



# MS Excel

*Unit(3)*





# Learning Objectives

- ❖ **You will learn about:**
  - Add and Remove Conditional Formatting
  - Freeze options from Window Group

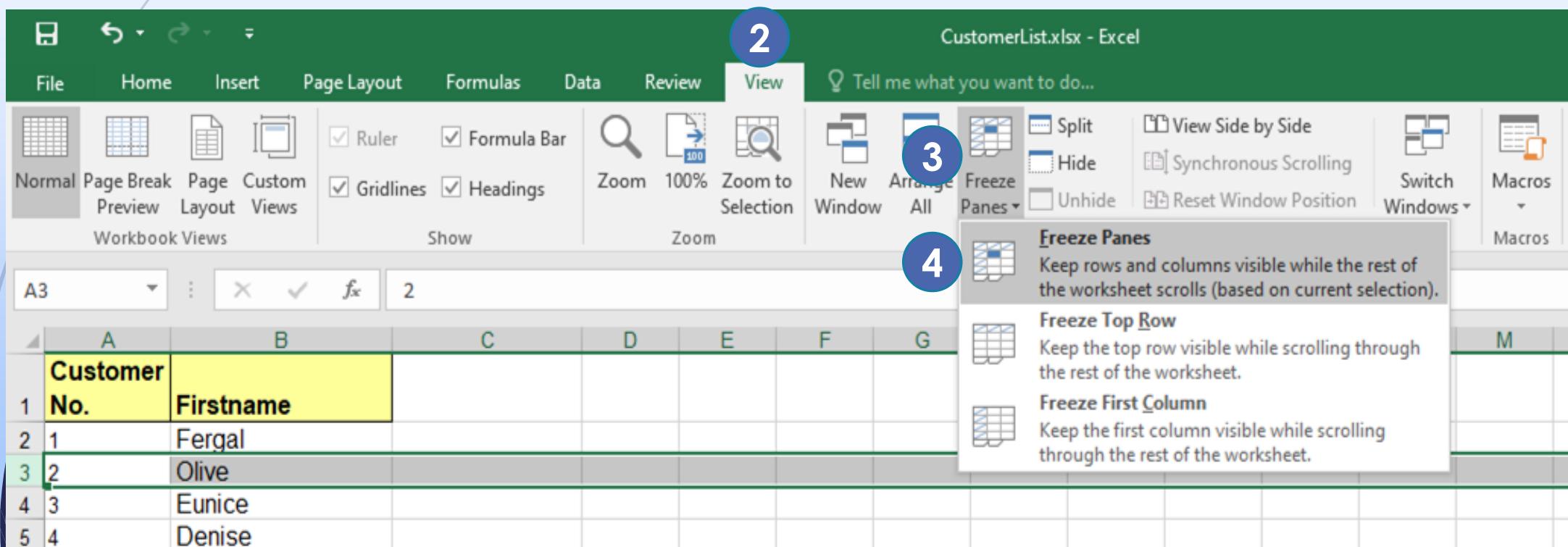
# Window Group

- ❖ **Freezing options** in an Excel sheet allow you to **lock specific rows or columns** so that they remain visible while you scroll through the rest of the worksheet.
- ❖ **This feature is especially useful** when working with **large datasets** — for example, keeping the column headers or row titles in view helps you understand the data as you move down or across the sheet.
- ❖ **Example:** If you freeze the top row, the headings (like Name, Age, Salary) will stay visible even when you scroll down the page.
- ❖ **Types of Freeze**
  - **Freeze Panes:** Locks selected rows and columns.
  - **Freeze Top Row:** Keeps only the top row visible.
  - **Freeze First Column:** Keeps only the first column visible.

# Window Group

## ❖ Freeze Row 1 and 2

### 1 Select the Row 3



❖ Note: Freeze Top Row and Freeze First column Included

# Conditional Formatting

❖ **Conditional Formatting is** a feature in Microsoft Excel that allows you to automatically change the appearance of cells — such as their color, font, or border — based on specific conditions or rules.

❖ **For example:**

- You can make cells turn red if the value is below 50.
- Or turn green if the value is greater than 80.

❖ **Path:**

**Go to the Home tab → Conditional Formatting → Choose Rule (like Highlight Cell Rules, Data Bars, Color Scales, or Icon Sets).**

❖ **This makes your Excel sheet more visual, interactive, and easier to understand.**

# Applying Conditional Formatting

The screenshot shows a Microsoft Excel spreadsheet titled "Bookshop.xlsx - Excel". The spreadsheet contains a table of fruit products with columns for Product, Type, and Price. The "Home" tab is selected in the ribbon. A blue arrow on the left points to the ribbon, and numbered circles (1-4) highlight specific steps:

- 1** The "Home" tab is selected in the ribbon.
- 2** The "Conditional Formatting" button in the ribbon is highlighted.
- 3** The "Highlight Cells Rules" option in the dropdown menu is highlighted.
- 4** The "Less Than..." rule is selected in the dropdown menu.

The table data is as follows:

	Product	Type	Price
4	Fruit Juice	Dairy	15.90
5	Banana	Fruit	12.65
6	Grapefruit	Fruit	16.95
7	Guava	Fruit	23.99
8	Cheese	Dairy	79.99
9	Pears	Fruit	22.99

# Applying Conditional Formatting

1 Farica's Fantastic Fruit

2

3 **Product** **Type** **Price**

4 Fruit Juice Dairy 15.90

5 Banana Fruit 12.65

6 Grapefruit Fruit 16.95

7 Guava Fruit 23.99

8 Cheese Dairy 79.99

9 Pears Fruit 22.99

5 Type the value less than 20

6 Select the formatting criteria Yellow Fill with Dark Yellow Text

7



Less Than

Format cells that are LESS THAN:

20

with

Yellow Fill with Dark Yellow Text

OK Cancel

# Clearing Conditional Formatting

1 Select the cell range(C4:C9)

2

3

4

The screenshot shows a Microsoft Excel spreadsheet titled "Bookshop.xlsx". The spreadsheet contains a table with columns "Product", "Type", and "Price". The "Price" column is formatted with conditional formatting, showing orange for values above 15.9 and green for values below. A blue callout box labeled "1" points to the cell range C4:C9, which is highlighted in green. The "Conditional Formatting" dropdown menu is open, labeled "2", with the "Clear Rules" option highlighted in blue. A sub-menu labeled "3" shows "Clear Rules from Selected Cells" as the selected option. The status bar at the bottom right shows the average price as 28.75, the count as 6, and the sum as 172.47. The taskbar at the bottom includes icons for File Explorer, Word, Chrome, Edge, and Excel.

Product	Type	Price
Fruit Juice	Dairy	15.90
Banana	Fruit	12.65
Grapefruit	Fruit	16.95
Guava	Fruit	23.99
Cheese	Dairy	79.99
Pears	Fruit	22.99

Average: 28.75 Count: 6 Sum: 172.47

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do... Conditional Formatting Insert Delete Format as Table Cell Styles Insert Delete Format AutoSum Fill Sort & Find & Filter Select

Clipboard Font Alignment Number

Product Type Price

1 Farica's Fantastic Fruit

2

3

4

Clear Rules from Selected Cells

Clear Rules from Entire Sheet

Clear Rules from This Table

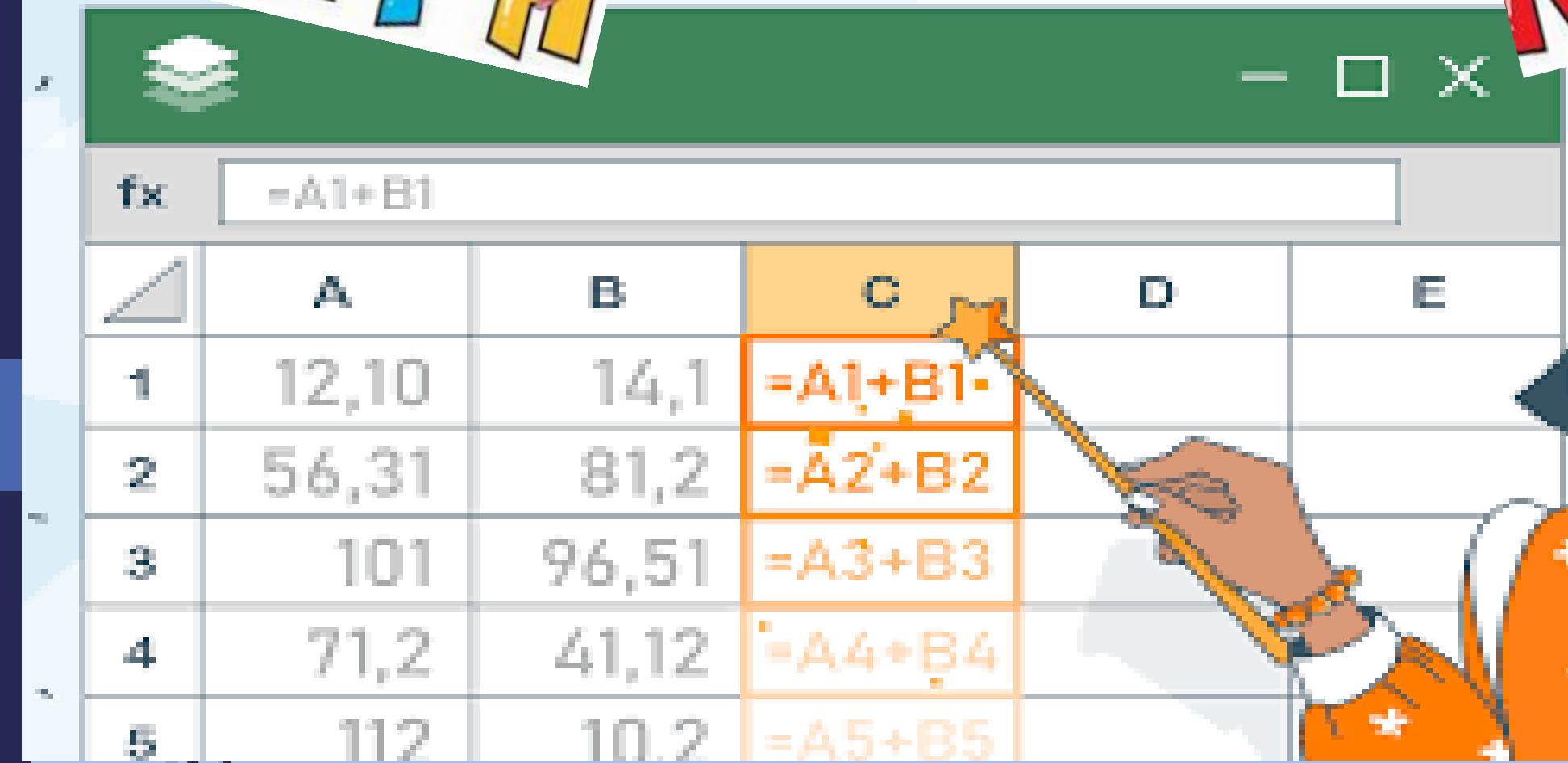
Clear Rules from This PivotTable

12:21 AM 5/13/2024

## Applying Freezing & Conditional Formatting

1. Use **Conditional Formatting.xlsx** to color the cells containing **Price Less than 20** with **Yellow Fill with Dark Yellow Text**.
  - a) Select the cell range**(C4:C9)**.
  - b) Go to **HOME** tab then from **STYLES** group go to **CONDITIONAL FORMATTING** dropdown list.
  - c) Select a rule from the dropdown list(select **highlight Cells Rules Less than 20**).
2. Use **Conditional Formatting.xlsx** to **Freeze Row 3**

# MATH FORMULAS MATH



A screenshot of a Microsoft Excel spreadsheet window. The title bar shows the window is titled "FORMULAS". The spreadsheet contains a 5x2 grid of data. Column A contains the values 12,10, 56,31, 101, 71,2, and 112. Column B contains the values 14,1, 81,2, 96,51, 41,12, and 10,2. Column C contains formulas: =A1+B1, =A2+B2, =A3+B3, =A4+B4, and =A5+B5. The formula in cell C1 is selected, highlighted with a yellow background and a black border. A hand with a pencil is pointing at the formula in cell C1. The Excel ribbon is visible at the top, showing the "fx" button and the formula =A1+B1.

	A	B	C	D	E
1	12,10	14,1	=A1+B1		
2	56,31	81,2	=A2+B2		
3	101	96,51	=A3+B3		
4	71,2	41,12	=A4+B4		
5	112	10,2	=A5+B5		



# Question (Entry Ticket)

- ❖ “What do you think a formula in Excel means?”
- ❖ “Why do you think formulas are important when working with numbers in Excel?”
- ❖ “Have you ever used symbols like +, -, \*, or / in Excel? What do they do?”

# Learning Objectives

- ❖ **The students will learn about :**
  - **The Definition of Formula in Excel.**
  - **Comparison between Formulas in Excel and Equations in Math.**
  - **Addition, Subtraction, Multiplication, Division and Average Formulas.**
  - **Using Cell Reference in Formulas.**

# Formula in Excel & Equation in Math



- ❖ Excel Formulas are a practical extension of Mathematical Equations — the same logic, just applied in a digital tool.
- ❖ A formula in Excel is an equation used to perform calculations on data in your worksheet in a digital way. All formulas in Excel start with an equal sign (=).

<https://www.youtube.com/watch?v=AloJOoF5u0w>

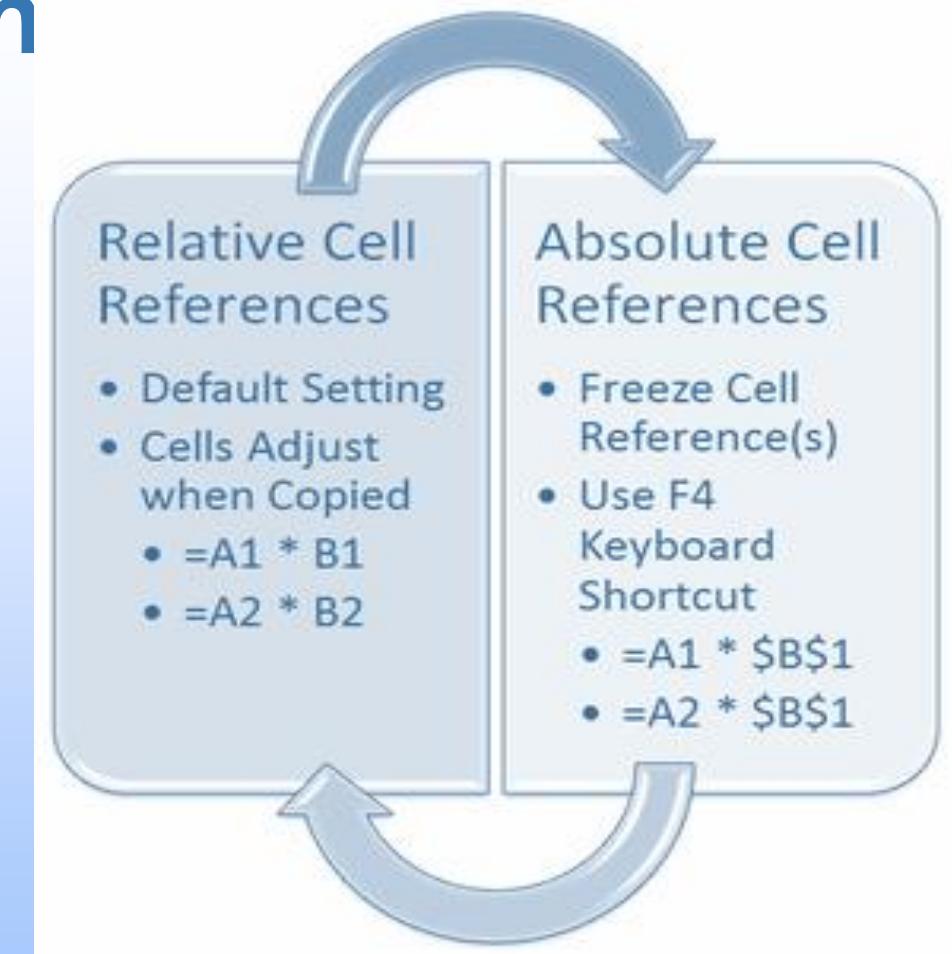
# Arithmetic Operators

What symbols do you use in math Equations ?

Operator	Meaning	Formula using Cell Reference	Formula using Values	Description
+	Addition	=A1+B1	=5+7	Adds values in A1 and B1
-	Subtraction	=A1-B1	=5-7	Subtracts B1 from A1
*	Multiplication	=A1*B1	=5*7	Multiplies A1 by B1
/	Division	=A1/B1	=5/7	Divides A1 by B1

# Relative Cell References

? In Excel, a **cell reference** refers to the **address** or **location** of a cell in a worksheet.

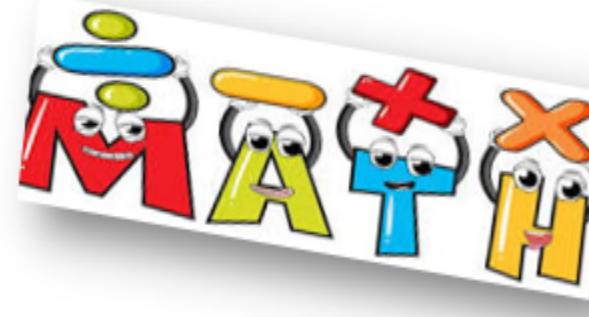


# Cell Reference

## Why Use Cell References Instead of Typing Numbers?

- ❖ Using **cell references** (like A1, B1, etc.) makes your formulas **dynamic** and **automatic**.
- ❖ **Advantages:**
- ❖ **Easier updates** — if the data changes, Excel automatically recalculates.
- ❖ **Saves time** — you don't need to rewrite formulas.
- ❖ **Consistent results** — fewer mistakes.

# Apply Skills



	A	B	C	D
1				
2				
3				
4	Questions	Value 1	Value 2	Answer
5	In cell D5 find the Total for B5 and C5	155	265	=B5+C6
6	In cell D6 Subtract B6 from C6	490	500	=C6-B6
7	In cell D7 Multiply B7 by C7	125	235	=B7*C7
8	In cell D8 Divide B8 by C8	150	25	=B8/C8
9	In cell D9 calculate the Average for the cells B9 and C9	200	600	=(B9+C9)/2

# Formulas Apply Skills (out of 5)

- ❖ Open the Spreadsheet “**Formulas Apply Skills.xlsx**” From the hared folder then apply the skills below
  1. Enter a formula in cell **B14** that **subtracts** cell **B12** **from** cell **B3**. **Copy** the formula in cell **B14** to the cell range **C14 : E14**.
  2. Enter a formula in cell **B15** that will calculate the **average** of the cell range **B7 : B11**. **Copy** the formula in cell **B15** to the cell range **C15 : E15**.
  3. Enter a formula in cell **H9** using the **+** operator that **adds** cell **B9** and cell **B10**.



# Learning Objectives

- ❖ **You will learn about:**

1. **Sum ,Average, Maximum ,Minimum ,Round Functions.**
2. **Count , CountA Functions.**
3. **IF ,SUMIF Functions.**

# Functions

Function	Definition	Purpose / Use	Example Formula
SUM	Adds all the numbers in a selected range of cells.	Used to find the total of values in a column or row.	=SUM(A1:A5)
AVERAGE	Calculates the mean (average) of numbers in a range of cells.	Used to find the central value of a data set.	=AVERAGE(A1:A5)
MIN	Returns the smallest (minimum) value in a range of cells.	Used to find the lowest value in a set of numbers.	=MIN(A1:A5)
MAX	Returns the largest (maximum) value in a range of cells.	Used to find the highest value in a set of numbers.	=MAX(A1:A5)

# Functions

Function	Definition	Purpose / Use	Example Formula
COUNT	Counts the number of cells that contain numbers in a range of cells.	Used to count how many numeric values exist in a list.	=COUNT(A1:A5)
COUNTA	Counts the number of non-empty cells (text, numbers, etc.) in a range of cells.	Used to count all filled cells, regardless of data type.	=COUNTA(A1:A5)
ROUND	Rounds a number to a specified number of decimal places.	To make data neater or adjust decimal precision.	=Round(A4,0) =Round(A5,1) =Round(B3,2)



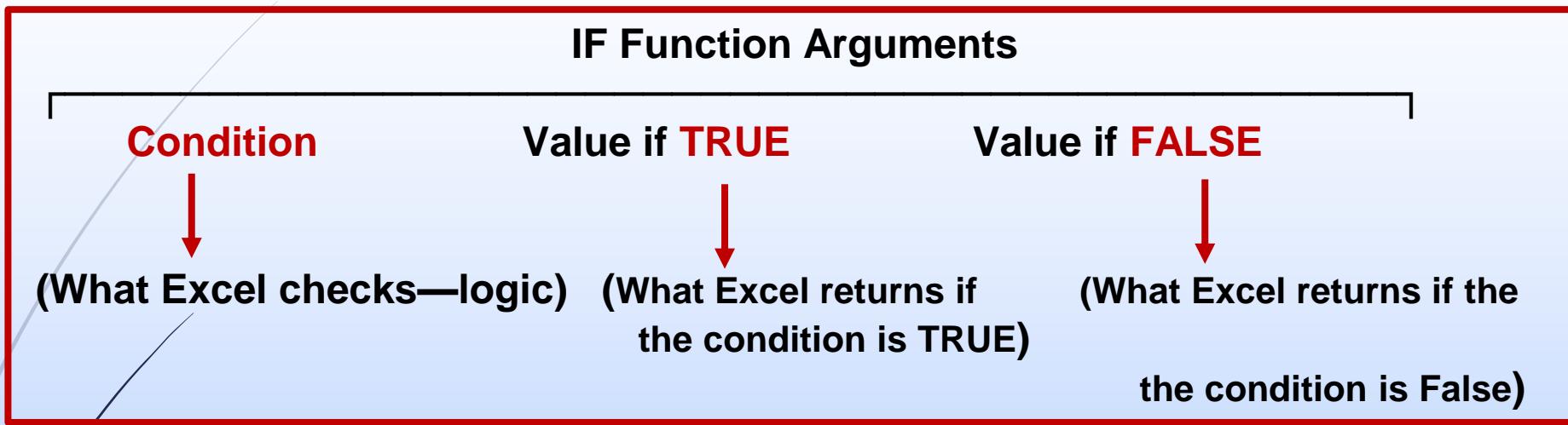
## Evaluation

<https://wordwall.net/resource/101630213>

# Functions

Function	Definition	Purpose / Use	Example Formula
IF	<b>Checks a condition and returns one value if true, another if false.</b>	<b>To compare and make decisions (e.g., Pass/Fail).</b>	=IF(C2>=80,"Pass","Fail") for Sara
SUMIF	<b>Adds numbers that meet a specific condition.</b>	<b>To sum only scores meeting a criterion.</b>	Enter a function in cell D11 to help a small store wants to know <b>how much money was earned from “Vegetables” only.</b>

# IF Function



***Example:***

**=IF(B4>=50,"pass","fail")**

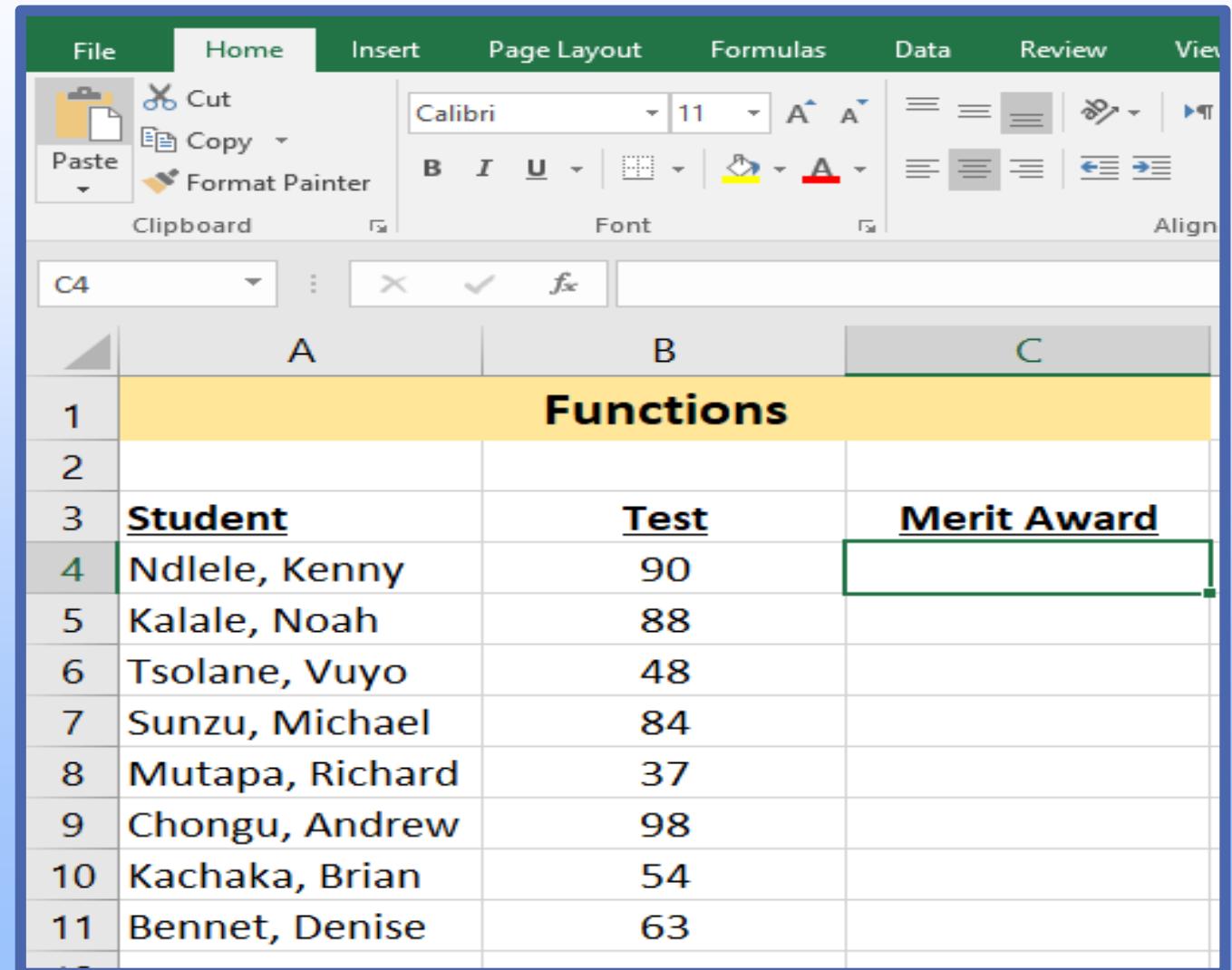
Condition

Value if TRUE

Value if FALSE

# IF Function

Use **IF** function in cell **C3** that displays the text “**Very Good**” if the Test for Ndlele, **Kenny** in cell **B4** is **greater than 90** and otherwise displays the text “**Good**”. **Copy the function** in cell **C4** to the cell range **(C5:C11)**.



The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C
1			Functions
2			
3	<u>Student</u>	<u>Test</u>	<u>Merit Award</u>
4	Ndlele, Kenny	90	
5	Kalale, Noah	88	
6	Tsolane, Vuyo	48	
7	Sunzu, Michael	84	
8	Mutapa, Richard	37	
9	Chongu, Andrew	98	
10	Kachaka, Brian	54	
11	Bennet, Denise	63	

# IF Function

The screenshot shows a Microsoft Excel spreadsheet with a data table and a formula editor for the IF function.

**Table Data:**

	Student	Test	Merit Award
4	Ndlele, Kenny		=IF(B4>90,"Very Good","Good")
5	Kalale, Noah	88	
6	Tsolane, Vuyo	48	
7	Sunzu, Michael	84	
8	Mutapa, Richard	37	
9	Chongu, Andrew	98	
10	Kachaka, Brian	54	
11	Bennet, Denise	63	
12			

**Formula Bar:** SUM ▾ X ✓ fx =IF(B4>90,"Very Good",Good)

**Function Arguments Dialog (IF):**

- Logical\_test: B4>90 = FALSE
- Value\_if\_true: "Very Good" = "Very Good"
- Value\_if\_false: Good =

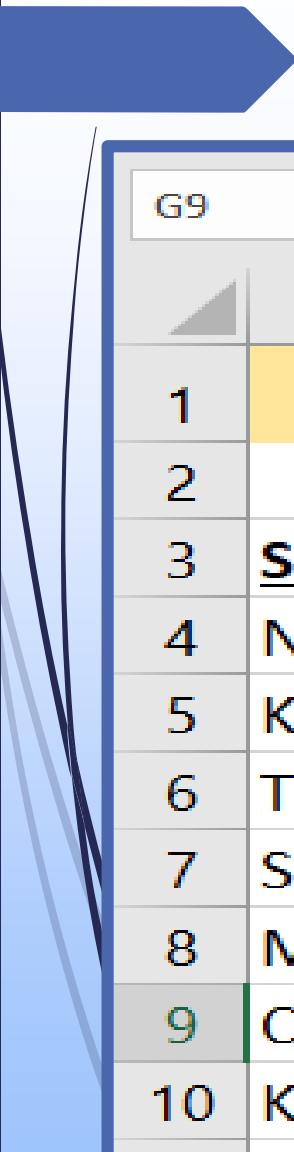
Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

Value\_if\_false is the value that is returned if Logical\_test is FALSE. If omitted, FALSE is returned.

Formula result =

[Help on this function](#) OK Cancel

# IF Function



	A	B	C	D
1	Functions			
3	<u>Student</u>	<u>Test</u>	<u>Merit Award</u>	<u>Merit Award</u>
4	Ndlele, Kenny	90	Good	=IF(B4>90,"Very Good","Good")
5	Kalale, Noah	88	Good	=IF(B5>90,"Very Good","Good")
6	Tsolane, Vuyo	48	Good	=IF(B6>90,"Very Good","Good")
7	Sunzu, Michael	84	Good	=IF(B7>90,"Very Good","Good")
8	Mutapa, Richard	37	Good	=IF(B8>90,"Very Good","Good")
9	Chongu, Andrew	98	Very Good	=IF(B9>90,"Very Good","Good")
10	Kachaka, Brian	54	Good	=IF(B10>90,"Very Good","Good")
11	Bennet, Denise	63	Good	=IF(B11>90,"Very Good","Good")

## SUMIF Function

The **SUMIF** function in Excel **sums values in a range that meet a single, specified condition**. You provide it with the range to evaluate, the criteria, and the range to sum, which can be a different range than the one being evaluated. For example, to find the total sales for the "East" region, you would sum the "Sales" column, where the "Region" column equals "East".

# SUMIF Function

The basic **syntax** is **=SUMIF(range, criteria, Sum\_range)**

- **range:** The range of cells you want to evaluate based on the criteria.
- **criteria:** The condition that determines which cells to sum. This can be a number, text, or an expression like ">5" or "John".
- **sum\_range:** The optional range of cells to sum. If omitted, the range is summed.

# SUMIF Function

Open **SUMIF Function.xlsx** spreadsheet, then in cell **F3** Find the **sum** of **Total** stats for **Grass** type.

	A	B	C	D	E	F	G
1	Name	Type 1	Total		Type	Total Sum	
2	Bulbasaur	Grass	318		Grass		
3	Ivysaur	Grass	405		Fire		
4	Venusaur	Grass	525		Water		
5	Charmander	Fire	309				
6	Charmeleon	Fire	405				
7	Charizard	Fire	534				
8	Squirtle	Water	314				
9	Wartortle	Water	405				
10	Blastoise	Water	530				
11							

# SUMIF Function

1

# SUMIF Function

2

# SUMIF Function

3

	A	B	C	D	E	F	G
1	Name	Type 1	Total				
2	Bulbasaur	Grass	318		Type	Total Sum	
3	Ivysaur	Grass	405		Grass	=SUMIF(B2:B10; E3; C2:C10)	
4	Venusaur	Grass	525		Fire	=SUMIF(B2:B10; E4; C2:C10)	
5	Charmander	Fire	309		Water	=SUMIF(B2:B10; E5; C2:C10)	
6	Charmeleon	Fire	405		<p><a href="#">SUMIF</a> (range; criteria; [sum_range])</p>		
7	Charizard	Fire	534				
8	Squirtle	Water	314				
9	Wartortle	Water	405				
10	Blastoise	Water	530				
11							

# Functions Apply Skills (out of 5)

- ❖ Open the Spreadsheet “**Functions Apply Skills.xlsx** ”From the hared folder then apply the skills below
- ❖ **On Costing worksheet**
  1. Enter a function in **cell B15** to calculate the maximum of the **cell range B7 : B11**. Copy the function in **cell B15** to the **cell range C15 : E15**.
  2. Enter a function in **cell B16** that displays the text **Yes** if the number in **cell E12** is **greater than 50000** and otherwise displays the text no

# Functions Apply Skills

❖ Open the Spreadsheet “**Functions Apply Skills.xlsx**” From the hared folder then apply the skills below

## ❖ **New Members Worksheet**

3. Enter a function in cell **B42** to **count** the **new member** names in the cell range **B4 : B40**. Save and close the newmembers.xlsx spreadsheet.

## ❖ **Store Worksheet**

4. Enter a function in cell **D10** to help a small store wants to know **how much money was earned from “Fruits” only**.
5. Enter a function in cell **D11** to find How much money was earned **from Quantity greater than 100**.



<https://wordwall.net/resource/102199550>

# CHARTS



<https://www.youtube.com/watch?v=7W5-sojhUW4>

# Learning Objectives

## ❖ You will learn about:

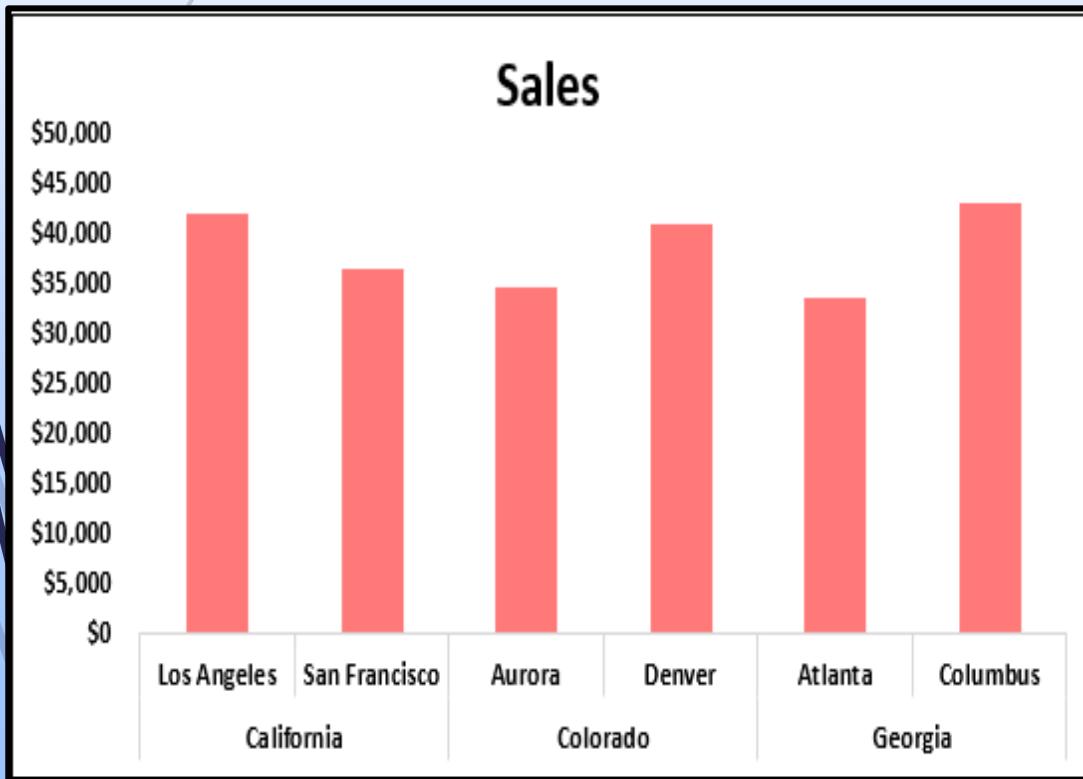
1. Explain why charts are more useful than raw tables.
2. Create a chart by using different type of charts like (Column, Bar, Line, Pie,...).
3. Change Chart Type from one type to another.
4. List the elements of charts(chart Title , Vertical Axis Title , Data Label , Horizontal Axis Title ,Plot Area, Chart Area ,Legend)
5. Add and edit chart elements: (Chart Title – Data Labels – Legend – Axis Titles)



# Entry Ticket

- ❖ Explain why charts are more useful than raw tables?

## Chart



## Table

A	B	C	
1	State	City	Sales
2	California	Los Angeles	\$41,795
		San Francisco	\$36,457
4	Colorado	Aurora	\$34,543
		Denver	\$40,919
6	Georgia	Atlanta	\$33,633
		Columbus	\$42,981

# Compare between chart and Table

Category	Chart	Table
Easy to understand		
Help compare data quickly		
Highlight the most important information		

# Creating Charts

1 Select (A2:B6).

The screenshot shows a Microsoft Excel spreadsheet with data in rows 2 through 8. The data is as follows:

	A	B
1		
2		Revenues €
3	Donations	228,150
4	Fundraising	205,750
5	Bar Revenue	320,500
6	Bank Loan	300,000
7		
8	<b>TOTAL</b>	<b>1,054,400</b>
9		
10		
11		
12		
13		
14		
15		
16		
17		

The 'Insert' tab is selected (2). The 'Chart' icon in the 'Charts' group is highlighted (3). A context menu for '100% Stacked Column' is open (4). A 100% Stacked Column chart is displayed at the bottom (5).

**100% Stacked Column**  
Use this chart type to:

- Compare the percentages that each value contributes to a total.
- Show how the percentage that each value contributes changes over time.

100% Stacked Column

2-D Column

3-D Column

2-D Bar

3-D Bar

More Column Charts...

Donations Fundraising Bar Revenue Bank Loan

# Chart Apply Skills (out of 2)

❖ Open the Spreadsheet “**Chart.xlsx**” From your own folder then apply the skills below:

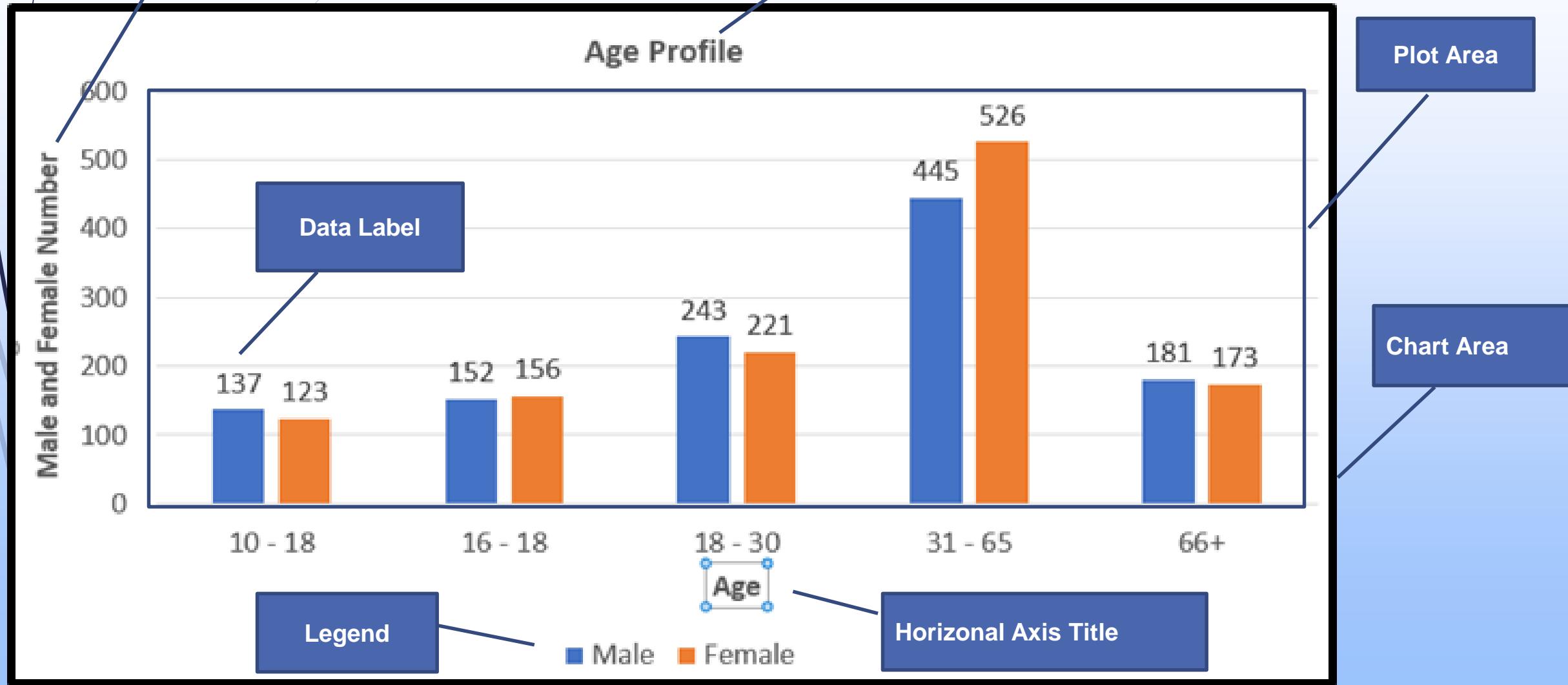
## **On Bank Loan worksheet**

1. Create a **2-D Clustered Column** chart, from the **cell range A2 : B6**.
2. **Move** the column chart to cell **E2**.

## **On Extra Chart worksheet**

1. Create a **3\_D Line Chart**, from the cell range **A3 : C8**.
2. **Move** the column chart to **G3**.

# Chart Elements

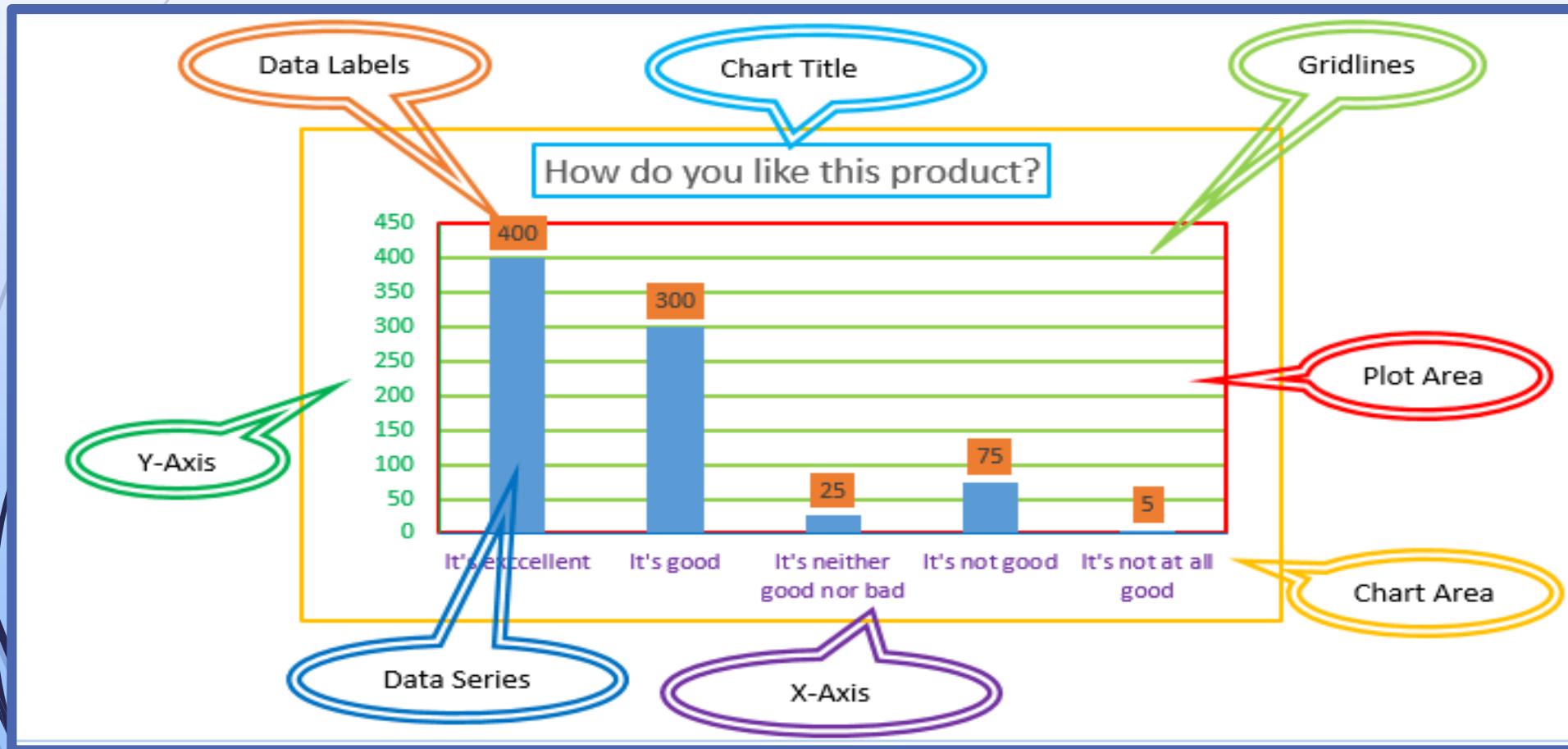


# Charts Elements

Chart Element	Definition	Use
Chart Title	Main heading of the chart	Tells the viewer what the chart is about
Vertical Axis Title	Label for Y-axis	Shows units/measure of values
Horizontal Axis Title	Label for X-axis	Explains categories or time
Data Labels	Numbers on the chart	Shows exact values clearly
Legend	Explains colors/symbols	Helps identify data series
Plot Area	Space where data is drawn	Displays bars/lines/slices
Chart Area	Entire chart container	Overall formatting and layout

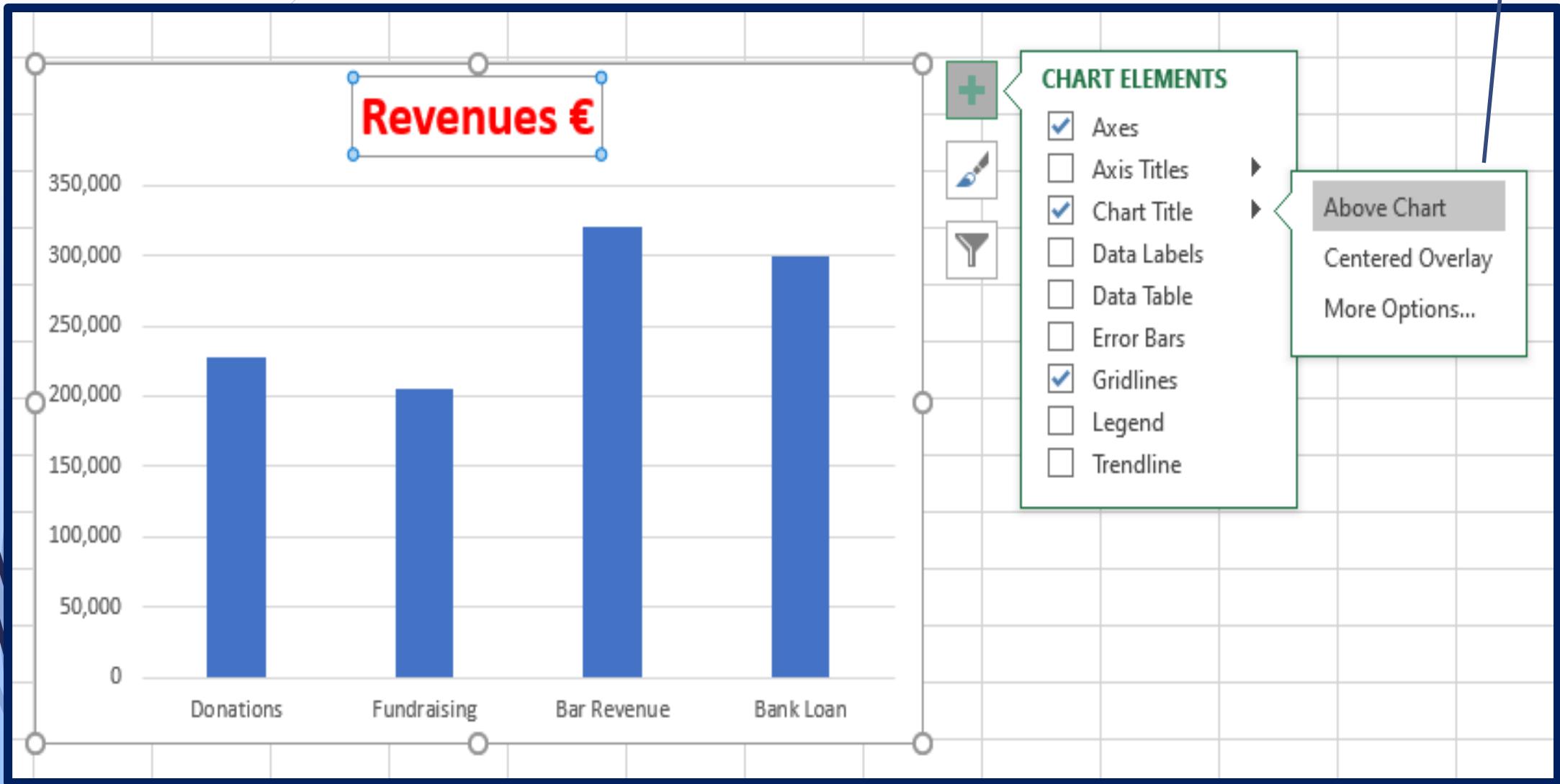
# Lets Play

<https://wordwall.net/resource/102396869>

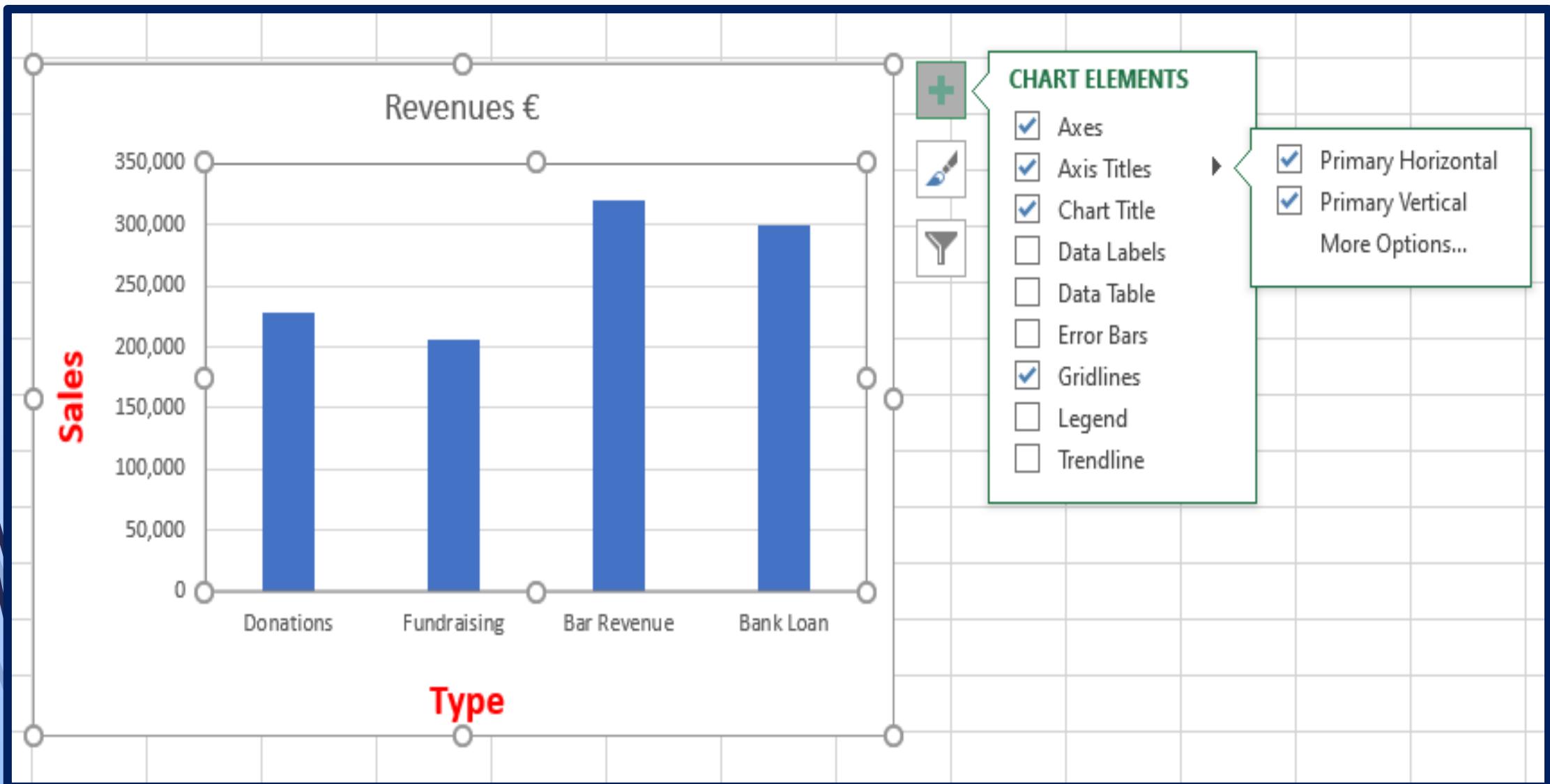


# Title Charts

Position of the Title Chart

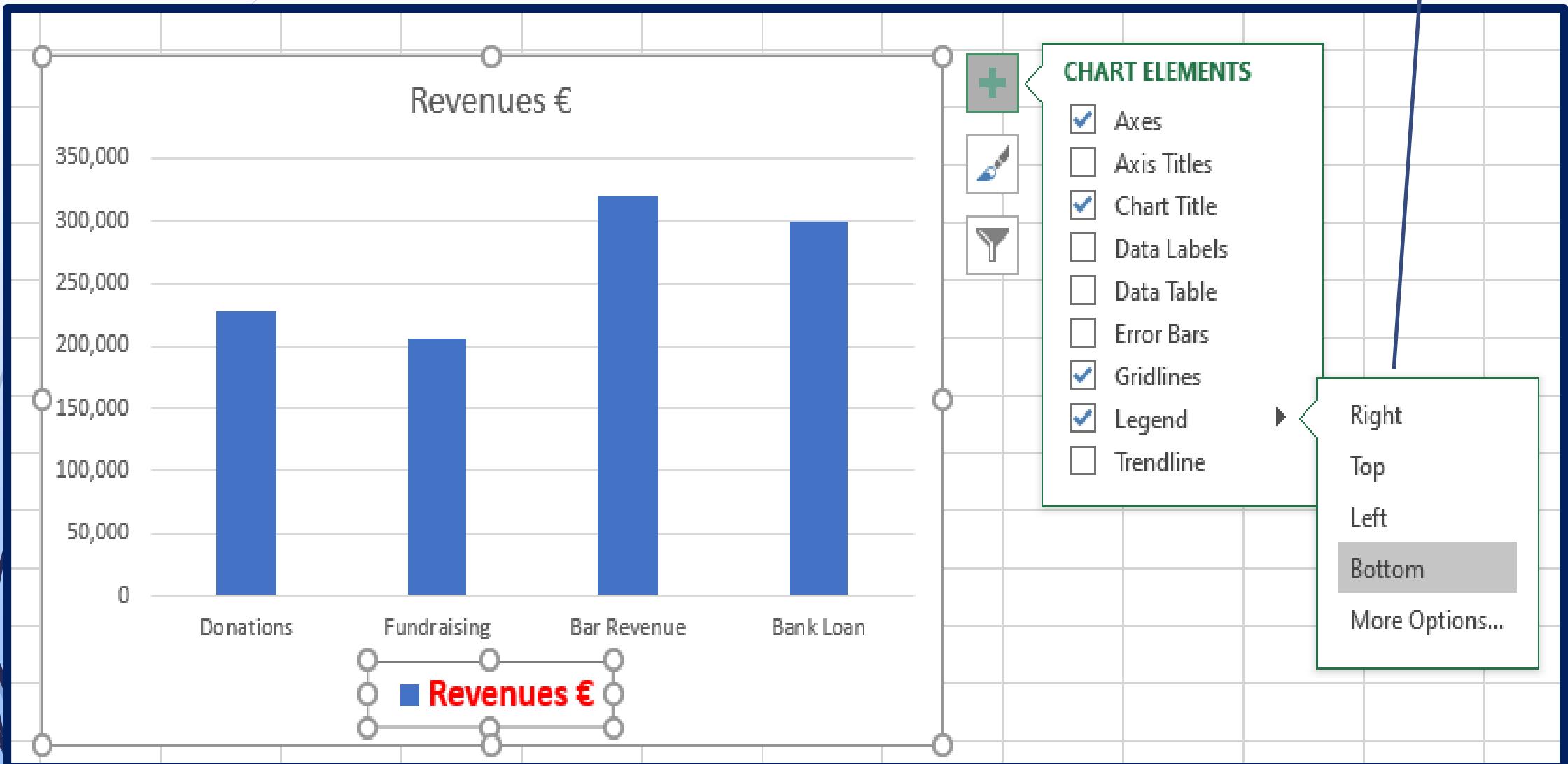


# Axis title



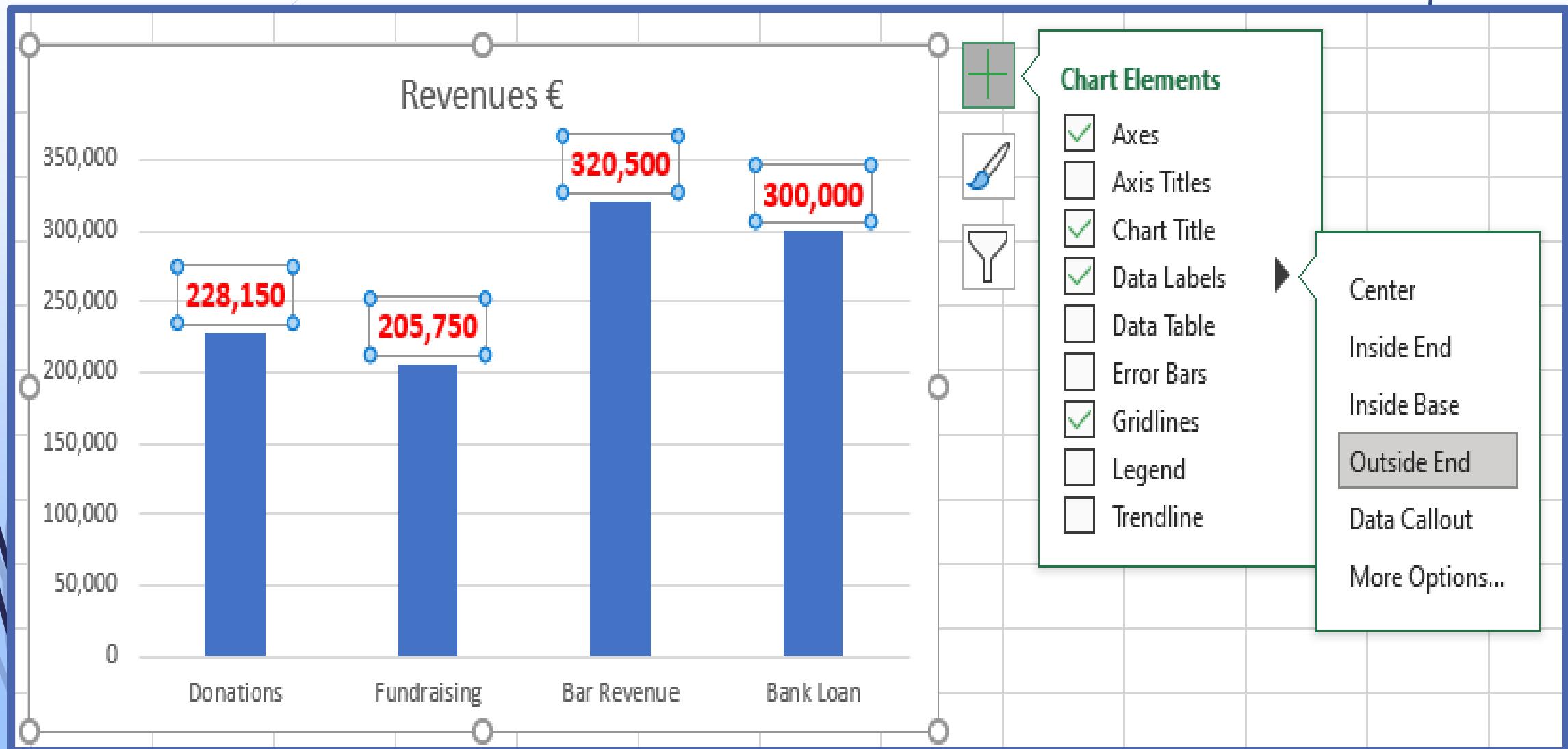
## Position of the Legend

# Legend



# Data Label

## Position of the Data Label



# Add chart elements

## 1 Select the chart

1 Budget For Extension to Golf Club

Product	October	November
Heating & Cooling	300	2600
Architects Fees	3100	800
Electrical	1000	2700
Building costs	8000	8000
Glazing	300	5000
<b>Total Costs</b>	<b>12400</b>	<b>19100</b>

CHART ELEMENTS

- Axes
- Axis Titles
- Chart Title
- Data Labels
- Data Table
- Error Bars
- Gridlines
- Legend
- Trendline

2 3 4 5

Bank Loan Extra Chart Elements Charts

# Chart Apply Skills

- ❖ Open the Spreadsheet “**Chart.xlsx**” From your own folder then :
- ❖ On “**Elements Charts**” worksheet
  1. Add the **title :Budget Of Gulf Club** to the chart.
  2. Add the **X-axis title :"Product"** to the chart.
  3. Add the **Y-axis title :"Sales"** to the chart.
  4. Add **Inside End Data Label**.
  5. Add **Bottom Legend**.



# Header & Footer

# Header and footer in a worksheet

- ❖ You can add headers or footers at the top or bottom of a printed worksheet in Excel.
- ❖ For example, you might create a footer that has page numbers, the date, and the name of your file.
- ❖ You can create your own, or use many built-in headers and footers.

# Header and Footer

1

2

Big Eater.xlsx - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do... Themes Colors Fonts Effects Margins Orientation Size Print Area Breaks Background Print Titles Themes Page Setup

G4 A B C D

1 Big Eater Café

2

3 Product June July August

Product	June	July	August
Okra	6,980	6,570	6,570
Jollof Rice	5,420	5,480	5,480
Fresh Fish Stew	3,560	3,964	5,640
Groundnut Soup	4,135	4,570	4,570
Fufu	3,950	3,580	3,580
Abenkwan	2,100	3,480	3,480
Avocado with Smoked Fish	2,229	4,200	4,200
Akotonshi	3,413	3,413	3,413
Shoko	2,954	2,900	2,900
Tatale	3,210	3,220	3,220
Kentumere	1,907	1,952	1,952

Page Setup

Don't see what you're looking for?  
Check out the full set of page formatting options.

Click on the launcher to open the "Page Setup" dialog box

3

Header: (none) 4 5

Footer: (none)

Different odd and even pages  
 Different first page  
 Scale with document  
 Align with page margins

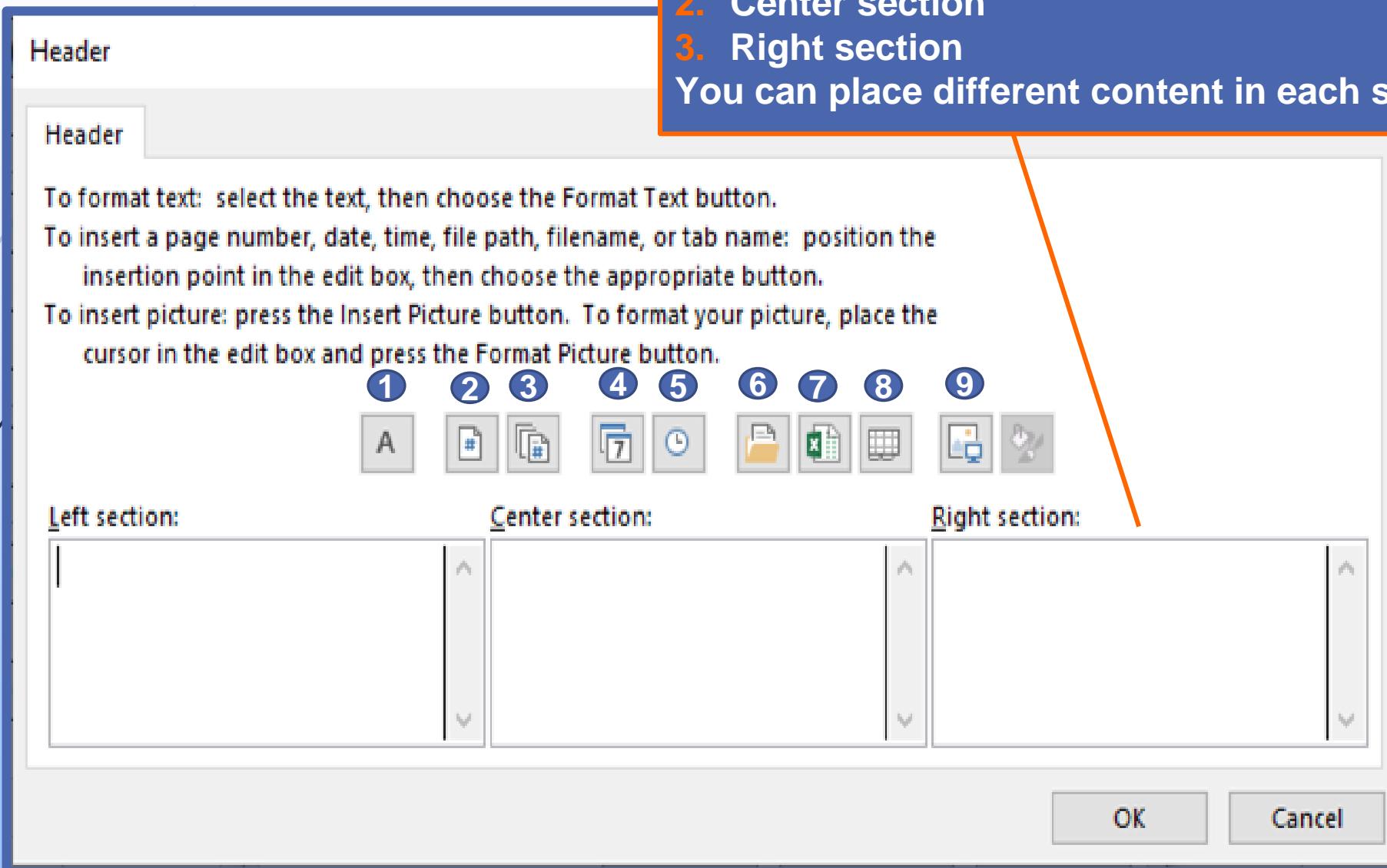
Print... Print Preview Options... OK Cancel

# Custom Header

A header in Excel is divided into three sections:

1. Left section
2. Center section
3. Right section

You can place different content in each section.



# Parts of Header Dialog box

- 1 Format Text
- 2 Insert Page Number
- 3 Insert Number of Pages
- 4 Insert Date
- 5 Insert Time
- 6 Insert File Path
- 7 Insert File Name
- 8 Insert Sheet Name
- 9 Insert Picture

**Note:**

**The Parts of the custom Footer are the same of the parts of custom header**

# Header and Footer Apply Skills

❖ Open the Spreadsheet “**SUMIF.xlsx**” From your own folder then apply the skills below:

## ❖ On SUMIF Worksheet

1. Add your **First and Last Name** into the **right** section of the **Header**.
2. Insert **File Name** into the **Left** section of the **Header**.
3. Insert **Page Number** into the **Left** section of the **Footer**.
4. Insert **Date and Time** into the **Right** section of the **Footer**.