3 ADVANCED FEATURES OF EXCEL

LEARNING IN THIS CHAPTER

- Components of a Chart in Excel
- Types of Chart
- Creating a Chart
- Sorting Data
- Filtering Data

A chart is a graphical representation of data in a worksheet. It is an effective way to display data in a pictorial form. It helps to provide a better understanding of large quantities of data. Charts make it easier to draw comparisons and see growth and relationship among the values and trends in data. They provide an accurate analysis of information.

COMPONENTS OF A CHART

Let us learn about various components of a chart that are depicted in Figure 3.1.

1. **CHART AREA :** Chart area includes all the area and objects in the chart.
2. **CATEGORY AXIS :** Category axis or X-axis is the horizontal axis of a chart.
3. **VALUE AXIS :** Value axis or Y-axis is the vertical axis used to plot the values. It is located on the left side.
4. **DATA SERIES :** Data series are the bars, slices, or other elements that show the data values. If there are multiple data series in a chart, each will have a different colour or style.
5. **CATEGORY NAME :** Category names are the labels, which are displayed on the X and Y-axis.
6. **PLOT AREA :** Plot area is a window within the Chart area. It contains the actual chart itself, and includes plotted data, data series, category, and value axis.

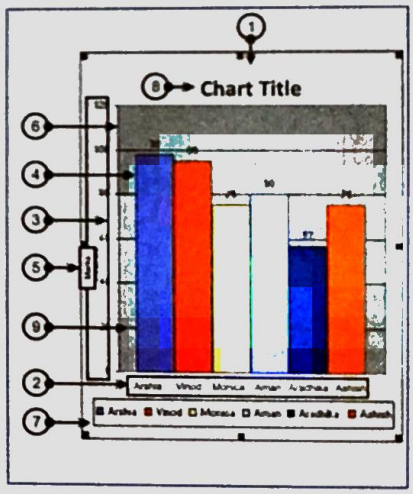


Figure 3.1: Chart and Its Components

7. **LEGEND :** It depicts the colours, patterns, or symbols assigned to the data series. It helps to differentiate the data.
8. **CHART TITLE :** It describes the aim and contents of the chart.
9. **GRIDLINES :** These can either be horizontal or vertical lines depending on the selected chart type. They extend across the plot area of the chart. Gridlines make it easier to read and understand the values.

TYPES OF CHART

MS Excel offers a wide range of charts to interpret data. These charts share some common features, which assist the users in comprehending the data logically.

We are using the sample data as shown in Figure 3.2 to create the chart.

Name	Eng	Hindi	Total
Anju	65	67	132
Manju	76	45	121
Ranjana	78	66	144
Kirti	56	65	121
Hemant	77	87	164

Figure 3.2: Sample Data

BAR CHART

It illustrates the comparison between the individual data items. It displays data in the form of long rectangular rods called bars, that are placed vertically or horizontally on the Chart area. In this type of chart, categories are represented on the Vertical axis and values are represented on the horizontal axis.

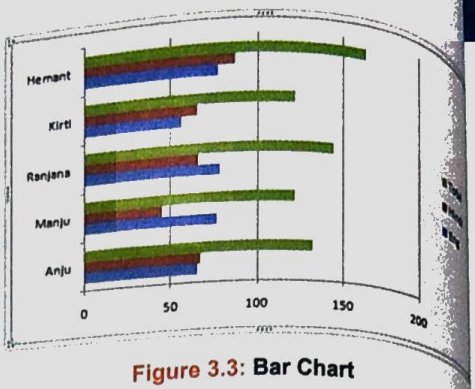


Figure 3.3: **Bar Chart**

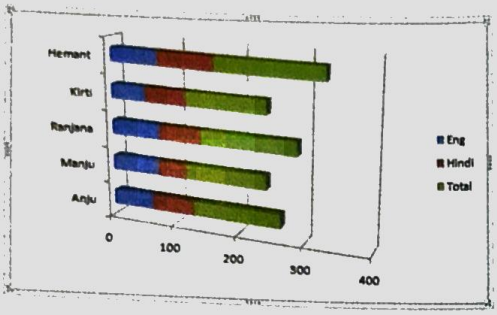


Figure 3.4: **Stacked Bar Chart**

You can also display the bar chart in stacked form to understand the relationship between different entities. They can be displayed as 2D or 3D graphs.

COLUMN CHART

This chart is used for displaying data that shows different trends over a period of time. It is the default chart type of MS Excel. In this type of chart, the categories are organized horizontally, and the values vertically to emphasize the magnitude of change over a period of time.

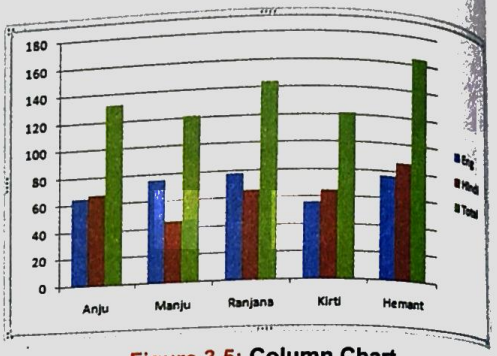


Figure 3.5: **Column Chart**

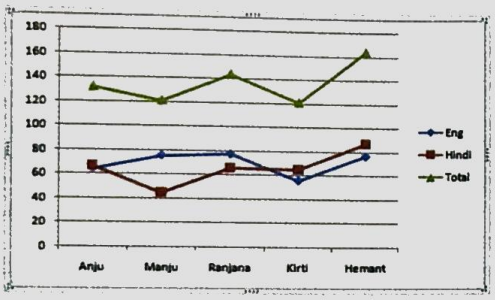


Figure 3.6: **Line Chart**

LINE CHART

It is in the form of lines and is used to illustrate trends in data at equal intervals. It is quite similar to plotting a graph on a graph paper with its values on the X and Y axis. It is useful in emphasizing continuity by showing the change in data over a period of time. It is generally used to represent a huge amount of data.

AREA CHART

It is a unique version of line or column chart. This type of chart has a greater visual impact than a Line chart. It emphasizes the magnitude, i.e., the volume of change over time. By showing the sum of the plotted values, an Area chart also displays the relationship of parts to a whole.

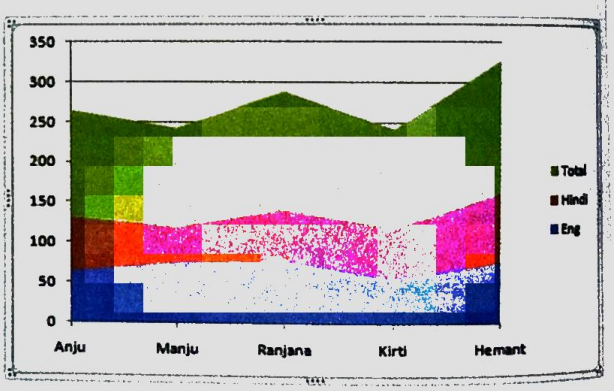


Figure 3.7: **Area Chart**

XY (SCATTER) CHART

This chart has two value axis. One set of numerical data is displayed along the horizontal axis, i.e., X-axis, and another set is represented by the vertical Y-axis. X-axis is usually assigned to an independent variable, and the Y variable then becomes the dependent variable. Each value of Y variable depends upon the corresponding value of variable X. The chart combines these values into single points and then displays those points at the intersection of X and Y numerical values.

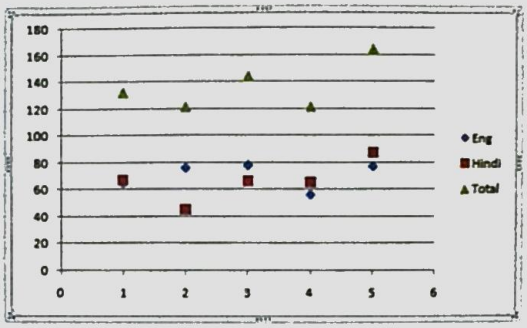


Figure 3.8: **XY (Scatter) Chart**

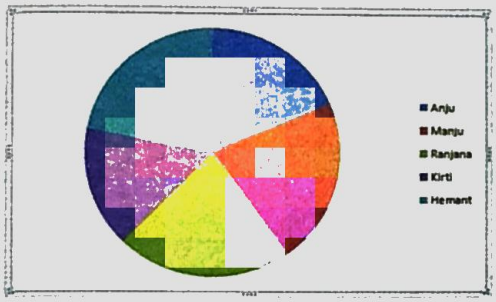


Figure 3.9: **Pie Chart**

PIE CHART

This chart displays data in the form of a circle that is divided into a series of segments. These segments show the relative size of each item in the chart. It always shows only one data series and is useful when you want to emphasize a significant element. This chart type works best with smaller number of values.

Know the Fact

In the 14th century, **Bar Chart** was used for the first time to plot the velocity of a constantly accelerating object against time.

Let's Know More

To change the chart type, we can also select **Design** tab > **Change Chart Type** and choose the chart from **Change Chart Type** dialog box.

Or

Right-click on the chart, and click on the **Change Chart Type** option in the Shortcut menu.

CREATING A CHART IN EXCEL

Excel offers the features to create an embedded chart in a worksheet. It is displayed along with source data and other information present in a worksheet. An embedded chart is saved with the corresponding worksheet when a workbook is saved.

We can also create a chart in the form of a chart sheet, which displays only the chart in the entire worksheet area. It is quite simple to create a chart in Excel. Follow the given steps to create a chart:

	A	B
1		
2	Name	Marks
3	Kabir	86
4	Rajan	78
5	Ridhima	95
6	Anika	89
7	Vijay	98

Figure 3.10: **Selecting Range**

- Select the range of cells from the worksheet that contains the source data for the chart. For example, select the range **A2:B7.**
- Click on the **Insert** tab.
- In the **Charts** group, select the desired chart category, for example, **Column,** and select the chart sub-type from the displayed choices. The chart appears on your

Let's Know More

Sparklines are mini charts that fit into a single worksheet cell to provide the visual representation of the data. There are 3 types of Sparklines : **Line, Column,** and **Win/loss.**

Let's Discuss

Bar Chart
vs
Column Chart

worksheet. You will observe that three new tabs: **Design**, **Layout**, and **Format** appear in the **Chart Tools** contextual menu.

- Select the desired layout from the **Chart Layouts** group under the **Design** tab.
- Choose the desired style from the **Chart Styles** group and observe the change.

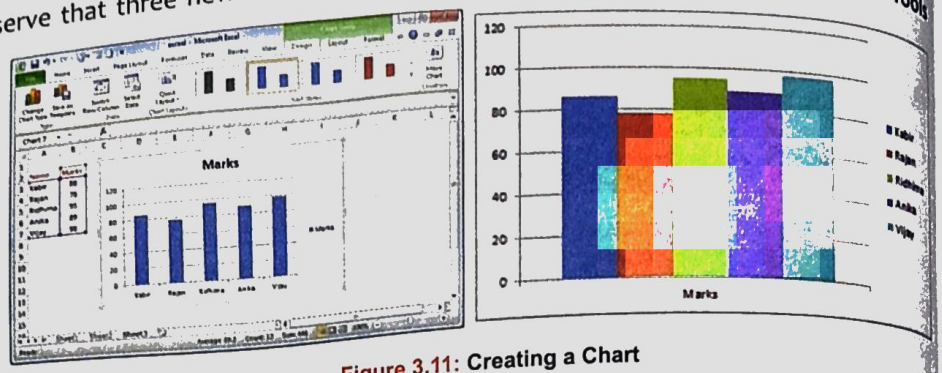


Figure 3.11: **Creating a Chart**

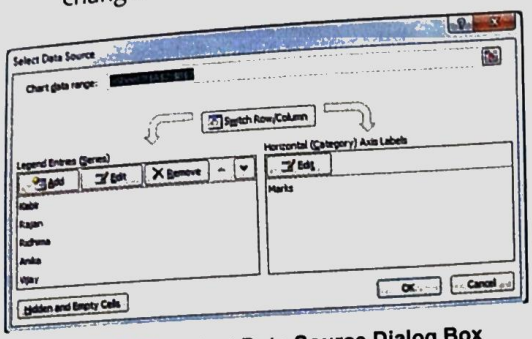


Figure 3.12: **Select Data Source Dialog Box**

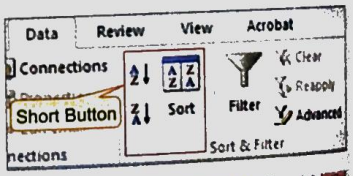
- All the titles, data labels, legend details mentioned in the selected data range will be displayed in the chart.
- If the selected range has no details about titles, labels, etc., you can insert these in the chart by moving to the **Layout** tab and clicking on the desired button.
- To change the data range of your chart, right-click on it and choose the **Select Data** option from the Shortcut menu. The **Select Data Source** dialog box appears. Click on **OK** after making the desired changes.

Excel helps the users to sort and filter data as per their requirements. Here, you will learn how to sort and filter data in various ways that will enable you to analyze the information in an effective manner.

SORTING DATA

Sorting means arranging data either in an ascending or descending order in a worksheet. Data can be sorted in rows on the basis of text, numbers, combination of text, and numbers or dates. Once the data is organised, it becomes easy to work with.

Follow these steps to sort the data:



- Open any worksheet and select the data that you want to sort.
- Click on any cell, say **B2**. Now select the **Sort** button in the **Sort & Filter** group under the **Data** tab. The entire data series will be selected and the **Sort** dialog box will appear.
- Select the field column on the basis of what you want to sort from the **Sort by** drop-down list. For example, select the **Name** field.
- Select the **Values** option from the **Sort On** drop-down list. Select the sorting order from the **Order** drop-down list. By default **A to Z** option is selected. Select **Z to A** option from the drop-down list.

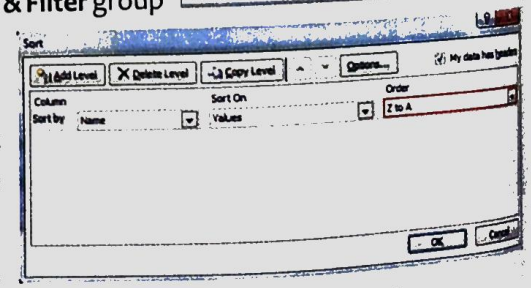


Figure 3.13: **Sort Dialog Box**

- You can check the **My data has headers** checkbox to exclude the first row containing the column headings of your data from sorting. Otherwise, clear the checkbox to include the first row headings in sorting.
- Click on **OK**. The database will be arranged in descending order on the basis of 'Name' column.

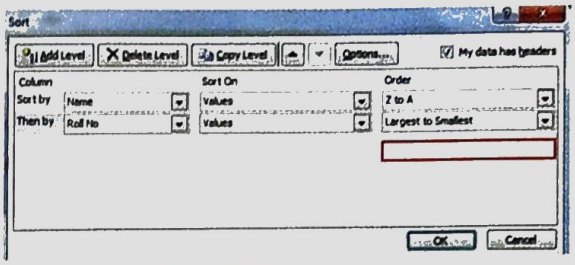


Figure 3.14: Adding Level

You can also sort by more than one column. For example, after sorting by **Name**, you want to arrange the list by **Roll No**. To sort by more than one column, follow the given steps.

- Click on the **Add Level** button in the **Sort** dialog box. A new level gets added below the first level.
- Mention the column name as **Roll No** in the **Then by** drop-down list and order of sorting as **Largest to Smallest** in the **Order** drop-down list in the new level. Click on **OK**.

FILTERING DATA

Microsoft Excel provides several ways to analyse data in a list. The **Filter** feature allows you to see only those records that you want to display while it hides the rest of the data temporarily from the view. You can filter a list to display records that meet specific criteria by using the **AutoFilter** command.

- Select any cell within the database range, say **D1**. Click on the **Filter** button in the **Sort & Filter** group under the **Data** tab.
- Filtering arrows will be added to each field name. These arrows are used to specify condition to filter data.
- Click on the arrow next to the **Hindi** field name in cell **D1**. Select the checkboxes of the values 85 and 98 from the drop-down list. Click on **OK**.
- The list will get filtered and display only those records that meet the criteria of marks 85 and 98.

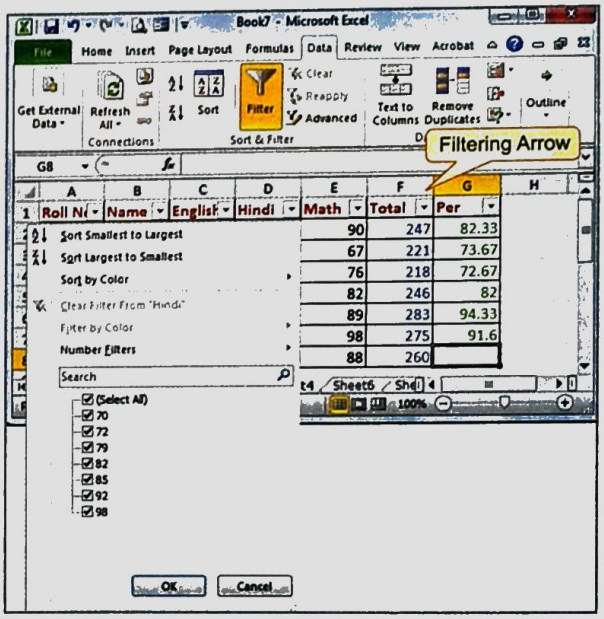


Figure 3.15: Using Filter Command

- Chart is a graphical representation of data in a worksheet. It is an effective way to display data in a pictorial form.
- Chart area includes all the area and objects in the chart.
- Plot area is a window within the Chart area. It contains the actual chart itself, and includes plotted data, data series, category, and value axis.
- Legend depicts the colours, patterns, or symbols assigned to the data series. It helps to differentiate the data.
- X-axis of the chart is called Category axis and Y-axis of the chart is called Value axis.

- Bar Chart displays data in the form of long rectangular rods called bars, that are placed vertically or horizontally on the Chart area.
- Pie chart displays data in the form of a circle that is divided into a series of segments.
- A chart is saved with the corresponding worksheet when a workbook is saved.
- Sorting means arranging data either in an ascending or descending order in a worksheet.
- The Filter feature allows you to see only those records that you want to display while it hides the rest of the data temporarily from the view.

Brain DEVELOPER

A. Fill in the blanks:

1. ..... is an effective way to display data in pictorial form.
2. Data series are the bars or slices that show the .....
3. Bar chart displays data in the form of long ..... rods.
4. ..... is the vertical axis that is used to plot the values.
5. ..... is a key that is used to identify the colours, patterns, or symbol assigned to a data series.

HINTS • Y-axis • Rectangular • Chart • Legend • Data Values

B. State True or False:

1. You can sort the data only in one field.
2. A chart is updated automatically with the change in data.
3. We cannot modify the chart by changing its colours and patterns.
4. X-axis is the horizontal axis.
5. The Chart area contains the actual chart itself and includes data series, category, and value axis as well.

C. Application Based Questions:

1. Kanika is a Chartered Accountant. She looks after the accounts of various companies and keeps their records in Microsoft Excel. She does not have any idea how to view only those records that she wants to see. Suggest her the feature of Microsoft Excel using which she can perform this task.

.....

2. Ritu is a student of class VII. Her geography teacher has asked her to prepare a chart on the population of four Metro cities of India. Suggest her the best suited chart type for her project.

.....

D. Multiple Choice Questions:

1. Name the bars or slices that represent the data values on the chart.

   a. Data Series b. Plot Area c. Legend

2. Which chart type displays data in the form of a circle?

   a. Line b. Pie c. Bar

3. Which function key is used to insert a chart in a worksheet?

   a. F 6 b. F 8 c. F 11

4. Name the special window that displays data when you insert a chart.

   a. Datasheet b. Database c. Sheet

5. Which feature allows us to arrange the given data according to a particular field either in an ascending or descending order?

   a. Data Form b. Sort c. Filter

E. Answer the following:

1. What is a Chart?

2. How is a Column chart different from a Bar chart?

3. What is the difference between Chart area and Plot area?

4. What is the use of Sorting feature in Excel?

5. Briefly explain the utility of Filter feature.