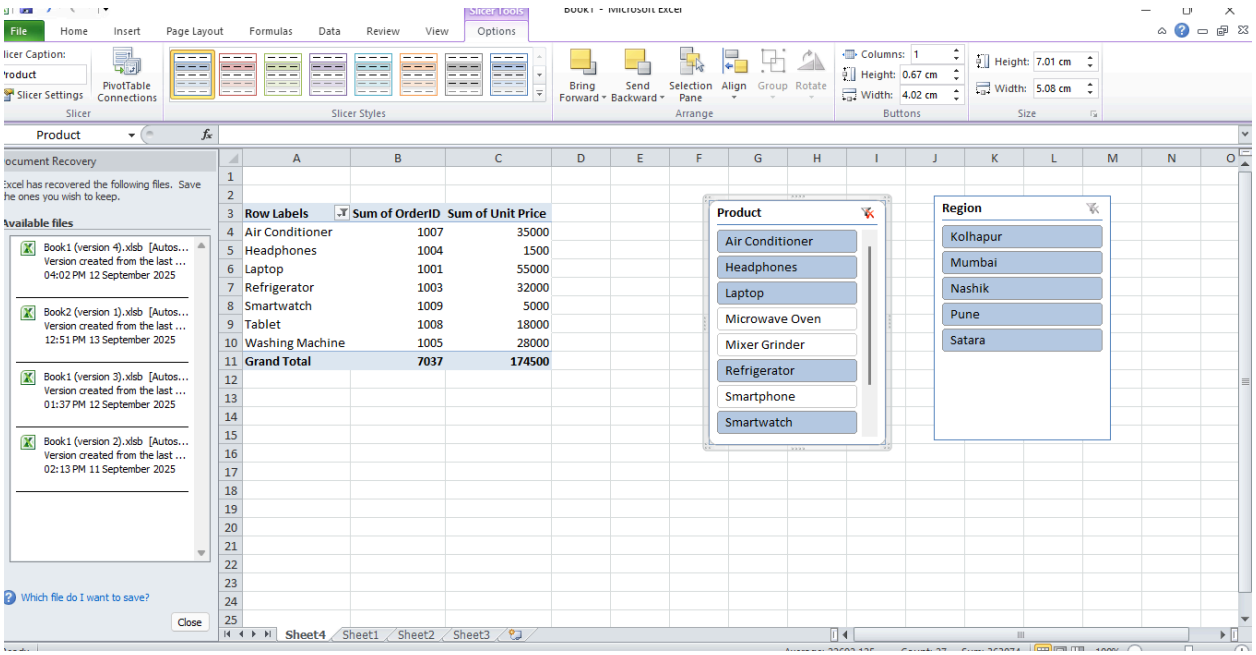
Headphones	1004	1500
Laptop	1001	55000
Microwave Oven	1006	12000
Mixer Grinder	1010	4000
Refrigerator	1003	32000
Smartphone	1002	22000
Smartwatch	1009	5000
Tablet	1008	18000
Washing Machine	1005	28000
Grand Total	10055	212500



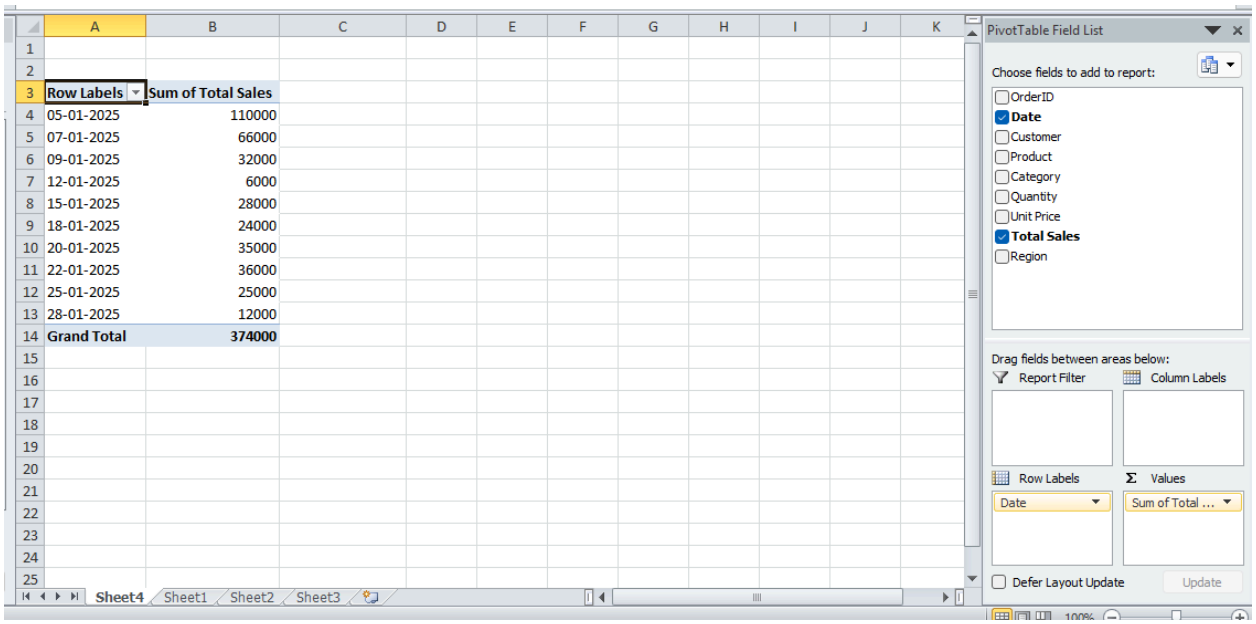
Row Labels	Sum of OrderID	Sum of Unit Price
Air Conditioner	1007	35000
Headphones	1004	1500
Laptop	1001	55000
Refrigerator	1003	32000
Smartwatch	1009	5000
Tablet	1008	18000
Washing Machine	1005	28000
Grand Total	7037	174500

3.1.3 Trend Analysis Example

Create a PivotTable:

Rows→ Month (from Date field using Group by → Months)

Values→ Sum of Revenue



Row Labels	Sum of Total Sales
05-01-2025	110000
07-01-2025	66000
09-01-2025	32000
12-01-2025	6000
15-01-2025	28000
18-01-2025	24000
20-01-2025	35000
22-01-2025	36000
25-01-2025	25000
28-01-2025	12000
Grand Total	374000

3.1.4 Forecasting

If you want to show forecasting separately:

Data Analytics with Excel

Use formulas like FORECAST LINEAR() or FORECAST ETS() outside the pivot

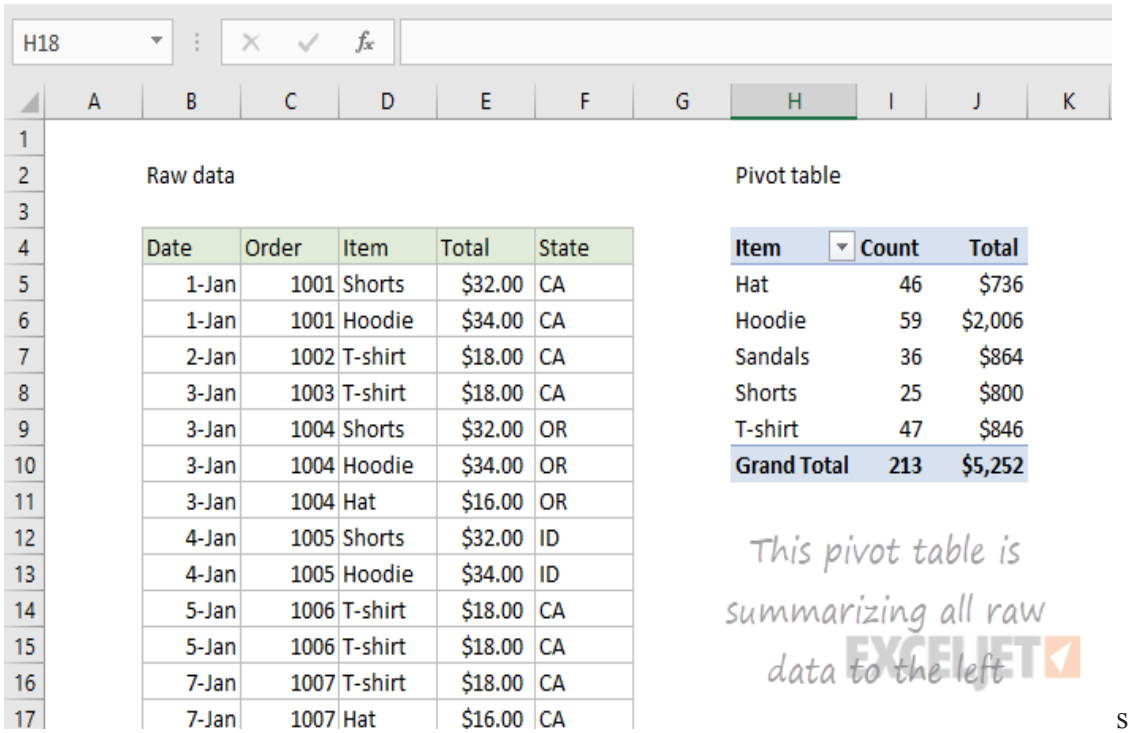
Link those results to a secondary chart for future trend

3.2 Pivot Tables: Creating Pivot Table, Specifying Pivot Table Data

What is a Pivot Table?

A Pivot Table in Excel is a powerful tool Pivot tables are one of the important and useful Excel's features that allow us to quickly summarize, analyze and explore large datasets whether it's sales Figures, financial reports or any complex data A pivot table helps us to rearrange, group and calculate data easily to spot trends and patterns without changing the original dataset Learning to create and customize pivot tables makes our data analysis faster, more efficient and turns raw data into clear, actionable insights. In this article we'll see the process of creating pivot tabies and its cors concepts.

- Summarize large amounts of data
- Analyze trends
- Group filter sort and aggregate data nasily
- Turn raw data into meaningful reports without writing formulas.



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Raw data

Date	Order	Item	Total	State
1-Jan	1001	Shorts	$32.00	CA
1-Jan	1001	Hoodie	$34.00	CA
2-Jan	1002	T-shirt	$18.00	CA
3-Jan	1003	T-shirt	$18.00	CA
3-Jan	1004	Shorts	$32.00	OR
3-Jan	1004	Hoodie	$34.00	OR
3-Jan	1004	Hat	$16.00	OR
4-Jan	1005	Shorts	$32.00	ID
4-Jan	1005	Hoodie	$34.00	ID
5-Jan	1006	T-shirt	$18.00	CA
5-Jan	1006	T-shirt	$18.00	CA
7-Jan	1007	T-shirt	$18.00	CA
7-Jan	1007	Hat	$16.00	CA

Pivot table

Item	Count	Total
Hat	46	$736
Hoodie	59	$2,006
Sandals	36	$864
Shorts	25	$800
T-shirt	47	$846
Grand Total	213	$5,252

This pivot table is summarizing all raw data to the left

s

How to Create a Pivot Table in Excel?

Follow these simple steps to build a pivot table in Excel:

Step 1: Prepare Your Data

Before creating a pivot table, ensure our data is properly formatted:

Organize in a Tabular Format: Place our data in rows and columns with each column have header

2. Avoid Blank Rows or Columns: Ensure there are no empty rows or columns within dataset.

3. Name Your Data Range (Optional): Highlight our data and assign a name with Form Define Name for easier reference.

Step 2:Select Your Data

1. Click any cell inside our data or

2. Highlight the specific range we want to include in the pivot table

Step 3: Go to Insert Tab > Insert the Pivot Table

1. Go to the Insert tab on the Excel ribbon.

2. Click PivotTable

3. In the dialog box, check that the selected data range is correct.

4. Choose where we want the pivot table to appear (new worksheet or existing sheet).

5. Click OK to create the pivot table layout.

In the Create PivotTable dialog box:

1. Confirm the selected data range or adjust it as needed.

2. Choose where we want the pivot table to be placed:

- New Worksheet: Creates the pivot table in a new worksheet.
- Existing Worksheet: Lets us place it in a specific location on the current sheet.

Step 4:Build Your Pivot Table

We'll see a pivot table field list pane on the right side of our screen.

This is where we organize our data:

Drag and Drop Fields:

Drag column headers from the Field List into one of the four areas:

- Rows: Sets rows for the table.
- Columns: Creates columns for our data.
- Values: Adds numerical data to be calculated like sum, count, etc.
- Filters :Adds filters to refine our analysis.

Step	Action	Example
1	Prepare Data	Clean table with headers
2	Insert Pivot Table	Insert → Pivot Table
3	Choose Range	Auto detect or select manually
4	Layout Pivot Table	Drag fields into Rows, Columns, Values

3.3 Changing a Pivot Table, Calculations, Filtering and Sorting

3.3.1 Changing a Pivot Table

Sometimes after creating a Pivot Table, you might need to **make adjustments** or **change the view** of your data. Here's how to easily **modify** and **update** your Pivot Table.

Step 1: Modify Field Placement

- **Drag fields** between the areas (Rows, Columns, Values, and Filters) to change the layout.
- **Remove fields** by unchecking them in the PivotTable Field List panel.

Example:

- If you want to **add** Salesperson to the **Rows** section, just **drag** the Salesperson field into **Rows.**
- If you don't need to see the **Product** by month, simply **drag** it out of the Columns are

Step 2:Adjust the Value Calculation

- By default, Pivot Tables will sum numeric data, but you can change the calculation type to things like average, count, max, min, etc.
- To do this:

1. Click on the dropdown in the Values area.
2. Choose Value Field Settings.
3. Select the calculation type (e.g., Count, Average, Min, Max).

Example:

If you want to know how many transactions happened, use **Count** instead of **Sum**

3.3.2 Calculation in Pivot Tables

Step 1: Create Calculated Fields

Sometimes, you may want to perform custom calculations directly within your Pivity Step (like calculating profit margin or a custom formula).

How to Add a Calculated Field?

1 Click anywhere inside the Pivot Table

2. Go to the PivotTable Analyze tab

Calculated Field 3. Click Fields, Items & Sets

4. Name the field and enter the formula.

3.3.3 Filtering a Pivot Table

Step 1: Filter by Specific Criteria

Filters allow you to show only the data that meets your needs.

How to Filter?

1. Drag a field into the Filters area of the Pivot Table.

2. This will create a dropdown in the Pivot Table where you can select specific items to filter

Step 2: Use Slicers for Interactive Filtering

Slicers are visual filters that allow for easy and interactive filtering in a Pivot Table. They are especially useful for creating dashboards.

How to Add a Slicer?

1. Click anywhere inside the Pivot Table

2. Go to PivotTable Analyze Insert Slicer.

3. Select the field you want to filter (e.g., Region, Salesperson).

4. Use the slicer to filter the data interactively.

Step 3: Date Filters (for Time Series Data)

If your data includes dates, you can use Date Filters to show data within specific time rang

1. In the Pivot Table, click on a Date field in the Rows/Columns area.

2. Click the dropdown next to the Date field.

Choose a **Date Filter** such as **This Month, Last 3 Months, Year-to-Date, or Custom Filter.**

3.3.4 Sorting a Pivot Table

Step 1: Sort Data in Pivot Table

You can sort your Pivot Table data based on any column (eg, revenue, units sold)

How to Sort?

1. Click the **drop-down arrow** in the field you want to sort.

2 Select **Sort A to Z (**ascending) or Sort Z to A (descending).

Example:

order If you want to see which region had the highest sales, sort the Revenue column in descending

Step 2: Sort by Custom Order

If you have custom categories (like Region), and you want to sort in a specific order [eg, North South East West), you can do the following

How to Use Custom Sorting:

1. Right-click on a **Row Label** in your Pivot Table (e.g. Region).

2. Click **Sort → More Sort Options.**

3 Choose Manual Order or **Sort by Custom List.**

Step 3: Sort Data in Subcategories

To sort data within categories, use Subtotals and Group By options

How to Group Data?

1. Right click on a **Date field** in Rows.

2. Choose **Group By a**nd select to group by **Months, Years, or Quarters.**

3. Now, you can **sort within months or quarters.**

Advanced Filtering and Sorting (Optional)

1. **Multiple Filters:** Use Multiple Filters by dragging fields to the Filter area (eg, filter by both Region and Salesperson).

2**. Top 10 Items:** If you want the **Top 10 products** by sales, go to **Filter → Top 10** and select **Top 10 by Revenue**

Example: Use Case for Pivot Table Changes

- Let's say you have sales data, and you want to create a report that:

  1. **Shows Total Revenue** by Region.

  2. **Filters by specific products** (using a slicer).

  3. **Sorts** by h**ighest sales.**

- Here's how you would do it:

❖ Create a Pivot Table.
❖ Drag Region into Rows.
❖ Drag Revenue into Values
❖ Add a Slicer for Product
❖ Sort Revenue in descending order.

3.4 Creating a Pivot Table and Grouping Items

Grouping Items in a Pivot Table! Grouping is a powerful feature that allows you to summarize and organize your data better For example, you can group data by dates (months, years) or ranges

3.4.1 Grouping in a Pivot Table

Grouping in a Pivot Table lets you combine items in your data into larger categories. For example:

- **Date Grouping:** Group by Month or Year instead of showing each individual day.
- **Value Grouping :** Group data into ranges, like grouping sales into High, Medium, and Low ranges

Step 1: Create a Basic Pivot Table

1. Select your data.

Make sure it's in tabular form (no merged cells).

2. Go to Insert - PivotTable.

3. In the dialog box, select New Worksheet and click OK.

Step 2: Add Fields to the Pivot Table

- Drag your Date field into Rows (so each date appears).
- Drag Revenue (or any numeric field) into Values.

Your Pivot Table might show a list of every day's revenue.

How to Group Items by Date ? (e.g., Month or Year)

Grouping Dates by Month or Year

1. Right-click on any date value in the Rows section of your Pivot Table.

2. Choose **Group.**

3. In the Grouping dialog box, you can choose:

- Months
- Years
- Days
- Quarters (You can select multiple options to group by both Months and Years).

This groups your data by Month and Year instead of individual dates.

How to Group Items by Numeric Values? (e.g., Revenue Ranges)

You can also group by numeric values to create ranges, like grouping revenue into different brackets (eg, **Low, Medium, and High sales**).

Here's how:

1. Drag a **numeric field (**e.g. Revenue) into Rows or Columns.

2. Right-click any numeric value in the Pivot Table.

3. Click **Group.**

- In the Grouping dialog box:
- Choose Starting at and Ending at to define the range.
- Set the By value (eg. Group by every 500 units).

Example: If you choose to group Revenue by ranges of 1000, Excel will group all Revenue values into bins:

- 0-1000
- 1001-2000
- 2001-3000, etc.

3.4.2 Grouping Text Items (e.g., Product Names)

If you have a list of products and want to group them together into categories Electronics, Furniture, etc.), you can manually group text items.

How to Manually Group Text Items?

1. Ctrl-click on the items you want to group (eg. select two or more product names).

2. Right-click one of the selected items

3. Choose Group

Now the selected items will be grouped together as a single category.

Use Cases for Grouping in Pivot Tables

- Date Grouping:
  - Analyze monthly sales trends instead of daily data.
  - Group by year to compare performance over multiple years.

- Value Grouping:
  - Group Revenue into High, Medium, Low ranges to find patterns.
  - Group Units Sold into Small, Medium, Large categories.
- Manual Grouping:
  - Group products into product categories
  - Combine similar regions into larger groups (eg., East and West regions into Coastal)

3.5 Updating a Pivot Table

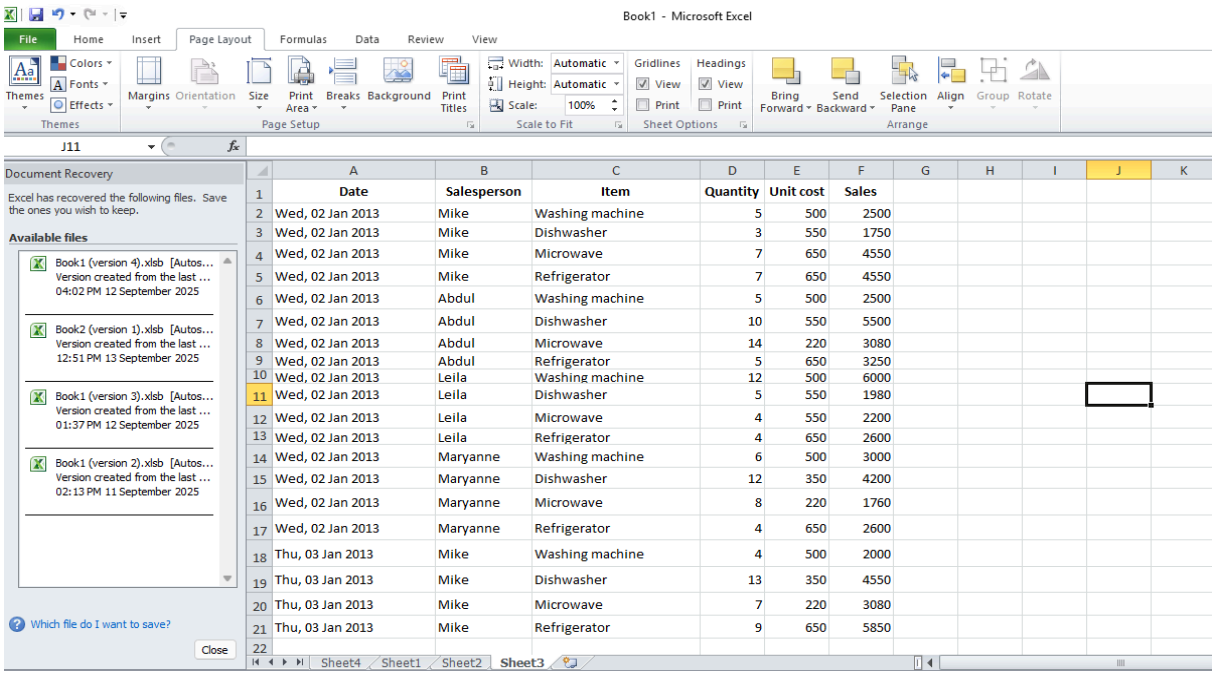
- This section shows you how to refresh existing data, and add new data to an existing Exce pivot table. When you create a new Pivot Table, Excel either uses the source data you selecte or automatically selects the data for you. But data changes often, which means you also n to be able to update your pivot tables to reflect the new or changed data.
- To update a pivot table in Excel, follow these steps:
    - Refresh the Pivot Table: Click anywhere in the pivot table, then go to the PivotTab Analyse tab and click on Refresh. Alternatively, right-click the pivot table an select Refresh.
    - Change Data Source: If you need to update the data range, select a cell in the pivot tabi go to the PivotTable Analyse tab, and click on Change Data Source. Adjust the range as needed and click OK.
    - Shortcut for Refreshing: You can also use the shortcut Alt + F5 to refresh the pivot table quickly.
    - Refresh All Pivot Tables: To refresh all pivot tables in your workbook, click the Refresh All button in the Data section of the ribbon.
    - These steps will ensure your pivot table reflects the most current data.

Scenario: You have a pivot table containing sales data that needs updating with new data

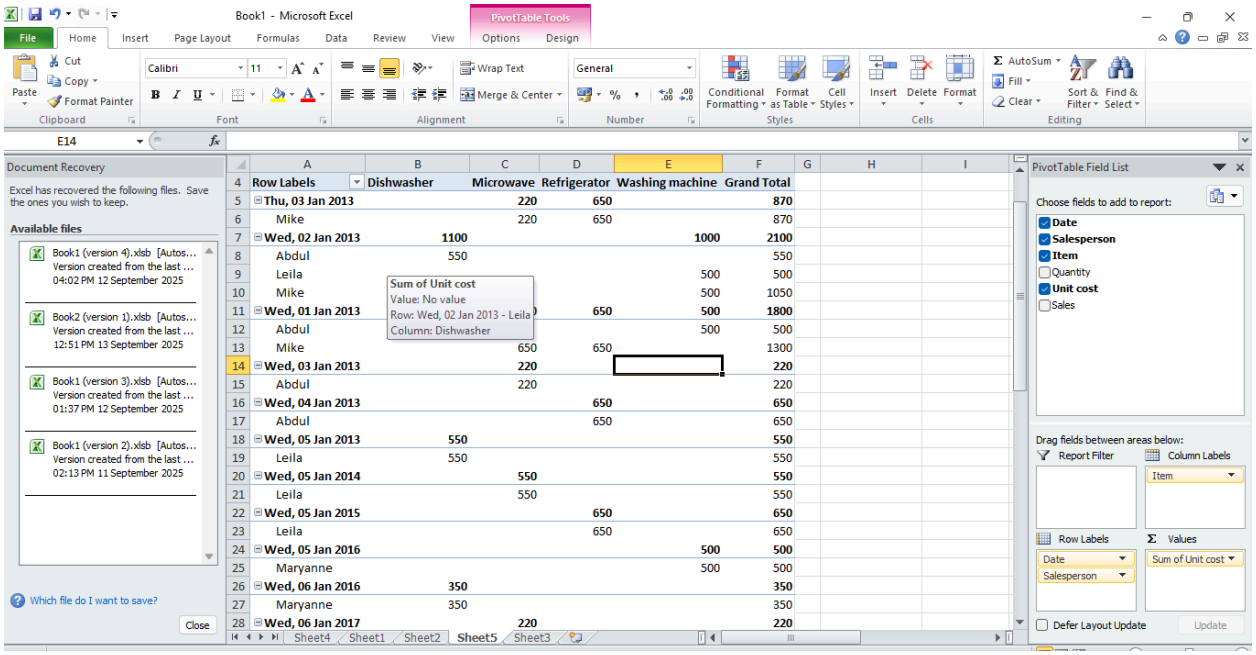
- In order to demonstrate how to update the data in your pivot table, let's look at the example we used in our lesson on How to Create A Pivot Table (link opens in a new window), where we summarized several months of sales data by different sales people in our team.
- The situation now is that we have been given some additional data and need to incorporate this into our report. Specifically, we've been asked to include sales

data for an additional line of products (televisions) for the same time period as the original report.

- Here's a sample of the sales data we used (note the number of rows obviously there is a lot more sales data in our report than is shown here):



	A	B	C	D	E	F
1	Date	Salesperson	Item	Quantity	Unit cost	Sales
2	Wed, 02 Jan 2013	Mike	Washing machine	5	500	2500
3	Wed, 02 Jan 2013	Mike	Dishwasher	3	550	1750
4	Wed, 02 Jan 2013	Mike	Microwave	7	650	4550
5	Wed, 02 Jan 2013	Mike	Refrigerator	7	650	4550
6	Wed, 02 Jan 2013	Abdul	Washing machine	5	500	2500
7	Wed, 02 Jan 2013	Abdul	Dishwasher	10	550	5500
8	Wed, 02 Jan 2013	Abdul	Microwave	14	220	3080
9	Wed, 02 Jan 2013	Abdul	Refrigerator	5	650	3250
10	Wed, 02 Jan 2013	Leila	Washing machine	12	500	6000
11	Wed, 02 Jan 2013	Leila	Dishwasher	5	550	1980
12	Wed, 02 Jan 2013	Leila	Microwave	4	550	2200
13	Wed, 02 Jan 2013	Leila	Refrigerator	4	650	2600
14	Wed, 02 Jan 2013	Maryanne	Washing machine	6	500	3000
15	Wed, 02 Jan 2013	Maryanne	Dishwasher	12	350	4200
16	Wed, 02 Jan 2013	Maryanne	Microwave	8	220	1760
17	Wed, 02 Jan 2013	Maryanne	Refrigerator	4	650	2600
18	Thu, 03 Jan 2013	Mike	Washing machine	4	500	2000
19	Thu, 03 Jan 2013	Mike	Dishwasher	13	350	4550
20	Thu, 03 Jan 2013	Mike	Microwave	7	220	3080
21	Thu, 03 Jan 2013	Mike	Refrigerator	9	650	5850
22						



Row Labels	Dishwasher	Microwave	Refrigerator	Washing machine	Grand Total
Thu, 03 Jan 2013		220	650		870
Mike		220	650		870
Wed, 02 Jan 2013	1100			1000	2100
Abdul	550				550
Leila				500	500
Mike				500	1050
Wed, 01 Jan 2013			650	500	1800
Abdul				500	500
Mike		650	650		1300
Wed, 03 Jan 2013		220			220
Abdul		220			220
Wed, 04 Jan 2013			650		650
Abdul			650		650
Wed, 05 Jan 2013	550				550
Leila	550				550
Wed, 05 Jan 2014		550			550
Leila		550			550
Wed, 05 Jan 2015			650		650
Leila			650		650
Wed, 05 Jan 2016				500	500
Maryanne				500	500
Wed, 06 Jan 2016	350				350
Maryanne	350				350
Wed, 06 Jan 2017		220			220

It's important to understand what these buttons do, and how they differ:

The Refresh button will update your pivot table to reflect any changes in your existing data, such as any changes to our sales data due to customer returns. Using the Refresh button won't automatically pick up any new data in your table (unless you're using Excel's Table feature as the source for your pivot table - we'll come to that shortly). Note that you can also choose to refresh your data by right-clicking anywhere in your pivot table and choosing Refresh from the menu.

3.5.1 Formatting a Pivot Table using Slicers in Excel

1. Refreshing the Pivot Table (When New Data is Added)

After you've created a Pivot Table and your data changes (like adding new rows or modifying existing data), the Pivot Table won't automatically update. You need to refresh it to reflect the changes.

How to Refresh a Pivot Table?

- Right-click anywhere inside the Pivot Table.
- Click Refresh.
- This will update the Pivot Table and incorporate any new data that has been added or modified.
- Automatic Refresh on Opening a Workbook (Optional)

If you want the Pivot Table to refresh automatically whenever you open the workbook:

- Click anywhere inside the Pivot Table.
- Go to the PivotTable Analyze tab.
- Click Options-Data.
- Check the box for Refresh data when opening the file.
- Now, your Pivot Table will automatically refresh every time you open the file!

2. Updating the Data Source (When Data Structure Changes)

Sometimes, you may add new columns to your source data (e.g., adding a new "Discount" column to track discounts). If you don't update the data source, the Pivot Table won't recognize these new fields.

How to Update the Data Source ?

- Click anywhere inside the Pivot Table.
- Go to the PivotTable Analyze tab.
- Click Change Data Source.

In the Change PivotTable Data Source dialog box:

- Adjust the range to include new columns or rows.
- If you have turned your data into a Table (via Ctrl + T).
- You can just update the table, and the Pivot Table will auto-update to include any changes.

3. Modifying Field Settings and Adding Calculations

After creating a Pivot Table, you may want to update how data is calculated or displayed (for example, changing the calculation from Sum to Average).

How to Modify Field Settings?

Click the dropdown arrow next to any value in the Values area of the Pivot Table.

Select Value Field Settings.

In the dialog box, change the summary calculation to:

- Sum
- Average
- Count
- Max/Min

Custom Calculations (like % of Total, Difference From, etc.)

4. Adjusting the Layout (Changing the Structure of Your Pivot Table)

As your needs evolve, you may want to update the layout of your Pivot Table (eg, changing which fields are in rows or columns).

How to Adjust the Pivot Table Layout ?

- Click and drag fields in the PivotTable Field List.
- Drag a field to the Rows or Columns to change how the data is arranged.
- You can also remove fields by unchecking them in the PivotTable Field List

5. Grouping and Ungrouping Data

If you need to change how your data is grouped (eg, you initially grouped by Month and want to switch to Year), you can easily update groupings

How to Group or Ungroup Data ?

- Right-click any item in your Pivot Table
- Select Group or Ungroup from the context menu.
- If you need to change the grouping criteria (eg, changing from months to quarters te days).
- Right-click on the group and choose Group again.
- Update your grouping settings (eg, select Quarters instead of Months).

6. Sorting the Pivot Table Again

If the data in your Pivot Table needs to be re-sorted after you refresh or add new data, yo can reapply sorting options.

How to Sort:

- Click the down arrow next to any field in the Rows or Columns area.
- Choose to sort either A to Z (ascending) or Z to A (descending).
- Alternatively, you can right-click on the Row or Column label and
- Select Sort - Sort Largest to Smallest or Smallest to Largest.

7. Removing or Adding Filters

If you have filters applied to your Pivot Table (eg, filtering by Salesperson), you can add or remove filters at any time.

How to Update Filters ?

- Click the drop-down arrow next to a filter field in your Pivot Table.
- Choose new criteria to filter the data.
- You can select multiple items, clear the filter, or filter by color.