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## Lab Manual

# Excel with a focus on Data Collection and Management



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# Introduction to MS-Excel Electronic Spreadsheet

## Lab 1: Workbook Basics

**Objective:** Familiarize participants with the concept of workbooks, worksheets, and basic operations within an Excel workbook.

**Learning outcome:** Students can be able to understand the concept of worksheet.

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Part 1: Understanding Workbooks

- **Opening Excel:**

- Open Microsoft Excel on your computer if it's not already open.

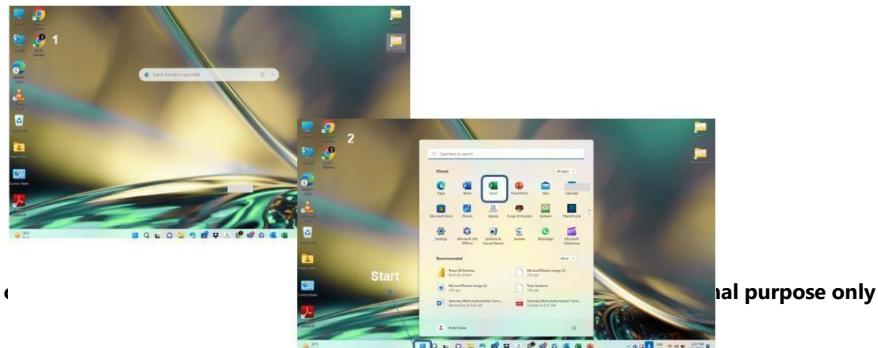


Fig: Opening Excel by Searching

- **Creating a New Workbook:**

- Click on "File" or the Office button (depending on your Excel version).

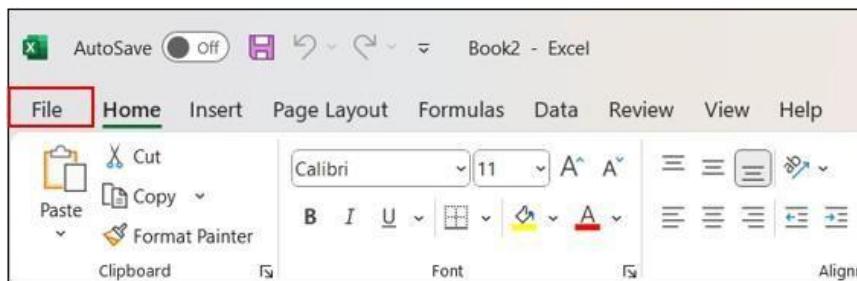
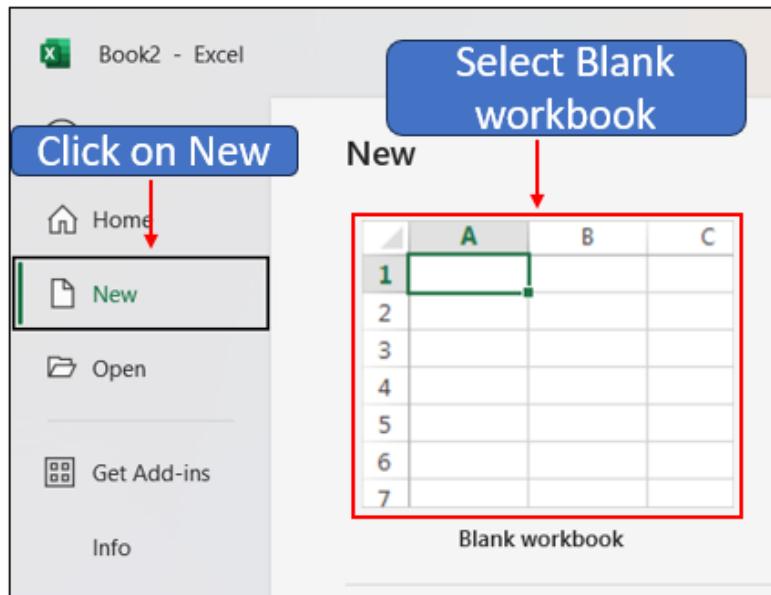


Fig: Creating New Workbook

- Select "New" to create a new workbook. You should now have a blank Excel workbook with one worksheet named "Sheet1."



**Fig: Creating New Workbook**

- **Worksheet Tabs:**
  - Explain that a workbook can contain multiple worksheets, and these worksheets are shown as tabs at the bottom of the Excel window.
  - Rename the default worksheet by right-clicking on the "Sheet1" tab, selecting "Rename," and giving it a new name, e.g., "Sales Data."

## Part 2: Basic Workbook Operations

- **Adding Worksheets:**
  - Demonstrate how to add a new worksheet by clicking the plus icon (+) to the right of the existing sheet tabs.
  - Name the new worksheet, e.g., "Expenses."
- **Navigating Worksheets:**
  - Show participants how to switch between worksheets by clicking on their respective tabs.
  - Also, introduce keyboard shortcuts (Ctrl + Page Up and Ctrl + Page Down) for easy navigation between worksheets.
- **Saving the Workbook:**
  - Explain the importance of saving work. Click on "File" and select "Save As."
  - Choose a location to save the workbook, enter a name (e.g., "Financial Report"), and click "Save."
- **Closing and Opening Workbooks:**
  - Close the workbook and then reopen it to demonstrate how to access previously saved work.

## Part 3: Basic Data Entry

- **Entering Data:**

- In the "Sales Data" worksheet, enter sample data, such as sales figures for different months and products.
- Explain that cells are where data is entered and that they can contain text, numbers, or formulas.
- **Formatting Data:**
  - Show participants how to format cells by selecting a cell or range and using options in the "Home" tab, such as font, alignment, and number formatting.
- **Saving Changes:**
  - Emphasize the importance of saving changes regularly by clicking the "Save" icon or using the Ctrl + S keyboard shortcut.

## Lab 2: Data Entry of Students Application Data and saving it in my documents

**Aim:** To create a basic, excel workbook where you can enter data in the worksheet

**Learning outcome:** Students can be able to create and enter data in the worksheet.

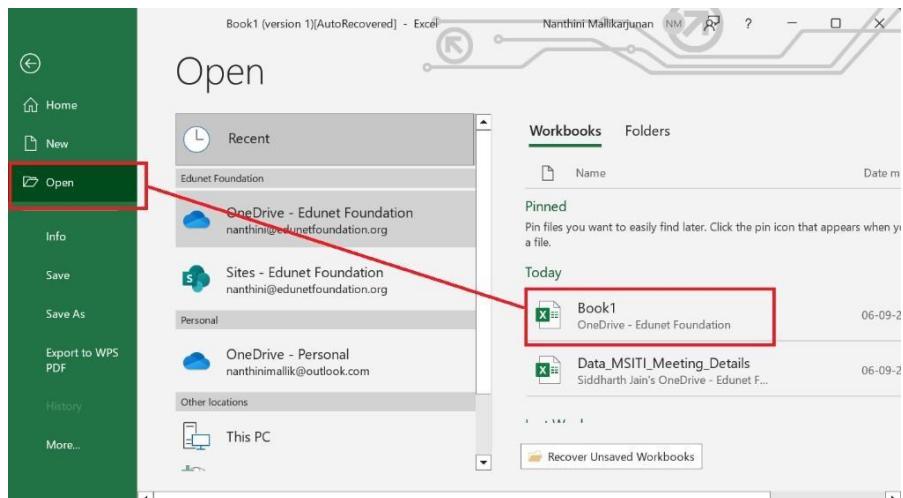
**Duration:** 20 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

**Step 1:** Open your Excel worksheet.



**Fig: Opening Excel Worksheet**

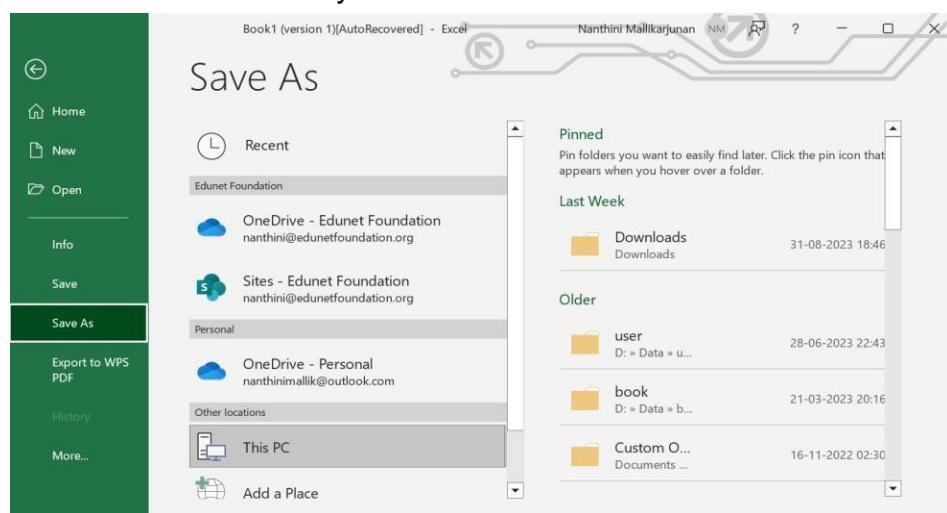
**Step 2:** Enter details like the fields of Roll No, Student Name, Email, Contact, and Program, etc.

	A	B	C	D	E
1	Students Data				
2	Roll No.	Student Name	Email	Contact	Program
3	1	example1	<a href="mailto:example1@gmail.com">example1@gmail.com</a>	1234567890	MS-ITI
4	2	example2	<a href="mailto:example2@gmail.com">example2@gmail.com</a>	2345678901	MS-ITI
5	3	example3	<a href="mailto:example3@gmail.com">example3@gmail.com</a>	3456789012	MS-ITI
6	4	example4	<a href="mailto:example4@gmail.com">example4@gmail.com</a>	4567890123	MS-ITI
7	5	example5	<a href="mailto:example5@gmail.com">example5@gmail.com</a>	5678901234	MS-ITI

**Fig: Students details added in worksheet**

**Step 3:** Trainer can guide the students to make 10 fields of the application data.

**Step 4:** Save the Excel sheet in My Document.



**Fig: Saving Excel Sheet**

**Output:** Students will be able to open, access excel sheet

**References:** Microsoft Excel Spreadsheet Software | Microsoft 365

## Lab 3: Creating a Simple Contact List using Excel

**Aim:** To create a basic Excel workbook where you can enter and save contact information.

**Learning Outcome:** Students can be able to create workbooks for various applications.

**Duration:** 20 Mins

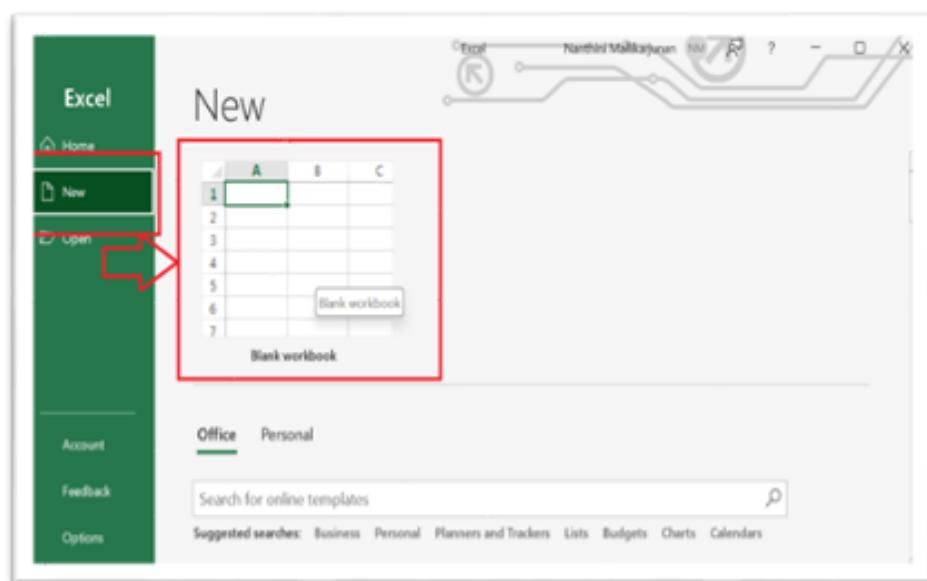
### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Step 1: Create a New Workbook:

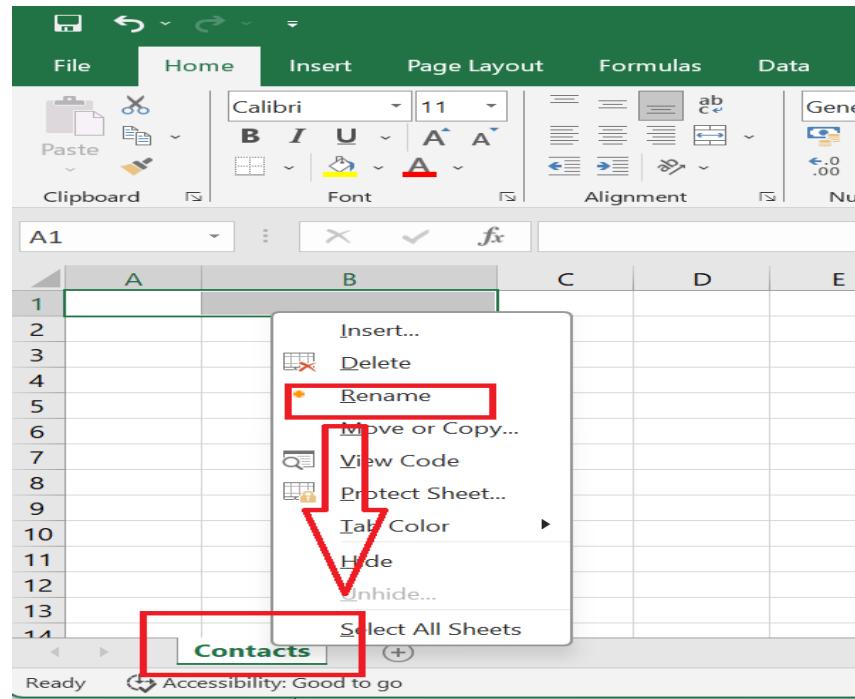
- Open Microsoft Excel.
- Create a new blank workbook using the "New" option



**Fig: Creating New Workbook**

#### Step 2: Worksheet Setup:

- Rename the first worksheet tab to "Contacts."



**Fig: Renaming worksheet**

### Step 3: Column Headers:

- In row 1, label cell A1 as "Name," cell B1 as "Phone Number."

Book1					
File	Home	Insert	Page Layout	Formulas	Data
Paste	Calibri 11	B I U A A	Font	Alignment	General
Clipboard	Font	Font	Font	Font	Font
	Font	Font	Font	Font	Font
	Font	Font	Font	Font	Font
	Font	Font	Font	Font	Font
D7	Name	Phone Number			
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

**Fig: Adding data in cell**

### Step 4: Data Entry:

- Starting from row 2, enter the name, and phone number of your contacts in the respective columns.

	A	B	C	D
1	Name	Phone Number		
2	Anu	9897984566		
3	Abi	8276489996		
4	Arav	8983747655		
5	Aksha	9574863735		
6	Anveet	9677865233		
7				
8				
9				
10				
11				
12				
13				
14				

**Fig: Data Entry**

#### **Step 5:** Saving the Workbook:

- Save the workbook with an appropriate name like "Contact List" in a location on your computer.

# Navigating and Customizing Excel Interface

## Lab 4: Practice navigating between different sheets within an Excel workbook.

**Aim:** To navigating between different sheets within same excel workbook

**Learning Outcome:** Student can be able to navigate between different sheets properly

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Step 1: Open a Workbook:

- Open an existing workbook with multiple sheets or create a new workbook with a few sheets.

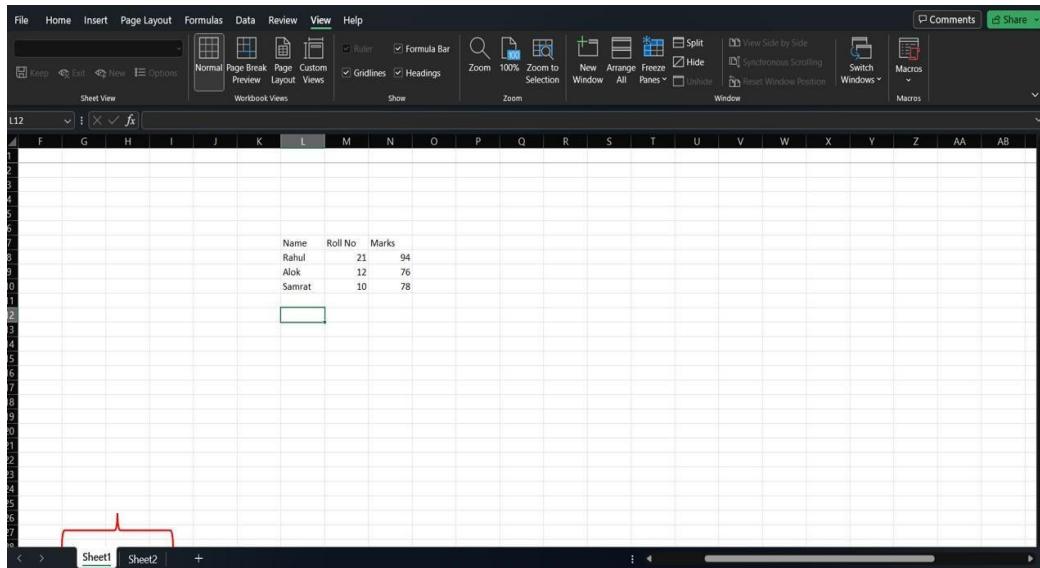
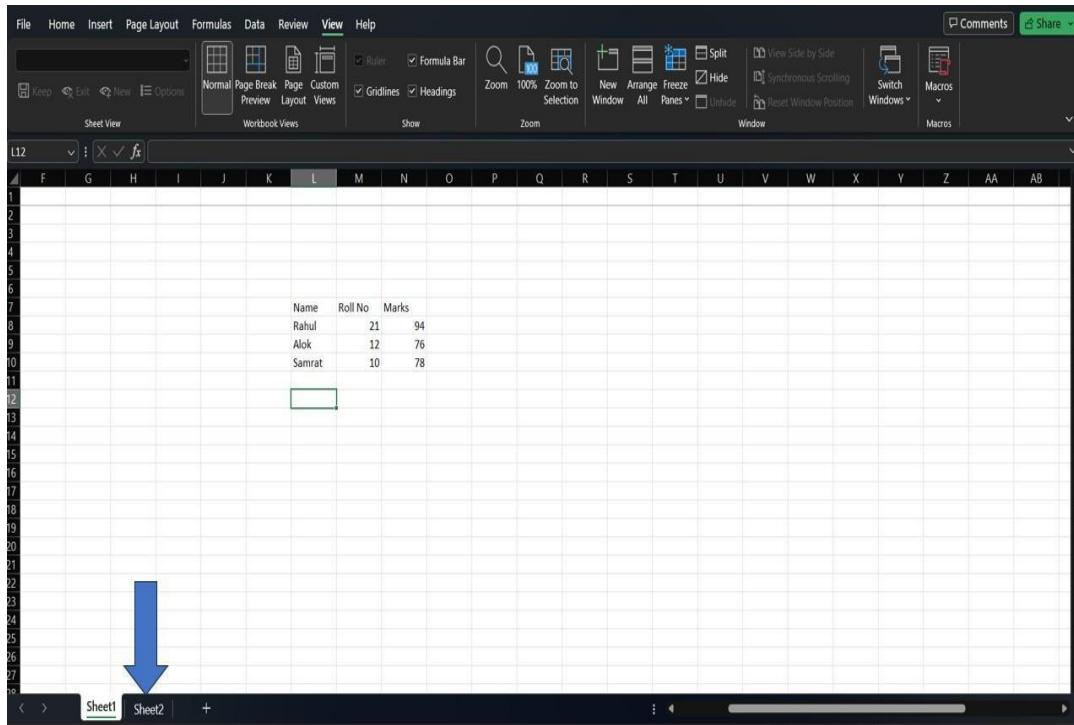


Fig: Creating new workbook

#### Step 2: Switching Between Sheets:

- Click on sheet2 tabs to switch between sheets.



**Fig: Switch sheet**

- Observe how the content of the workbook changes as you move between sheets.

### **Step 3: Using Keyboard Shortcuts:**

- Use Ctrl + Page Up to navigate to the previous sheet.
- Use Ctrl + Page Down to navigate to the next sheet.

**Output:** Students will be able to navigate between different sheets

## Lab 5: Exploring the Excel Ribbon

**Aim:** Familiarize participants with the various tabs and groups in the Excel ribbon interface.

**Learning outcome:** Students will become proficient with the various tabs and groups in the Excel ribbon interface.

**Duration:** 20 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure/Options:

- Provide participants with a blank Excel workbook or ask them to open Excel.

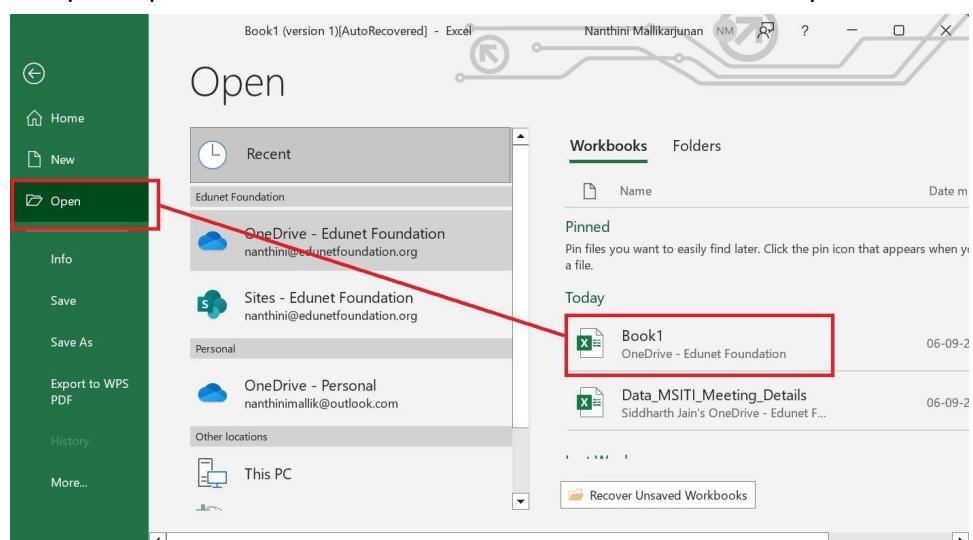


Fig: Open Existing File

- Instruct them to explore the Excel ribbon interface by completing the following tasks:
- Click on each tab in the ribbon (e.g., "Home," "Insert," "Page Layout") to see the different groups and commands within each tab.

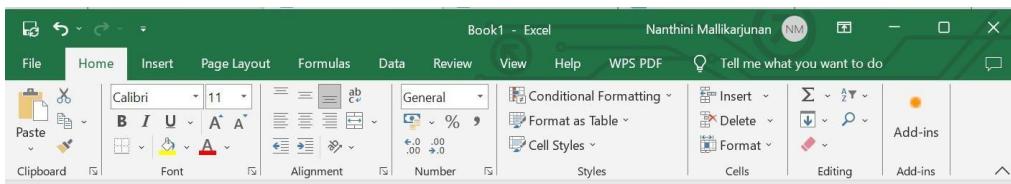


Fig: Home tab

- Within the "Home" tab, participants identify and use common commands like "Cut," "Copy," "Paste," and "Font Formatting."

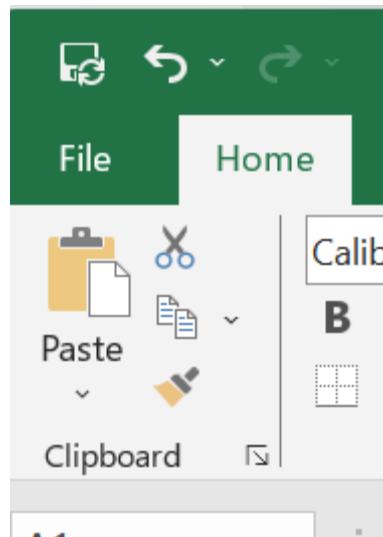


Fig: Quick Access Toolbar

- In the "Insert" tab, ask them to find and click on various objects like "Shapes" and "Charts" to see the options available.

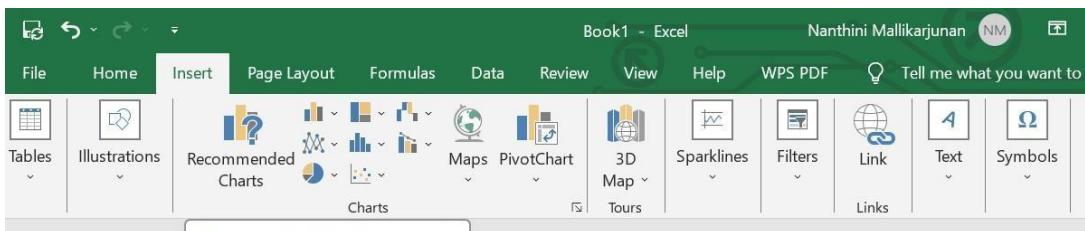


Fig: Shapes & Chart

- Encourage participants to experiment with different commands and explore the ribbon interface's organization and functionality.
- Discuss any features or commands they find interesting or useful, and how they might apply them in their work.

## Lab 6: Workbook Navigation using Sales Report

**Aim:** Teach participants how to efficiently navigate an Excel workbook using common tools and features.

**Learning Outcome:** Students will be able to navigate an Excel workbook using common tools and features.

**Duration:** 20 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure/Options:

- **Step 1:** Provide participants with a sample Excel workbook that contains multiple worksheets (e.g., a fictional sales report with different months).
- **Step 2:** Explain the following tasks to participants and ask them to complete each task by navigating through the workbook:
- **Task 1:** Move Between Worksheets
  - Ask participants to navigate to the worksheet titled "January Sales."

	A	B	C	D	E	F	G	H
1	Segment	Country	Product	Discount	Units Sold	Manufact	Sale Price	
2	Governme	Canada	Carretera	None	1618.5	\$ 3.00	\$ 20.00	
3	Governme	Germany	Carretera	None	1321	\$ 3.00	\$ 20.00	
4	Midmarke	France	Carretera	None	2178	\$ 3.00	\$ 15.00	
5	Midmarke	Germany	Carretera	None	888	\$ 3.00	\$ 15.00	
6	Midmarke	Mexico	Carretera	None	2470	\$ 3.00	\$ 15.00	
7	Governme	Germany	Carretera	None	1513	\$ 3.00	\$ 350.00	
8	Midmarke	Germany	Montana	None	921	\$ 5.00	\$ 15.00	
9	Channel P	Canada	Montana	None	2518	\$ 5.00	\$ 12.00	
10	Governme	France	Montana	None	1899	\$ 5.00	\$ 20.00	
11	Channel P	Germany	Montana	None	1545	\$ 5.00	\$ 12.00	
12	Midmarke	Mexico	Montana	None	2470	\$ 5.00	\$ 15.00	
13	Enterprise	Canada	Montana	None	2665.5	\$ 5.00	\$ 125.00	
14	Small Busii	Mexico	Montana	None	958	\$ 5.00	\$ 300.00	
15	Governme	Germany	Montana	None	2146	\$ 5.00	\$ 7.00	
16	Enterprise	Canada	Montana	None	345	\$ 5.00	\$ 125.00	
17	Midmarke	United Sta	Montana	None	615	\$ 5.00	\$ 15.00	
18	Governme	Canada	Paseo	None	292	\$ 10.00	\$ 20.00	
19	Midmarke	Mexico	Paseo	None	974	\$ 10.00	\$ 15.00	
20	Channel P	Canada	Paseo	None	2518	\$ 10.00	\$ 12.00	
21	Governme	Germany	Paseo	None	1006	\$ 10.00	\$ 350.00	
22	Channel P	Germany	Paseo	None	367	\$ 10.00	\$ 12.00	
23	Governme	Mexico	Paseo	None	883	\$ 10.00	\$ 7.00	
24	Midmarke	France	Paseo	None	549	\$ 10.00	\$ 15.00	
25	Small Busii	Mexico	Paseo	None	788	\$ 10.00	\$ 300.00	
26	Midmarke	Mexico	Paseo	None	2472	\$ 10.00	\$ 15.00	
27	Governme	United Sta	Paseo	None	1143	\$ 10.00	\$ 7.00	
28	Channel P	Canada	Paseo	None	1143	\$ 10.00	\$ 7.00	
	< >		January Sales		February Sales	March Sales	April Sales	

**Fig: Sales Report**

- Once there, instruct them to move to the worksheet for the next month, e.g., "February Sales."

	A	B	C	D	E	F	G	H
1	Segment	Country	Product	Discount	I Units Sold	Manufact	Sale Price	
2	Enterprise	United Sta	Velo	None	2821	\$ 120.00	\$ 125.00	
3	Enterprise	Canada	Velo	None	345	\$ 120.00	\$ 125.00	
4	Small Busi	Canada	VTT	None	2001	\$ 250.00	\$ 300.00	
5	Channel Pi	Germany	VTT	None	2838	\$ 250.00	\$ 12.00	
6	Midmarke	France	VTT	None	2178	\$ 250.00	\$ 15.00	
7	Midmarke	Germany	VTT	None	888	\$ 250.00	\$ 15.00	
8	Governme	France	VTT	None	1527	\$ 250.00	\$ 350.00	
9	Small Busi	France	VTT	None	2151	\$ 250.00	\$ 300.00	
10	Governme	Canada	VTT	None	1817	\$ 250.00	\$ 20.00	
11	Governme	France	Amarilla	None	2750	\$ 260.00	\$ 350.00	
12	Channel Pi	United Sta	Amarilla	None	1953	\$ 260.00	\$ 12.00	
13	Enterprise	Germany	Amarilla	None	4219.5	\$ 260.00	\$ 125.00	
14	Governme	France	Amarilla	None	1899	\$ 260.00	\$ 20.00	
15	Governme	Germany	Amarilla	None	1686	\$ 260.00	\$ 7.00	
16	Channel Pi	United Sta	Amarilla	None	2141	\$ 260.00	\$ 12.00	
17	Governme	United Sta	Amarilla	None	1143	\$ 260.00	\$ 7.00	
18	Midmarke	United Sta	Amarilla	None	615	\$ 260.00	\$ 15.00	
19	Governme	France	Paseo	Low	3945	\$ 10.00	\$ 7.00	
20	Midmarke	France	Paseo	Low	2296	\$ 10.00	\$ 15.00	
21	Governme	France	Paseo	Low	1030	\$ 10.00	\$ 7.00	
22	Governme	France	Velo	Low	639	\$ 120.00	\$ 7.00	
23	Governme	Canada	VTT	Low	1326	\$ 250.00	\$ 7.00	
24	Channel Pi	United Sta	Carretera	Low	1858	\$ 3.00	\$ 12.00	
25	Governme	Mexico	Carretera	Low	1210	\$ 3.00	\$ 350.00	
26	Governme	United Sta	Carretera	Low	2529	\$ 3.00	\$ 7.00	
27	Channel Pi	Canada	Carretera	Low	1445	\$ 3.00	\$ 12.00	

**Fig: February Sales Report**

- **Task 2:** Return to the First Worksheet
  - Instruct participants to return to the first worksheet, "January Sales".

	A	B	C	D	E	F	G	H
1	Segment	Country	Product	Discount	I Units Sold	Manufact	Sale Price	
2	Governme	Canada	Carretera	None	1618.5	\$ 3.00	\$ 20.00	
3	Governme	Germany	Carretera	None	1321	\$ 3.00	\$ 20.00	
4	Midmarke	France	Carretera	None	2178	\$ 3.00	\$ 15.00	
5	Midmarke	Germany	Carretera	None	888	\$ 3.00	\$ 15.00	
6	Midmarke	Mexico	Carretera	None	2470	\$ 3.00	\$ 15.00	
7	Governme	Germany	Carretera	None	1513	\$ 3.00	\$ 350.00	
8	Midmarke	Germany	Montana	None	921	\$ 5.00	\$ 15.00	
9	Channel Pi	Canada	Montana	None	2518	\$ 5.00	\$ 12.00	
10	Governme	France	Montana	None	1899	\$ 5.00	\$ 20.00	
11	Channel Pi	Germany	Montana	None	1545	\$ 5.00	\$ 12.00	
12	Midmarke	Mexico	Montana	None	2470	\$ 5.00	\$ 15.00	
13	Enterprise	Canada	Montana	None	2665.5	\$ 5.00	\$ 125.00	
14	Small Busi	Mexico	Montana	None	958	\$ 5.00	\$ 300.00	
15	Governme	Germany	Montana	None	2146	\$ 5.00	\$ 7.00	
16	Enterprise	Canada	Montana	None	345	\$ 5.00	\$ 125.00	
17	Midmarke	United Sta	Montana	None	615	\$ 5.00	\$ 15.00	
18	Governme	Canada	Paseo	None	292	\$ 10.00	\$ 20.00	
19	Midmarke	Mexico	Paseo	None	974	\$ 10.00	\$ 15.00	
20	Channel Pi	Canada	Paseo	None	2518	\$ 10.00	\$ 12.00	
21	Governme	Germany	Paseo	None	1006	\$ 10.00	\$ 350.00	
22	Channel Pi	Germany	Paseo	None	367	\$ 10.00	\$ 12.00	
23	Governme	Mexico	Paseo	None	883	\$ 10.00	\$ 7.00	
24	Midmarke	France	Paseo	None	549	\$ 10.00	\$ 15.00	
25	Small Busi	Mexico	Paseo	None	788	\$ 10.00	\$ 300.00	
26	Midmarke	Mexico	Paseo	None	2472	\$ 10.00	\$ 15.00	
27	Governme	United Sta	Paseo	None	1143	\$ 10.00	\$ 7.00	

**Fig: January Sales Report**

- **Task 3:** Use the Scroll Bars

- Have participants scroll through the worksheet using both the vertical and horizontal scroll bars to explore data that is not immediately visible on the screen. (If data is scrollable).
- **Task 4:** Find a Specific Cell
  - Provide a specific cell reference (e.g., B10) and ask participants to navigate directly to that cell in the "March Sales" worksheet.

A	B	C	D	E	F	G
1 Segment	Country	Product	Discount	Units Sold	Manufact	Sale Price
2 Channel Partners	United States of America	Paseo	Low	1142	\$ 10.00	\$ 12.00
3 Enterprise	Mexico	Paseo	Low	662	\$ 10.00	\$ 125.00
4 Channel Partners	Canada	Paseo	Low	1295	\$ 10.00	\$ 12.00
5 Enterprise	Germany	Paseo	Low	809	\$ 10.00	\$ 125.00
6 Enterprise	Mexico	Paseo	Low	2145	\$ 10.00	\$ 125.00
7 Channel Partners	France	Paseo	Low	1785	\$ 10.00	\$ 12.00
8 Small Business	Canada	Paseo	Low	1916	\$ 10.00	\$ 300.00
9 Government	Canada	Paseo	Low	2852	\$ 10.00	\$ 350.00
10 Enterprise	Canada	Paseo	Low	2729	\$ 10.00	\$ 125.00
11 Midmarket	United States of America	Paseo	Low	1925	\$ 10.00	\$ 15.00
12 Government	United States of America	Paseo	Low	2013	\$ 10.00	\$ 7.00
13 Channel Partners	France	Paseo	Low	1055	\$ 10.00	\$ 12.00
14 Channel Partners	Mexico	Paseo	Low	1084	\$ 10.00	\$ 12.00
15 Government	United States of America	Velo	Low	1566	\$ 120.00	\$ 20.00
16 Government	Germany	Velo	Low	2966	\$ 120.00	\$ 350.00
17 Government	Germany	Velo	Low	2877	\$ 120.00	\$ 350.00
18 Enterprise	Germany	Velo	Low	809	\$ 120.00	\$ 125.00
19 Enterprise	Mexico	Velo	Low	2145	\$ 120.00	\$ 125.00
20 Channel Partners	France	Velo	Low	1055	\$ 120.00	\$ 12.00
21 Government	Mexico	Velo	Low	544	\$ 120.00	\$ 20.00
22 Channel Partners	Mexico	Velo	Low	1084	\$ 120.00	\$ 12.00
23 Enterprise	Mexico	VTT	Low	662	\$ 250.00	\$ 125.00
24 Small Business	Germany	VTT	Low	214	\$ 250.00	\$ 300.00
25 Government	Germany	VTT	Low	2877	\$ 250.00	\$ 350.00
26 Enterprise	Canada	VTT	Low	2729	\$ 250.00	\$ 125.00
27 Government	United States of America	VTT	Low	266	\$ 250.00	\$ 350.00
28 Government	**	VTT	Low	1040	\$ 250.00	\$ 350.00

< > January Sales February Sales **March Sales** April Sales +

**Fig: B10 Cell in March Sales**

- **Task 6:** Hide and Unhide Worksheets
  - Ask participants to hide the "April Sales" worksheet and then unhide it.

A screenshot of a Microsoft Excel spreadsheet titled 'J17'. The spreadsheet contains data from rows 1 to 27 across columns A through H. Row 1 is a header row. Rows 2 through 26 contain sales data for various segments, countries, products, and discounts. Row 27 is a summary or footer row. The tabs at the bottom show 'January Sales', 'February Sales', 'March Sales', and 'April Sales'. A context menu is open over the last cell of the April Sales data (cell H27). The menu options include 'Insert...', 'Delete', 'Rename', 'Move or Copy...', 'View Code', 'Protect Sheet...', 'Tab Color', 'Hide' (which is highlighted with a red box), 'Unhide...', 'Select All Sheets', and 'Show Changes'. A blue box labeled '1.Right Click' points to the context menu, and another blue box labeled '2.Click on Hide' points to the 'Hide' option.

**Fig: Hiding April Sales**

A screenshot of the same Microsoft Excel spreadsheet, now showing the 'March Sales' sheet as the active tab. The data from rows 1 to 27 is visible, but the values in the April Sales column (column H) are now all zeros. A context menu is open over the last cell of the March Sales data (cell H27). The menu options are identical to the previous screenshot, including 'Hide' which is now grayed out. A blue box labeled '1.Right Click Here' points to the context menu, and another blue box labeled '2.Click on Unhide' points to the 'Unhide...' option.

**Fig: Unhiding April sales**

- **Task 7:** Create a New Worksheet.
  - Have participants create a new worksheet and name it "Annual Summary."

# Formatting and Styling Cells

## Lab 7: Basic Cell Formatting in Worksheet on Excel

**Aim:** To learn how to apply basic formatting to cells in Microsoft Excel.

**Learning outcome:** Students can be able to apply basic formatting in workbook

**Duration:** 20 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Step 1: Opening Excel:

- Ask students to open Microsoft Excel on their computers.

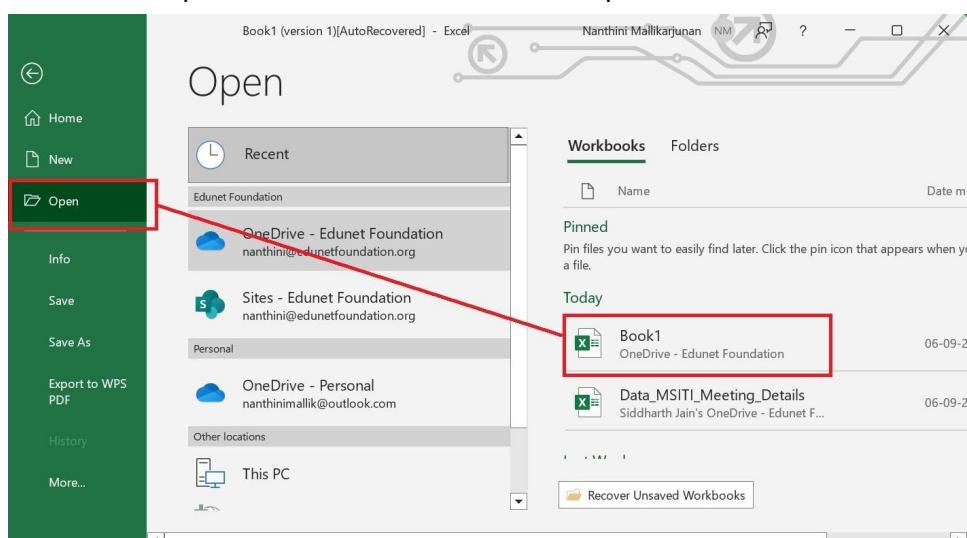
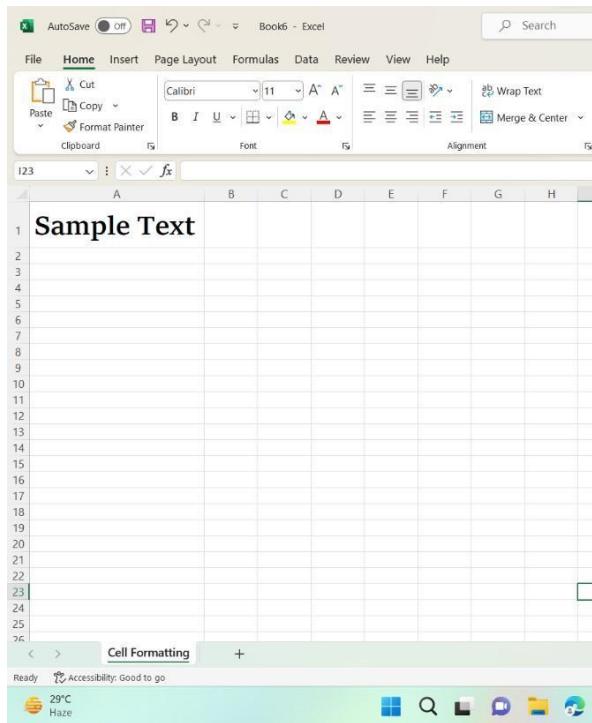


Fig: Open existing excel file

#### Step 2. Creating a Sample Worksheet:

- Instruct students to create a new workbook.
- Rename Sheet1 to "Cell Formatting."
- In cell A1, have them type "Sample Text."



**Fig: Rename Sheet and add some text**

### Step 3. Basic Formatting:

Demonstrate how to apply basic formatting to the cell containing "Sample Text." Show students how to:

- Change font size and style.
- Change font color.
- Apply bold, italics, and underline.

**Fig: Basic Formatting**

### Step 4. Entering Data:

- In cell A1, have students type "Basic Formatting Example."

- In cell A3, have them type "Name."
- In cell B3, have them type "Score."
- In cells A4 and B4, enter sample data such as "John" and "85."

Basic Formatting Example	
1	
2	
3	Name
4	John
5	85

Fig: Basic Formatting Example

### Step 5. Cell Formatting:

Teach cell formatting options:

- Background Color: Instruct students to select cell A3 and change its background color.
- Border Styles: Show how to add borders to cells A3 and B3.

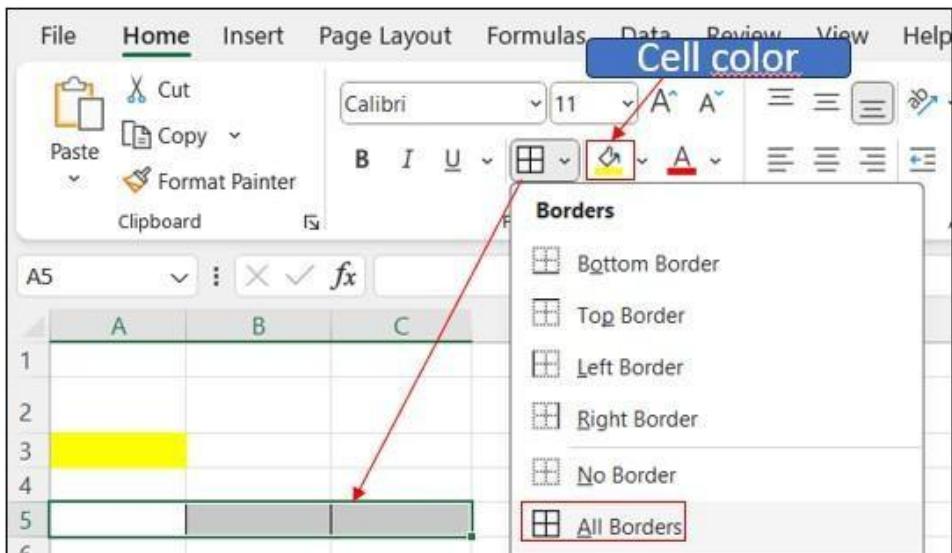


Fig: Cell Color and adding border

### Step 6. Number Formatting:

Explain the importance of number formatting:

- Select cell B4 (the score) and change its number format to show two decimal places.

Formatting with two decimal											
Cut	Copy	Format Painter	Font	Font	Font	Font	Font	Font	Font	Font	Font
Paste	Copy	Format Painter	Font	Font	Font	Font	Font	Font	Font	Font	Font
Clipboard	Font	Font	Font	Font	Font	Font	Font	Font	Font	Font	Font
B4	X	✓	fx	85	A	B	C	D	E	F	G
1	Name	Score	John	85.00							
2											
3											
4											

Fig: Formatting number two decimal

### Step 7. Alignment and Wrap Text:

Show alignment options:

- Align the text in cell A1 to the center horizontally and vertically.
- Enable the "Wrap Text" option for cell A1 to make the text wrap within the cell.

Text Wrap and Text Align											
Cut	Copy	Format Painter	Font	Font	Font	Font	Font	Font	Font	Font	Font
Paste	Copy	Format Painter	Font	Font	Font	Font	Font	Font	Font	Font	Font
Clipboard	Font	Font	Font	Font	Font	Font	Font	Font	Font	Font	Font
A1	X	✓	fx	Wrap text within cell	A	B	C	D	E	F	G
1	Wrap text within cell										
2											
3											
4											

Fig: Text Wrap and Text Align

### Step 8. Student Practice

Ask students to:

- Format cell B4 (the score) to have a currency symbol.
- Change the background color of cell B4 to make it stand out.
- Apply different border styles to cells A3 and B3.
- Try different alignment settings for cell A1.

## Lab 8: Number and Date Formatting in Excel

**Aim:** To learn how to format numbers and dates effectively in Microsoft Excel.

**Learning outcome:** Students can be able to format numbers and dates effectively in Microsoft Excel.

**Duration:** 20 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Step 1: Opening Excel:

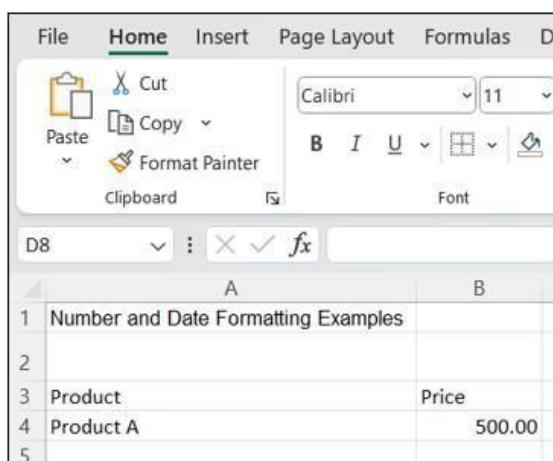
- Ask students to open Microsoft Excel on their computers.

#### 2. Creating a Sample Worksheet:

- Instruct students to create a new workbook.
- Rename Sheet1 to "Number and Date Formatting."

#### 3. Entering Data:

- In cell A1, students' type "Number and Date Formatting Example."
- In cell A3, have them type "Product."
- In cell B3, have them type "Price."
- In cell A4, enter "Product A," and in cell B4, enter "500."



The screenshot shows the Microsoft Excel interface with the 'Home' tab selected. The ribbon menu includes File, Home, Insert, Page Layout, Formulas, Data, and other tabs. On the left, there's a ribbon bar with icons for Cut, Copy, Paste, and Format Painter. The main area displays a table with the following data:

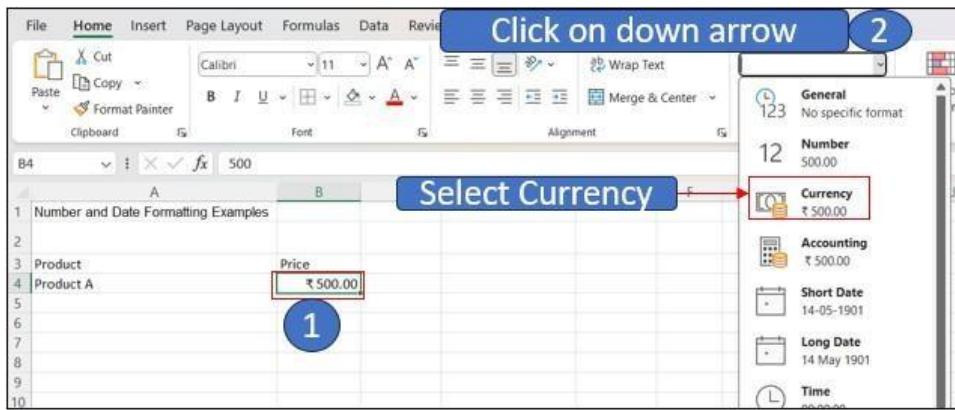
	A	B
1	Number and Date Formatting Examples	
2		
3	Product	Price
4	Product A	500.00
5		

**Fig: Renaming Worksheet and adding data**

#### 4. Number Formatting:

Explain the importance of number formatting in Excel and its impact on data interpretation.

- Demonstrate number formatting options:
- Select cell B4 (Price).
- Go to the "Number" group in the Home tab.
- Show how to format the cell as currency with two decimal places.



**Fig: Number Formatting of data**

## 5. Student Practice - Number Formatting:

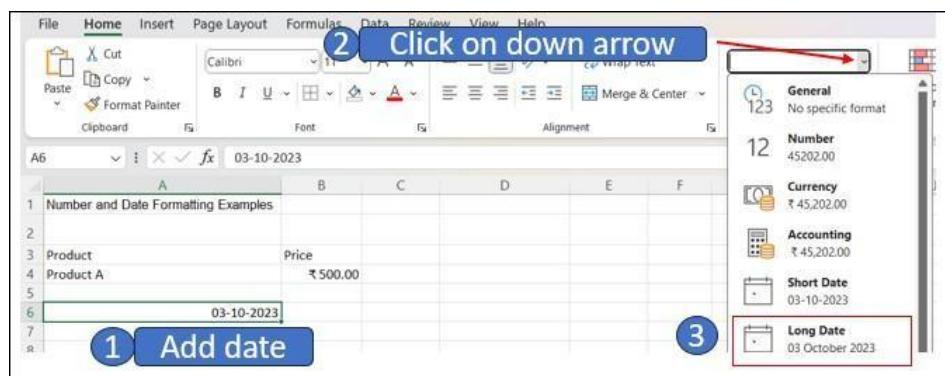
Ask students to:

- Format cell B4 (Price) as currency with two decimal places.
- Change the number format of cell B4 to display as a percentage.
- Experiment with different number formats for cell B4, such as scientific notation or accounting format.

## 6. Date Formatting:

Explain the importance of date formatting and its relevance in Excel.

- Enter a date in cell A6 (e.g., "03-10-2023").
- Demonstrate date formatting options:
- Select cell A6.
- Go to the "Number" group in the Home tab.
- Show how to format the cell as a short date.



**Fig: Date Formatting**

## 7. Student Practice - Date Formatting:

- Ask students to:
- Format cell A6 as a long date.
- Experiment with different date formats for cell A6, such as custom date formats.
- Enter another date in cell A7 and apply a different date format.

## **Lab 9: Conditional Formatting in Excel**

**Aim:** To learn the concept of conditional formatting and demonstrate how to apply it in Microsoft Excel.

**Learning outcome:** Students can be able to perform conditional formatting in excel

**Duration:** 20 Mins.

### **List of Requirements:**

1. Laptop/PC
2. MS Office Excel

### **Procedure:**

#### **Step 1: Opening Excel:**

- Ask students to open Microsoft Excel on their computers.

#### **Step 2. Creating a Sample Worksheet:**

- Instruct students to create a new workbook.
- Rename Sheet1 to "Conditional Formatting."

#### **Step 3. Entering Data:**

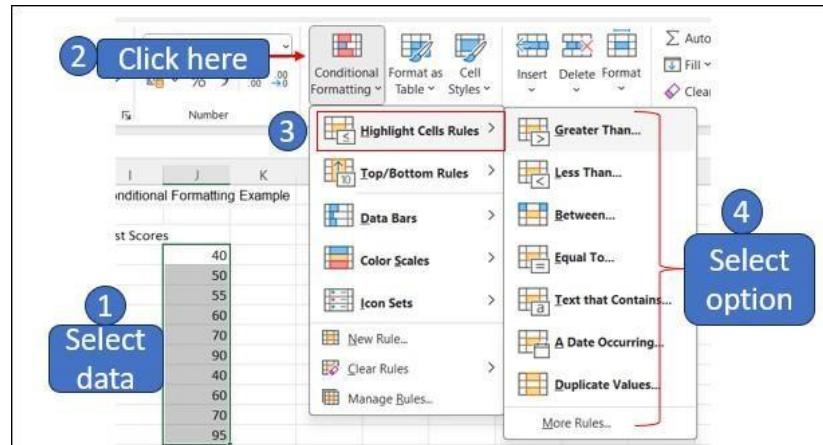
- In any cell, Student have to type "Conditional Formatting Example."
- In the cell beside above, have them type "Test Scores."
- Enter sample test scores ranging from 60 to 100.

#### **Step 4. Introduction to Conditional Formatting:**

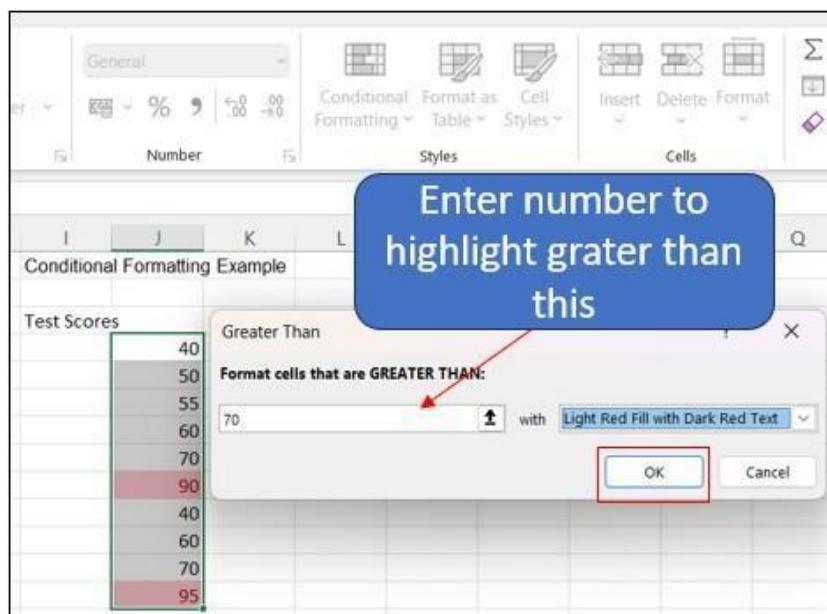
- Explain the concept of conditional formatting: It allows cells to change appearance (e.g., color) based on specified conditions.
- Mention the importance of conditional formatting in quickly identifying trends, outliers, and important data points.

#### **Step 5. Basic Conditional Formatting:**

- Demonstrate basic conditional formatting:
- Select the range of cells containing test scores.
- Go to the "Conditional Formatting" menu on the Home tab.
- Show how to create a rule to highlight values greater than 70 with a specific fill color (e.g., green).



**Fig: Applying Conditional Formatting**



**Fig: After Applying Conditional Formatting**

### Practical Assessment: Student Practice - Basic Conditional Formatting:

Ask students to:

- Apply basic conditional formatting to the test scores, highlighting values greater than or equal to 80 with a different fill color (e.g., yellow).
- Experiment with different rule types, such as highlighting values less than a certain threshold or between two values.

### Step 7. Discussion:

- Engage students in a discussion about the advantages of conditional formatting, such as identifying high or low values, spotting trends, or highlighting specific conditions.
- Encourage students to share their experiences with applying conditional formatting

# Data Entry and Management

## Lab 10: Creating the Grade Sheet in Worksheet on Excel.

**Aim:** To create a school grade sheet in worksheet on Microsoft Excel.

**Learning outcome:** Students can be able to create a school grade sheet in worksheet on Microsoft Excel.

**Duration:** 25 Mins.

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Step 1: Opening Excel:

- Ask students to open Microsoft Excel on their computers.

#### Step 2: Setting Up the Worksheet:

- Instruct students to create a new workbook.
- Rename Sheet1 to "Grade Sheet."

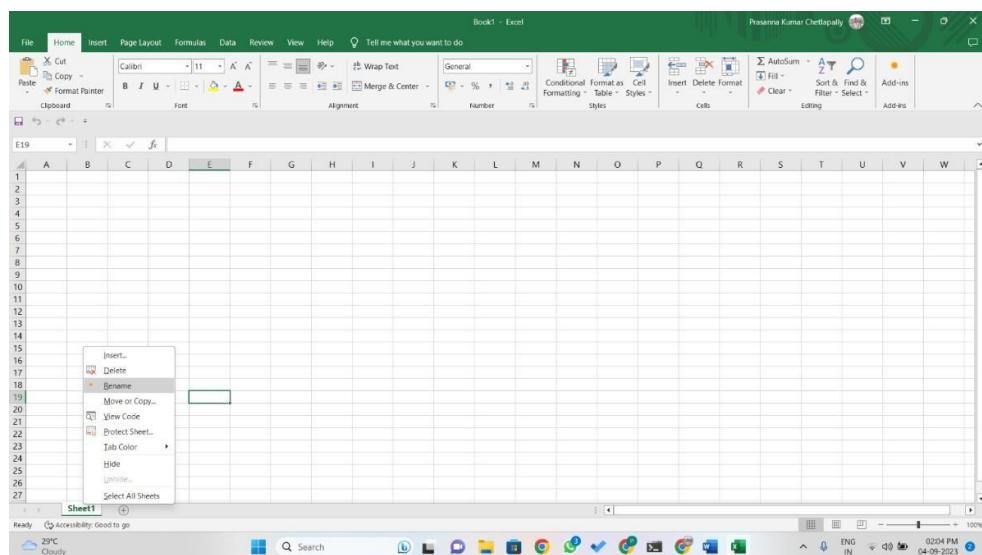


Fig: Rename Grade Sheet

- In cell A1, have them type "Student Name."
- In cell B1, have them type "Subject."
- In cell C1, have them type "Score."

A	B	C	D	E
1	Student Name	Subject	Score	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				

**Fig: Adding Cell Name**

### Step 3: Entering Data

- Provide students with sample data (e.g., a list of student names, subjects, and scores) to enter into the worksheet.
  - The data should be entered in columns A, B, and C

D8	A	B	C	D
1	Student Name	Subject	Score	
2	Raju	Telugu	89	
3	Raju	Hindi	65	
4	Raju	English	86	
5	Raju	Maths	72	
6	Raju	Science	69	
7	Raju	Social	88	
8				
9				

**Fig: Entering Data in Sheet**

### Step 4: Formatting the Grade Sheet:

- Guide students in formatting the grade sheet by adjusting column widths, adding bold headers and applying a border around the data area.

A screenshot of Microsoft Excel showing a grade sheet. The sheet has columns for Student Name, Subject, and Score. The data includes rows for students Raju with various subjects and their scores. The 'Borders' dropdown menu is open, displaying options for setting borders around cells. The 'All Borders' option is selected.

	A	B	C
1	Student Name	Subject	Score
2	Raju	Telugu	89
3	Raju	Hindi	65
4	Raju	English	86
5	Raju	Maths	72
6	Raju	Science	69
7	Raju	Social	88
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			

**Fig: Format Grade Sheet**

### Step 5. Saving the Workbook:

- Instruct students to save the workbook with a meaningful name (e.g., "School Grade SheetLab").

## Lab 11: Editing Data in the Worksheet on Excel

**Aim:** To practice editing worksheets on Excel.

**Learning outcome:** Students can be able to Edit data on worksheet

**Duration:** 25 Mins.

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Step 1. Editing Data:

- Demonstrate how to edit data in Excel.
- Have students choose one record and edit the score (e.g., change 85 to 90).
- Discuss how changes are reflected in the sheet.

	A	B	C	D
1	Student Name	Subject	Score	
2	Raju	Telugu	89	
3	Raju	Hindi	65	
4	Raju	English	86	
5	Raju	Maths	72	
6	Raju	Science	69	
7	Raju	Social	88	
8				

	A	B	C	D
1	Student Name	Subject	Score	
2	Raju	Telugu	89	
3	Raju	Hindi	65	
4	Raju	English	90	
5	Raju	Maths	72	
6	Raju	Science	69	
7	Raju	Social	88	
8				

Fig: Edit data in Sheet

#### Step 2. Saving the Workbook:

- Instruct students to save the workbook with a meaningful name (e.g., "SchoolGradeSheetLab").
- To Save a workbook use a shortcut key Ctrl+S.

## **Lab 12: Adding and Deleting Data in the worksheet on Excel.**

**Aim:** To practice adding and deleting data in Excel.

**Learning outcome:** Students can be able to add and delete data from the workbook

**Duration:** 25 Mins.

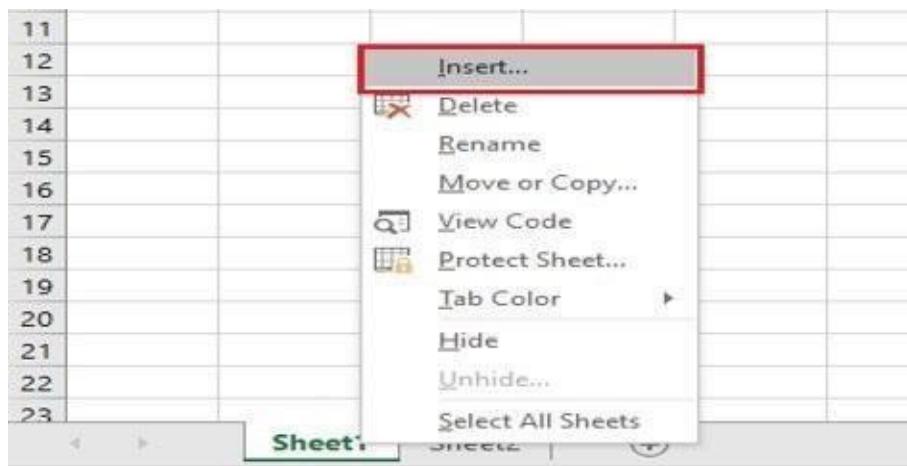
### **List of Requirements:**

1. Laptop/PC
2. MS Office Excel

### **Procedure:**

#### **Step 1. Adding a New Record:**

- Explain how to add a new record.
- Instruct students to add a new record for a hypothetical student.
- Ensure they enter the student's name, subject, and score.



**Fig: Add new record**

#### **Step 2. Deleting Data:**

- Teach students how to delete a record.
- Have them delete the record they added in the previous step.
- Discuss the importance of being careful when deleting data.

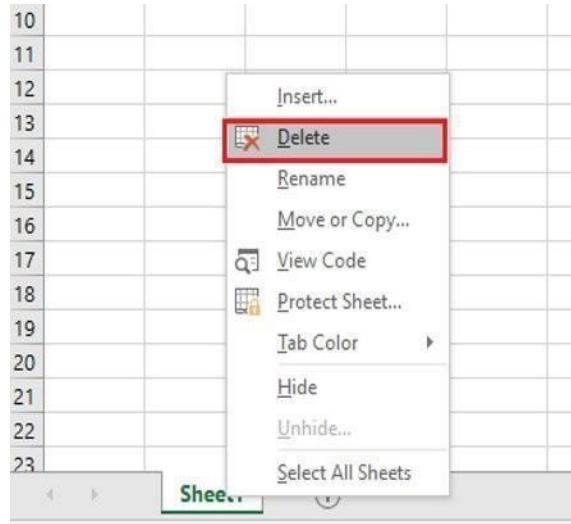


Fig: Deleting record

### Step 3. Saving the Workbook:

- Instruct students to save the workbook with a meaningful name (e.g., "SchoolGradeSheetLab").
- To Save a workbook use a shortcut key Ctrl+S.

# Functions and Formulas

## Lab 13: Expense Tracking Sheet with Excel Functions

**Aim:** To create an Excel expense tracking sheet that uses the basic functions to analyze and manage expenses.

**Learning outcome:** This activity provides a practical and interactive way to use Excel functions (SUM, AVERAGE, MIN, MAX, COUNT) to track and analyze expenses.

**Duration:** 30 mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

#### Step 1: Set Up the Worksheet:

- Open a new Excel workbook.
- Rename the first worksheet tab to "Expense Tracker."

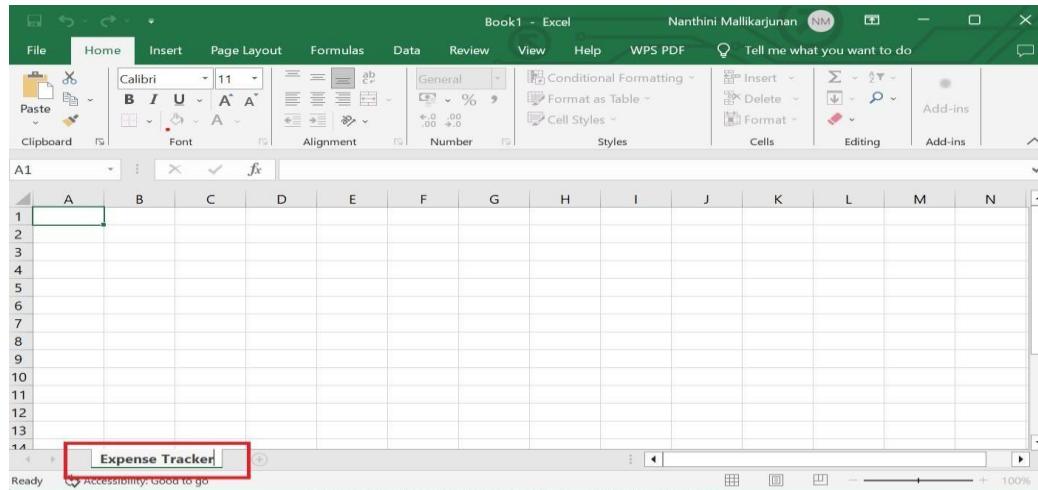


Fig: Opening Workbook

#### Step 2: Create Expense Categories:

- In column A (starting from A2), list expense categories such as "Groceries," "Utilities," "Transportation," "Entertainment," and "Dining Out."

#### Step 3: Enter Expense Data:

- In column B (starting from B2), enter the amount spent on each expense category for a specific period (e.g., a week or a month).

The screenshot shows a Microsoft Excel spreadsheet titled "Book1 - Excel". The ribbon at the top includes tabs for File, Home, Insert, Page Layout, Formulas, Data, Review, View, Help, WPS PDF, and Tell me what you want to do. The Home tab is selected. The main area displays a table with two columns: "Categories" and "Amount Spent". The data rows are: Utilities (1000), Transportation (500), Entertainment (400), Dining Out. (1200), Stationaries (100), and Snacks (250). The table has a green header row. The status bar at the bottom shows "Average: 575", "Count: 14", and "Sum: 3450".

Categories	Amount Spent
Utilities	1000
Transportation	500
Entertainment	400
Dining Out.	1200
Stationaries	100
Snacks	250

Fig: Adding data in workbook

#### Step 4: Basic Calculations:

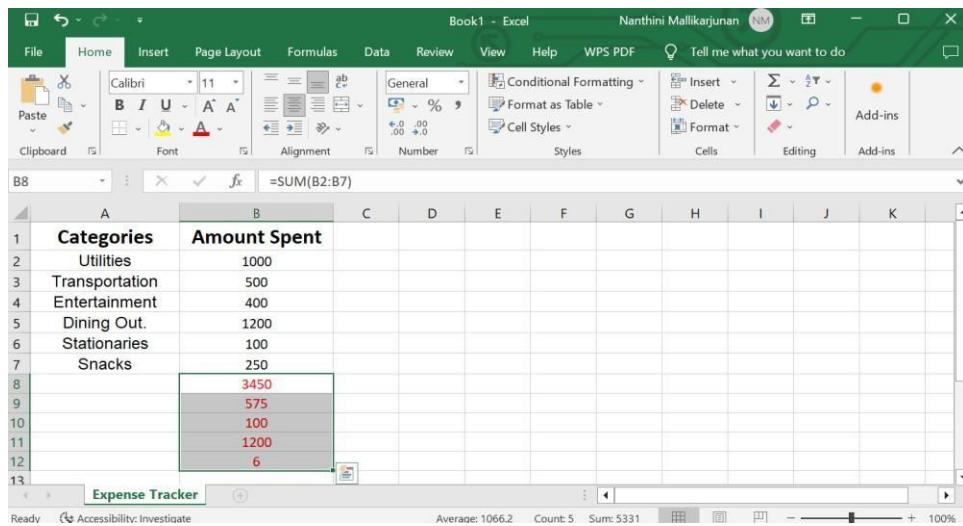
- In column B, below your expense data, perform the following calculations:
- In cell B8, calculate the total expenses using the SUM function.
- The formula should be =SUM(B2:B7).

The screenshot shows the same Microsoft Excel spreadsheet as before, but now with a formula entered in cell B8. The formula is =sum(B2:B7), which calculates the sum of the values in cells B2 through B7. The status bar at the bottom shows "Enter" and "Accessibility: Good to go".

Categories	Amount Spent
Utilities	1000
Transportation	500
Entertainment	400
Dining Out.	1200
Stationaries	100
Snacks	250
	=sum(B2:B7)

Fig: Using SUM Function

- In cell B9, calculate the average expense using the AVERAGE function. The formula should be =AVERAGE(B2:B7).
- In cell B10, find the smallest expense using the MIN function. The formula should be =MIN(B2:B7).
- In cell B11, find the largest expense using the MAX function. The formula should be =MAX(B2:B7).
- In cell B12, count the number of expenses using the COUNT function. The formula should be =COUNT(B2:B7).



**Fig: Using above function and their output**

## Lab 14: Employee Shift Scheduler

**Aim:** To create an Excel spreadsheet that automates the scheduling of employee shifts based on their availability and the current date and time.

**Learning outcome:** Students can be able to apply various date and time functions in excel for various applications.

**Duration:** 30 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure/Options:

#### Step 1: Data Entry

- Create a new Excel spreadsheet.
- In Column A, enter the names of employees (e.g., A2: "John," A3: "Mary," A4: "Alice").

The screenshot shows a Microsoft Excel spreadsheet titled "Book1 - Excel". The ribbon menu is visible at the top. In the "Home" tab, the font is set to "Calibri" and the font size is "11". The "Cells" group is selected, showing options for Insert, Delete, Format, and Add-ins. The "Cells" dropdown is open, showing "Format" as the selected option. The worksheet is named "Sheet1". The data in the first four rows of Column A is highlighted with a red border:

Name
John
Mary
Alice

**Fig: Adding data in worksheet**

- In Column B, enter their availability start time (e.g., B2: "9:00 AM," B3: "8:30 AM," B4: "10:00 AM").

The screenshot shows the same Microsoft Excel spreadsheet. The data in Column B is highlighted with a red border:

Name	Availability Start Time
John	9:00 AM
Mary	8:30 AM
Alice	10:00 AM

**Fig: Entering available start time**

- In Column C, enter their availability end time (e.g., C2: "5:00 PM," C3: "4:00 PM," C4: "6:30 PM").

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	Availability Start Time	Availability End Time									
2	John	9:00 AM	5:00 PM									
3	Mary	8:30 AM	4:00 PM									
4	Alice	10:00 AM	6:30 PM									
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												

**Fig: Entering available end time**

- In Column D, enter the current date and time. You can use the formula =NOW() in D2.

	A	B	C	D	E	F	G	H	I	J	K	
1	Name	Availability Start Time	Availability End Time	06-09-2023 10:28								
2	John	9:00 AM	5:00 PM	06-09-2023 10:28								
3	Mary	8:30 AM	4:00 PM	06-09-2023 10:28								
4	Alice	10:00 AM	6:30 PM	06-09-2023 10:28								
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												

**Fig: Entering current date by using formula**

**Step 2:** Create a Shift Schedule 6. In Column G, create a list of shift times (e.g., G2: "9:00 AM," G3: "9:30 AM," G4: "10:00 AM," and so on).

- In Column H, use Excel's date and time functions to calculate if an employee is available during each shift time.
- For example, in H2, you can use the following formula to check if John is available during the 9:00 AM shift: =IF(AND(G2>=B2, G2<=C2), "Available", "Not Available").
- Drag this formula down to apply it to all shift times and employees.

The screenshot shows an Excel spreadsheet titled "Book1 - Excel". The formula bar at the top has the formula =IF(AND(G2>=B2, G2<=C2), "Available", "Not Available") selected. The formula is applied to cell H2, which contains "Available". The formula is also applied to cells H3 and H4, which contain "Not Available" and "Available" respectively. The spreadsheet contains data for four employees: John, Mary, and Alice, along with a header row.

A	B	C	D	E	F	G	H
1	Name	Availability Start Time	Availability End Time	current date and time		shift times	Employee Availability
2	John	9:00 AM	5:00 PM	06-09-2023 10:38		9:00 AM	Available
3	Mary	8:30 AM	4:00 PM	06-09-2023 10:38		8:00 AM	Not Available
4	Alice	10:00 AM	6:30 PM	06-09-2023 10:38		10:00 AM	Available
5							
6							
7							
8							
9							
10							
11							
12							
13							

**Fig: Checking availability using formula**

**Step 3:** Automate the Current Time 9. In Cell E2, instead of manually updating the current time, use Excel's NOW () function.

- Go to Formulas > Name Manager > New and define a name like "CurrentTime" for cell E2.
- In E2, enter =CurrentTime.

The screenshot shows the "Insert Function" dialog box in Excel. The "Function Library" tab is selected, and the "Date & Time" category is chosen. The "NOW" function is highlighted. The formula bar at the top shows the formula =NOW(). The formula is applied to cell E2, which contains the current date and time. The formula is also applied to cells E3 and E4, which contain the same current date and time. The spreadsheet contains data for three employees: John, Mary, and Alice, along with a header row.

A	B	C	D	E	F	G	H
1	Name	Availability S	current date and time	shift times	Employee Availability		
2	John	9:00 AM	06-09-2023 10:42	9:00 AM	Available		
3	Mary	8:30 AM	06-09-2023 10:42	8:00 AM	Not Available		
4	Alice	10:00 AM	06-09-2023 10:42	10:00 AM	Available		
5							
6							
7							
8							
9							
10							
11							
12							
13							

**Fig: Using NOW () function**

## Lab 15: Product Price Lookup

**Aim:** To create an Excel spreadsheet that uses the VLOOKUP and HLOOKUP functions to retrieve and display product prices based on product names and store locations.

**Learning outcome:** Students can be able to apply Lookup functions in excel for various applications.

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure/Options:

#### Step 1: Data Entry

- Create a new Excel spreadsheet.
- In Column A, enter the names of different products (e.g., A2: "Product A," A3: "Product B," A4: "Product C").
- In Row 1, enter the names of different store locations (e.g., B1: "Store 1," C1: "Store 2," D1: "Store 3").
- Fill in the price data for each product at each store location (e.g., B2: \$10, C2: \$12, D2: \$9 for "Product A" at different stores).

The screenshot shows an Excel spreadsheet titled 'Book1 - Excel'. The table has columns labeled 'Name of Product' (A1), 'Store 1' (B1), 'Store 2' (C1), and 'Store 3' (D1). The data rows are: Product A (\$10, \$12, \$9), Product B (\$8, \$13, \$11), and Product C (\$11, \$8, \$13). The range A1:D4 is highlighted with a red border. The formula bar shows 'F1'.

Name of Product	Store 1	Store 2	Store 3
Product A	\$10	\$12	\$9
Product B	\$8	\$13	\$11
Product C	\$11	\$8	\$13

**Fig: Entering Data**

#### Step 2: Create Lookup Section 5. In cell F1, enter "Product Name."

- In cell F2, create a dropdown list or data validation for product names (Product A, Product B, Product C).

A	B	C	D	E	F	G	H	I	J	K
1 Name of Product	Store 1	Store 2	Store 3		Product Name	Store Name				
2 Product A	\$10	\$12	\$9		Product Name	Product A				
3 Product B	\$8	\$13	\$11			Product B				
4 Product C	\$11	\$8	\$13			Product C				
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										

**Fig: Creating Lookup**

- In cell G1, enter "Store Name."
- In cell G2, create a dropdown list or data validation for store names (Store 1, Store 2, Store 3).

A	B	C	D	E	F	G	H	I	J	K
1 Name of Product	Store 1	Store 2	Store 3		Product Name	Store Name				
2 Product A	\$10	\$12	\$9		Product Name	Store 1				
3 Product B	\$8	\$13	\$11			Store 2				
4 Product C	\$11	\$8	\$13			Store 3				
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										

**Fig: Entering Data G1, G2**

**Step 3:** Use VLOOKUP Function 9. In a cell (e.g., cell H2), use the VLOOKUP function to look up the price of the selected product at the selected store.

- The formula might look like this: =VLOOKUP(F2, A1:D100, MATCH(G2, A1:D1, 0), FALSE).
- This formula will search for the selected product in Column A, match the selected store in Row 1, and return the corresponding price.

The screenshot shows a Microsoft Excel spreadsheet titled "Book1 - Excel". The Data tab is selected. In the formula bar, the formula `=VLOOKUP(F2, A1:D100, MATCH(G2, A1:D1, 0), FALSE)` is entered. The table below contains data for products and stores:

	A	B	C	D	E	F	G	H	I	J	K
1	Name of Product	Store 1	Store 2	Store 3		Product Name	Store Name				
2	Product A	\$10	\$12	\$9		Product A	Store 2	\$12			
3	Product B	\$8	\$13	\$11							
4	Product C	\$11	\$8	\$13							

**Fig: Using VLOOKUP() Function**

**Step 4:** Display Price Result 10. In a cell (e.g., cell H3), display the price result from the VLOOKUP function.

**Step 5:** Test the Lookup Functionality 11. Select different products and store locations from the dropdown lists in cells F2 and G2 to see how the price result changes dynamically.

**Step 6:** Create an HLOOKUP Activity 12. Repeat steps 5-11, but this time, use the HLOOKUP function to look up the price of a selected product at a selected store.

- In cell I2, use the HLOOKUP function.
- The formula might look like this: `=HLOOKUP(G2, A1:D100, MATCH(F2, A1:A100, 0), FALSE)`.
- This formula will search for the selected store in Row 1, match the selected product in Column A, and return the corresponding price.

The screenshot shows a Microsoft Excel spreadsheet titled "Book1 - Excel". The Data tab is selected. In the formula bar, the formula `=HLOOKUP(G2, A1:D100, MATCH(F2, A1:A100, 0), FALSE)` is entered. The table below contains data for products and stores:

	A	B	C	D	E	F	G	H	I	J	K
1	Name of Product	Store 1	Store 2	Store 3		Product Name	Store Name				
2	Product A	\$10	\$12	\$9		Product A	Store 3	\$9	\$9		
3	Product B	\$8	\$13	\$11							
4	Product C	\$11	\$8	\$13							

**Fig: Using HLOOKUP() function**

**References:** Microsoft Excel Spreadsheet Software | Microsoft 365

# Data Visualization

## Lab 16: Student Mark Analysis Table Creation in Excel

**Aim:** To create a student mark analysis table in Microsoft Excel, perform calculations, and analyze student performance.

**Learning outcome:** Students can be able to create tables for various applications.

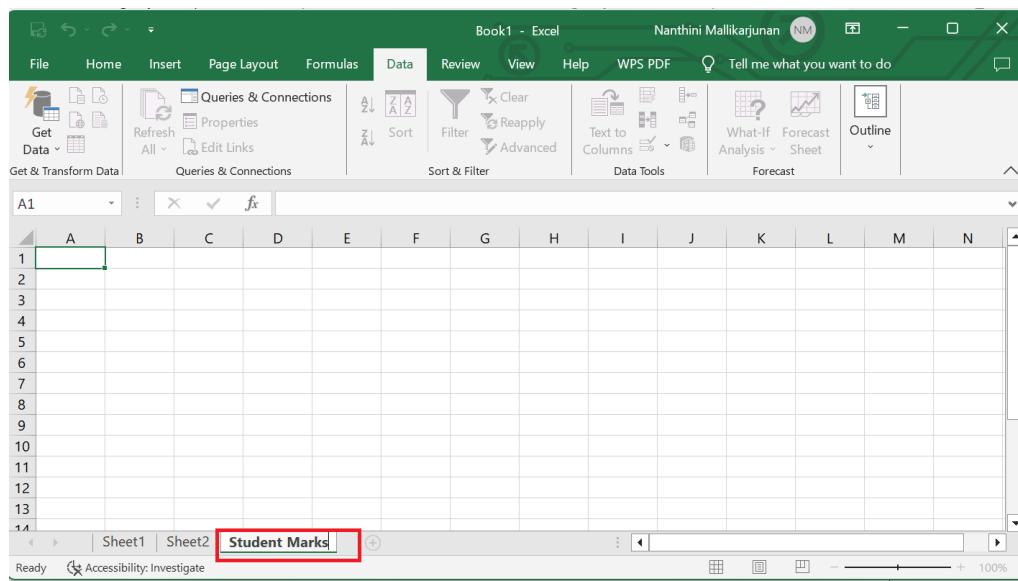
**Duration: 25 Mins**

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

**Step 1:** Open the Excel app on mobile and rename the sheet as Student Marks.



**Fig: Student Marks Excel Worksheet**

**Step 2:** Ask participants to create a Table with column names such as Student ID, Name, Subject1, Subject2, Subject3, and Total.

The screenshot shows a Microsoft Excel spreadsheet titled 'Book1 (version 1)[AutoRecovered] - Excel'. The ribbon menu is visible at the top. A table is present on the sheet, starting from row 1. The columns are labeled: Student ID, Name, Subject1, Subject2, Subject3, and Total. Row 1 is highlighted in blue, indicating it is selected or a header row. The table spans from cell A1 to F11. The 'Student Marks' tab is selected at the bottom.

Student ID	Name	Subject1	Subject2	Subject3	Total

**Fig: Student Marks Table**

**Step 3:** Ask students to enter all details in the respective columns Except Total Column.

The screenshot shows the same Microsoft Excel spreadsheet as above, but now with data entered into the cells. The table structure remains the same, but the data in rows 2 through 7 is as follows:

Student ID	Name	Subject1	Subject2	Subject3	Total
111	Anu	88	98	90	
112	John	93	77	66	
113	Alen	50	86	59	
114	Abi	89	73	86	
115	Aju	88	65	98	
116	ashui	58	67	92	

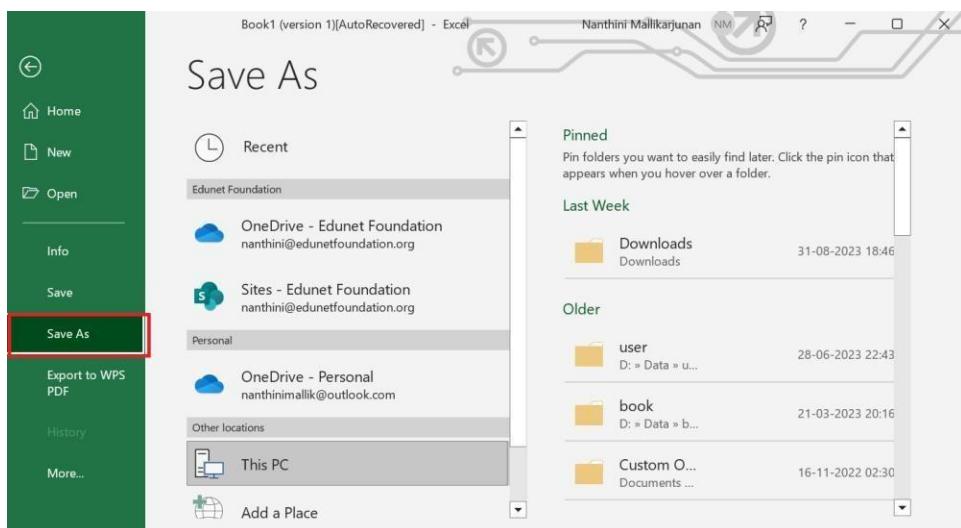
**Fig: Student Marks Table Data**

**Step 4:** Calculate the total marks for each student using the SUM function.

A	B	C	D	E	F	G
Student ID	Name	Subject1	Subject2	Subject3	Total	
111	Anu	88	98	90	276	
112	John	93	77	66	236	
113	Alen	50	86	59	195	
114	Abi	89	73	86	248	
115	Aju	88	65	98	251	
116	ashul	58	67	92	217	

**Fig: Sum Function**

**Step 5:** Save the workbook for all the changes.



**Fig: Save As**

## Lab 17: Creating Charts for Student Mark Analysis in Excel

**Aim:** To create charts in Microsoft Excel to visualize and analyze student performance based on the mark analysis table.

**Learning outcome:** Students can be able to apply different charts for their data to visualize in a better way.

**Duration: 25 Mins**

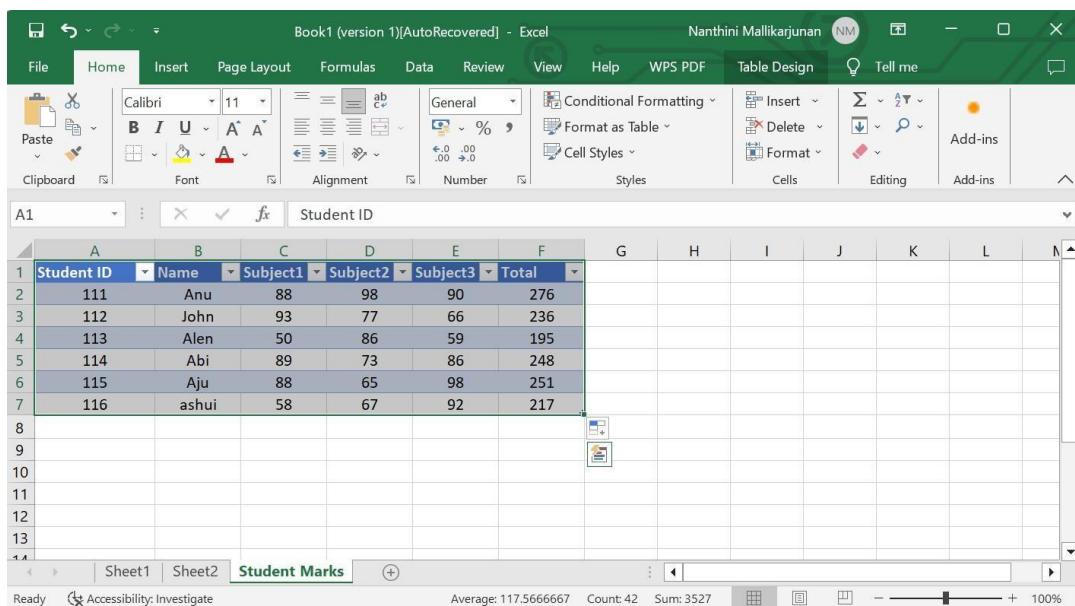
### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

**Step 1:** Open an Existing Workbook named Student Marks.

**Step 2:** Instruct participants to choose the data they want to visualize with a chart.

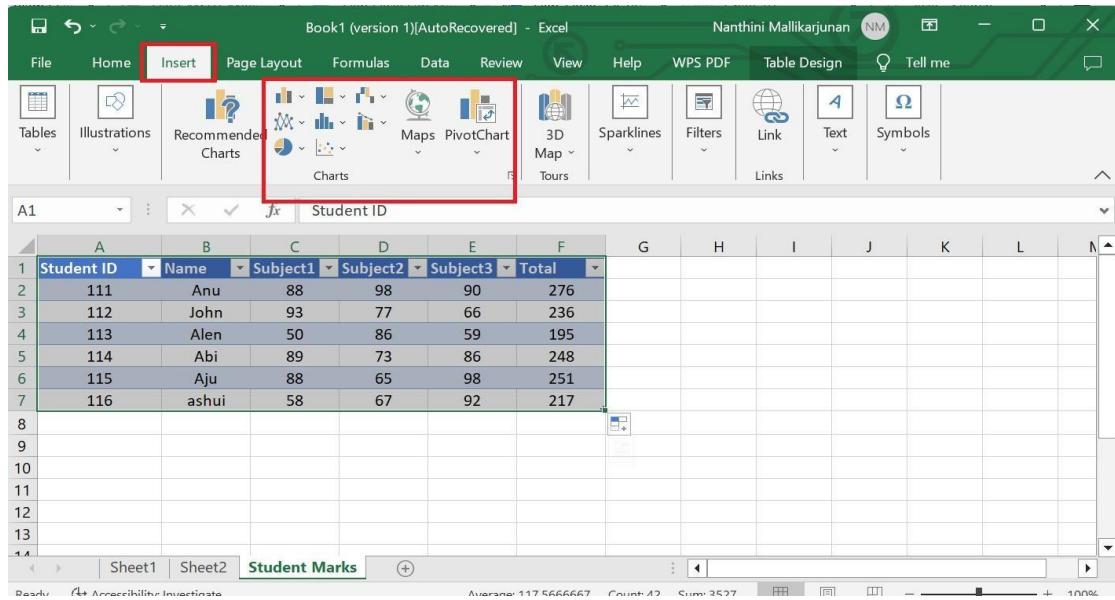


The screenshot shows a Microsoft Excel spreadsheet titled "Book1 (version 1)[AutoRecovered] - Excel". The ribbon menu is visible at the top, and the "Home" tab is selected. A table is displayed on the worksheet, starting at cell A1. The table has columns labeled "Student ID", "Name", "Subject1", "Subject2", "Subject3", and "Total". The data rows contain student information and marks. The "Total" column is highlighted in blue. The status bar at the bottom shows "Average: 117.5666667", "Count: 42", and "Sum: 3527".

Student ID	Name	Subject1	Subject2	Subject3	Total
111	Anu	88	98	90	276
112	John	93	77	66	236
113	Alen	50	86	59	195
114	Abi	89	73	86	248
115	Aju	88	65	98	251
116	ashui	58	67	92	217

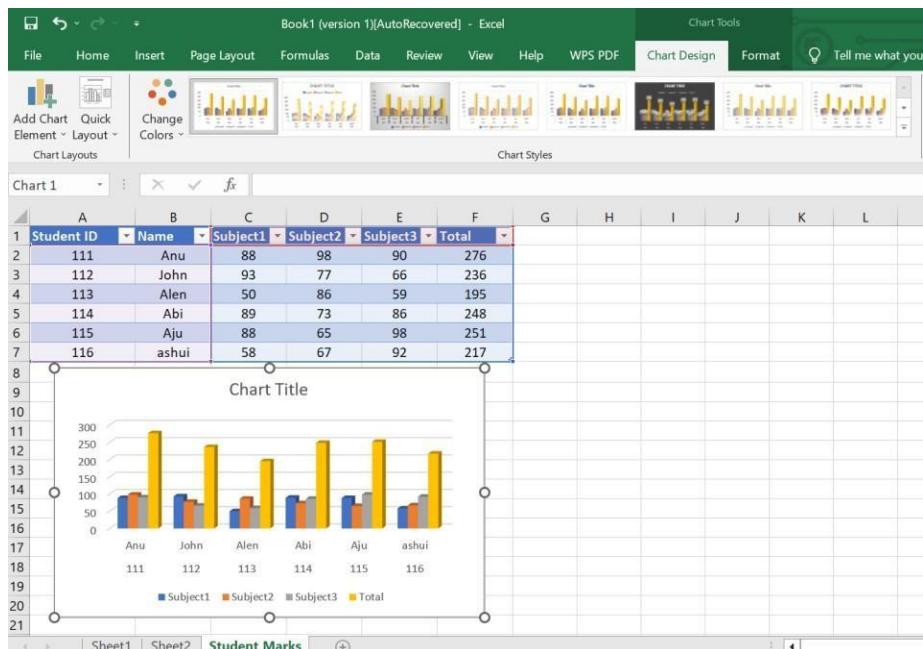
**Fig: Student Marks Data**

**Step 3:** Go to Insert Option and Select chart.

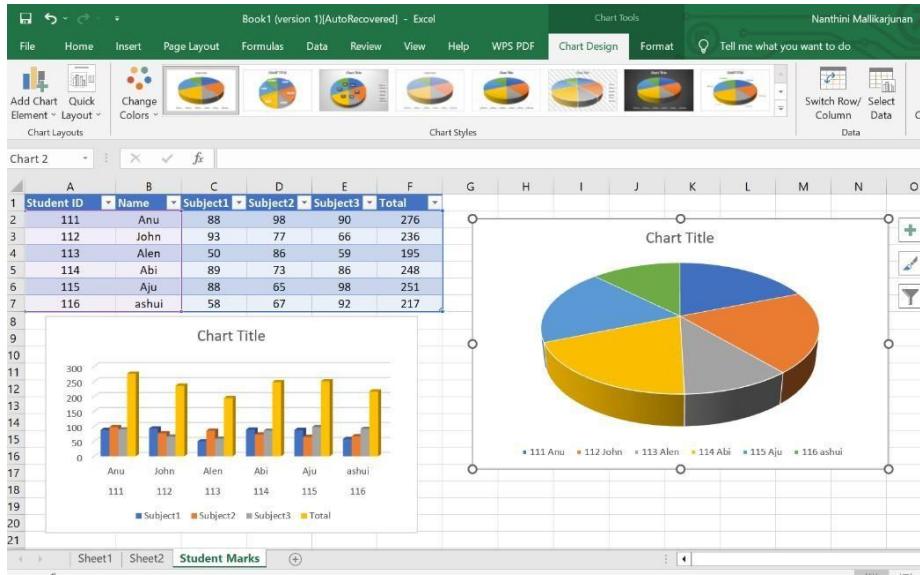


**Fig: Chart Options**

**Step 4:** Choose a chart from the menu like a bar chart, pie chart, Line, etc.

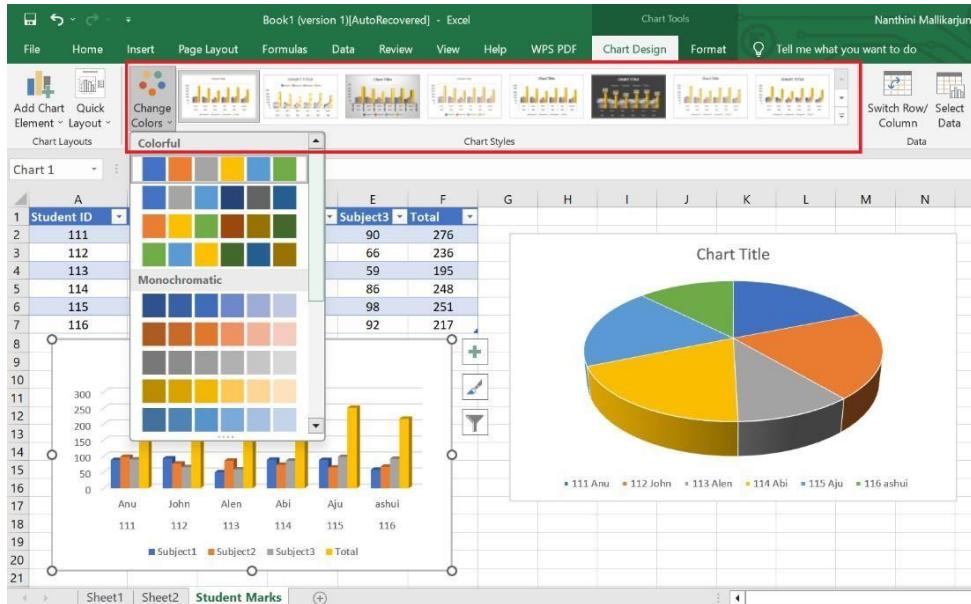


**Fig: Bar Chart**



**Fig: Pie Chart**

**Step 5:** Customize your chart with the available options such as style, layout, etc.



**Fig: Formatting Chart**

## Lab 18: Monthly Sales Visualization in Excel

**Aim:** To teach participants how to create a basic bar chart in Microsoft Excel and demonstrate the importance of data visualization for effective data analysis and communication

**Learning outcome:** Students can be able to create, customize, and format the chart effectively.

**Duration: 25 Mins**

**List of Requirements:**

1. Laptop/PC
2. MS Office Excel

**Procedure:**

### Step 1: Prepare Your Data

For this activity, let's assume you have a dataset of monthly sales for a fictional company. You have two columns: "Month" and "Sales." Here's a sample data set:

Month	Sales
January	5000
February	6000
March	7500
April	4800
May	7000
June	8500

**Table: Monthly Sales**

### Step 2: Select Your Data

Highlight the data you want to visualize. In this case, select the "Month" and "Sales" columns.

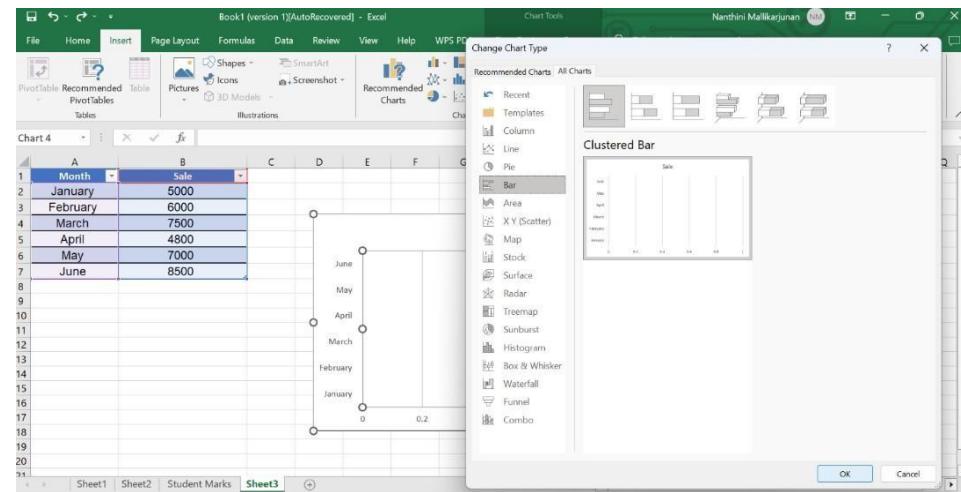
The screenshot shows a Microsoft Excel spreadsheet titled "Book1 (version 1)/AutoRecovered - Excel". The ribbon at the top has tabs for File, Home, Insert, Page Layout, Formulas, Data, Review, View, Help, WPS PDF, Table Design, Tell me, and Add-ins. The "Home" tab is selected. The main area displays a table with columns labeled "Month" and "Sale". The data rows are: January (5000), February (6000), March (7500), April (4800), May (7000), and June (8500). The table is highlighted with a green border. The status bar at the bottom shows "Ready", "Accessibility: Investigate", "Count: 14", and a zoom level of "100%".

Month	Sale
January	5000
February	6000
March	7500
April	4800
May	7000
June	8500

**Fig: Monthly Sales Data**

### Step 3: Insert a Bar Chart

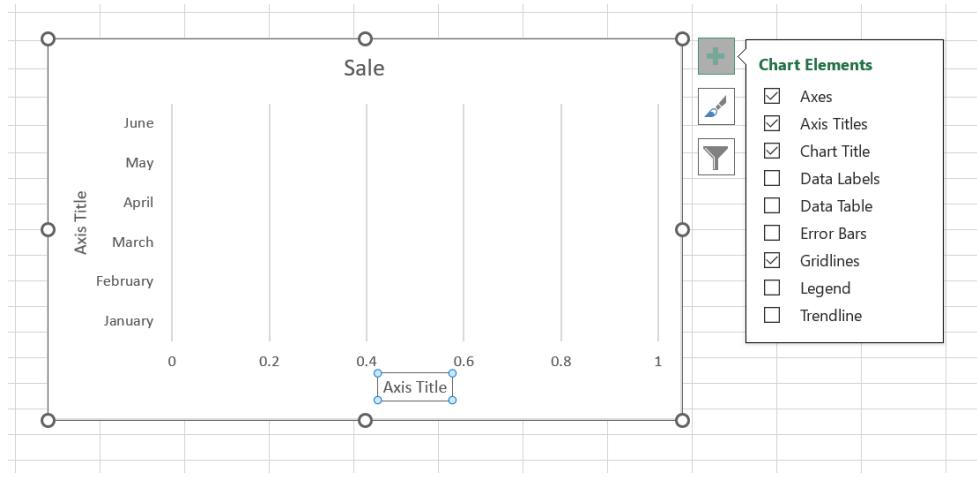
- Go to the "Insert" tab in the Excel ribbon.
- Select "Bar Chart" from the "Charts" group. Choose "Clustered Bar" or "Stacked Bar," depending on your preference. A blank chart will appear on your worksheet.



**Fig: Clustered Chart**

### Step 4: Customize Your Chart

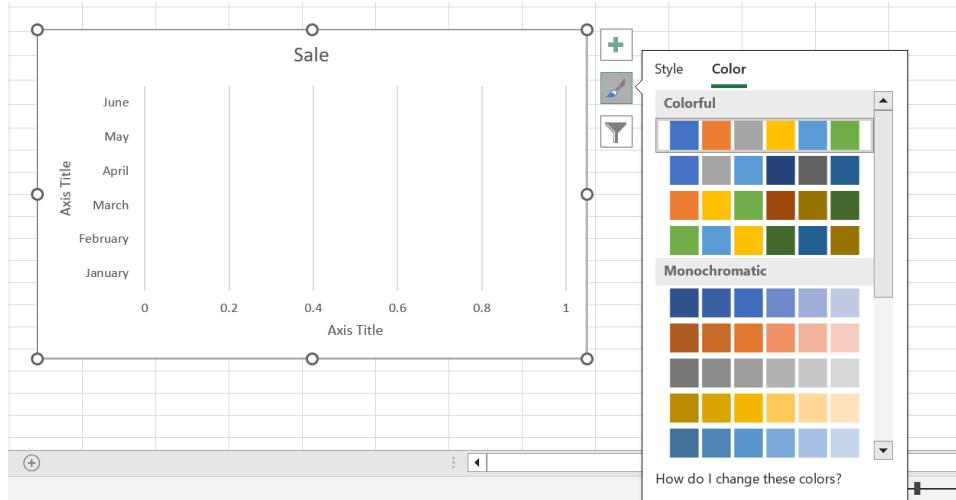
- Axis Labels: Excel might not have automatically recognized your data as the X and Y values correctly. To fix this, click on the chart, then go to "Chart Elements" (the plus sign icon usually near the top right of the chart) and check "Axis Titles." You can then edit the horizontal and vertical axis labels as needed.
- Chart Title: Click on the chart title, delete the default title, and add your own, like "Monthly Sales Chart."
- Data Labels: You can add data labels to the bars by right-clicking on the bars, choosing "Add Data Labels."



**Fig: Data Labels**

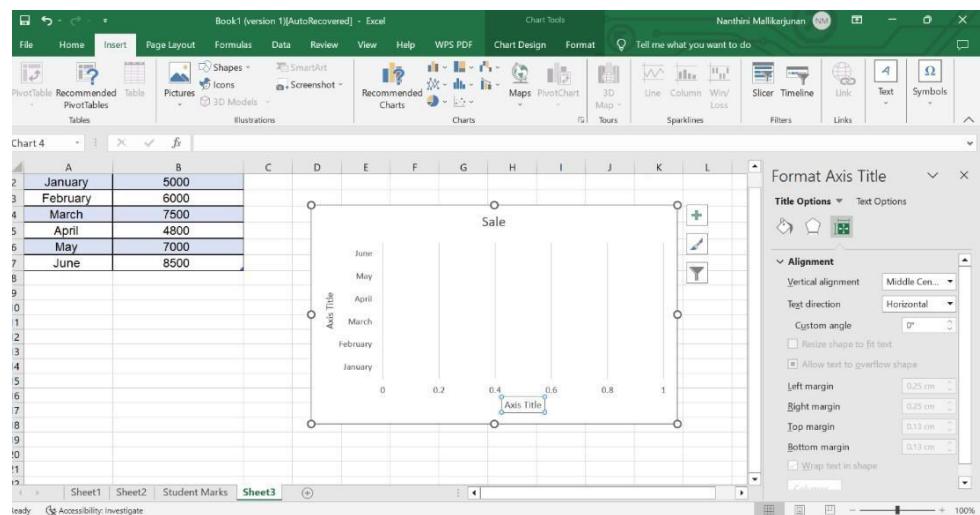
## Step 5: Format Your Chart

- Change Colors: Click on chart elements (bars, axes, legend, etc.) to format them. You can change colors, styles, and fonts.



**Fig: Applying color on chart**

- Gridlines: You can add or remove gridlines by clicking on the chart, going to "Chart Elements," and checking or unchecking "Gridlines."
- Axis Scaling: You can adjust the minimum and maximum values on the vertical axis to make the chart more readable



**Fig: Formatting axis title**

**References:** Microsoft Excel Spreadsheet Software | Microsoft 365

# Page Formatting and Layout

## Lab 19: Adjust Page Margins

**Aim:** Learn how to change the margins of the Excel worksheet to control the amount of white space around the content when printing.

**Learning outcome:** Students can be able to change the margins of your Excel worksheet

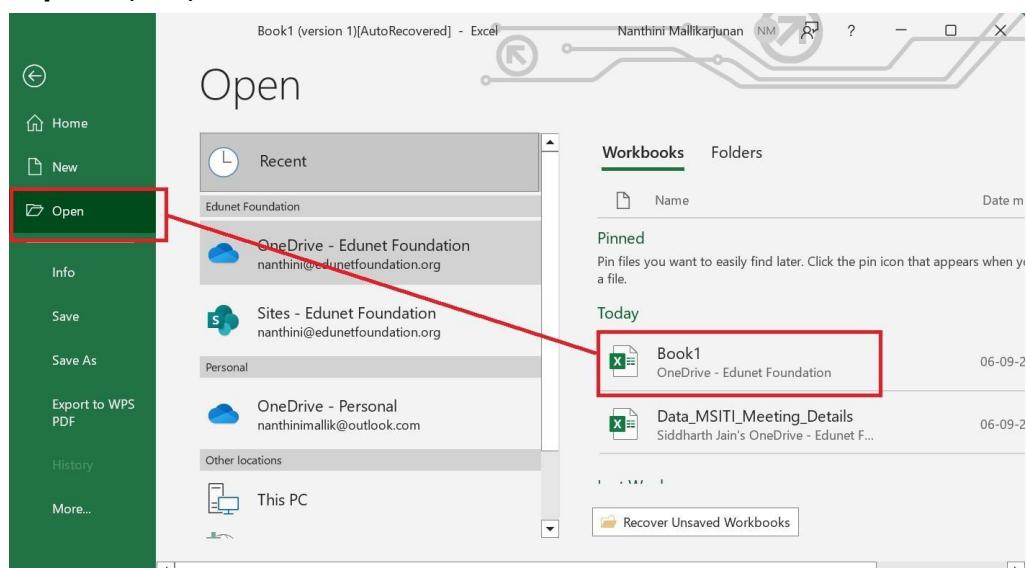
**Duration: 20 Mins**

**List of Requirements:**

3. Laptop/PC
4. MS Office Excel

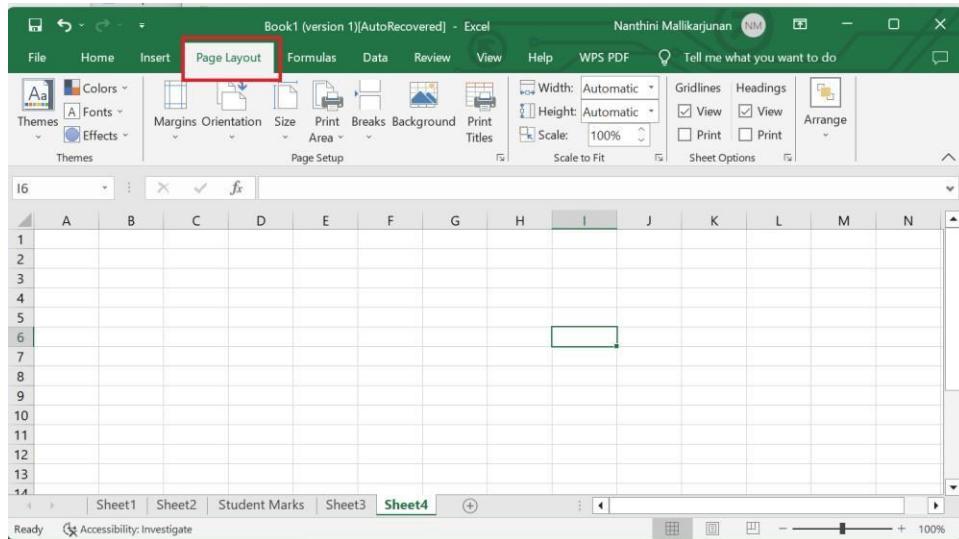
**Procedure:**

- **Step 1:** Open your Excel worksheet.



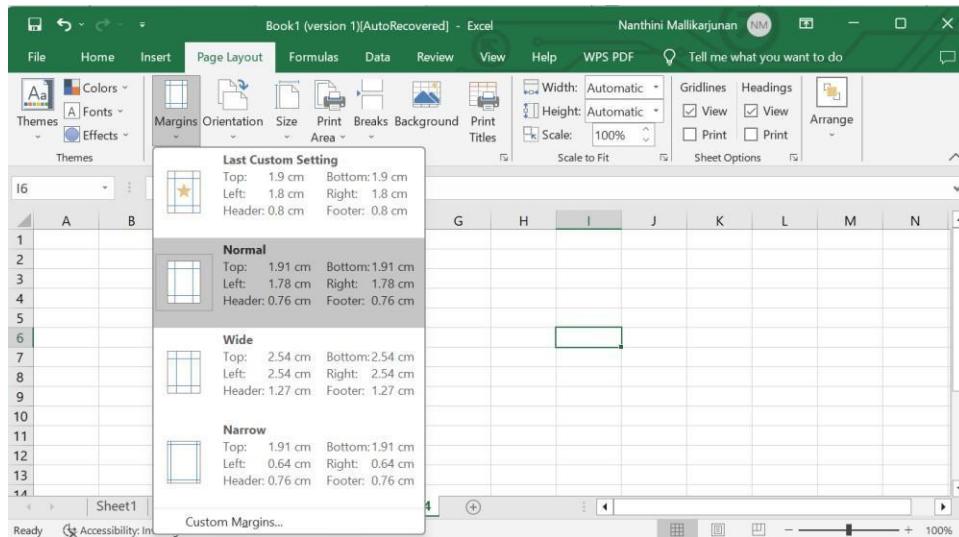
**Fig: Opening Excel Worksheet**

- **Step 2:** Go to the "Page Layout" tab in the Excel ribbon.



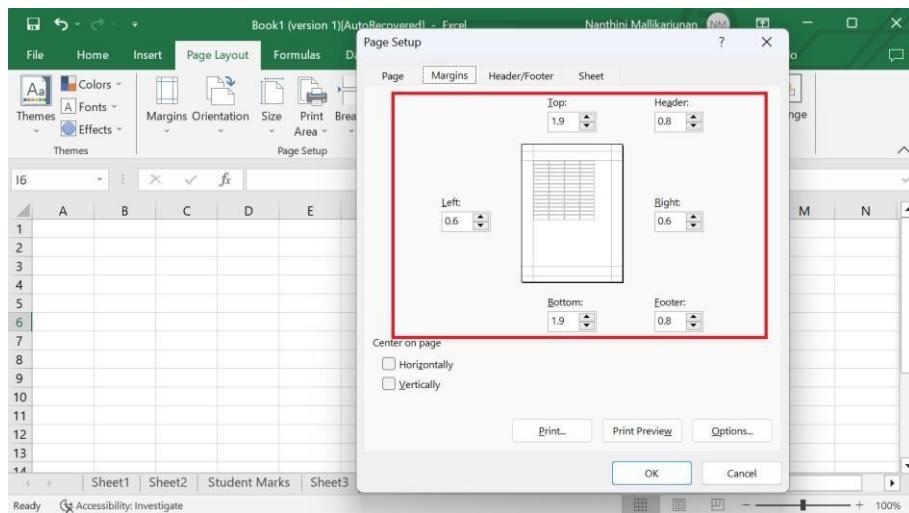
**Fig: Page Layout Tab**

- **Step 3:** Click on the "Margins" dropdown menu.
- **Step 4:** Choose one of the predefined margin settings (Normal, Narrow, Wide) or select "Custom Margins" to set your own margins.



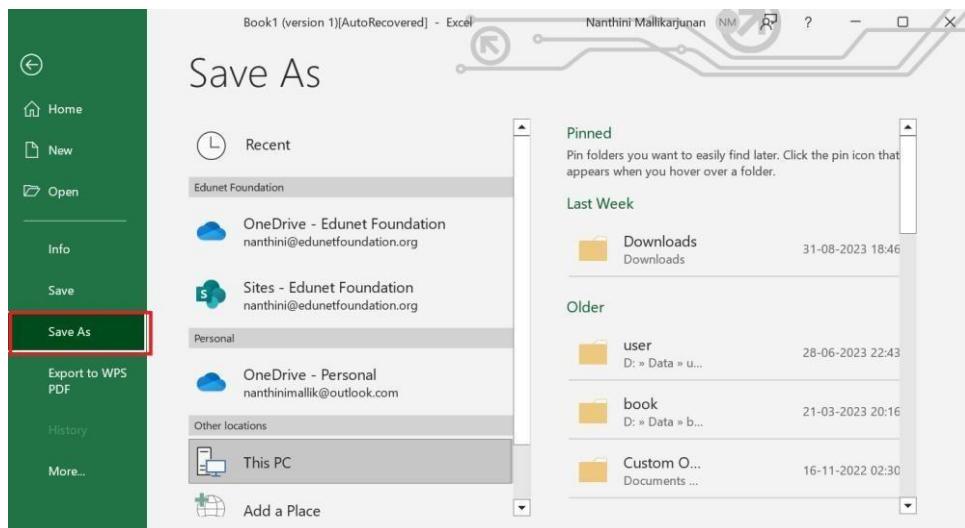
**Fig: Margin Options**

- **Step 5:** Adjust the top, bottom, left, and right margin values as needed in the "Page Setup" dialog box.



**Fig: Page Setup Options**

- **Step 6:** Click "OK" to apply the new margin settings to your worksheet.
- **Step 7:** Save the workbook for all the changes.



**Fig: Save As**

## Lab 20: Insert Page Numbers in Headers/Footers

**Aim:** To add page numbers to the header or footer of the Excel worksheet for better document organization when printing.

**Learning outcome:** Students can be able to add page numbers to the header or footer of the Excel worksheet.

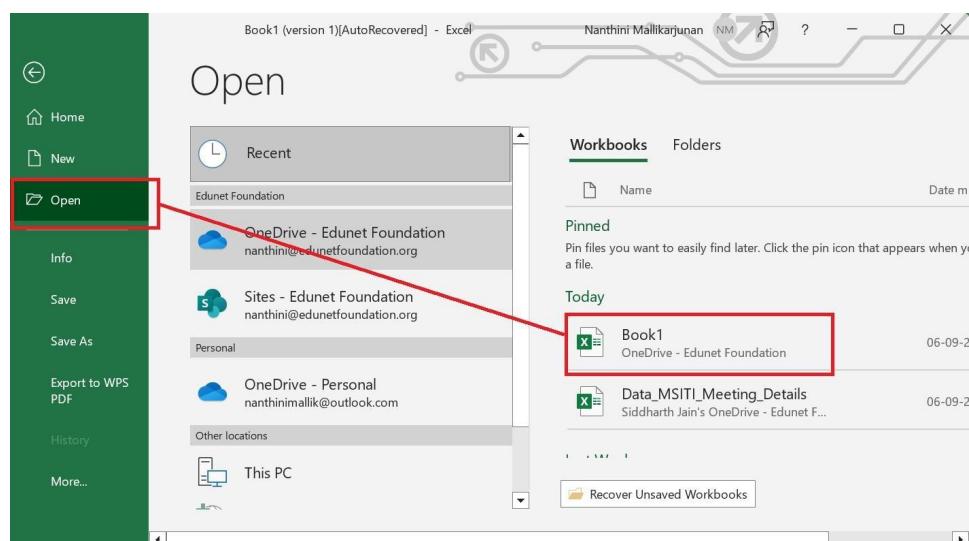
**Duration: 20 Mins**

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

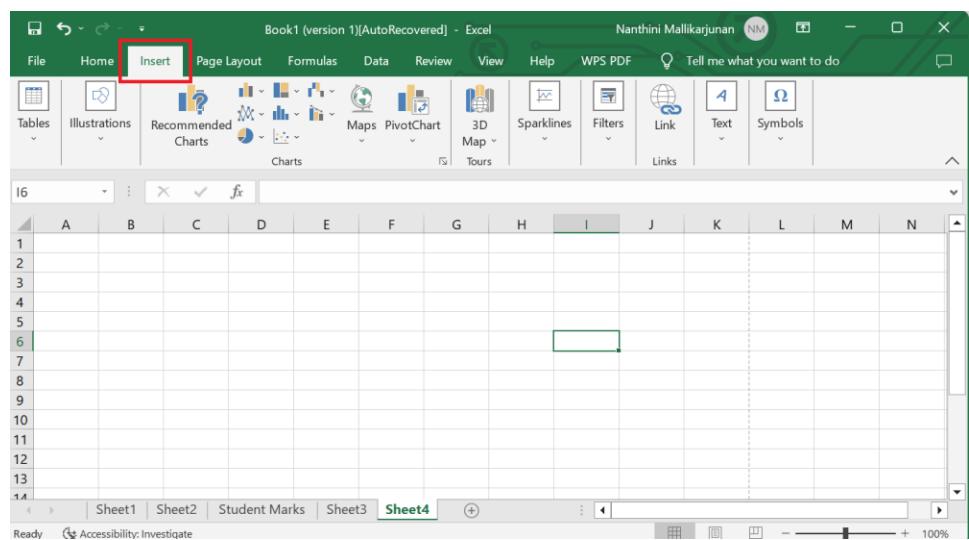
### Procedure:

**Step 1:** Open your Excel worksheet.



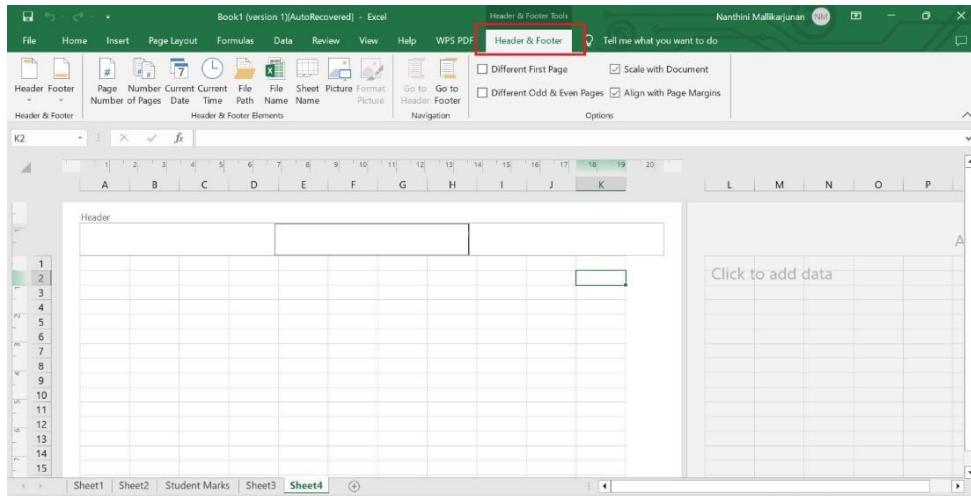
**Fig: Open Excel Worksheet**

**Step 2:** Go to the "Insert" tab in the Excel ribbon.



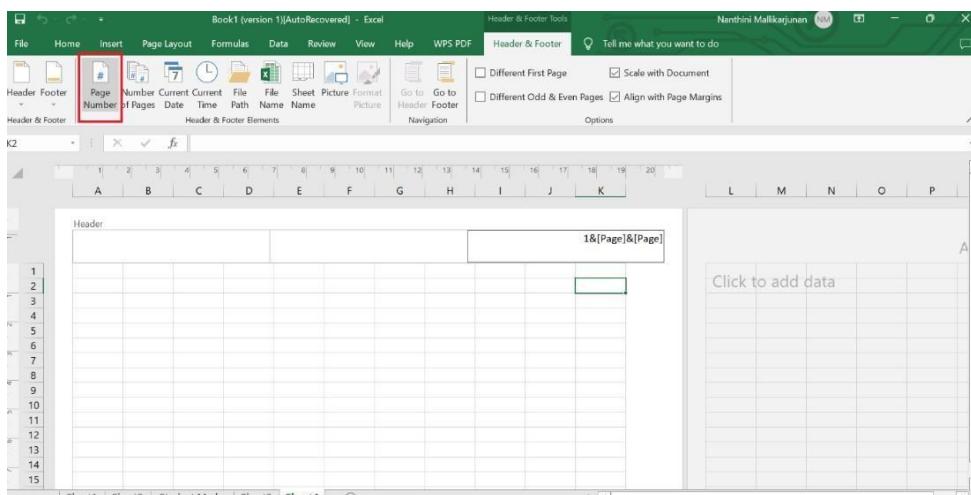
**Fig: Insert Tab**

**Step 3:** Click on "Header & Footer" to open the "Header & Footer Tools" Design tab.



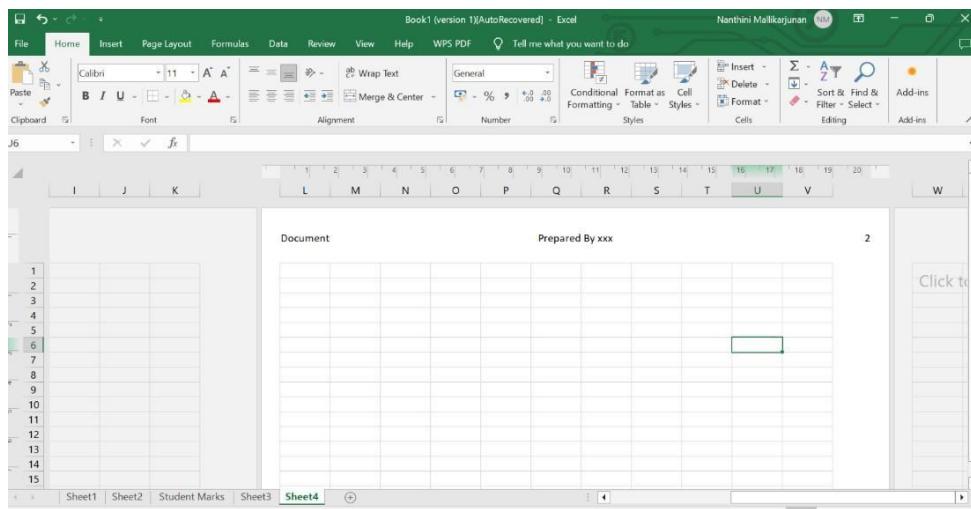
**Fig: Header & Footer Tab**

**Step 4:** In the "Header & Footer Elements" section, click "Page Number" to insert a page number code where you want the page number to appear in the header or footer.



**Fig: Page Number**

**Step 5:** Customize the header or footer text and formatting as needed.



**Fig: Display Header & Footer**

**Step 6:** Click "Close Header and Footer" on the Design tab to save your changes.

## Lab 21: Change Page Orientation

**Aim:** To Learn how to change the page orientation of Excel worksheet from portrait (vertical) to landscape (horizontal) or vice versa.

**Learning outcome:** Students can be able to change the page orientation of Excel worksheet from portrait to landscape and vice-versa

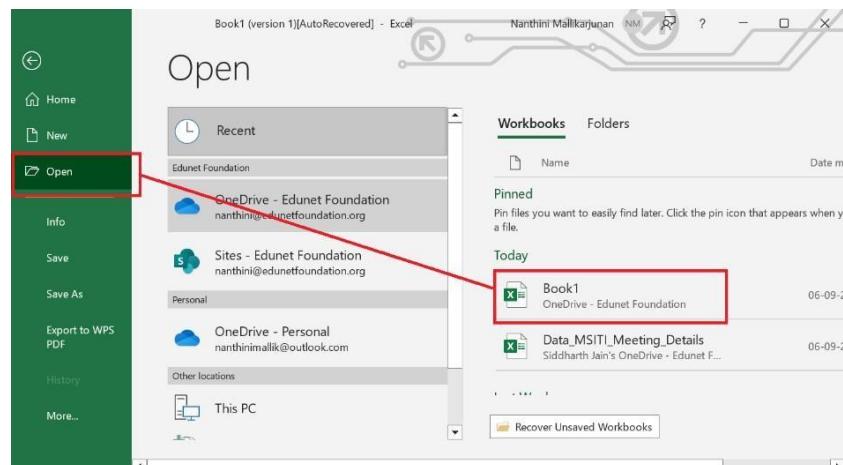
**Duration: 20 Mins**

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

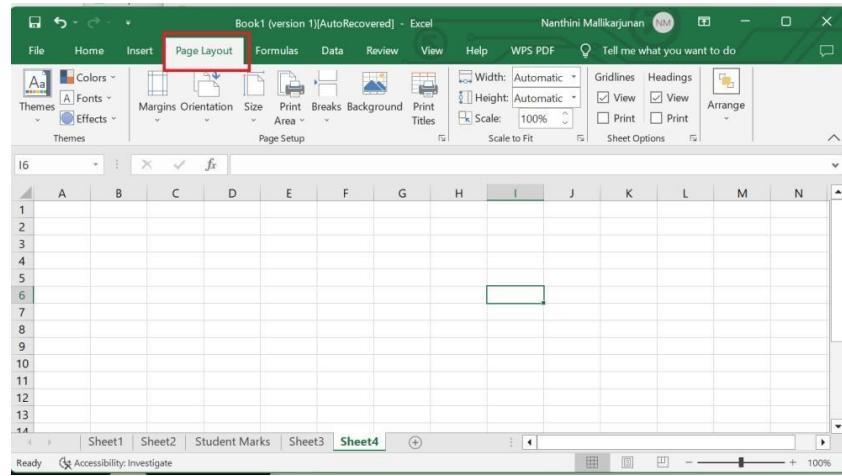
### Procedure:

**Step 1:** Open your Excel worksheet.



**Fig: Open Worksheet**

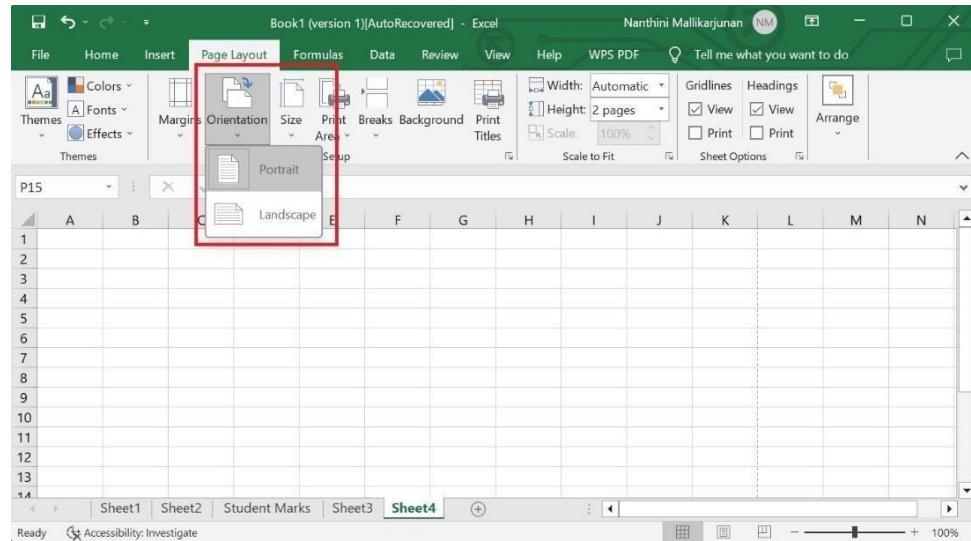
**Step 2:** Go to the "Page Layout" tab in the Excel ribbon.



**Fig: Page Layout Tab**

**Step 3:** Click on the "Orientation" dropdown menu in the Page Setup group.

**Step 4:** Select either "Portrait" (vertical) or "Landscape" (horizontal) based on your preference.



**Fig: Page Orientation\**

**Step 5:** Excel will automatically adjust the page orientation of your worksheet.

**References:** Microsoft Excel Spreadsheet Software | Microsoft 365

# Powerful Features of Excel on Data

## Lab 22: Applying Freeze Panes Feature in Excel

**Aim:** To introduce students to Freeze Panes, features in Excel and its utility in managing large datasets.

**Learning Outcome:** By the end of this practical, students will understand the purpose of Freeze Panes and be able to apply this feature to lock specific rows and columns for better data navigation

### List of Requirements:

5. Laptop/PC
6. MS Office Excel

### Procedure:

**Step 1:** Open Microsoft Excel and create a new workbook or use an existing one with a large dataset.

**Step 2:** Populate the worksheet with data, ensuring it contains both rows and columns that extend beyond the visible area of the window.

**Step 3:** Identify the row or column that you want to keep visible as you scroll through the data.

**Step 4:** Click on the cell immediately below the row you want to freeze or to the right of the column you want to freeze.

**Step 5:** Go to the "View" tab in the Excel ribbon.

**Step 6:** In the "Window" group, find and click on "Freeze Panes."

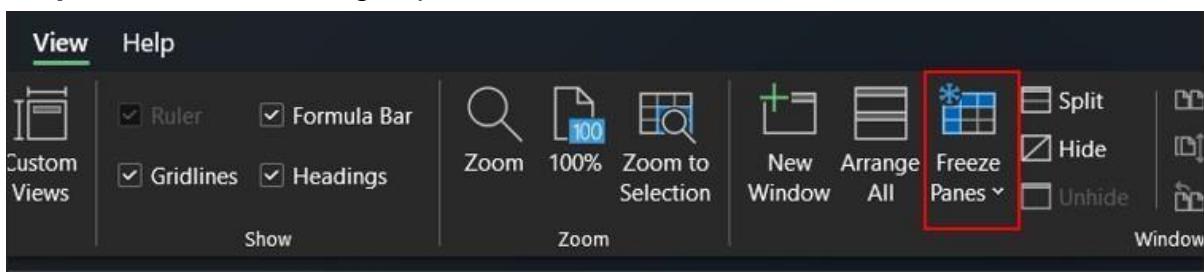
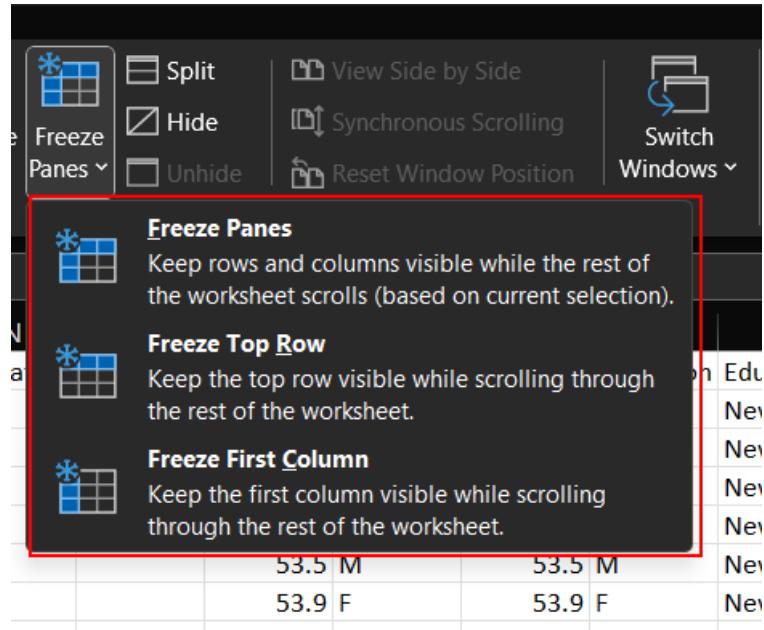


Fig: Freeze Panes

**Step 7:** Choose one of the following options based on your preference:

- "Freeze Panes": This option will freeze both rows and columns above and to the left of the selected cell.
- "Freeze Top Row": This option will freeze only the top row.
- "Freeze First Column": This option will freeze only the first column.



**Fig: Freeze Panes Options**

**Step 8:** Observe how the selected rows or columns remain visible as you scroll through the dataset, making it easier to reference data.

**Step 9:** To remove the Freeze Panes, go back to the "View" tab, click on "Freeze Panes" again, and select "Unfreeze Panes."

**Step 10:** Experiment with Freeze Panes on your own by selecting different cells and freezing various rows or columns to see how it affects data navigation.

**Step 11:** Understand the utility of Freeze Panes in scenarios where you need to keep certain headers or labels visible while working with extensive datasets.

## Lab 23: Introduction to Macros in Excel automating repetitive tasks

**Aim:** To introduce students to the concept of macros in Excel and their role in automating repetitive tasks.

**Learning outcome:** Students will be able to create and execute basic macros to automate tasks, saving time and reducing errors in Excel.

**Duration:** 30 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

### Procedure:

**Step 1:** Open Microsoft Excel and create a new workbook or use an existing one.

**Step 2:** Think of a simple repetitive task that you often perform in Excel, such as formatting data or applying specific calculations.

**Step 3:** Go to the "View" tab in the Excel ribbon.

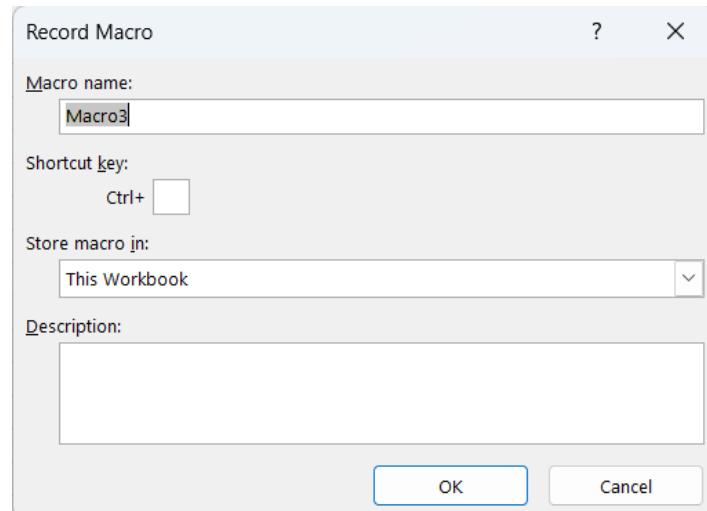
**Step 4:** In the "Macros" group, click on "Record Macro."



Fig: Macro tab

**Step 5:** In the "Record Macro" dialog box:

- Give your macro a name (no spaces allowed, use underscores).
- Optionally, provide a description for the macro.
- Choose where to store the macro: "This Workbook" or "New Workbook" (for personal or shared use).
- Click "OK."



**Fig: Record Macro**

**Step 6:** Excel is now recording your actions. Perform the repetitive task you identified in Step 2. For example, you can format a cell, apply a formula, or add text.

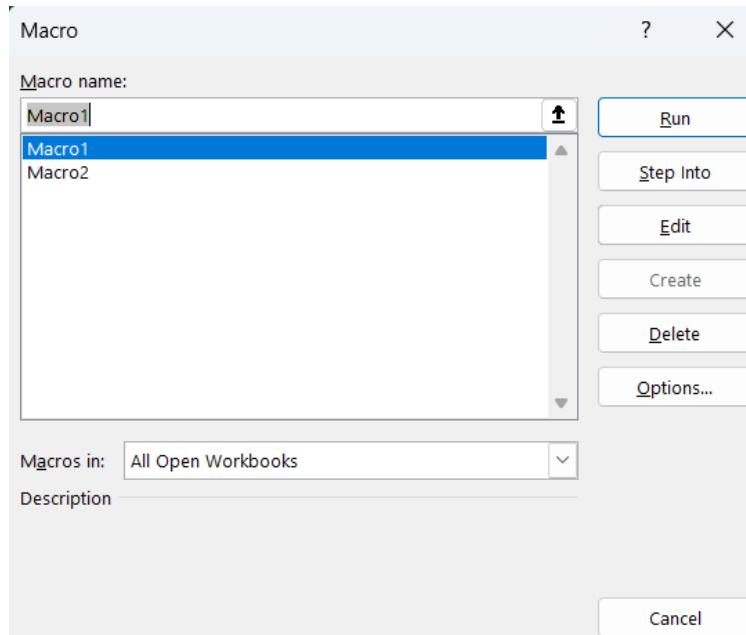
**Step 7:** Once you've completed the task, return to the "View" tab and click on "Macros."

**Step 8:** Select "Stop Recording" to finish recording the macro.

**Step 9:** To test the macro, create a new sheet or select a different area in your existing sheet.

**Step 10:** Go to the "View" tab, click on "Macros," and choose "View Macros."

**Step 11:** Select the macro you just created and click "Run." Observe how Excel repeats the actions you recorded.



**Fig: Select created macro**

**Step 12:** To see the recorded macro's code, click "Edit" in the "View Macros" dialog. This is where you can modify the macro's code if needed.

**Step 13:** To use the macro in the future, simply go to the "View" tab, click on "Macros," choose "View Macros," select your macro, and click "Run."

**Step 14:** Experiment with recording different macros for various repetitive tasks you encounter in Excel.

**Step 15:** Understand the potential time-saving benefits of macros for automating tasks in Excel.

## Workbooks and Worksheet Protection

### Lab 24: Introduction to Workbook Protection.

**Aim:** To introduce students to the concept of workbook protection in Excel.

**Learning outcome:** Students will explain the purpose of workbook protection and protect a workbook using simple password protection.

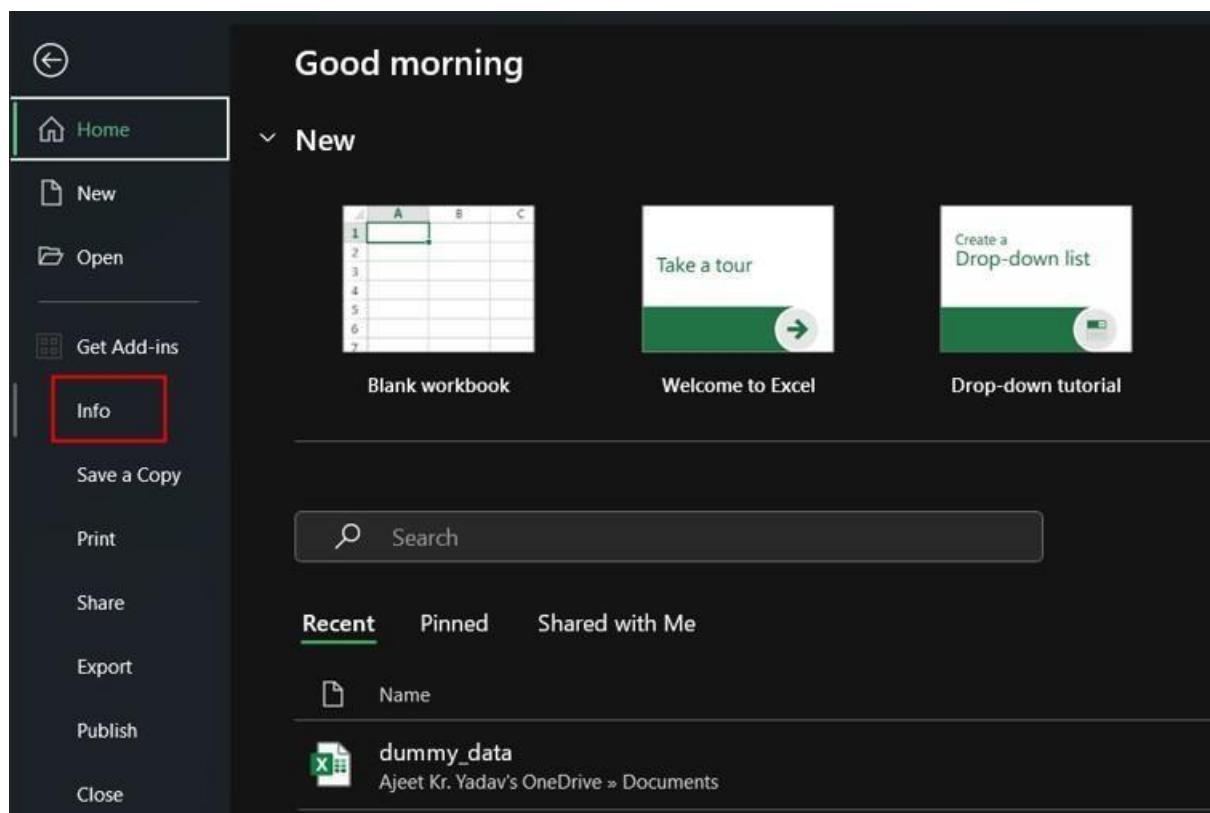
**Duration:** 30 Mins

#### List of Requirements:

7. Laptop/PC
8. MS Office Excel

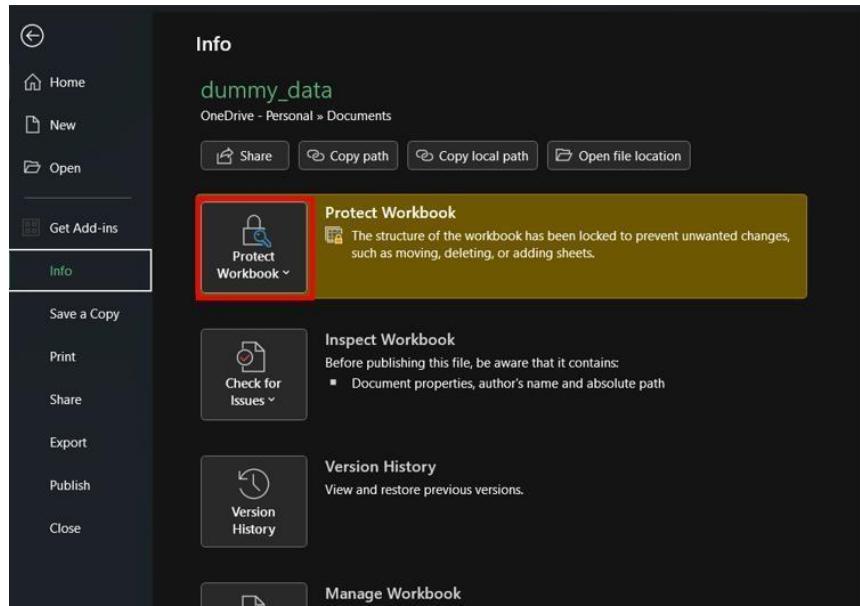
#### Procedure:

**Step 1:** Select File > Info.

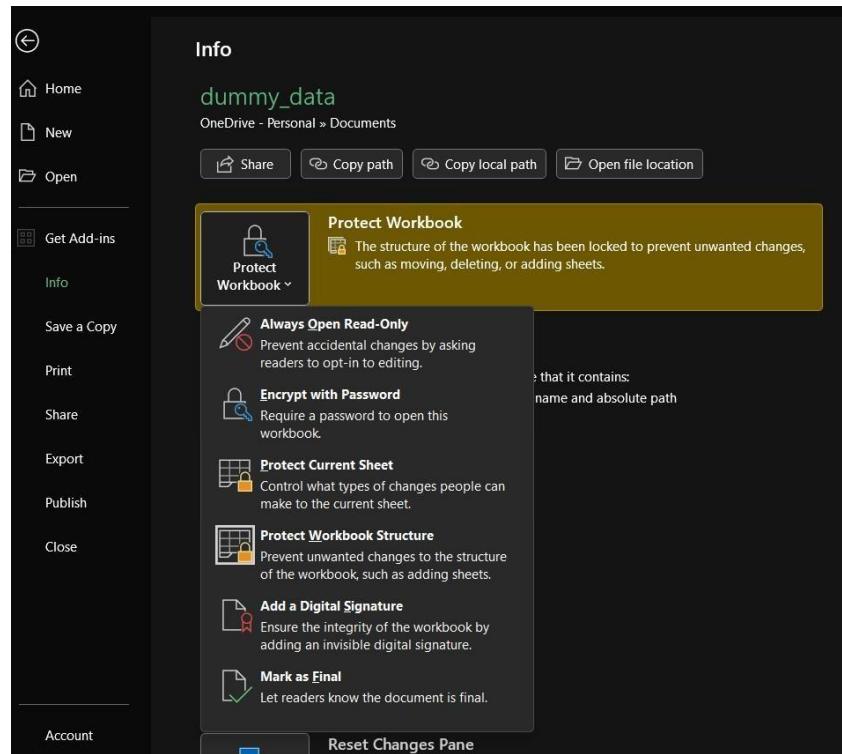


**Fig: Info**

**Step 2:** Select the Protect Workbook box



**Step 3: Choose Encrypt with Password**



**Fig: Protecting Workbook options**

**Step 4:** Enter a password in the Password box, and then select OK.

**Step 5:** Confirm the password in the Re-enter Password box, and then select OK.

**Step 6:** Reopen the workbook, and you'll be prompted to enter the password to access it.

## Lab 25: Worksheet Protection

**Aim:** To familiarize students with worksheet protection in Excel and how it can be used to secure specific parts of a workbook.

**Learning Outcome:** Students will be able to protect and unprotect individual worksheets within a workbook, controlling access to different sections of data.

**Duration:** 30 Mins

### List of Requirements:

1. Laptop/PC
2. MS Office Excel

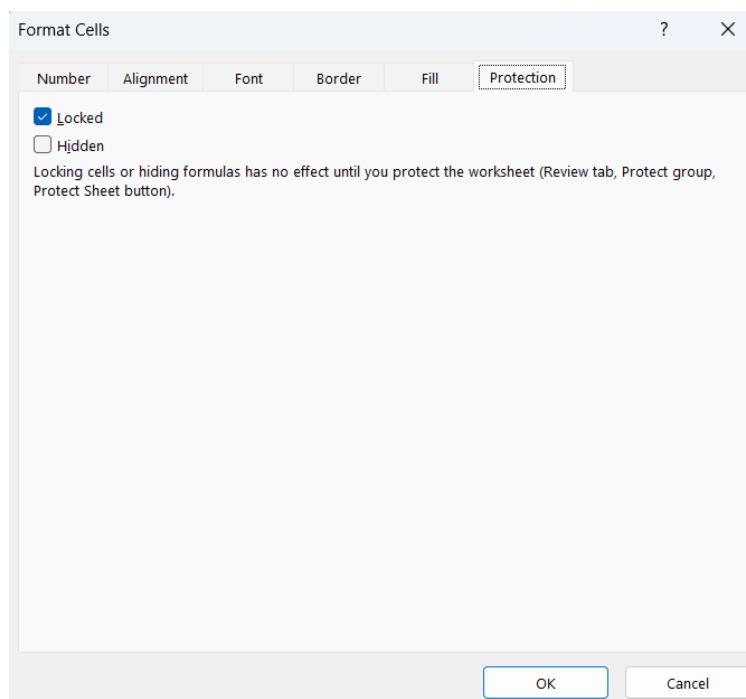
### Procedure:

**Step 1:** Open the workbook you created in Practical 1.

**Step 2:** In this workbook, create multiple worksheets with different types of data.

**Step 3:** Go to the first worksheet and select some cells or a range that you want to protect.

**Step 4:** Right-click on the selected area, choose "Format Cells," and go to the "Protection" tab.

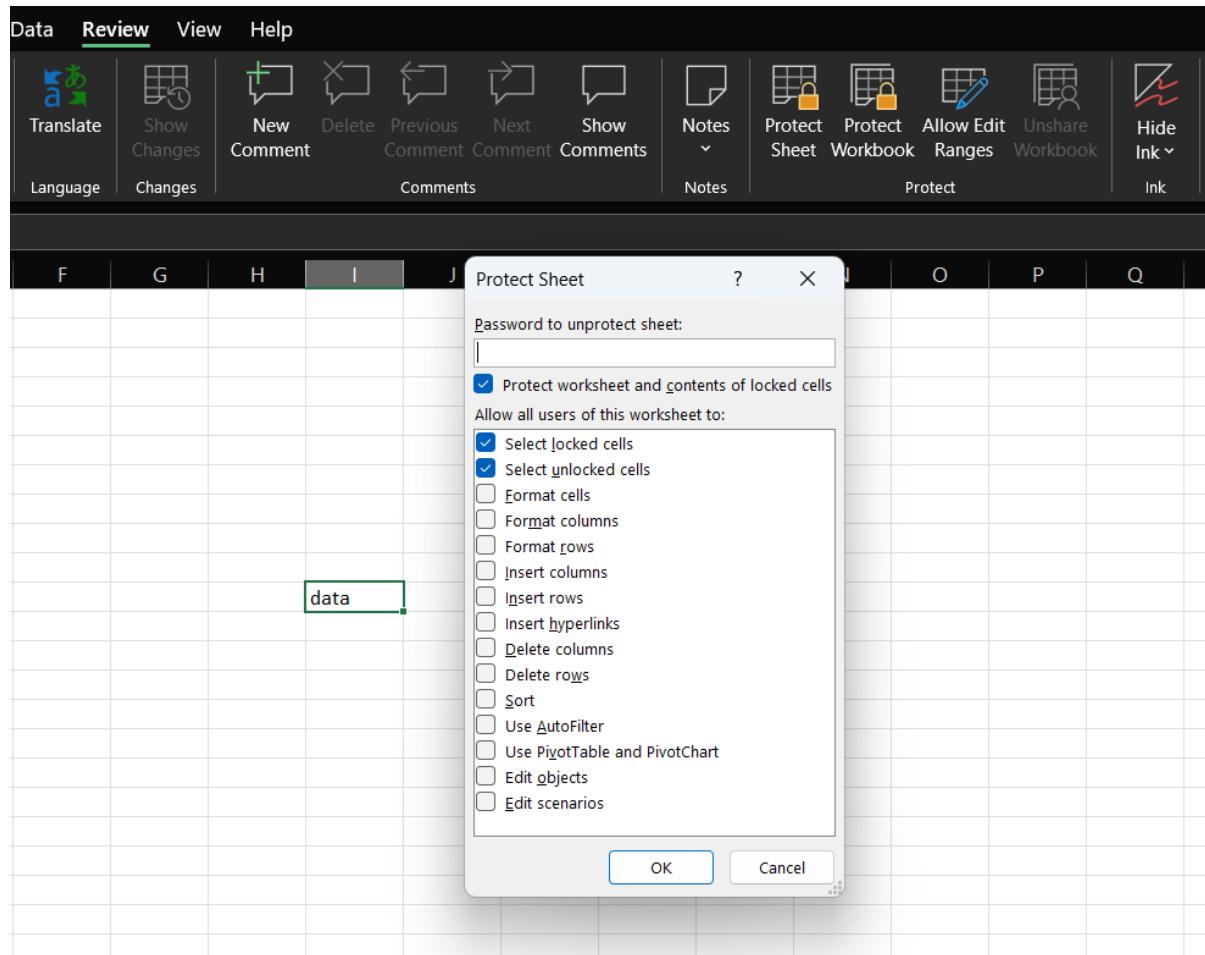


**Fig: Protection Tab**

**Step 5:** Check the box that says "Locked" and click "OK."

**Step 6:** Now, go to the "Review" tab in the Excel ribbon and select "Protect Sheet."

**Step 7:** Set a password (optional) and choose what actions users can perform on the protected sheet.



**Fig: Protect sheet**

**Step 8:** Repeat steps 3-7 for other worksheets with different data.

**Step 9:** Try to edit the protected cells on one of the sheets, and you'll be prompted for a password if you set one.