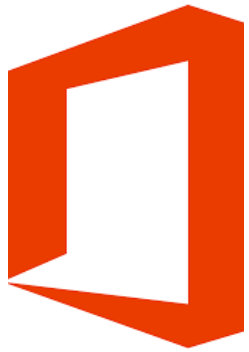
Inside Microsoft Office

Session 09

Pivot Table and Pivot Charts in Microsoft Excel 2019



Objectives

- Explain data using PivotTable
- Describe PivotTable
- Explain PivotCharts
- List the differences between PivotCharts and PivotTables

Analyzing Data Using PivotTable [1-3]

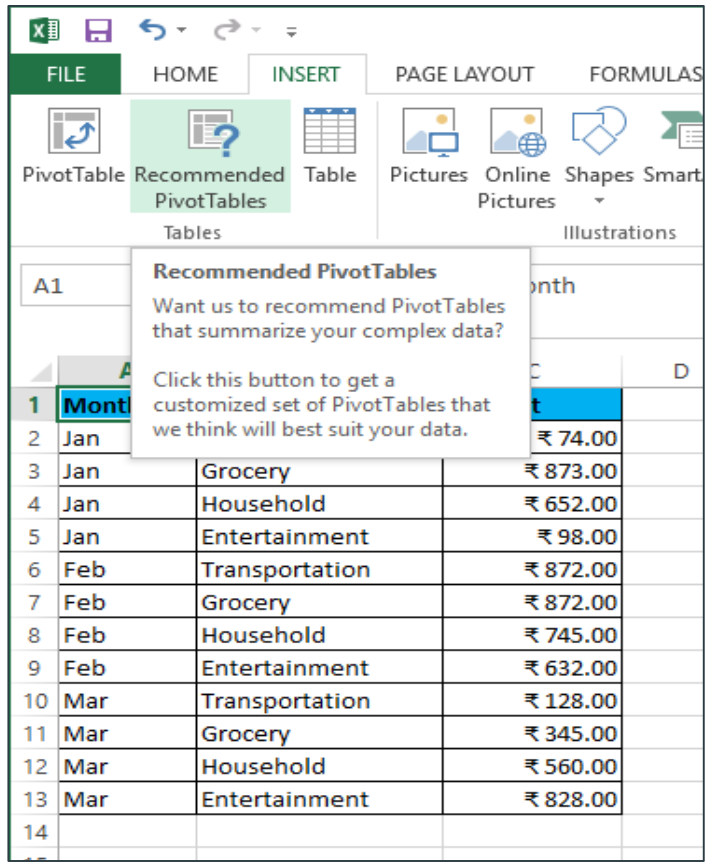
- A pivot table allows the user to extract significance from a large and detailed data set
- A pivot table can be used to summarize, analyze, explore, and present summary data
- Pivot table can analyze numerical data and is especially designed for presenting concise, attractive, and annotated (adding comments or notes) online or printed reports
- PivotCharts complement PivotTables by adding visualization to the summary data in PivotTables.

	A	B	C	D	E	F	G	H
1	**Month**	**Category**	**Amount**				**Row Labels**	**Sum of Amount**
2	Jan	Transportation	$74				**Jan**	**1697**
3	Jan	Grocery	$873				Entertainment	98
4	Jan	Household	$652				Grocery	873
5	Jan	Entertainment	$98				Household	652
6	Feb	Transportation	$872				Transportation	74
7	Feb	Grocery	$872				**Feb**	**3121**
8	Feb	Household	$745				Entertainment	632
9	Feb	Entertainment	$632				Grocery	872
10	Mar	Transportation	$128				Household	745
11	Mar	Grocery	$345				Transportation	872
12	Mar	Household	$560				**Mar**	**1861**
13	Mar	Entertainment	$828				Entertainment	828
14							Grocery	345
15							Household	560
16							Transportation	128
17							**Grand Total**	**6679**

Sample Data Set and Sample PivotTable

Analyzing Data Using PivotTable [2-3]

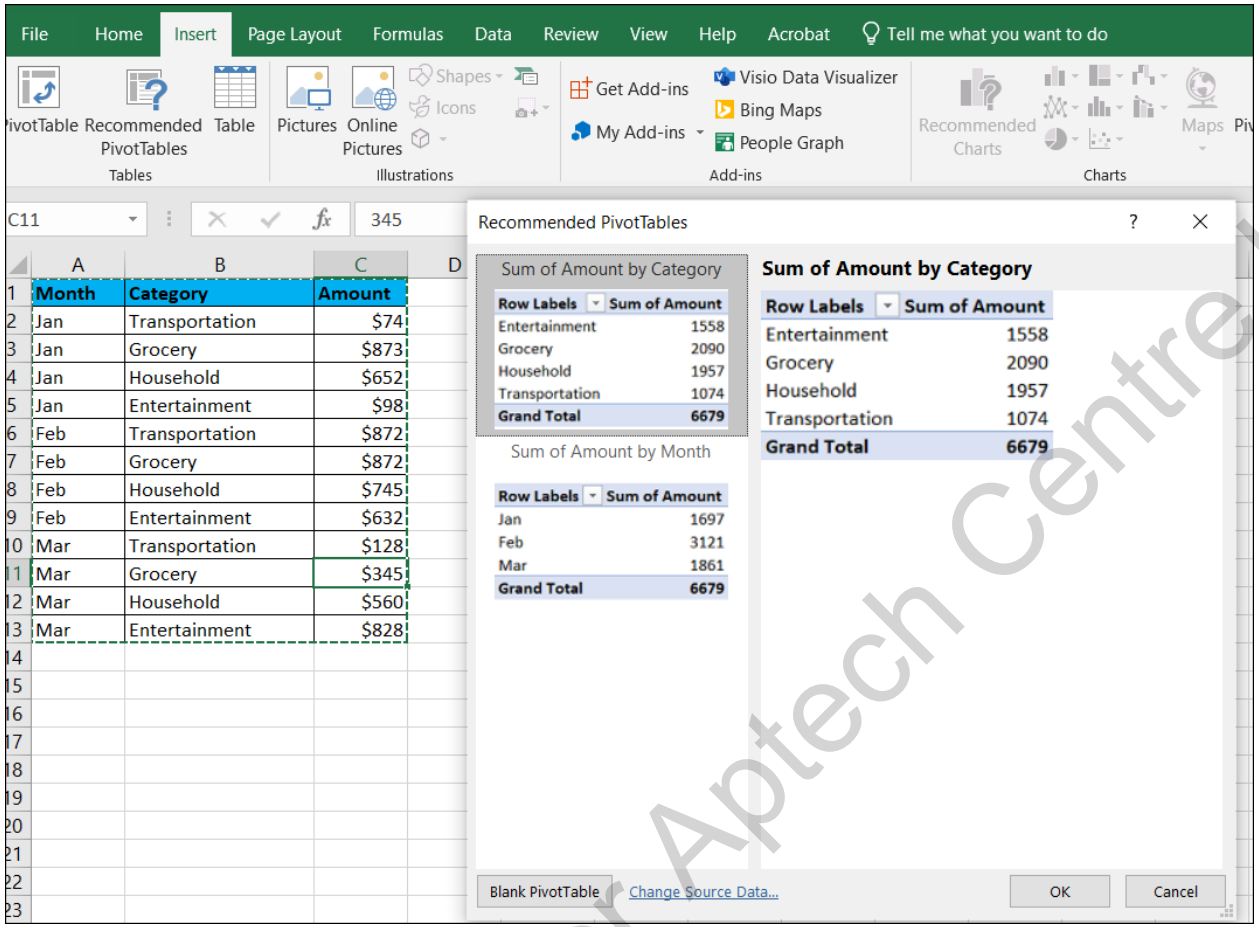
- MS Excel can help by recommending and then, automatically creating **PivotTables**, which are a great way to summarize, analyze, explore, and present the data set
- The **Recommended PivotTable** option appears under the **Insert** tab
- Series of steps to create a PivotTable using this option:
  - Make sure the data set has column headings or table headers and that there are no blank rows.
  - Click any cell in the range of cells or table.
  - Click **Insert** → **Recommended PivotTables**
  - In **Recommended PivotTables** dialog box, click any PivotTable layout, which is **Sum of Amount by Category** layout, to get a preview in the right pane of the **Recommended PivotTables** dialog box.
  - Pick the one that shows the data as per your requirement, and click **OK** to close the **Recommended PivotTables** dialog box.



1	Month		
2	Jan		₹ 74.00
3	Jan	Grocery	₹ 873.00
4	Jan	Household	₹ 652.00
5	Jan	Entertainment	₹ 98.00
6	Feb	Transportation	₹ 872.00
7	Feb	Grocery	₹ 872.00
8	Feb	Household	₹ 745.00
9	Feb	Entertainment	₹ 632.00
10	Mar	Transportation	₹ 128.00
11	Mar	Grocery	₹ 345.00
12	Mar	Household	₹ 560.00
13	Mar	Entertainment	₹ 828.00
14			

Recommended PivotTables Option

Analyzing Data Using PivotTable [3-3]



	Month	Category	Amount
2	Jan	Transportation	$74
3	Jan	Grocery	$873
4	Jan	Household	$652
5	Jan	Entertainment	$98
6	Feb	Transportation	$872
7	Feb	Grocery	$872
8	Feb	Household	$745
9	Feb	Entertainment	$632
10	Mar	Transportation	$128
11	Mar	Grocery	$345
12	Mar	Household	$560
13	Mar	Entertainment	$828

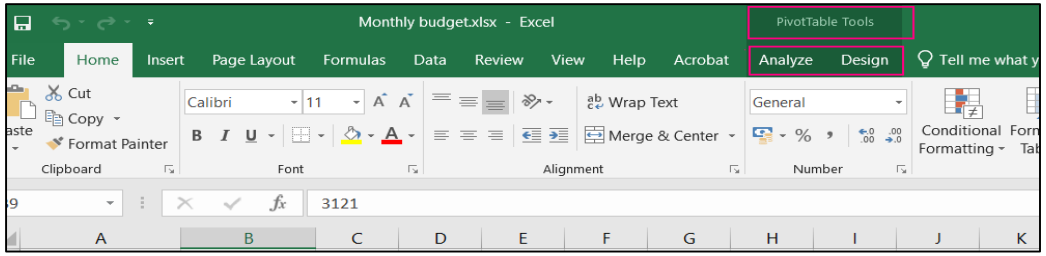
Row Labels	Sum of Amount
Entertainment	1558
Grocery	2090
Household	1957
Transportation	1074
Grand Total	6679

Row Labels	Sum of Amount
Jan	1697
Feb	3121
Mar	1861
Grand Total	6679

Selecting from the Recommended PivotTables

Row Labels	Sum of Amount
Entertainment	1558
Grocery	2090
Household	1957
Transportation	1074
Grand Total	6679

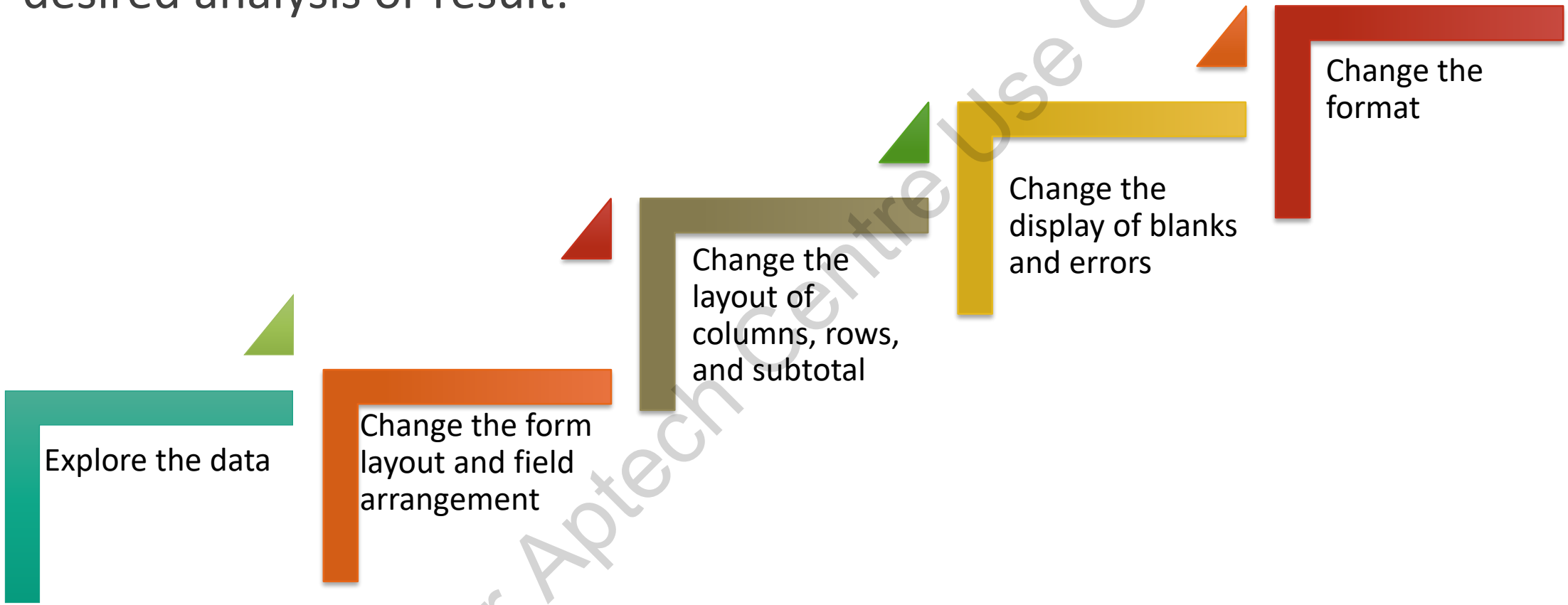
Resulting PivotTable



PivotTable Tools

Understanding the PivotTable

- There are a few tasks that can be performed with a PivotTable to arrive at desired analysis or result:



Exploring the Data

- Data can be explored by expanding and collapsing the data
- Underlying details that pertain to values can be seen, after expanding or collapsing the data set
- Other methods of exploring the table include sorting or applying filter to the table

	A	B
1	Month	Jan
2		
3	Row Labels	Sum of Amount
4	Entertainment	98
5	Grocery	873
6	Household	652
7	Transportation	74
8	Grand Total	1697

Expanded PivotTable

Row Labels	Sum of Amount
⊞ Entertainment	1558
⊞ Grocery	2090
⊞ Household	1957
⊞ Transportation	1074
Grand Total	6679

Collapsed PivotTable

Changing the Form Layout and Field Arrangement [1-3]

- The PivotTable form layout and field arrangement can be changed by doing the following:

Changing the Form Layout and Field Arrangement [2-3]

Compact form

Displays items from different row area fields in one column. Also, uses indentation to distinguish between the items from different fields. Row labels consume less space in Compact form, which leaves more space for numeric data.

Expand and Collapse buttons are displayed so that you can display or hide the details in Compact form. Compact table form as the name suggests, saves space and makes the PivotTable more readable and is hence, specified as the default layout form for PivotTables.

Outline form

Can display subtotals at the top of each group because items in the next column are displayed one level (row) below the current item.

Tabular form

Displays one column per field and provides room for field headers.

Changing the Form Layout and Field Arrangement [3-3]

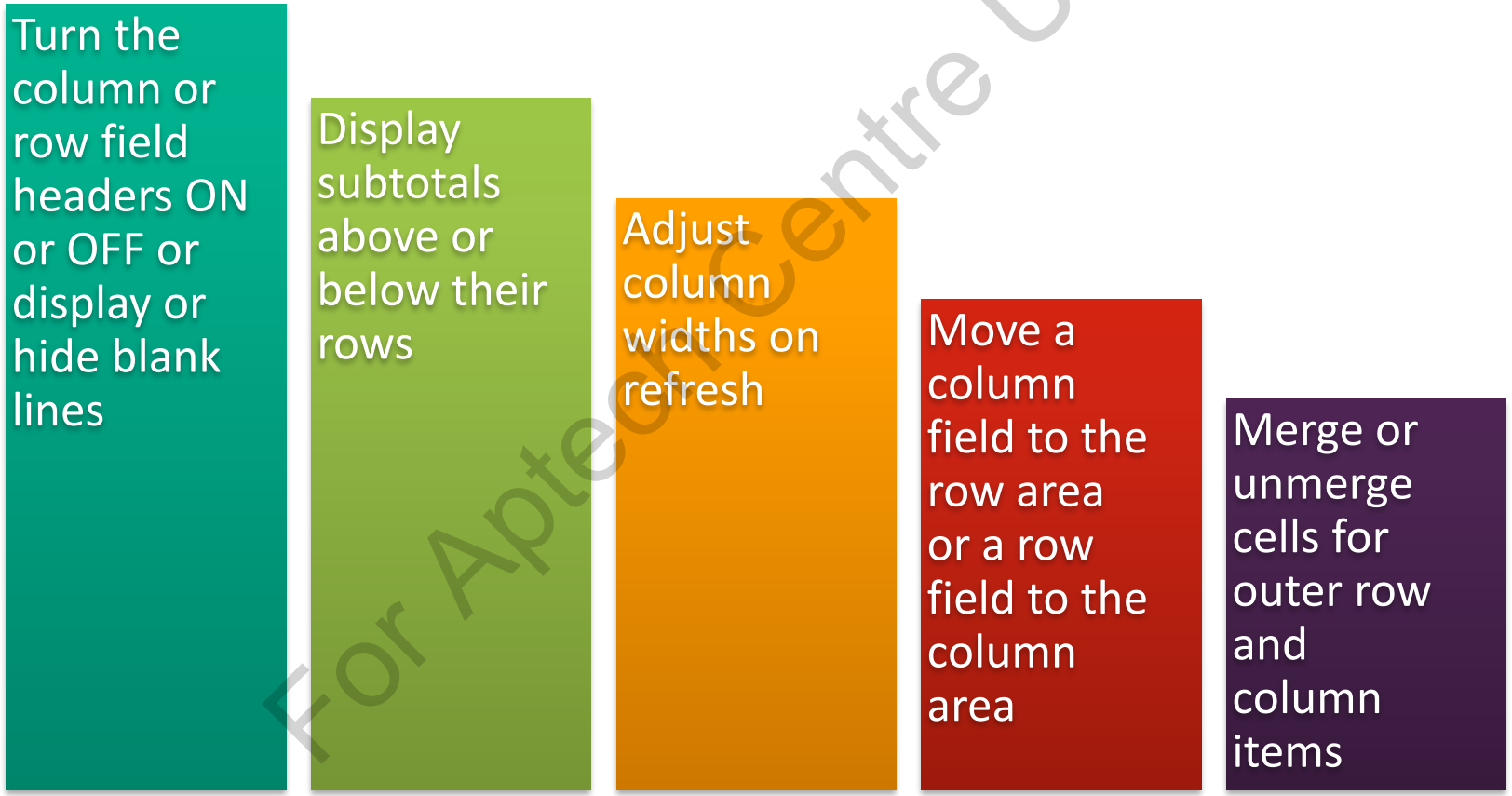
- Re-arranging of data fields can be done by selecting the check box next to each field name in the **Field** section.
- The field is placed in a default area of the layout section, but the user can rearrange the fields if required.
- To add a field name or change the order, you can click and hold a field name and then, drag the field between the field section and an area in the layout section.

PivotTable	Description	PivotChart	Description
Values	Used to display summary numeric data	Values	Used to display summary numeric data
Row Labels	Used to display fields as rows on the side of the report. A row lower in position is nested within another row immediately above it	Axis Field (Categories)	Used to display fields as an axis in the chart
Column Labels	Used to display fields as columns at the top of the report. A column lower in position is nested within another row immediately above it	Legend Fields (Series) Labels	Used to display fields in the legend of the chart
Report Filter	Used to filter the entire report based on the selected item in the report filter	Report Filter	Used to filter the entire report based on the selected item in the report filter

PivotTable and PivotChart Fields

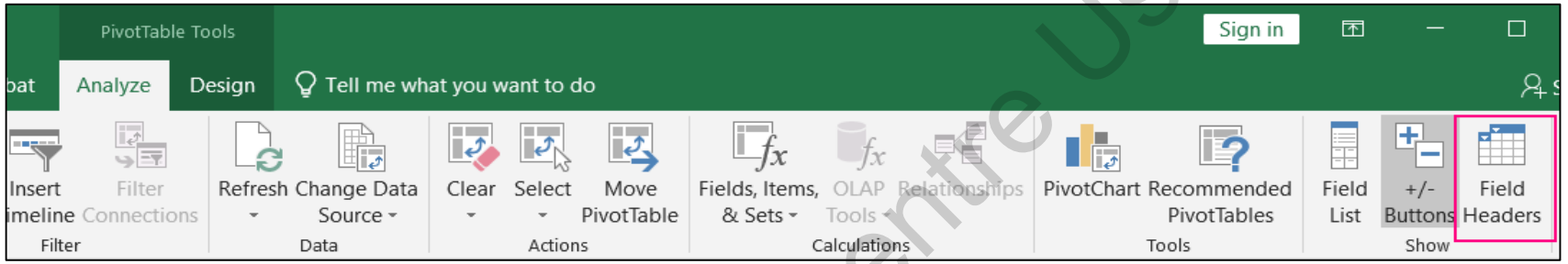
Change the Layout of Columns, Rows, and Subtotals [1-2]

- To further refine the layout of a PivotTable, the user can make changes that affect the layout of columns, rows, and subtotals, such as displaying subtotals above the rows or turning column headers OFF
- One can also rearrange individual items within a row or column
- The layout of columns, rows, and subtotals can be changed by doing the following:



Change the Layout of Columns, Rows, and Subtotals [2-2]

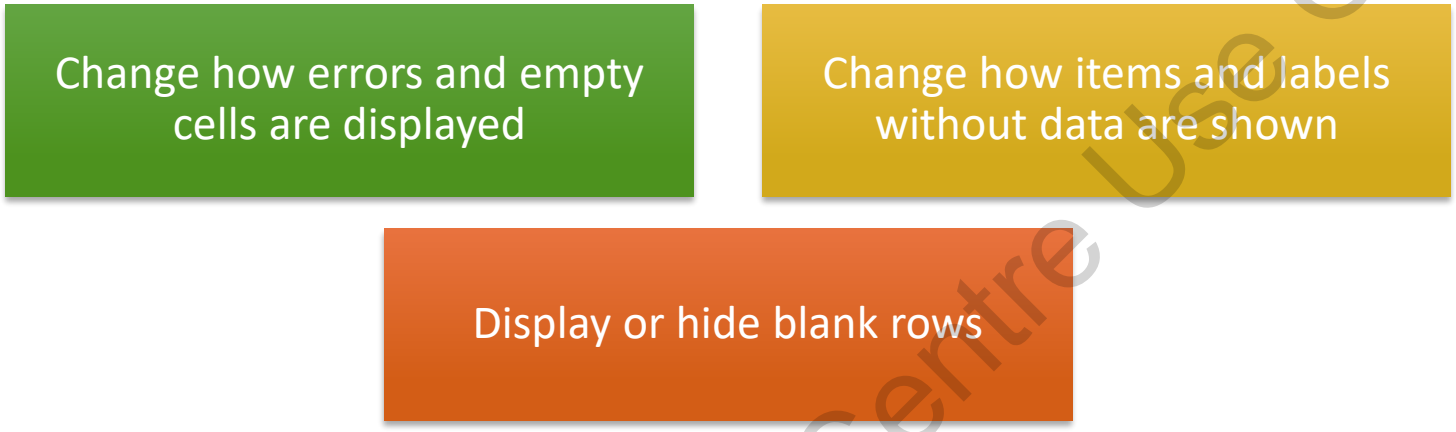
- To switch between showing and hiding field headers, click **Field Headers** under **Show** group of **Analyze** tab



Hiding and Showing Field Headers

Change the Display of Blanks and Errors

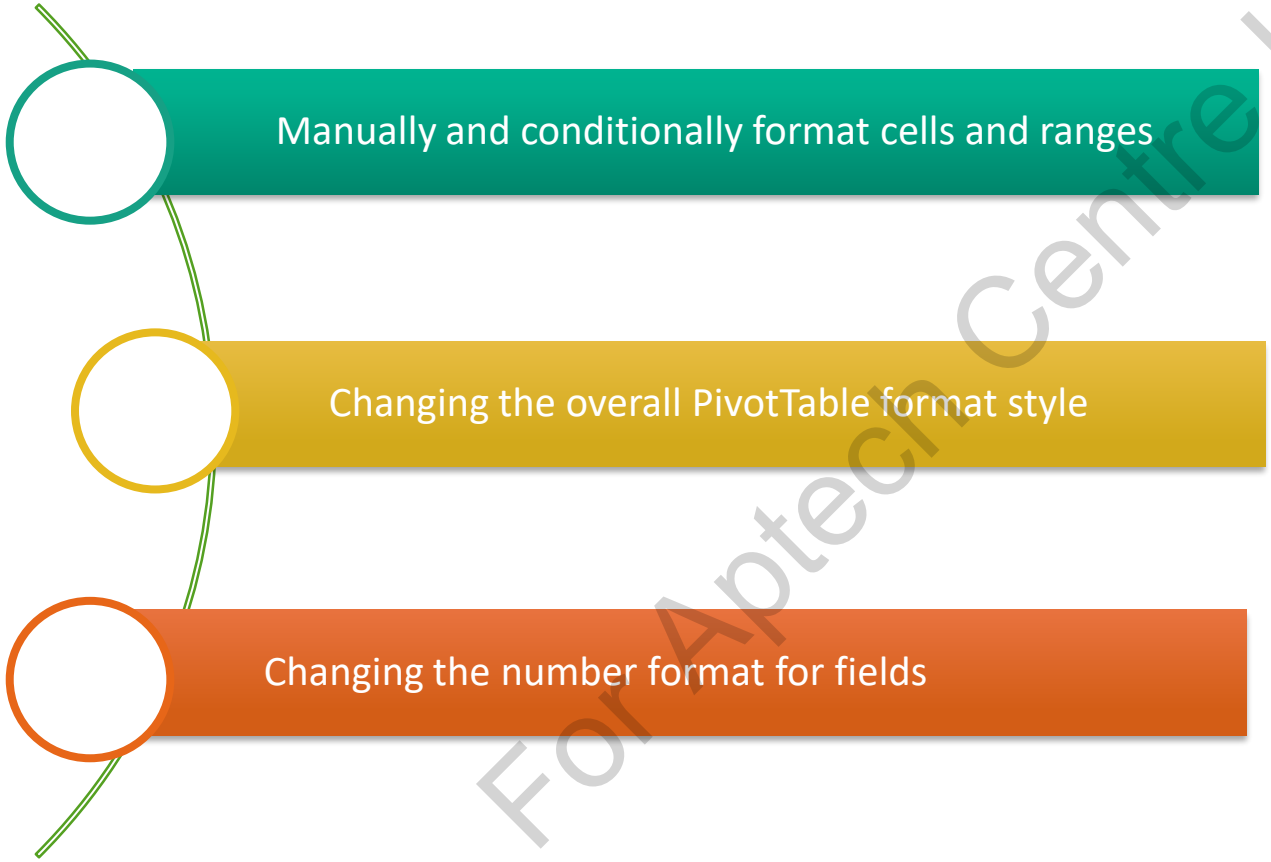
- The display of blanks and errors can be changed by doing the following:



- When a row in the PivotTable is selected, the **PivotTable Tools** tab gets displayed on the Ribbon. Blank rows can be inserted or removed from the **Design** tab in the **Layout** group.

Changing the Format of the PivotTable

- One can choose from a wide variety of PivotTable styles in the gallery
- The user can control the banding (applying a shade) behavior of a report
- The format of the PivotTable may be changed by doing the following:



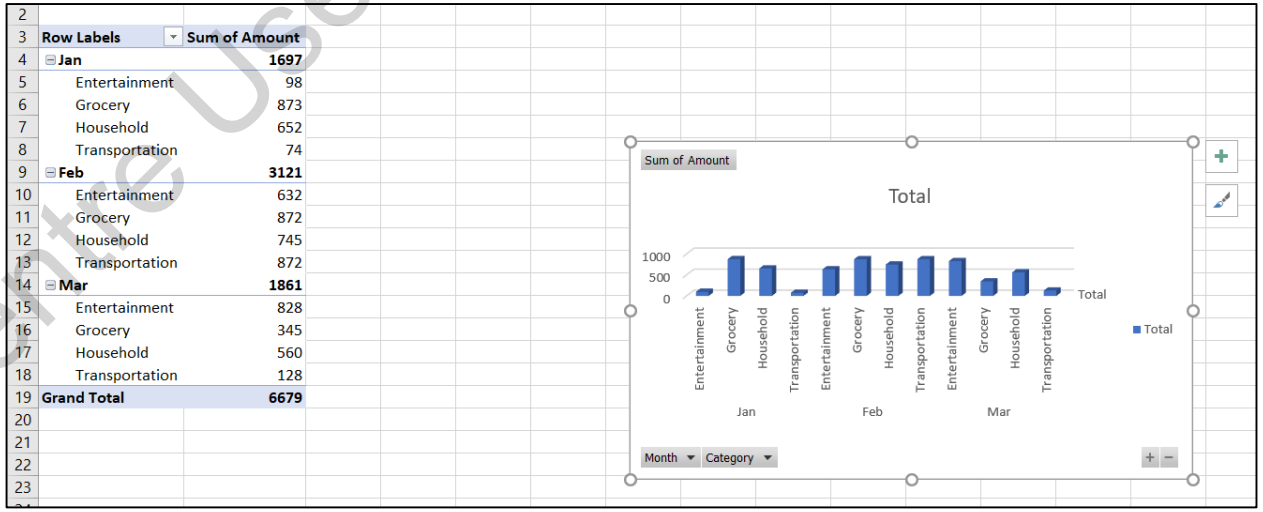
Understanding the Difference Between PivotChart and Standard Charts [1-5]

Creating PivotCharts with a PivotTable

Click anywhere in the PivotTable and then click **Insert → PivotChart →PivotChart**

There are various types of charts shown in the **Insert Chart** dialog box. Choose any one, such as 3-D column chart

Excel creates and inserts a 3-D column chart in the worksheet



Row Labels	Sum of Amount
Jan	1697
Entertainment	98
Grocery	873
Household	652
Transportation	74
Feb	3121
Entertainment	632
Grocery	872
Household	745
Transportation	872
Mar	1861
Entertainment	828
Grocery	345
Household	560
Transportation	128
Grand Total	6679

PivotChart Created

Understanding the Difference Between PivotChart and Standard Charts [2-5]

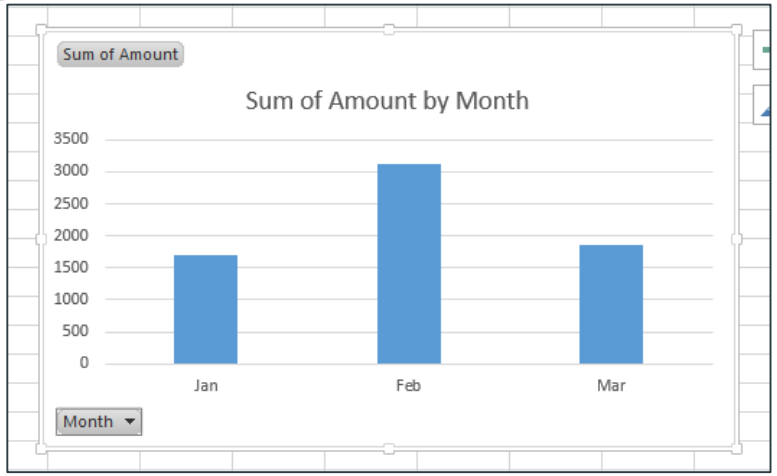
Creating PivotChart without using a PivotTable

Click anywhere in the data as shown in the worksheet

Select the Recommended Charts option from the Charts group in the Insert tab

Select any chart with the PivotChart icon in the top corner under the Recommended Charts tab

Once the desired chart is selected from the Recommended Chart tab, click OK to close the Insert Chart dialog box.



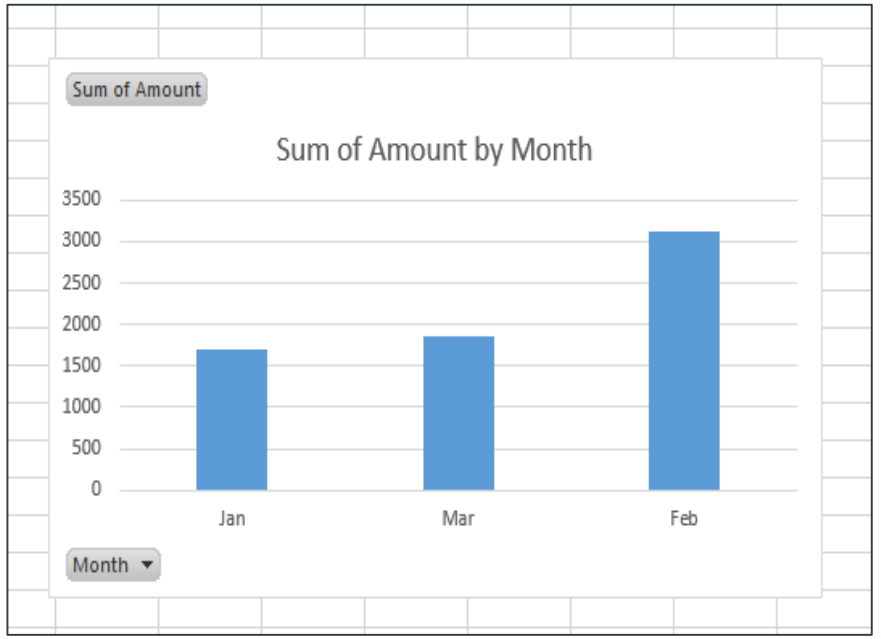
PivotChart Created

Understanding the Difference Between PivotChart and Standard Charts [3-5]

Sorting a PivotChart

Step 1 – From the PivotChart that appears, select any interactive field, such as **Jan**/**Feb**/**Mar**, as shown in Figure 9.23 and right-click to select the **Sort** option from the pop-up menu.

Step 2 - Select either **Sort Smallest to Largest** or **Sort Largest to Smallest** option to sort and display the data in PivotChart in a specific order



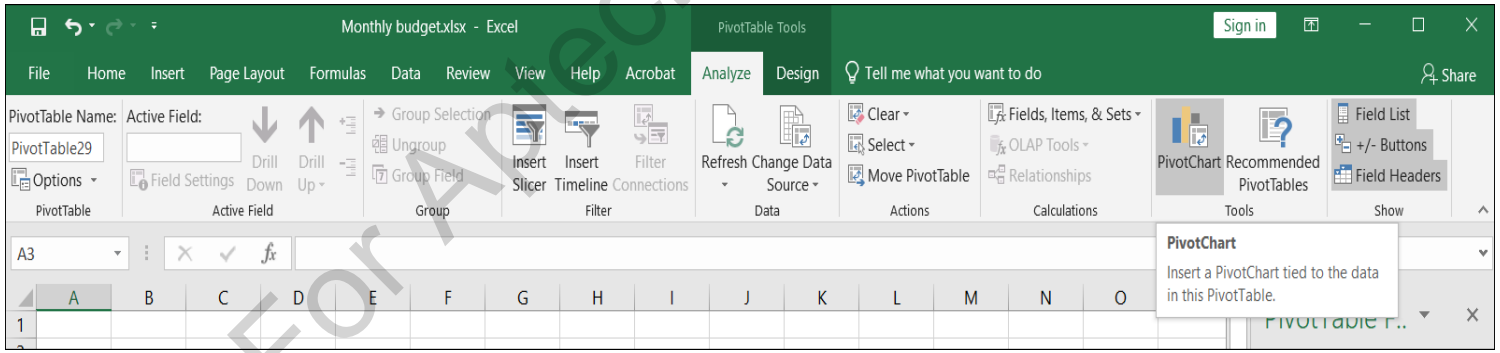
PivotChart Sorted in Ascending Order

Understanding the Difference Between PivotChart and Standard Charts [4-5]

- PivotCharts can also be created using the **Analyze** tab of Pivot Tools when you have an existing PivotTable.

Step 1 – Click anywhere in the PivotTable to show the **PivotTable Tools** on the Ribbon with **Analyze** and **Design** tabs. The tools shown are **PivotChart** and **Recommended PivotTables**.

Step 2 – Select the **Analyze** → **PivotChart** option on the Ribbon



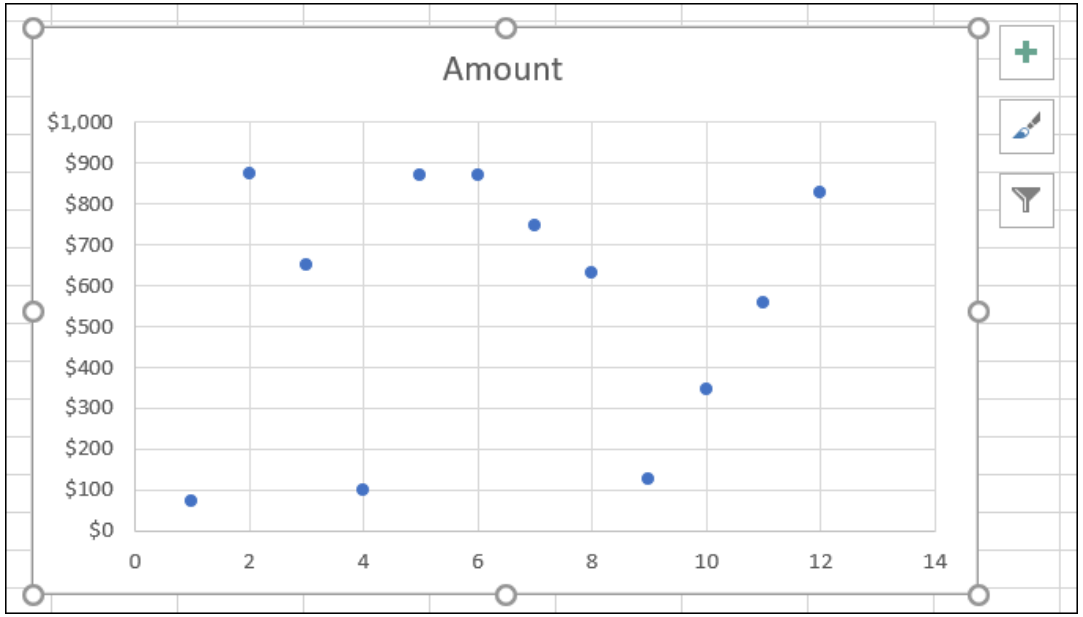
Understanding the Difference Between PivotChart and Standard Charts [5-5]

- Unlike a standard chart, one cannot switch the row/column orientation of a PivotChart by using the **Select Data Source** dialog box
- Standard charts are linked directly to worksheet cells, while PivotChart are based on their associated PivotTable's data source
- Most formatting including chart elements that the user adds, layout, and style is preserved when the user refreshes a PivotChart

Available Chart Types in PivotChart

- Chart types provided by MS Office are:
  - Column Chart
  - Line Charts
  - Pie and Doughnut Chart
  - Bar Chart
  - Area Chart
  - XY (Scatter) Chart
  - Stock Chart
  - Surface Chart
  - Radar Chart
  - Combo Chart

Sample Line Chart



Sample XY (Scatter) Chart

Change a Chart Type

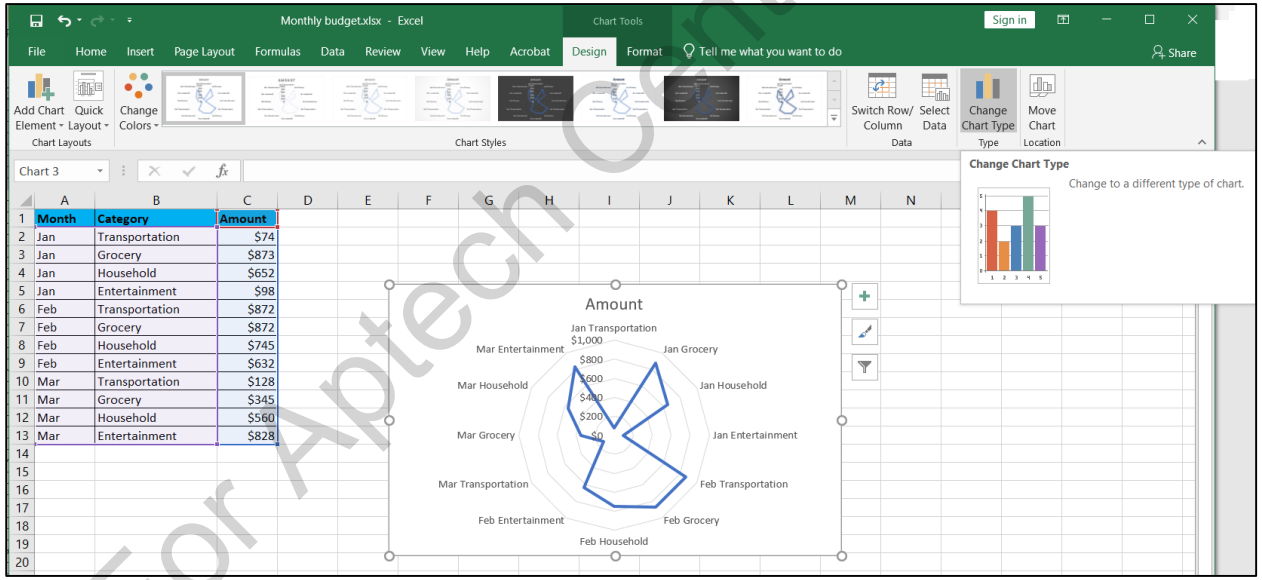
- If a chart type has already been selected, but the user wants to change the chart type to depict the data in some other format, it can be done in two simple steps:

Step 1

- Select the chart and then, select the **Change Chart Type** option under the **Design** tab on the Ribbon

Step 2

- Choose the new chart type from the available options and click **OK**. For example, a radar chart can be changed to a line chart

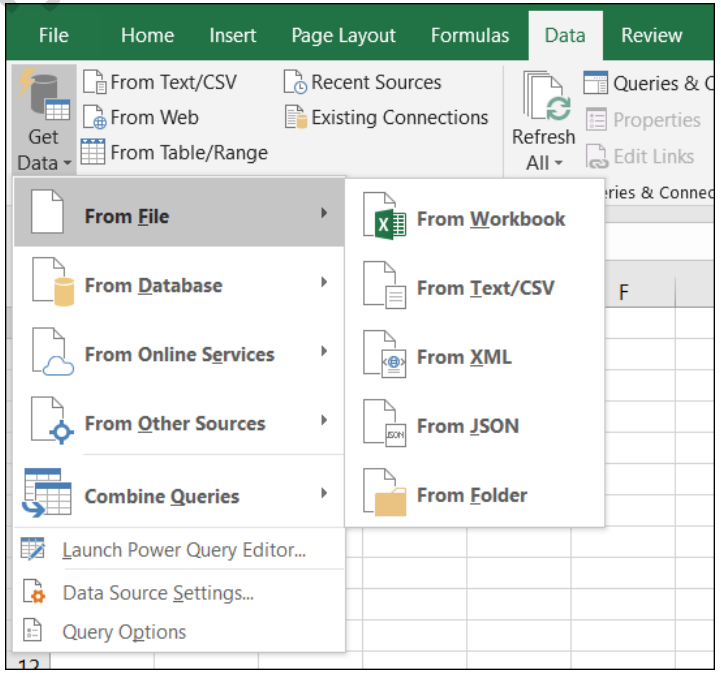


Month	Category	Amount
Jan	Transportation	$74
Jan	Grocery	$873
Jan	Household	$652
Jan	Entertainment	$98
Feb	Transportation	$872
Feb	Grocery	$872
Feb	Household	$745
Feb	Entertainment	$632
Mar	Transportation	$128
Mar	Grocery	$345
Mar	Household	$560
Mar	Entertainment	$828

Change Chart Type

Power Query [1-2]

- Power Query is a business intelligence tool available in Excel in the form of an Excel add-in
- It allows you to import data from many different sources and then clean, transform, and reshape your data as required.
- This tool enables you to leverage Business Intelligence in Excel by simplifying data discovery, access, and collaboration.
- It allows you to set up a query once and then reuse it with a simple refresh.
- Power Query enables you to import and manipulate millions of rows into a data model for further analysis.
- Various options are available to import data into the current worksheet



Various Sources for Getting Data

Power Query [2-2]

- Different ways in which you can get data are as follows:
  - Get data from a **file** such as an Excel workbook, Text or CSV file, XML and JSON files. One can also import multiple files from a given folder.
  - Get data from **databases** such as SQL Server, Microsoft Access, Analysis Services, SQL Server Analysis Server, and so on.
  - Get data from **Microsoft Azure**.
  - Get data from **online services** such as SharePoint, Microsoft Exchange, Dynamics 365, Facebook, and Salesforce.
  - Get data from **other sources** such as a table or range inside the current workbook, from the Web, a Microsoft Query, Hadoop, OData feed, ODBC, and OLEDB.
  - **Merge two queries together** similar to joining two queries in SQL.
  - **Append a query to another query,** similar to a union of two queries in SQL.

Areas of the Query Editor

The Query Editor Ribbon	Query List	Data Preview	Formula Bar	Properties	Applied Steps
Organizes data transformation commands and other power query options into five main tabs.	Lists all the queries in the current workbook. You can navigate to any query from this area to begin editing it.	Displays a preview of the data with all transformation steps currently applied.	Allows you to see and edit the M code of the current transformation step. Each transformation made on your data is recorded and appears as a step in the applied steps area.	Allows you to name your query. When you close and load the query to an Excel table, power query will create a table with the same name as its source query if the table name is not already taken.	Is a chronological list of all transformation steps that have been applied to the data. Move through the steps here and view the changes in the data preview area. You can also delete, modify, or reorder any steps in the query here.

Summary

- Tables allow users to analyze data in Excel quickly and easily as compared to manual methods or using a calculator.
- PivotTables are a great way to summarize, analyze, explore, and present a data set.
- Data in a PivotTable can be explored by expanding and collapsing row labels.
- For worksheet data, a PivotChart can be created with or without using a PivotTable.
- MS Excel supports several chart types such as Column Chart, Line Charts, Area Chart, Radar Chart, and so on.
- A column chart in Excel typically displays categories along the horizontal (category) axis and values along the vertical (value) axis.
- Area charts can be used to plot change over time and draw attention to the total value across a trend.
- Power Query enables users to apply BI to data in a worksheet after importing it from different sources.