LABORATORY MANUAL

DATA ANALYTICS WITH EXCEL LABORATORY

(2022 Scheme)

Subject Code: BCS358A

Prepared By:

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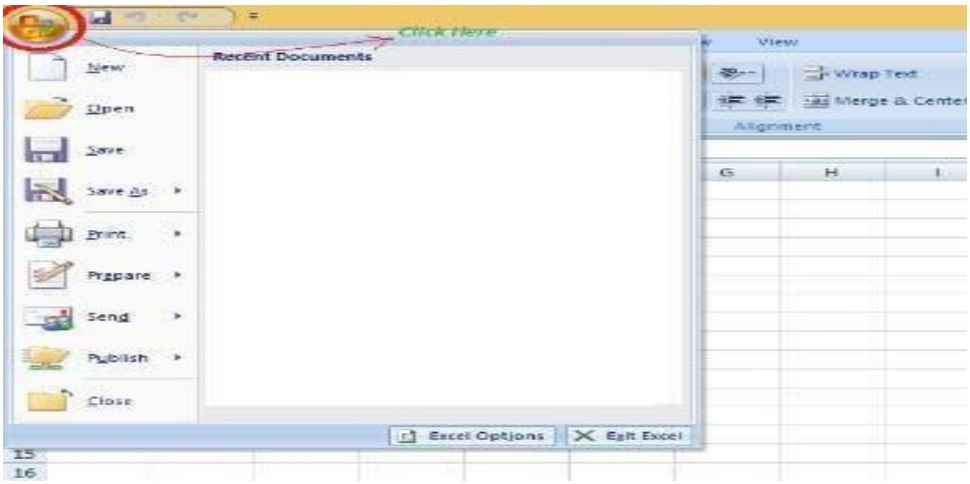
Experiment 1

1. Getting Started with Excel:

1. Creation of spread sheets : To create a new spreadsheet follow the following steps:

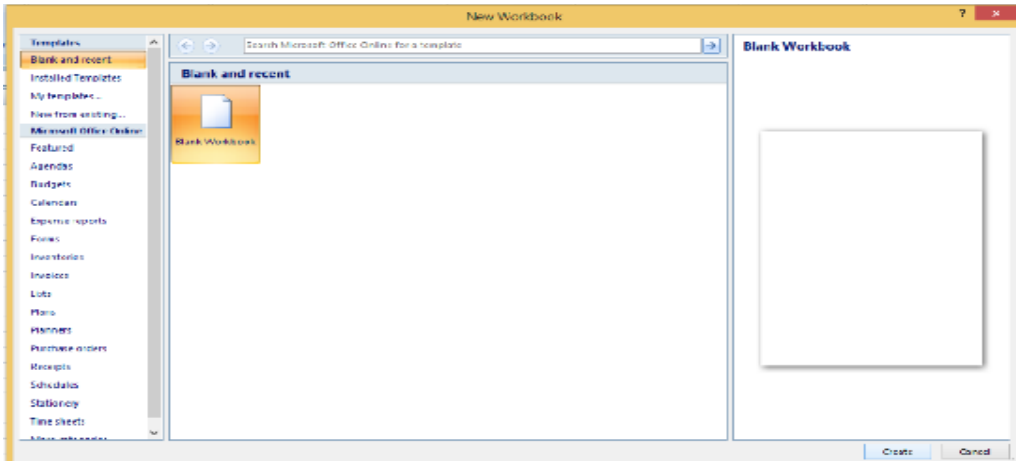
Step 1: Click on the top-left, Microsoft Office button and a drop-down menu appear.

Step 2: Now select New from the menu.

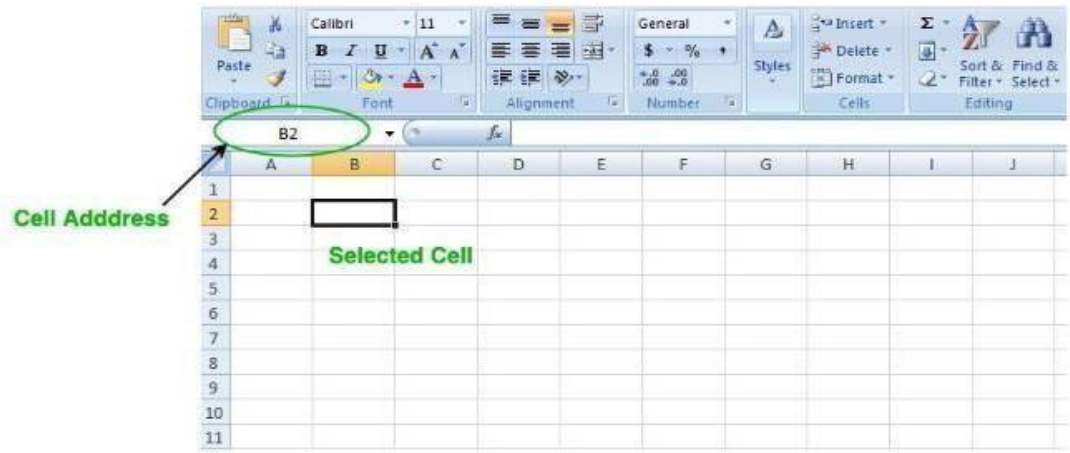


Step 3: After selecting the New option a New Workbook dialogue box will appear and then in Create tab, click on the blank Document.

A new blank worksheet is created and is shown on the screen



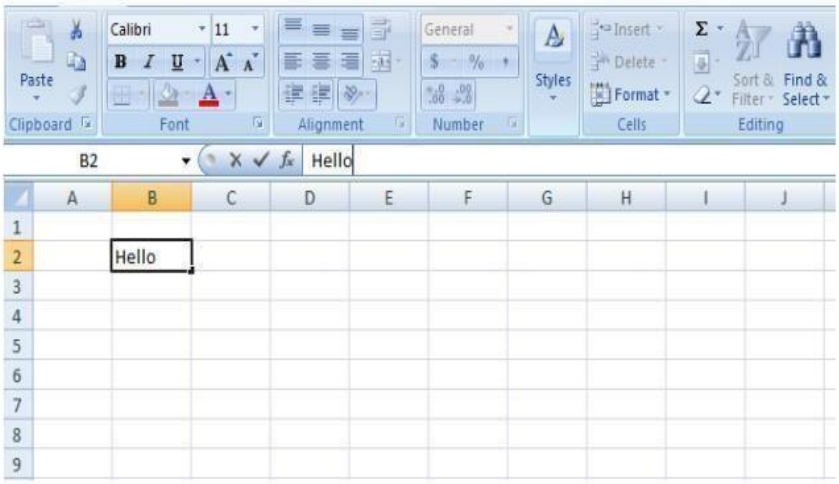
2. **Insertion of rows and columns:** Excel consists of many rows and columns, each rectangular box in a row or column is referred to as a Cell. So, the combination of a column letter and a row number can be used to find a cell address on a spreadsheet.



To insert the data into the cell follow the following steps:

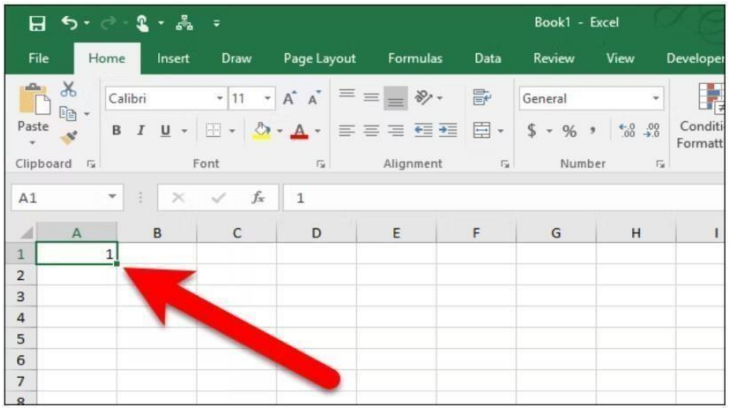
Step1: Go to a cell and click on it

Step2: By typing something on the keyboard, you can insert your data (In that selected cell).



Whatever text you type displays in the formula bar as well (for that cell).

3. Drag and Fill

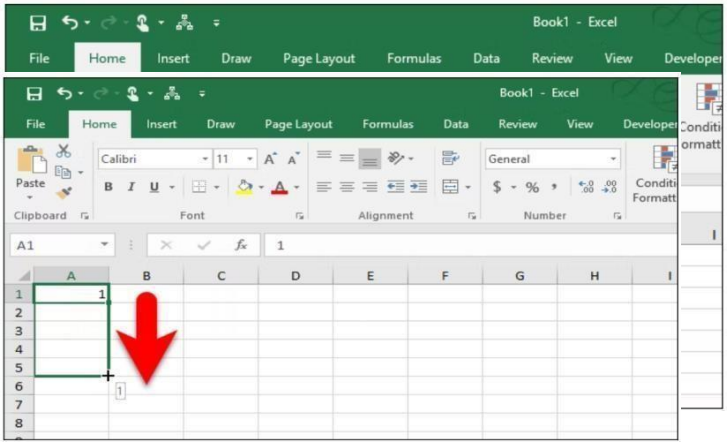


To use the drag and fill function, follow the steps-

Step 1: Select any cell and insert any number.

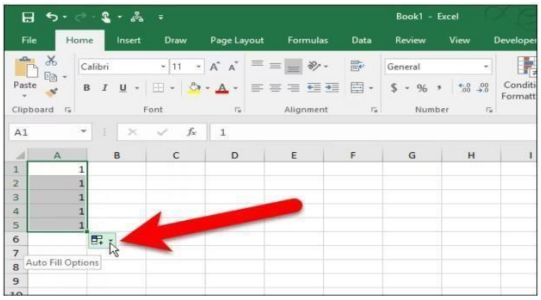
Step 2: Move the mouse over the fill handle, and go to the cell's bottom right corner.

Step 3: It turns into a black plus sign.



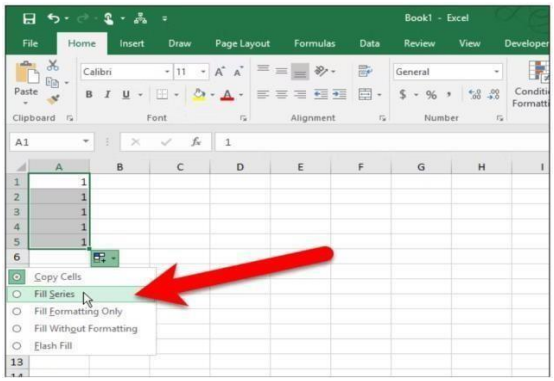
Step 4: With the black plus sign over the fill handle, click and drag the handle down the column until you reach the number of cells you want to fill.

Step 5: Release the mouse button, the value has been copied into the cells over which you dragged the fill handle

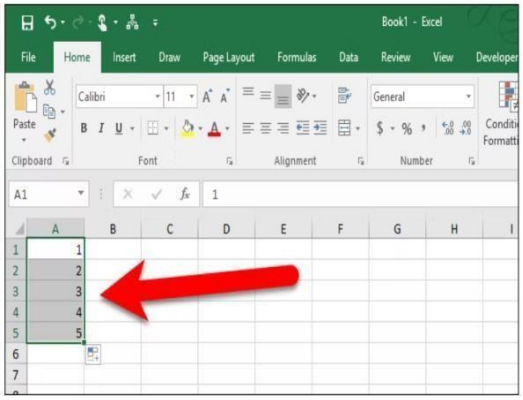


Note: Why didn't it fill the linear series (1, 2, 3, 4, 5 in our example)? By default, when you enter one number and then use the fill handle, that number is copied to the adjacent cells, not incremented.

To replace the copies with the linear series, click the "Auto Fill Options" button that displays when you're done dragging the fill handle.

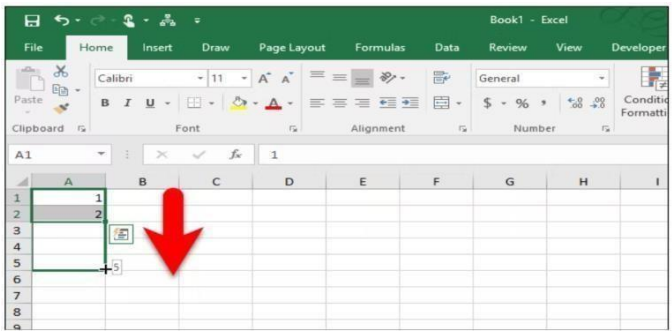


The first option, Copy Cells, is the default. That's why we got five 1s and not the linear series of 1--5. To fill the linear series, select "Fill Series" from the popup menu.

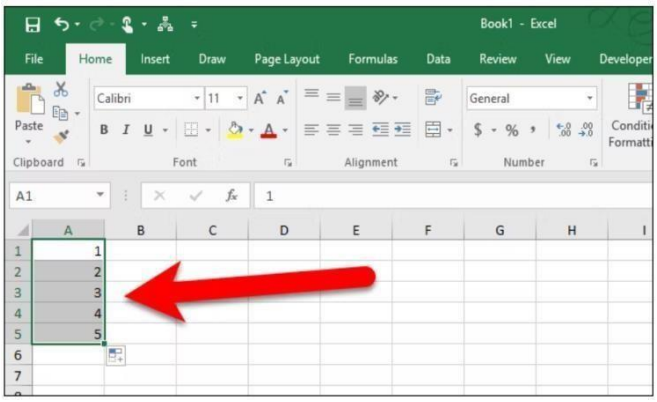


The other four 1s are replaced with 2--5 and our linear series is filled.

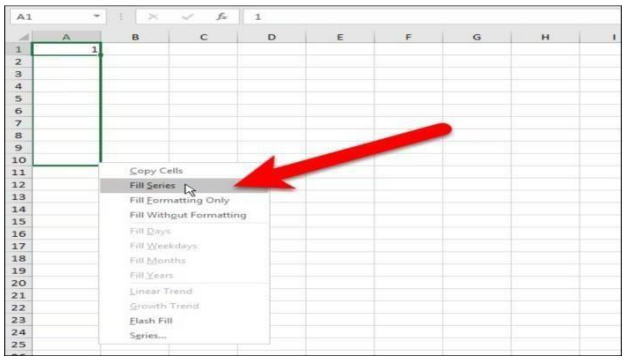
Note: We can, however, do this without having to select Fill Series from the Auto Fill Options menu. Instead of entering just one number, enter the first two numbers in the first two cells. Then, select those two cells and drag the fill handle until you've selected all the cells you want to fill.



Because you've given it two pieces of data, it will know the step value you want to use, and fill the remaining cells accordingly.



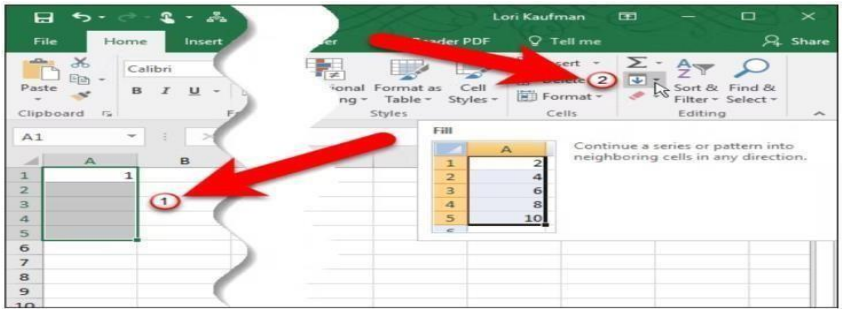
You can also click and drag the fill handle with the right mouse button instead of the left. You still have to select "Fill Series" from a popup menu, but that menu automatically displays when you stop dragging and release the right mouse button, so this can be a handy shortcut.



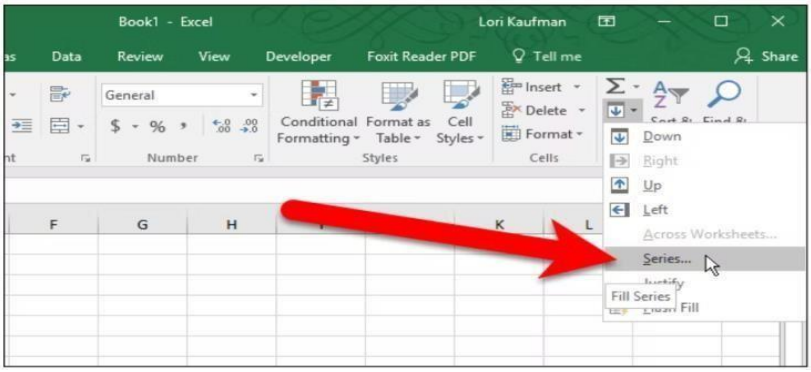
Note: You can also click and drag the fill handle with the right mouse button instead of the left. You still have to select "Fill Series" from a popup menu, but that menu automatically displays when you stop dragging and release the right mouse button, so this can be a handy shortcut.

Fill a Linear Series into Adjacent Cells Using the Fill Command

To use the Fill command on the ribbon, enter the first value in a cell and select that cell and all the adjacent cells you want to fill (either down or up the column or to the left or right across the row). Then, click the "Fill" button in the Editing section of the Home tab.

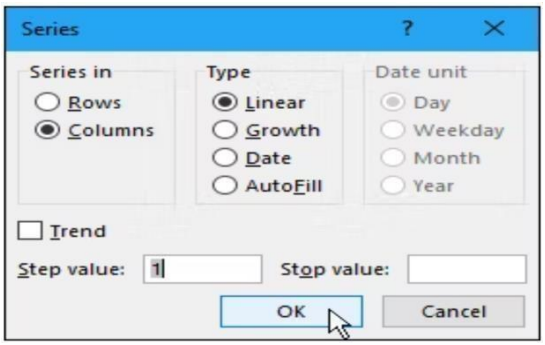


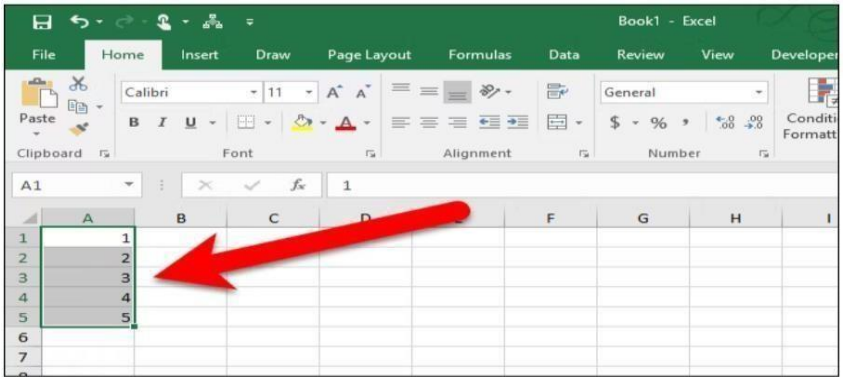
Select "Series" from the drop-down menu.



On the Series dialog box, select whether you want the Series in Rows or Columns. In the Type box, select "Linear" for now. We will discuss the Growth and Date options later, and the AutoFill option simply copies the value to the other selected cells. Enter the "Step value", or the increment for the linear series. For our example, we're incrementing the numbers in our series by

1. Click "OK". The linear series is filled in the selected cells.





4. Use of Aggregate functions:

EmployeeID	EmployeeName	Department	Salary	HireDate
1	John Smith	Sales	50000	2019-05-15
2	Jane Doe	Marketing	55000	2020-02-10
3	Bob Johnson	IT	60000	2018-09-21
4	Sarah Brown	HR	48000	2021-04-03
5	Michael Lee	Finance	52000	2017-11-30
6	Laura White	IT	58000	2019-12-14
7	Mark Davis	Sales	53000	2020-07-22
8	Emily Adams	Marketing	56000	2022-01-18
9	Chris Evans	Finance	51000	2018-05-09
10	Lisa Taylor	HR	49000	2021-09-05

1. **Sum with Excel tables:** To calculate the total salary of all employees:
   =SUM (EmplyoeeData [Salary])

2. **Average with Excel tables:** To find the average salary of employees:
   =AVERAGE (EmployeeData [Salary])

3. **Max and Min with Excel tables:** To find largest and lowest salary within a table
   =MAX (EmployeeData [Salary])
   =MIN (EmployeeData [Salary])

4. **Count and CountIf with Excel tables:**

To count the number of employees inthe "Sales" department:
=COUNTIF(EmployeeData [Department], "Sales"

To count the number of employees hired before January 1, 2020:
=COUNTIF (EmployeeData [HireDate], "<2020-01-01")

5. **SumIf with Excel tables:**

To sum the salaries of employees in the "IT" department:
=SUMIFS (EmployeeData [Salary], EmployeeData [Department], "IT")

Experiment 2

Working with Data:

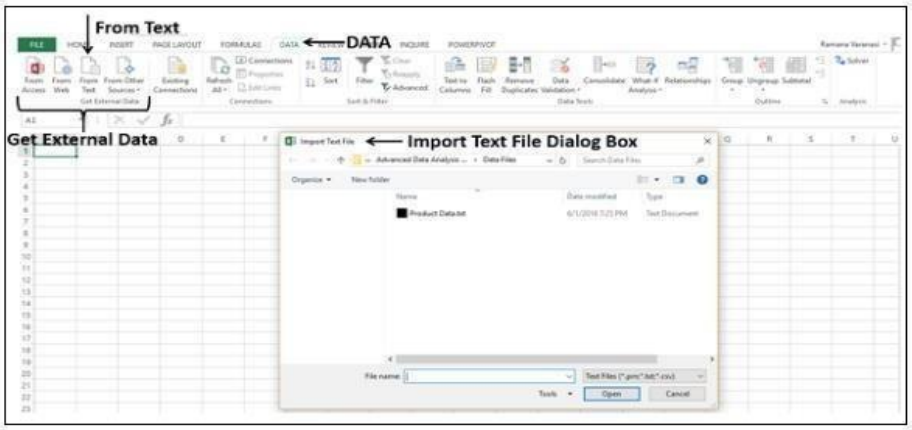
1. Importing Data

Importing Data from a Text File: If we have a data in .txt, or .csv files we can import data from those files treating them as a text files.

Step 1 – Open a new sheet in Excel.

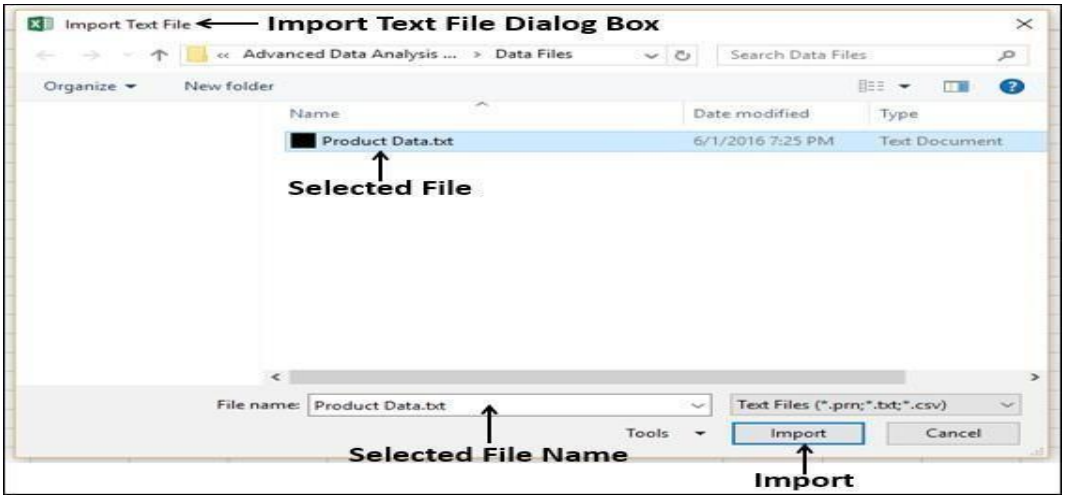
Step 2 – Click the DATA tab on the Ribbon.

Step 3 – Click **From Text** in the Get External Data group. The **Import Text File** dialog box appears.



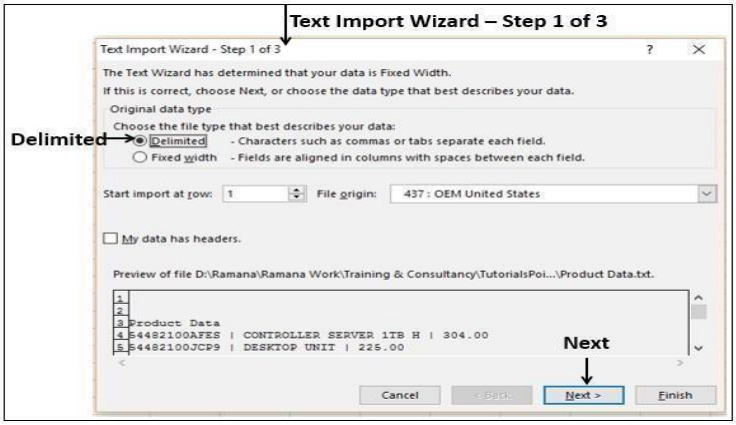
You can see that **.txt** extension text files are accepted.

Step 4 – Select the file. The selected file name appears in the File name box. The Open button changes to Import button.



Step 5 – Click the Import button. **Text Import Wizard – Step 1 of 3** dialog box appears.

Step 6 – Click the option **Delimited** to choose the file type and click Next.

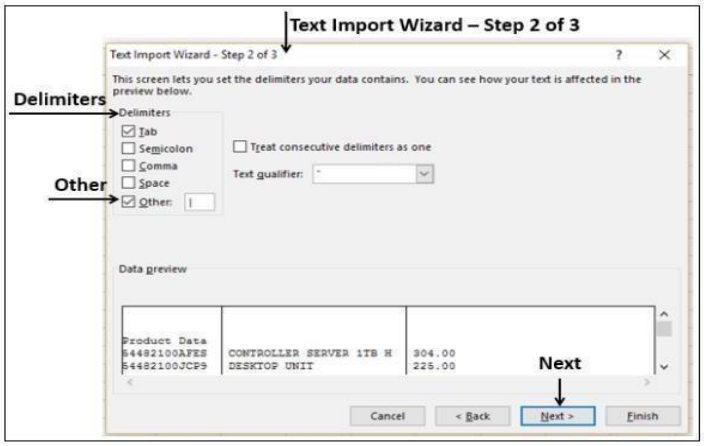


The Text Import Wizard – Step 2 of 3 dialog box appears

Step 7 – Under Delimiters, select **Other**.

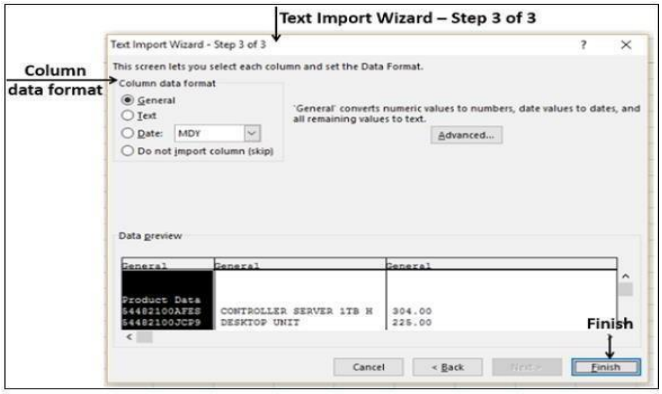
Step 8 – In the box next to Other, type | (That is the delimiter in the text file you are importing).

Step 9 – Click Next.



The **Text Import Wizard – Step 3 of 3** dialog box appears.

Step 10 – In this dialog box, you can set column data format for each of the columns.



Step 11 – After you complete the data formatting of columns, click Finish. The **Import Data** dialog box appears.

You will observe the following:

- Table is selected for view and is grayed. Table is the only view option you have in this case.
- We can put the data either in an existing worksheet or a New worksheet.
- We can select or not select the check box Add this data to the Data Model.
- Click OK after you have made the choices.
- Data appears on the worksheet you specified. You have imported data from text file into Excel

2. Data Entry & Manipulation: It has a fundamental steps and techniques involved in collecting, inputting, and managing data within Microsoft Excel for the purpose of performing data analytics. It encompasses the following key aspects

- **Data Entry:** This aspect focuses on the accurate and consistent input of data into Excel. It involves:
  1. **Entering Data:** Properly entering data into Excel worksheets, ensuring that data is organized, and each record corresponds to a row, and each attribute (field) corresponds to a column.
  2. **Data Validation:** Enforcing rules and restrictions to maintain data quality and accuracy, such as setting allowed data types, ranges, and formats for cells to prevent errors.
  3. **Data Cleaning:** Identifying and rectifying errors, inconsistencies, duplicates, and missing values in the dataset.
  4. **Data Formatting:** Standardizing formats (e.g., dates, currency, text) for consistency in the dataset.

- **Data Manipulation:** This aspect focuses on organizing and preparing data for analysis. It involves:

1. **Sorting Data:** Arranging data in ascending or descending order based on specific attributes to identify trends or patterns.
2. **Filtering Data:** Displaying a subset of data that meets specific criteria, which is essential for exploring and analyzing particular segments of data.
3. **Grouping Data:** Creating data groups or summaries based on common attributes (e.g., date, category) to simplify analysis.
4. **Pivot Tables:** Building interactive data summaries to quickly analyze and visualize data.
5. **Data Calculation:** Using Excel formulas and functions to perform calculations, such as sums, averages, and percentages, on the dataset.
6. **Data Joining:** Combining data from multiple sources or tables to create comprehensive datasets for analysis.
7. **Data Transposition:** Changing the orientation of data from rows to columns or vice versa to suit analytical requirements.

- These data entry and manipulation tasks are foundational steps in the data analytics process with Excel. They ensure that the data is well-prepared for analysis, accurate, and reliable, which is essential for making informed decisions, drawing meaningful insights, and uncovering patterns and trends in large datasets.

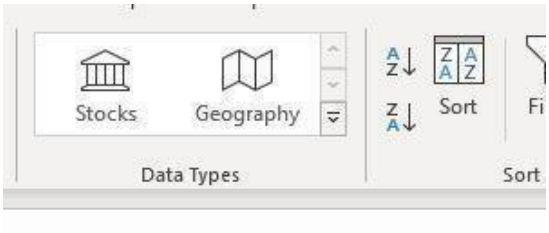
3. Sorting and Filtering: We can sort our Excel data by multiple columns or even a single column. The sorting is done in ascending or descending order as well.

Step1: The first step is to click on any cell in the column which you want to sort.

Step2: Next, to sort in ascending order, click on AZ which is found on the Data tab, in the Sort & Filter group.

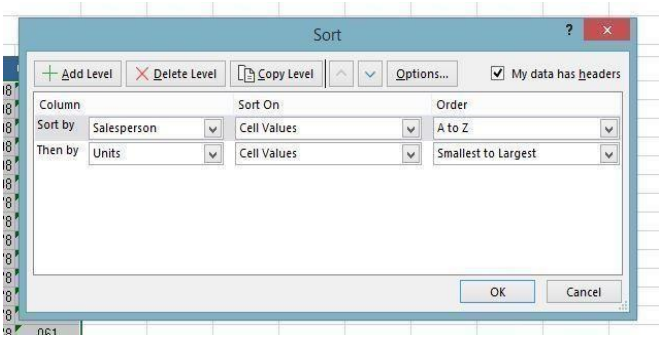
- We can also sort on multiple columns in our excel. Execute the following steps.

Step1: Click on Sort which can be found on the Sort & Filter group, on the Data tab



The sort dialog box will appear.

Step2: Add the levels by which you want to sort.



Step3: Click Ok

Sort the Sales column to find the highest Sales Value

Product	Region	Date	Sales	Quantity
ProductA	East	2023-03-01	5000	20
ProductB	West	2023-03-02	7000	15
ProductA	North	2023-03-03	4000	22
ProductC	East	2023-03-04	6000	18
ProductB	West	2023-03-05	8000	20
ProductA	North	2023-03-06	7200	14
ProductB	South	2023-03-07	6300	22
ProductC	East	2023-03-08	5500	16
ProductA	South	2023-03-09	4800	19
ProductC	West	2023-03-10	7800	25

- Click a cell in the "Sales" column.
- Click "Sort Largest to Smallest" to sort the sales in descending order (highest to lowest).

Product	Region	Date	Sales	Quantity
ProductB	West	2023-03-05	8000	20
ProductC	West	2023-03-10	7800	25
ProductA	North	2023-03-06	7200	14
ProductA	East	2023-03-01	5000	20
ProductC	East	2023-03-08	5500	16
ProductB	South	2023-03-07	6300	22
ProductC	East	2023-03-04	6000	18
ProductB	West	2023-03-02	7000	15
ProductA	South	2023-03-09	4800	19
ProductA	North	2023-03-03	4000	22

In this sorted table, the "Sales" column has been sorted in descending order, showing the highest sales at the top. You can see the products and their corresponding data rearranged based on the sales values.

Filtering

- We use filtering when we want to get the data that will match the specific conditions.

Step1: Click anywhere in the "ProductSales" table to select it.
Step2: Go to the "Data" tab on the Excel ribbon.
Step3: In the "Sort & Filter" group, click the "Filter" button. This adds filter drop-down arrows to the header row of your table.
Step4: Click the filter arrow in the header of the column you want to filter (e.g., "Region").
Step5: In the filter dropdown, we can:

- Select specific items (e.g., select "East" to filter data for the East region).
- Use "Text Filters" to filter based on specific text conditions (e.g., filter products starting with "ProductA").
- Use "Number Filters" to filter based on numeric conditions (e.g., filter sales greater than a certain amount).

Filter the "Region" column to display only the data for the "East" region

- Click the filter arrow in the "Region" column header.
- Uncheck "Select All."
- Check the box for "East."

Product	Region	Date	Sales	Quantity
ProductA	East	2023-03-01	5000	20
ProductC	East	2023-03-08	5500	16
ProductC	East	2023-03-04	6000	18

This will display only the rows where the "Region" is "East."

Experiment 3

Working with Data

1. Data Validation

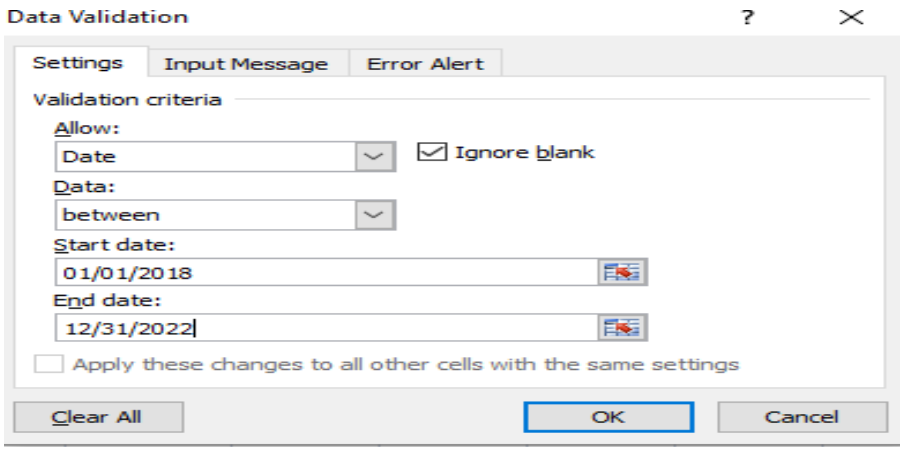
- Data Validation in Excel is a feature that allows you to control and restrict the type of data that can be entered into a cell. This ensures data accuracy, consistency, and reliability, which is crucial in data analytics.
- Data Validation allows you to define rules or conditions for the data that can be entered in a cell. These rules can include specifying acceptable values, number formats, text lengths, dates, or custom formulas. Data Validation helps prevent errors and inconsistencies in your dataset.

Create a table with employee information it should contains the following fields, EmployeeName, Department, Salary, Hire Date and you want to ensure that the "Hire Date" column only accepts dates within a specified range. Here's how we can use Data Validation in Excel

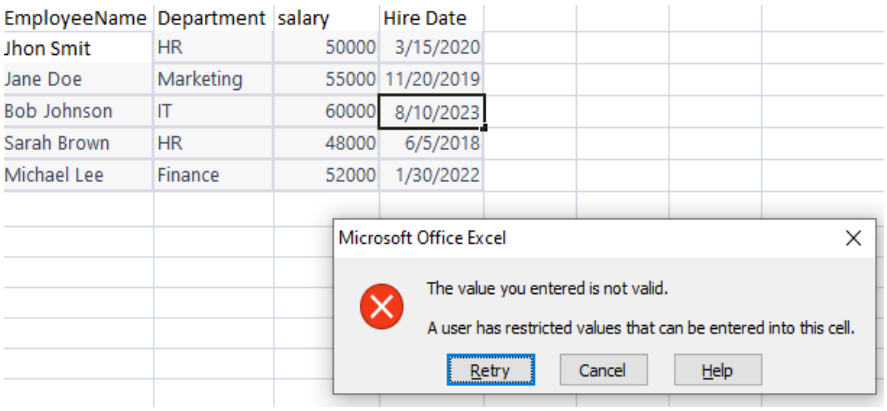
Employee Name	Department	Salary	Hire Date
John Smith	HR	50000	2020-03-15
Jane Doe	Marketing	55000	2019-11-20
Bob Johnson	IT	60000	2021-08-10
Sarah Brown	HR	48000	2018-06-05
Michael Lee	Finance	52000	2022-01-30

Let's apply Data Validation to the "Hire Date" column to ensure that only dates between January 1, 2018, and December 31, 2022, are accepted.

1. Select the cells in the "Hire Date" column where you want to apply Data Validation. This is typically done by clicking on the column header (e.g., "Hire Date") or dragging the mouse to select the specific range of cells.
2. Go to the "Data" tab on the Excel ribbon.
3. Click on "Data Validation" in the "Data Tools" group.
4. In the "Data Validation" dialog box (under the "Settings" tab):
   - In the "Allow" drop-down menu, select "Date."
   - In the "Data" section, choose "between."
   - Enter "01/01/2018" as the start date and "12/31/2022" as the end date.
5. This configuration ensures that only dates between January 1, 2018, and December 31, 2022, are accepted in the "Hire Date" column



6. Click "OK" to apply the Data Validation to the selected cells.
   - Now, if someone tries to enter a date outside the specified range, they will receive an error message, and the cell will not accept the entry until it meets the defined criteria.



EmployeeName	Department	salary	Hire Date
Jhon Smit	HR	50000	3/15/2020
Jane Doe	Marketing	55000	11/20/2019
Bob Johnson	IT	60000	8/10/2023
Sarah Brown	HR	48000	6/5/2018
Michael Lee	Finance	52000	1/30/2022

2. Pivot Table:

PivotTable is functionality in Excel which helps you organize and analyze data. PivotTable helps you structure and organize data to understand large data sets. The data that you use needs to be in tabular format.

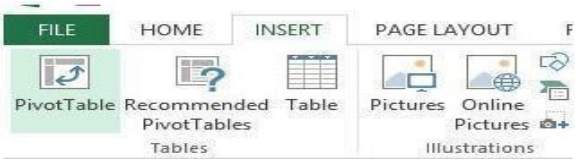
1. Creating a dataset related to engineering project tasks and the time spent on each task by different team members.

Project Name	Task Description	Team Member	Hours Spent
Project A	Design Prototype	Alice	20
Project A	Testing	Bob	15
Project A	Data Analysis	Carol	30
Project B	Coding	Dave	25
Project B	Documentation	Alice	10
Project B	Testing	Carol	20
Project C	Design Prototype	Bob	18
Project C	Testing	Dave	16
Project C	Data Analysis	Carol	22

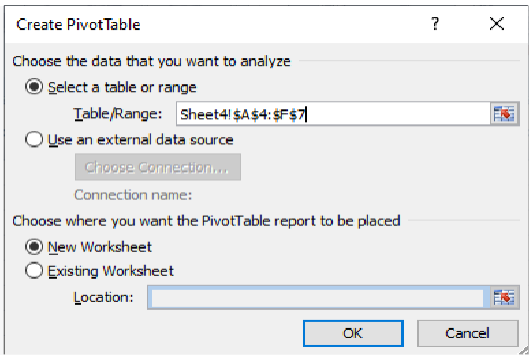
Create a pivot table for above table to analyze this engineering project data

To insert a pivot table follow the following steps:

Step1: Select the data range (including headers) and go to the "Insert" tab in Excel

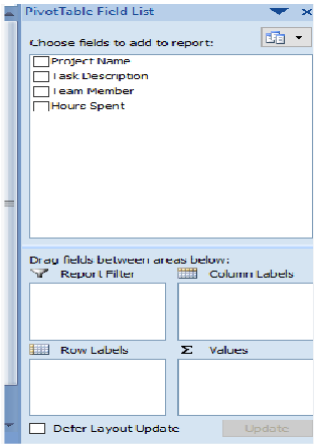


Step2: Click on "PivotTable." In the Create PivotTable dialog, confirm the data range selection, and choose where to place the pivot table



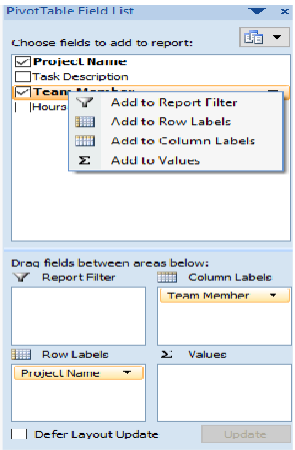
Step3: Click "OK," and a new worksheet with a blank pivot table will open.

Step4: In the PivotTable Fields pane on the right, you will see the field names (Project Name, Task Description, Team Member, Hours Spent).



Step5: Create a pivot table

- Drag the "Project Name" field to the "Rows" era
- Drag the "Team Member" field to the "Columns" era
- Drag the "Hours Spent" field to the "Values" era or when you click on the fields name the dialog box will open from there we can select the option



Step6: pivot table will display a summary of the total hours spent by each team member on each project:

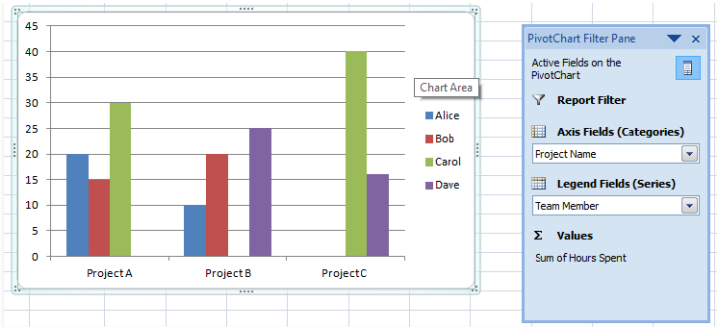
Sum of Hours Spent	Column Labels				
Row Labels	Alice	Bob	Carol	Dave	Grand Total
Project A	20	15	30		65
Project B	10	20		25	55
Project C			40	16	56
Grand Total	**30**	**35**	**70**	**41**	**176**

Pivot charts:

- A Pivot Chart is a graphical representation (such as a bar chart, line chart, or pie chart) that is directly linked to a PivotTable. Pivot Charts are used to visualize and present summarized data from a PivotTable in a more visually appealing and understandable way.
- Create a chart from a PivotTable

Step1: Select a cell in your table.
Step2: Select PivotTable Tools > Options> PivotChart.
Step3: Select a chart.
Step4: Select OK.

Sum of Hours Spent	Column Labels				
Row Labels	Alice	Bob	Carol	Dave	Grand Total
Project A	20	15	30		65
Project B	10	20		25	55
Project C			40	16	56
Grand Total	30	35	70	41	176



Experiment 4

Data Analysis process

1. **Conditional Formatting:**
   - In excel, Conditional formatting is used to change the appearance of cells in a range based on the specified conditions. The conditions are rules based on specified numerical values or matching text.
   - Changing the appearance of cells can visually highlight interesting data points for analysis.
   - Excel provides a number of built-in conditions and appearances such as Highlight Cell Rules, Top/Bottom Rules, Data Bars, Color Scales, Icon Sets, Clear Rules, Manage Rules

2. **What-If Analysis:**
   - What-If Analysis is the process of changing the values to try out different values (scenarios) for formulas. You can use several different sets of values in one or multiple formulas to explore all the different results.

   - We use solver in a Excel as an add-in program which is helpful on many levels. This feature can be used to find an optimal (maximum or minimum) value for a formula in one cell, which is known as the objective cell. This is subject to some constraints, or limits, on the values of other formula cells on a worksheet.

   - Solver works with a group of cells, called decision variables or simply variable cells, used in computing the formulas in the objective and constraint cells. Solver also adjusts the decision variable cells' values to work on the limits on constraint cells. This thereby helps in producing the desired result for the objective cell.

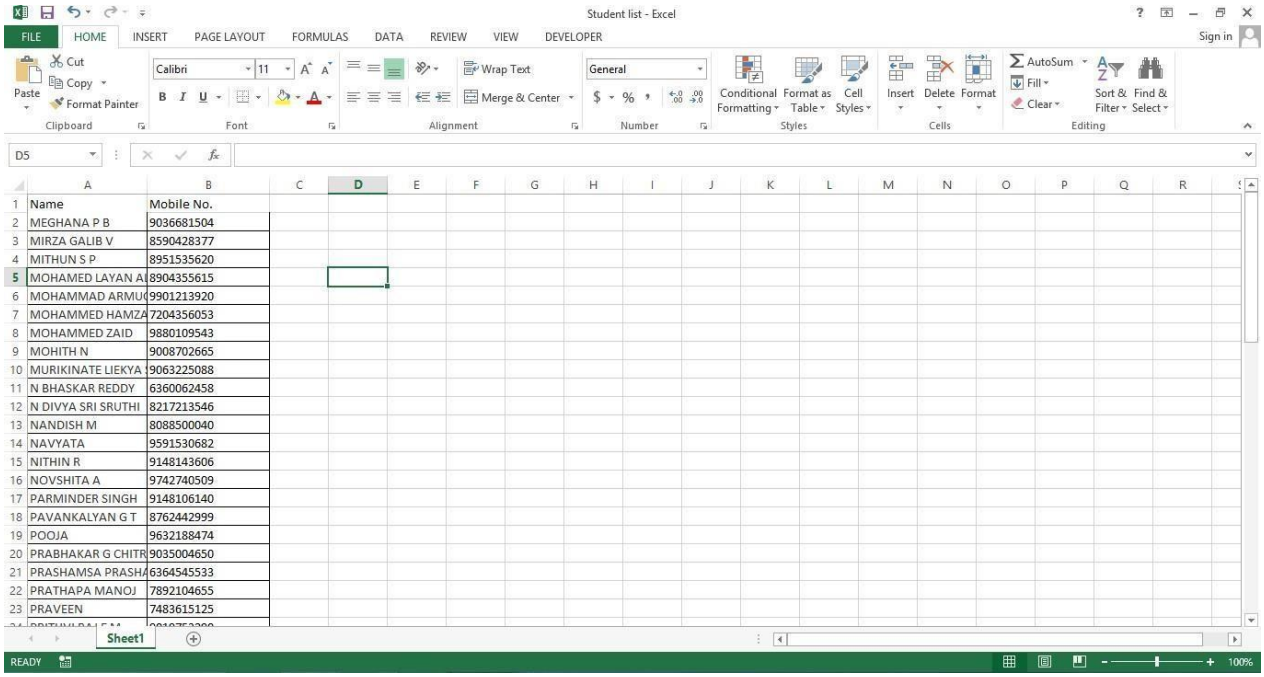
3. **Data Tables:** Tables make it easier to structure and organize data. Tables connect cells in a range and put it into a fixed structure.
   The cells in the table range share the same formatting.
   Tables can be used to prepare data for charts and pivot tables.
   Tables allow for options such as:

- Sort & Filter
- Formatting
- AutoFilling

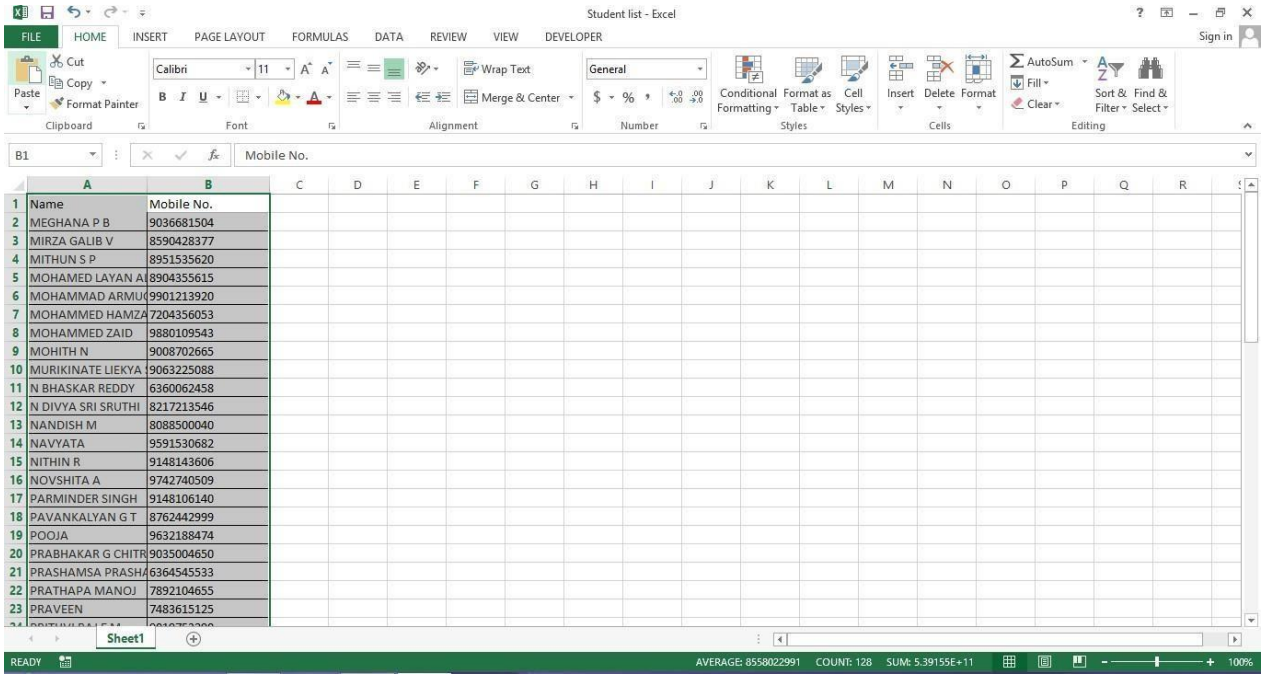
Ranges can be converted into tables. Tables can be converted back to range. There are many functions in Table like Table Design, Table Resizing, Remove Duplicates, Convert Table to Ranges, Table Style.

De

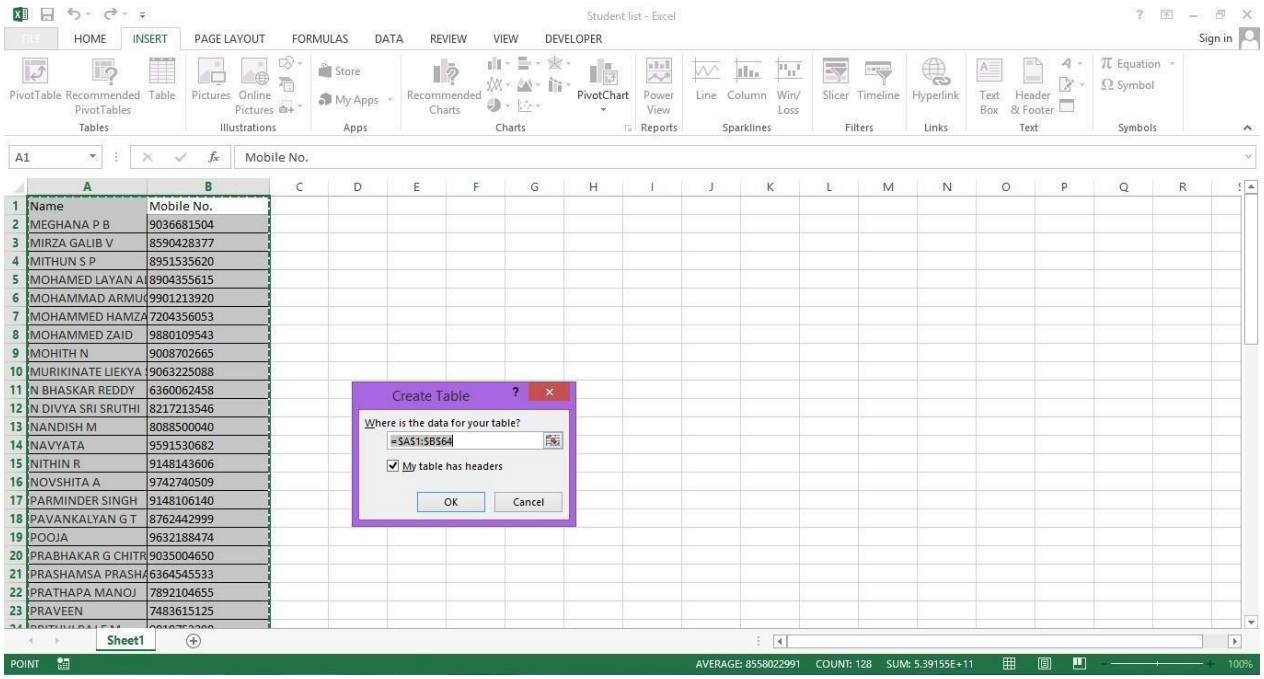
To convert Ranges into tables. First open the sheet.



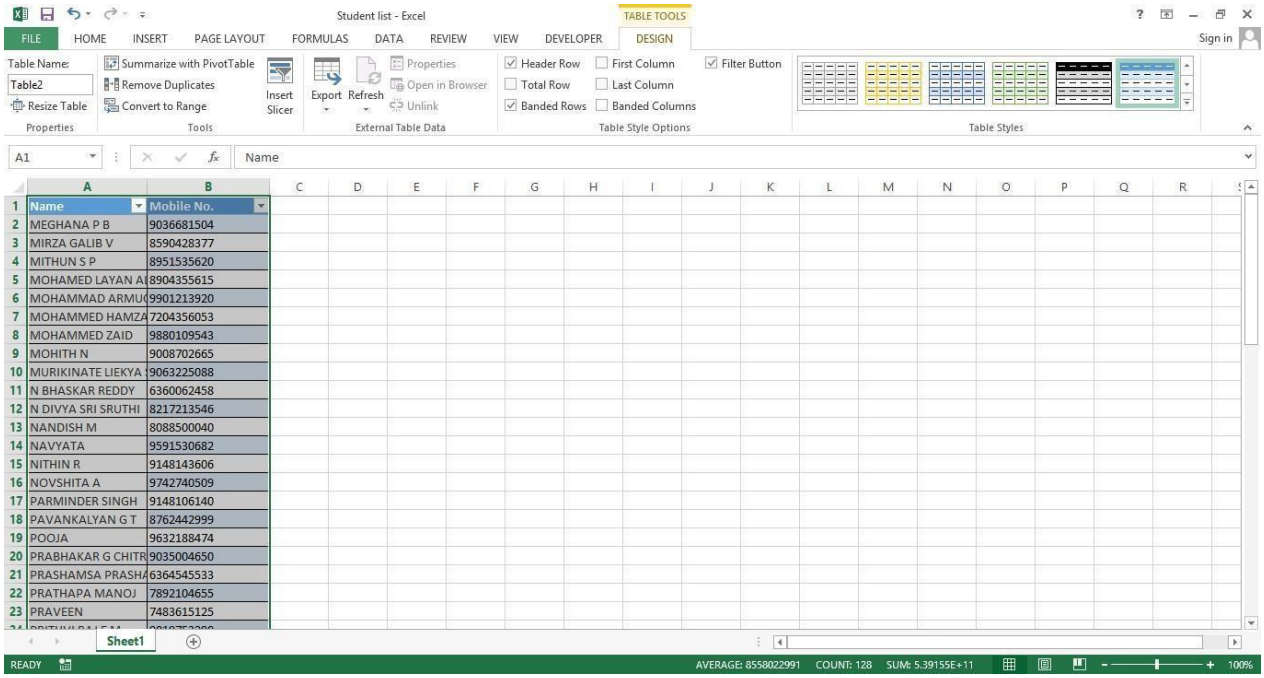
Select all the data of the sheet, to create a table



Click **Insert**, then **Table** in the Ribbon. Mark my table has headers if header is present in your file.



Ranges are converted into a Table with filter function.



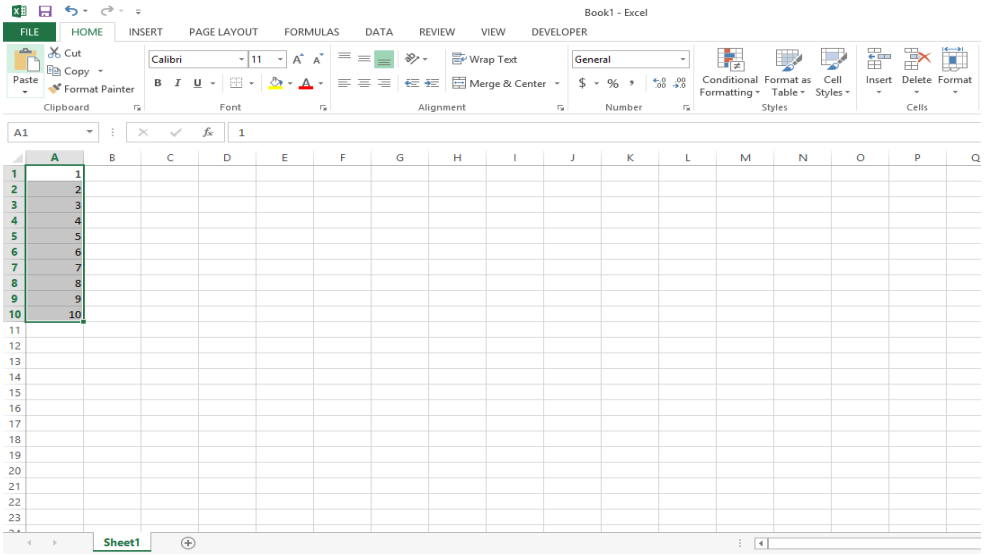
Charts and Graphs: Charts/Graphs are visual representations of data used to make it more understandable.

Commonly used charts are:

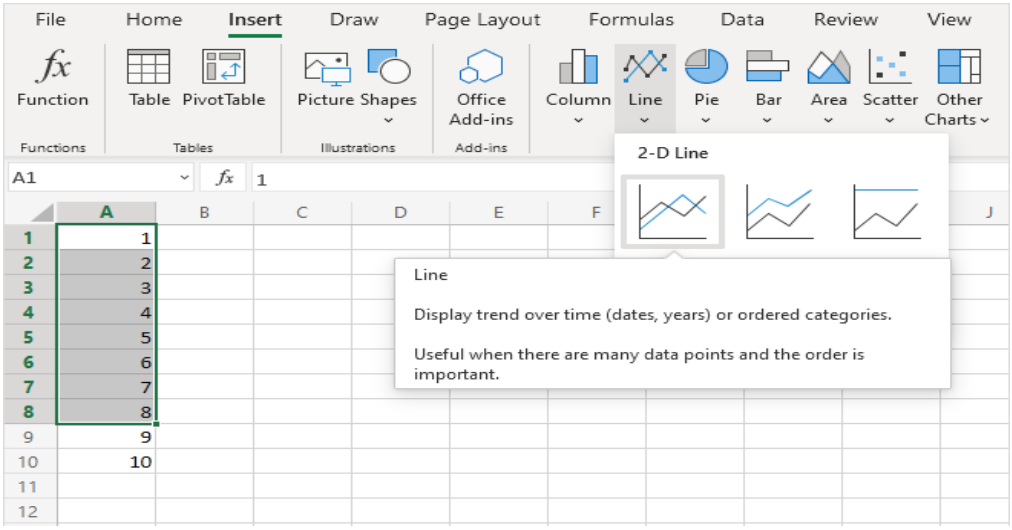
- Pie chart
- Column chart
- Line chart

Different charts are used for different types of data. Charts are also called graphs and visualizations.

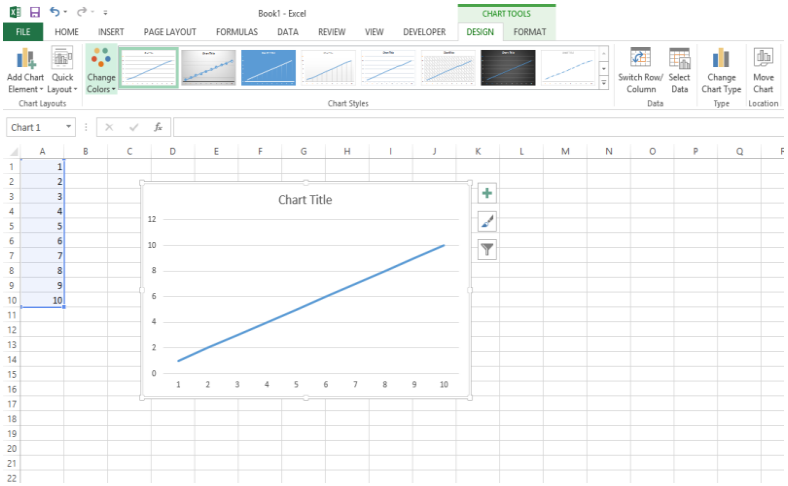
Creating a Chart in Excel, step by step:



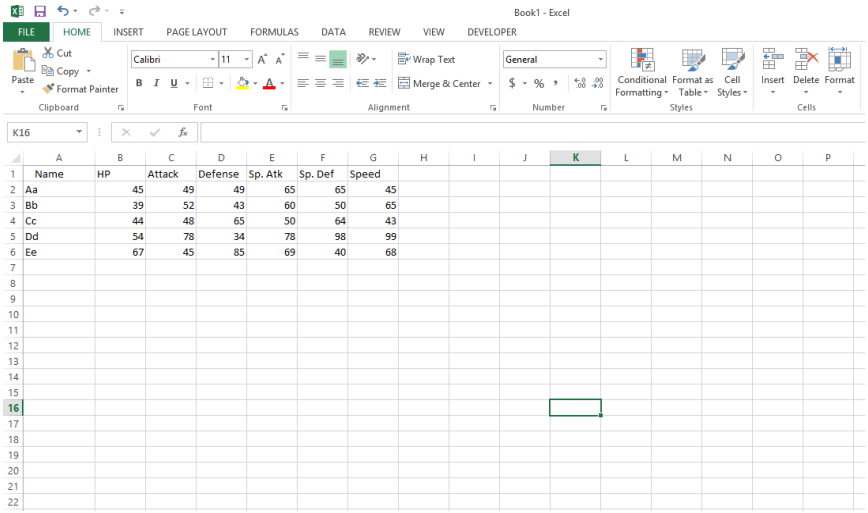
Step 2: Click on the **Insert** menu, then click on the Line menu and choose **Line** from the drop-down menu. This menu is accessed by expanding the ribbon.



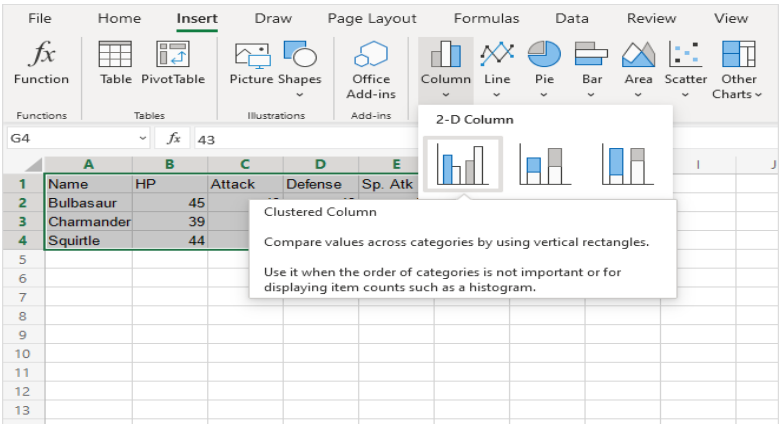
Step 3: Select 2-d line chart.



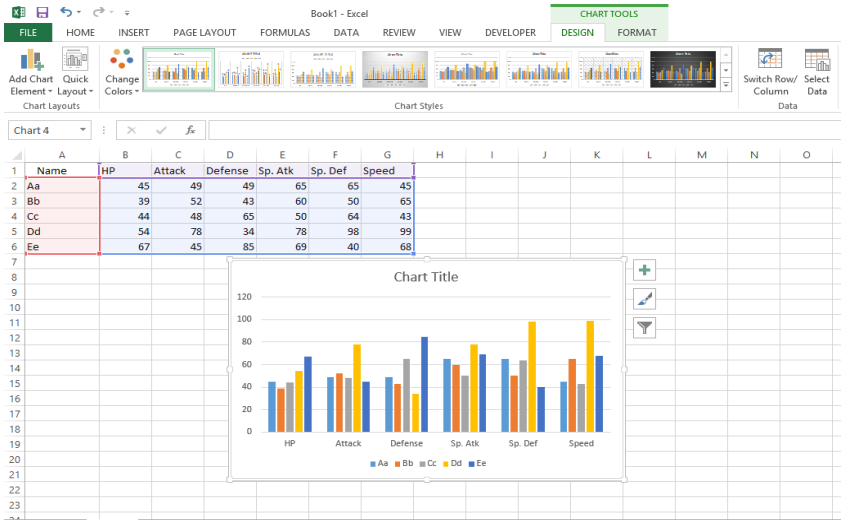
- Creating Another Chart in Excel with different data.



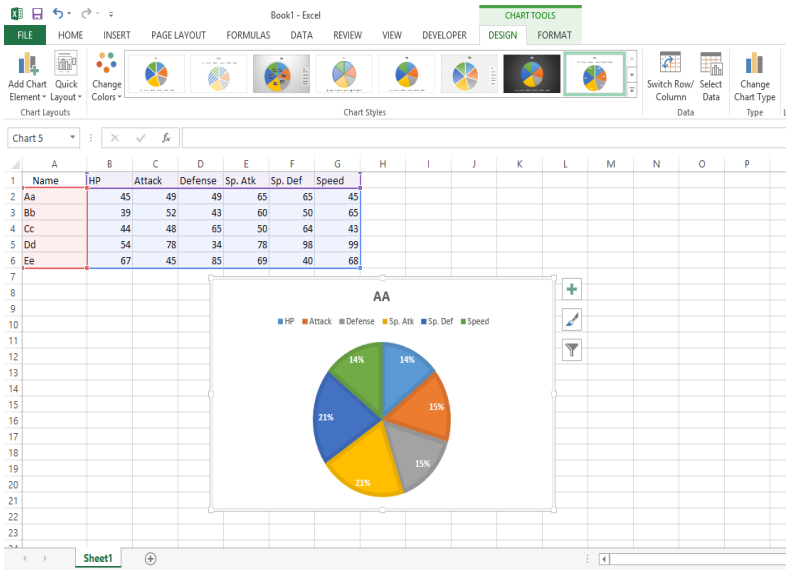
- Click on the **insert** menu, then click on the column menu and choose **Clustered Column** from the drop-down menu.



- The default chart title is "Chart Title". It can be changed.



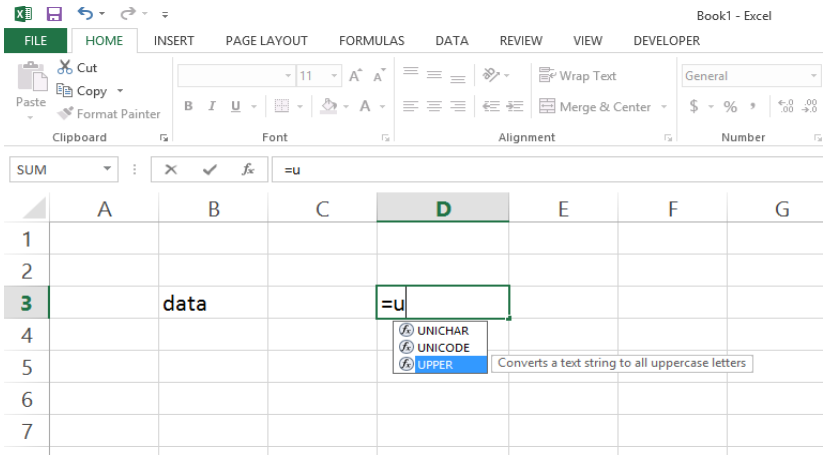
- Creating Pie Chart in Excel with same data.

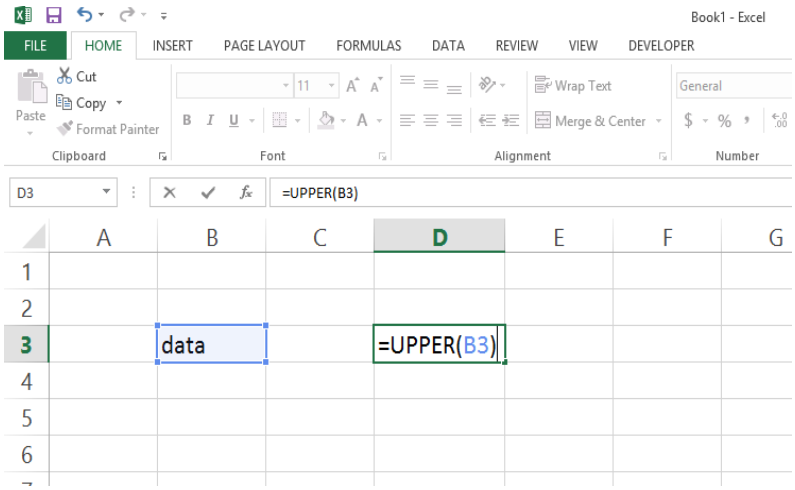


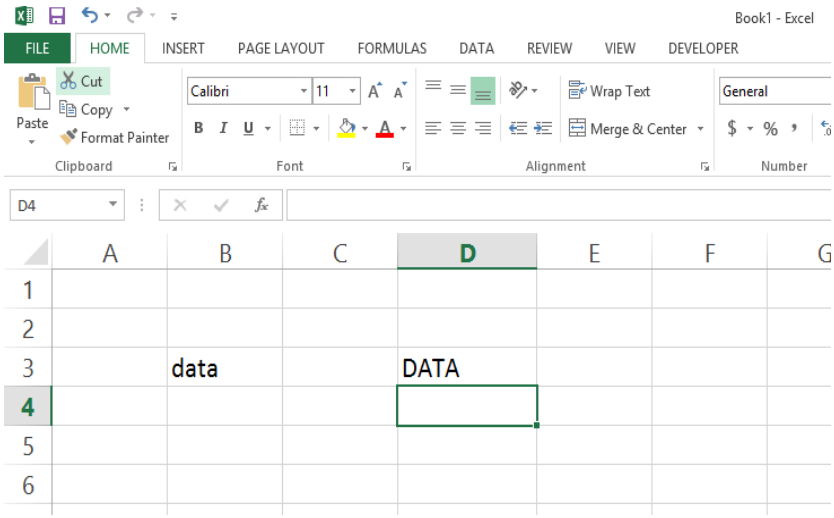
Experiment 5

Cleaning Data with Text Functions

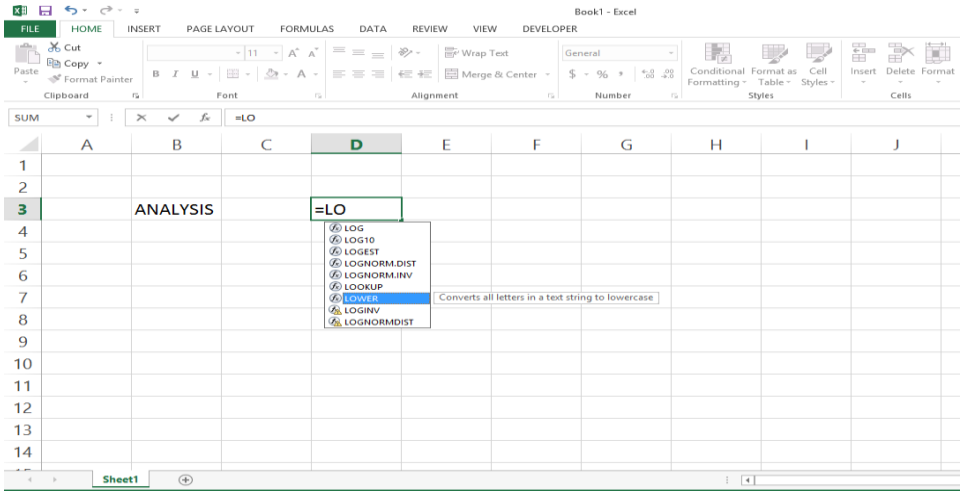
1. **Use of UPPER:** Select any cell, type =UPPER, provide the cell no. and then enter.

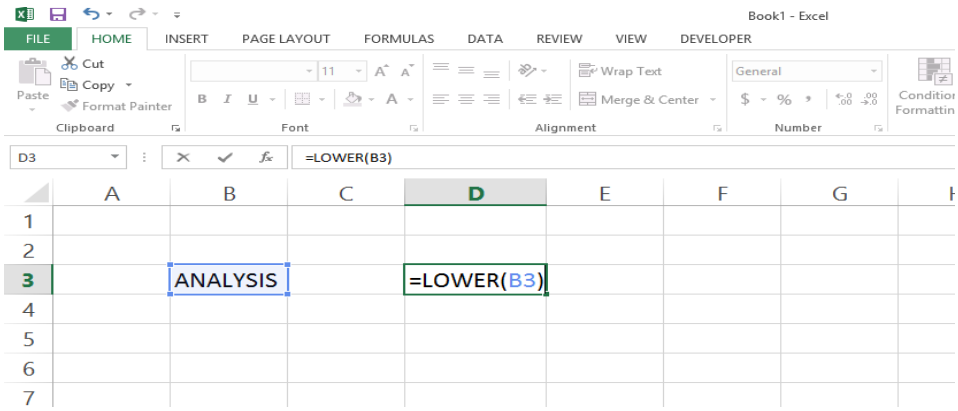


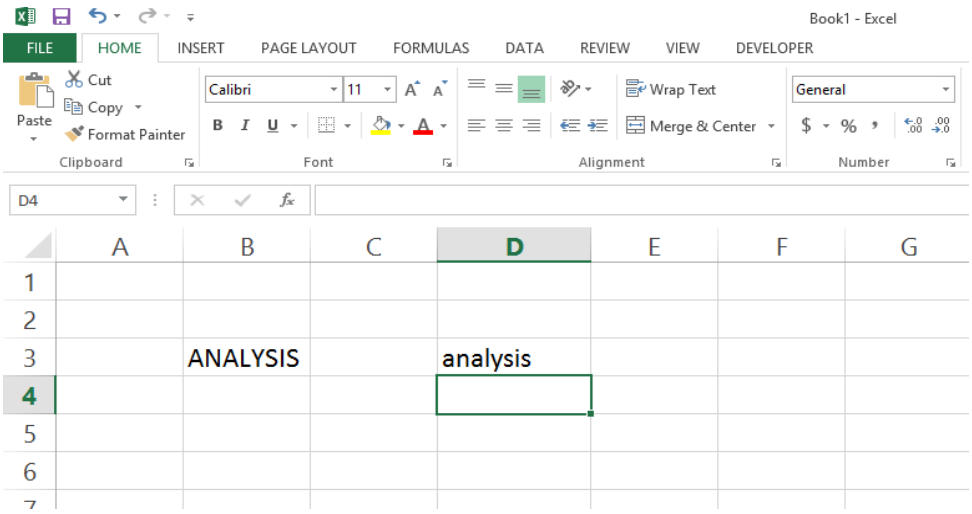




Use of LOWER: Select any cell, type =LOWER, provide the cell no. and then enter.

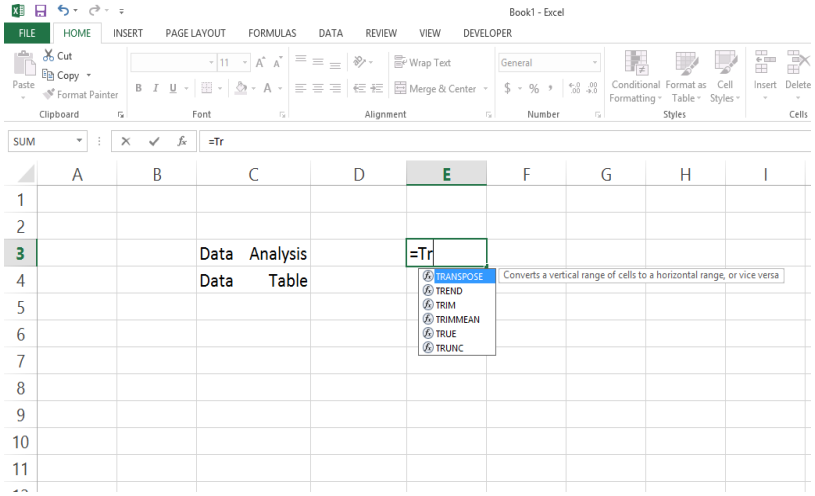


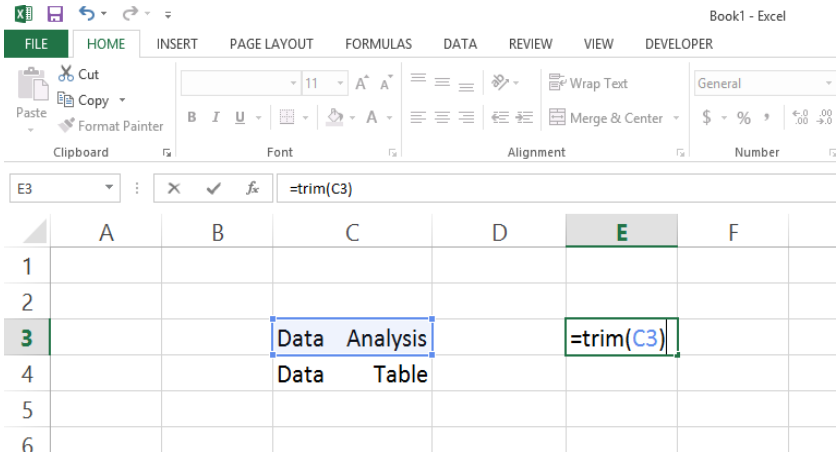


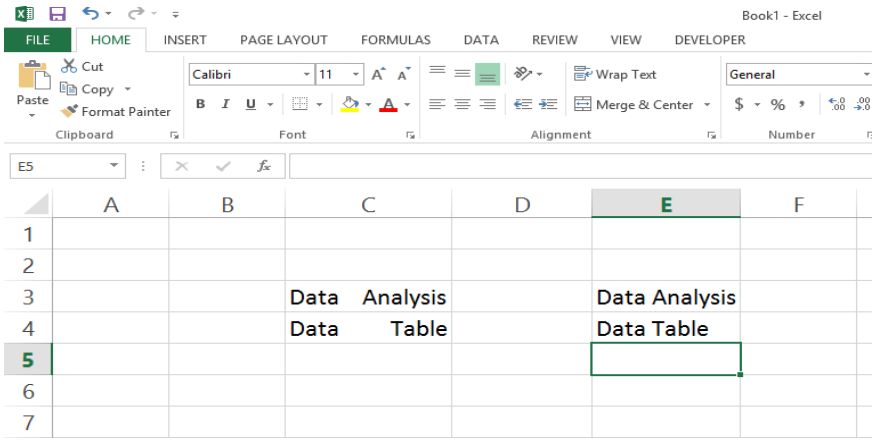


2. Use of TRIM Function:

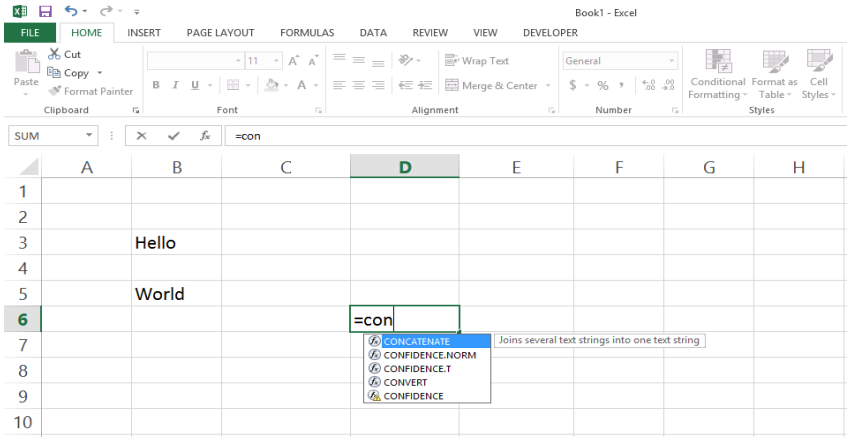
- Select the cell(s) where you want to delete spaces.
- Click the Trim Spaces button on the ribbon.
- Choose one or all of the following options: Trim leading and trailing spaces.
- Click Trim.

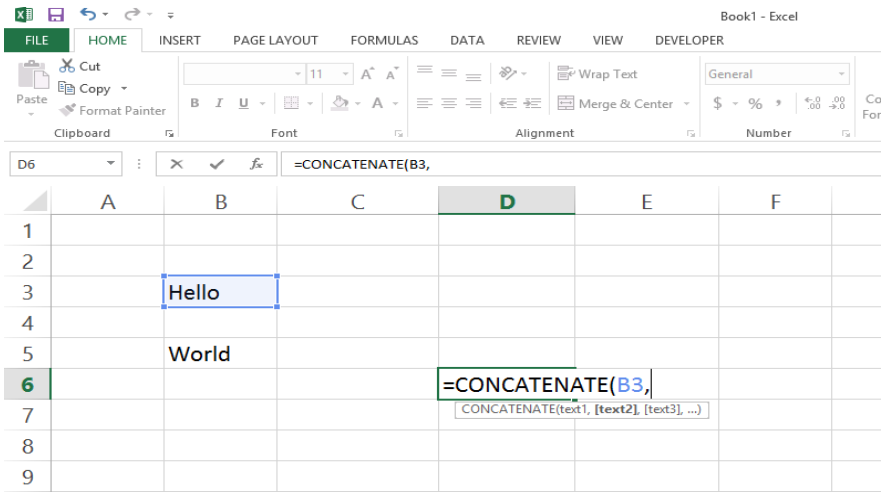


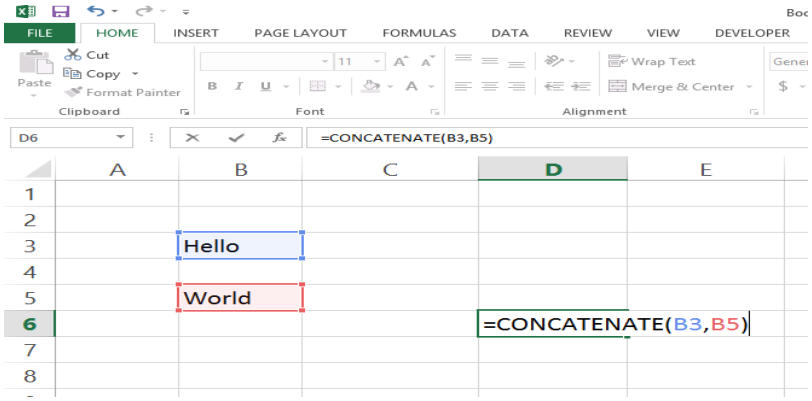


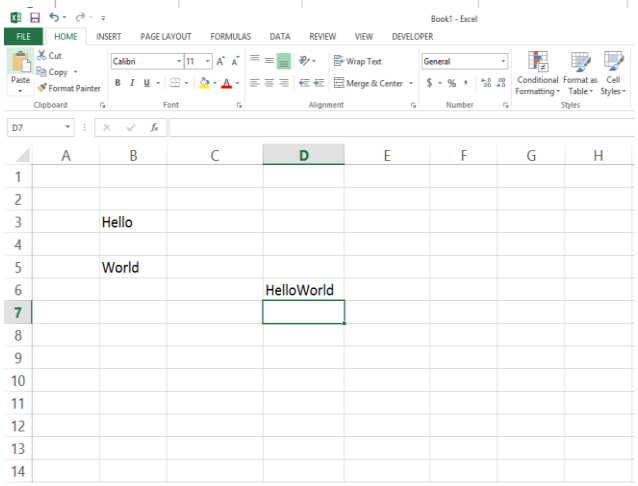


3. **Use of Concatenate Function:**
   - Select the cell where you want to put the combined data.
   - Type =CONCAT (.
   - Select the cell you want to combine first. Use commas to separate the cells you are combining and use quotation marks to add spaces, commas, or other text.
   - Close the formula with a parenthesis and press Enter.




Book1 - Excel
D6
=CONCATENATE(B3,
Hello
World
=CONCATENATE(B3,
CONCATENATE(text1, [text2], [text3], ...)

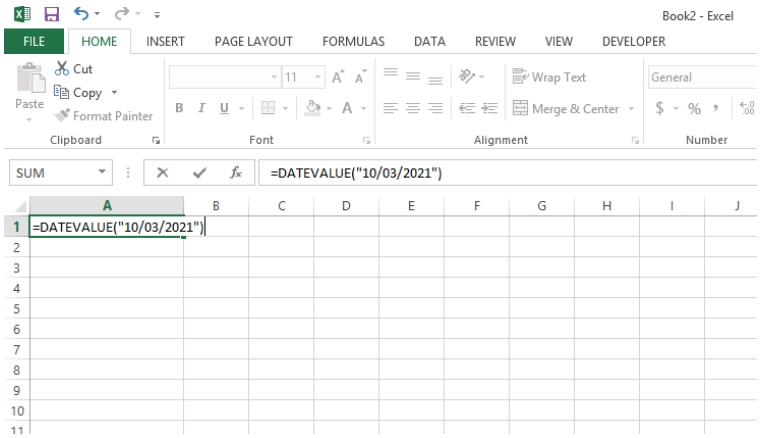

D6
=CONCATENATE(B3,B5)
Hello
World
=CONCATENATE(B3,B5)

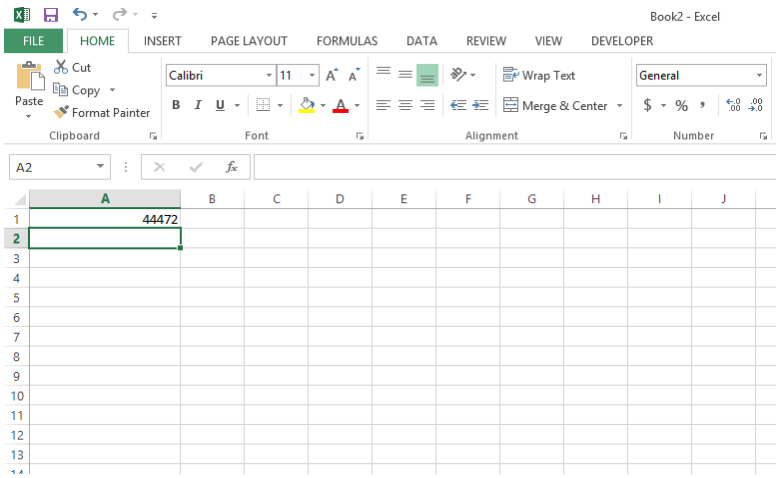

Book1 - Excel
D7
Hello
World
HelloWorld

Experiment 6

Cleaning Data Containing Date and Time Values

1. **Use of DATEVALUE Function:**
   - The Excel DATEVALUE function converts a date represented as a text string into a valid Excel date.
   - For example, the formula =DATEVALUE ("3/10/1975") returns a serial number (27463) in the Excel date system that represents March 10, 1975.
   - Proper Excel dates are more useful than text dates since they can be directly manipulated with formulas and pivot tables.





2. **Use of DATEADD Function:**
   - The DateAdd function to add or subtract a specified time interval from a date.
   - For example, you can use DateAdd to calculate a date 30 days from today or a time 45 minutes from now.
   - To add days to date, you can use Day of Year ("y"), Day ("d"), or Weekday ("w").

3. **Use of DATEDIF Function:**
   - The Excel DATEDIF function returns the difference between two date values in years, months, or days.
   - The DATEDIF (Date + Dif) function is a "compatibility" function that comes from Lotus 1-2-3.
   - For reasons unknown, it is only documented in Excel 2000, but you can use it in your formulas in all Excel versions since that time.

4. **Use of TIMEVALUE Function:**
   - The Excel TIMEVALUE function converts a time represented as text into a proper Excel time.
   - For example, the formula =TIMEVALUE("9:00 AM") returns 0.375, the numeric representation of 9:00 AM in Excel's time system.
   - Numeric time values are more useful than text since they can be directly manipulated with formulas and pivot tables.

Experiment 7

Conditional Formatting

1. **Formatting:**
   - It refers to the process of visually enhancing and organizing data within an Excel spreadsheet to improve its readability, clarity, and presentation.
   - This includes tasks like applying number formats, adjusting font styles and sizes, aligning text, using colors, borders, and charts, and overall structuring of the data for better analysis and reporting.
   - The goal of formatting is to make the data more accessible and understandable to analysts and decision-makers.

Create a worksheet with the following fields: Year, Month, Sales Amount, Expenses, Profit, Product Sold, Customer Count, and Region. Apply below formatting techniques to make the data more presentable

A	B	C	D	E	F	G	H
Year	Month	Sales Amount	Expenses	Profit	Products Sold	Customer Count	Region
2021	January	5000	3000	2000	450	600	North
2021	February	6200	3500	2700	560	700	South
2021	March	7500	4000	3500	720	800	East
2021	April	6700	3200	3500	680	750	West
2021	May	8500	3800	4700	800	900	North
2021	June	7200	3400	3800	720	800	South
2021	July	9300	4200	5100	950	1000	East
2021	August	8900	4000	4900	880	950	West
2021	September	8100	3900	4200	800	900	North
2021	October	9500	4400	5100	960	1000	South
2021	November	8800	3900	4900	870	920	East
2021	December	10200	4600	5600	1000	1100	West

1. **Number Formatting:**
   - Apply appropriate number formatting to the "Sales Amount""Expenses" and "Profit" columns. Select the cells in these columns, right-click, and choose "Format Cells." Format "Sales Amount" and "Expenses" as currency and "Profit" as a whole number.

2. **Header Formatting:**
   - Format the header row to make it visually distinct. You can bold the text, increase the font size, and use a different font color to emphasize the headers.

3. **Alignment:**
   - Right-align the "Sales Amount" and "Expenses" and "Profit" columns to enhance readability. Center-align the "Year" and "Month" column to make it visually appealing.

4. **Borders:**
   - Add borders to the table to separate it from the rest of the worksheet. Select the table, then click the "Borders" button and choose "All Borders."

The Formatted table is shown below

A	B	C	D	E	F	G	H
Year	Month	Sales Amount	Expenses	Profit	Products Sold	Customer Count	Region
2021	January	$5,000.00	$3,000.00	2000	450	600	North
2021	February	$6,200.00	$3,500.00	2700	560	700	South
2021	March	$7,500.00	$4,000.00	3500	720	800	East
2021	April	$6,700.00	$3,200.00	3500	680	750	West
2021	May	$8,500.00	$3,800.00	4700	800	900	North
2021	June	$7,200.00	$3,400.00	3800	720	800	South
2021	July	$9,300.00	$4,200.00	5100	950	1000	East
2021	August	$8,900.00	$4,000.00	4900	880	950	West
2021	September	$8,100.00	$3,900.00	4200	800	900	North
2021	October	$9,500.00	$4,400.00	5100	960	1000	South
2021	November	$8,800.00	$3,900.00	4900	870	920	East
2021	December	$10,200.00	$4,600.00	5600	1000	1100	West

This formatted table is now more reader-friendly, organized, and visually appealing for data analysis. Formatting the data in this way helps users quickly understand and interpret the information, making it suitable for data analytics with Excel.

2. **Parsing:**
   Parsing in data analytics with Excel involves extracting specific information or elements from a text string, often for the purpose of data cleaning, transformation, or analysis. Parsing is particularly useful when working with unstructured or semi-structured data. Excel provides several functions and techniques for parsing data:

   1. **Text Functions:**
      - **LEFT, RIGHT AND MID:** These functions extract a specified number of characters from the left, right, or middle of a text string.
      - **FIND and SEARCH:** These functions locate a specific character or substring within a text string. You can use them to find the position of a delimiter.
      - **SUBSTITUTE and REPLACE:** These functions replace specific characters or text within a string, which can be useful for cleaning or transforming data.
   2. **Text to Columns:**
      - Excel's "Text to Columns" feature allows you to split a single cell containing delimited text into multiple cells. This is useful for breaking down data such as CSV or tab-delimited text.
   3. **Flash Fill:**
      - Flash Fill is a data manipulation tool in Excel that can automatically recognize patterns in your data and parse it accordingly. It's a helpful feature for tasks like splitting full names into first and last names.
   4. **Regular Expressions:**

- Excel doesn't natively support regular expressions, but you can use the "Microsoft VBScript Regular Expressions" library to perform more advanced text parsing tasks if you're familiar with VBA (Visual Basic for Applications).

5. **Data Cleaning:**
   - When working with datasets, you often need to clean and parse data to remove extra spaces, special characters, or unwanted prefixes/suffixes.

Create a table with a column containing full addresses, and you want to parse this information into separate columns for street, city, state, and ZIP code.

	A
1	Address
2	123 Main St, Los Angeles, CA 90001
3	456 Elm Ave, New York, NY 10001
4	789 OAK Road, Chicago, IL 60601
5	101 Pine Dr, San Francisco, CA 94101

Now our goal is to parse the address data into separate columns for street, city, state, and ZIP code for above table

1. **Parsing Street address:**
   In a new column for "Street," you can use the formula to extract the street address:
   =LEFT (A2, FIND (",", A2) - 1)
   This formula locates the first comma (,) and extracts everything to the left of it.

DATEVALUE | =LEFT(A2, FIND(",", A2) - 1)

	A	B
1	Address	Street
2	123 Main St, Los Angeles, CA 90001	=LEFT(A2, FIND(",", A2) - 1)
3	456 Elm Ave, New York, NY 10001	
4	789 OAK Road, Chicago, IL 60601	
5	101 Pine Dr, San Francisco, CA 94101	

2. **Parsing City:**
   In a new column for "City," you can use the formula to extract the city:
   =MID(A2, FIND(",", A2) + 2, FIND(",", A2, FIND(",", A2) + 1) - FIND(",", A2) - 2)
   This formula finds the second comma, then extracts the characters between the first and second comma (removing spaces) to get the city.

DATEVALUE | =MID(A2, FIND(",", A2)+2, FIND(",", A2, FIND(",", A2)+1)-FIND(",",A2)-2)

	A	B	C
1	Address	Street	City
2	123 Main St, Los Angeles, CA 90001	123 Main St	=MID(A2, FIND(",", A2)+2, FIND(",", A2, FIND(",", A2)+1)-FIND(",",A2)-2)
3	456 Elm Ave, New York, NY 10001	456 Elm Ave	
4	789 OAK Road, Chicago, IL 60601	789 OAK Road	
5	101 Pine Dr, San Francisco, CA 94101	101 Pine Dr	
6			

3. **Parsing State:**
   - In a new column for "State," you can use the formula to extract the state:

=MID(A2, FIND(",", A2, FIND(",", A2) + 1) + 2, 2)

   - This formula assumes that the state abbreviation is always two characters in length. It finds the second comma in the address, moves two characters to the right to start extracting the state, and takes the next two characters, which should represent the state abbreviation.
   - This formula should work for most U.S. state abbreviations, as long as they are two characters in length.

DATEVALUE =MID(A2, FIND(",", A2, FIND(",", A2) + 1) + 2, 2)

	A	B	C	D
1	Address	Street	City	State
2	123 Main St, Los Angeles, CA 90001	123 Main St	Los Angeles	=MID(A2, FIND(",", A2, FIND(",", A2) + 1) + 2, 2)
3	456 Elm Ave, New York, NY 10001	456 Elm Ave	New York	
4	789 OAK Road, Chicago, IL 60601	789 OAK Road	Chicago	
5	101 Pine Dr, San Francisco, CA 94101	101 Pine Dr	San Francisco	

4. **Parsing ZIP Code:**

To extract the zip code the following formula is used:

=RIGHT(A2, 5)

DATEVALUE =RIGHT(A2, 5)

	A	B	C	D	E
1	Address	Street	City	State	ZIP Code
2	123 Main St, Los Angeles, CA 90001	123 Main St	Los Angeles	CA	=RIGHT(A2, 5)
3	456 Elm Ave, New York, NY 10001	456 Elm Ave	New York	NY	
4	789 OAK Road, Chicago, IL 60601	789 OAK Road	Chicago	IL	
5	101 Pine Dr, San Francisco, CA 94101	101 Pine Dr	San Francisco	CA	

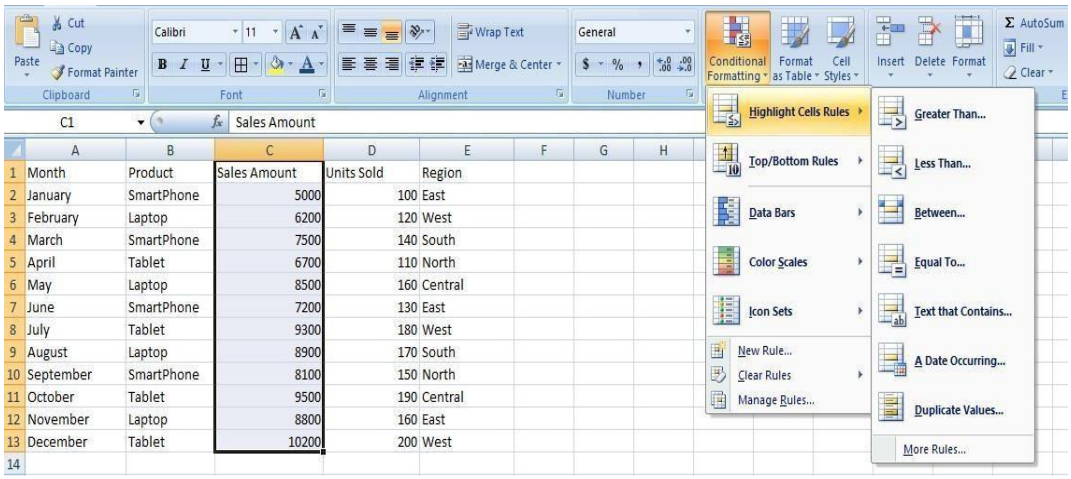
Final output table

	A	B	C	D	E
1	Address	Street	City	State	ZIP Code
2	123 Main St, Los Angeles, CA 90001	123 Main St	Los Angeles	CA	90001
3	456 Elm Ave, New York, NY 10001	456 Elm Ave	New York	NY	10001
4	789 OAK Road, Chicago, IL 60601	789 OAK Road	Chicago	IL	60601
5	101 Pine Dr, San Francisco, CA 94101	101 Pine Dr	San Francisco	CA	94101

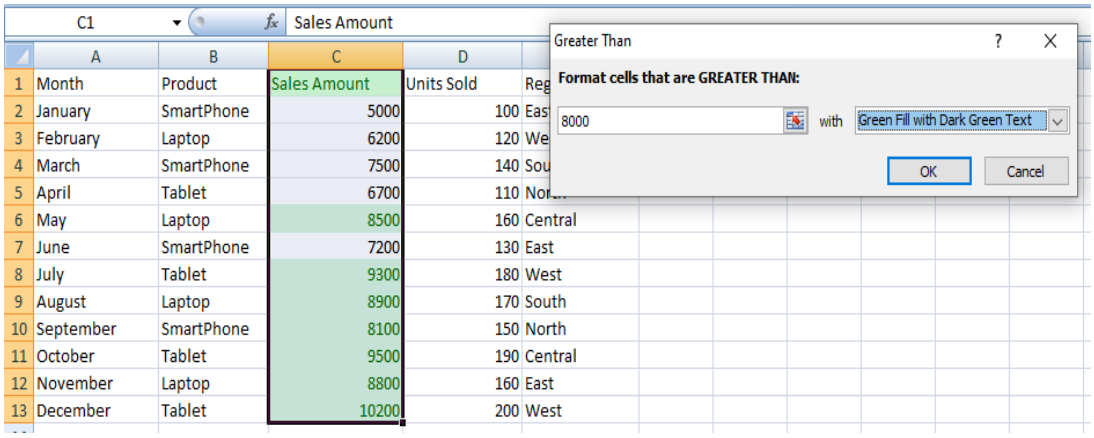
3. Highlighting data in spreadsheets during data analysis:

A	B	C	D	E
Month	Product	Sales Amount	Units Sold	Region
January	SmartPhone	5000	100	East
February	Laptop	6200	120	West
March	SmartPhone	7500	140	South
April	Tablet	6700	110	North
May	Laptop	8500	160	Central
June	SmartPhone	7200	130	East
July	Tablet	9300	180	West
August	Laptop	8900	170	South
September	SmartPhone	8100	150	North
October	Tablet	9500	190	Central
November	Laptop	8800	160	East
December	Tablet	10200	200	West

Step1: Select any column from the table**.** Here we are going to select a Sales Amount column. After that go to the home tab on the top of the ribbon and then in the styles group select conditional formatting and then in the highlight cells rule select Greater than an option.



Step 2: Then a greater than dialog box appears. Here first write the Sales Amount value and then select the color.



	A	B	C	D	
1	Month	Product	Sales Amount	Units Sold	Reg
2	January	SmartPhone	5000	100	Eas
3	February	Laptop	6200	120	We
4	March	SmartPhone	7500	140	Sou
5	April	Tablet	6700	110	Nor
6	May	Laptop	8500	160	Central
7	June	SmartPhone	7200	130	East
8	July	Tablet	9300	180	West
9	August	Laptop	8900	170	South
10	September	SmartPhone	8100	150	North
11	October	Tablet	9500	190	Central
12	November	Laptop	8800	160	East
13	December	Tablet	10200	200	West

Step3: As you can see in the excel table Sales Amount column change the color of the values that are greater than 8000.

A	B	C	D	E
Month	Product	Sales Amount	Units Sold	Region
January	SmartPhone	5000	100	East
February	Laptop	6200	120	West
March	SmartPhone	7500	140	South
April	Tablet	6700	110	North
May	Laptop	8500	160	Central
June	SmartPhone	7200	130	East
July	Tablet	9300	180	West
August	Laptop	8900	170	South
September	SmartPhone	8100	150	North
October	Tablet	9500	190	Central
November	Laptop	8800	160	East
December	Tablet	10200	200	West

Experiment 8

Working with Multiple Sheets: work with multiple sheets within a workbook is crucial for organizing and managing data, perform complex calculations and create comprehensive reports.

Scenario: Construction project management task. You have data related to the project's budget, resource allocation, and task tracking that needs to be organized, analyzed, and reported on.

Step1: Data Entry

- Create a new Excel workbook for the project management.
- In the first sheet, label it "Budget," enter project expenses, allocations, and categories
- In the second sheet, label it "Tasks," enter a list of project tasks, assigned team members, deadlines, and statuses.
- In the third sheet, label it "Reports," for generating summaries and charts.

1. Budget Sheet : Enter project expenses and allocations

Expense Category	Allocation (in $)
Labor	50000
Materials	30000
Equipment	20000
Miscellaneous	5000

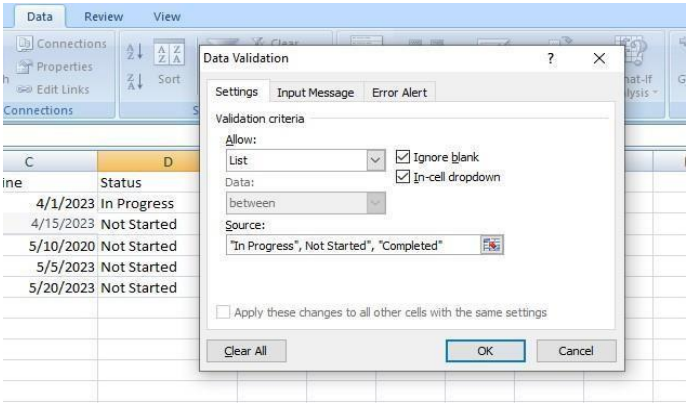
2. Task Sheet: Enter a list of project tasks, assigned team members, deadlines, and statuses

Task	Assigned To	Deadline	Status
Foundation	John	2023-04-01	In Progress
Framing	Sarah	2023-04-15	Not Started
Electrical	Mike	2023-05-10	Not Started
Plumbing	John	2023-05-05	Not Started
Finishing	Sarah	2023-05-20	Not Started

Step 2: Data Validation

In the "Tasks" sheet, set up data validation for the "Status" column to allow only specific values:

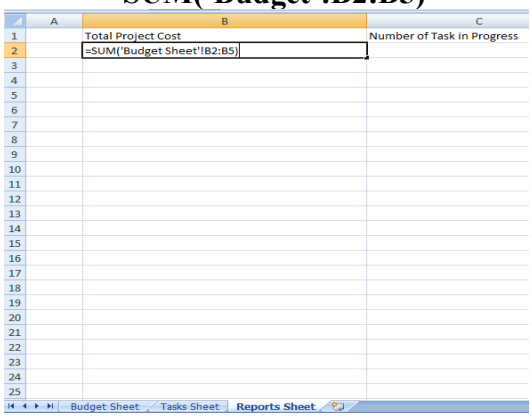
- Select the "Status" column (e.g. from cell D2 to D6).
- Go to the "Data" tab in the Excel ribbon.
- Click on "Data Validation."
- In the "Data Validation" dialog box, choose "List" in the "Allow" field.
- In the "Source" field, enter the valid status values (e.g., "In Progress," "Not Started," "Completed").
- Click "OK."



Step 3: Linking Sheets

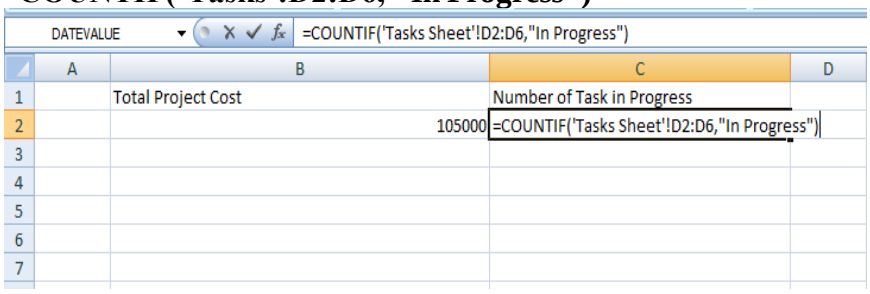
- In the third sheet, label it "Reports," use formulas to link and summarize data from the "Budget" and "Tasks" sheets.
- To calculate the total project cost in cell B2, you can use the formula:

=SUM('Budget'!B2:B5)



- To calculate the number of tasks in progress in cell B4, you can use the formula:

=COUNTIF('Tasks'!D2:D6, "In Progress")

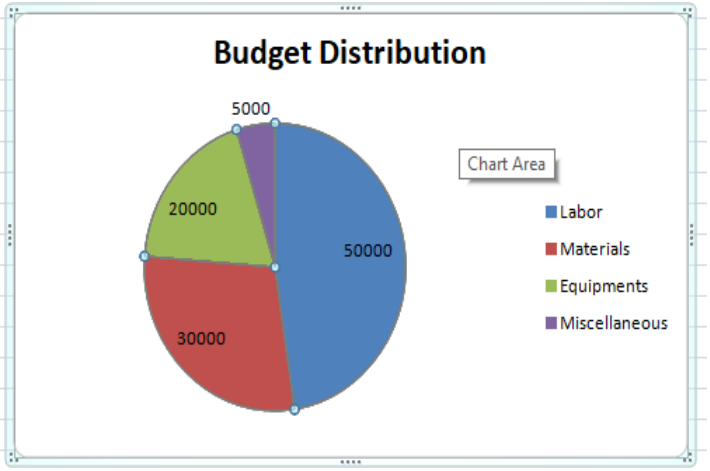


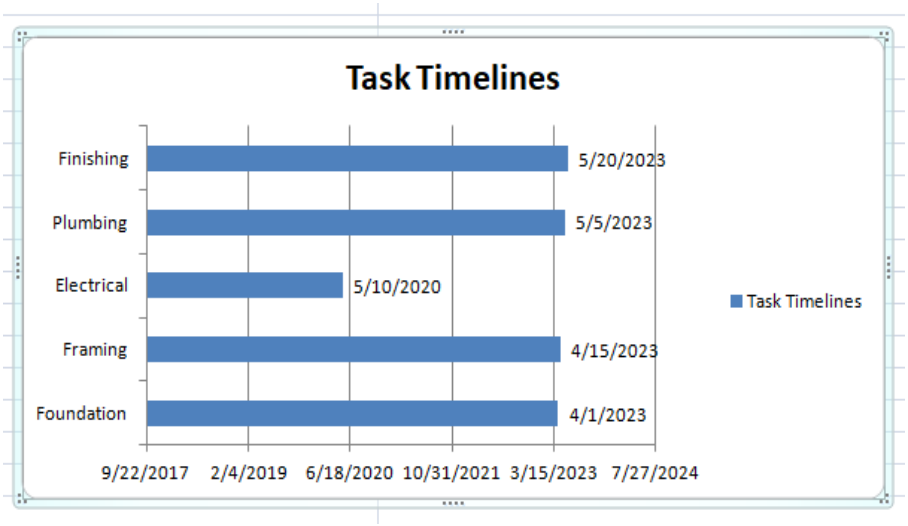
Step 4: Charts

In the "Reports" sheet, create charts to visualize project data:

- For the budget distribution, select the budget categories and allocations and create a pie chart.
- For task timelines, select the task names and deadlines and create a bar chart.
- A chart will be inserted into the selected cell
- The "Chart Tools" menu will appear in the Excel ribbon when the chart is selected.

- Under the "Design" tab in the "Chart Tools" menu, you'll find the "Select Data" option. Click on it.
- The "Select Data Source" dialog will appear. This dialog allows you to specify the data range for your chart.
- In the "Select Data Source" dialog, you can see the "Legend Entries (Series)" on the left. Here, you can add or edit data series (lines or bars on your chart).
- In the "Legend Entries (Series)" section, select the series you want to edit.
- In the "Edit Series" dialog on the right, you can change the series name and specify the data range.
- Click in the "Series values" field, and then go to the sheet (e.g., "Budget" or "Tasks") to select the data range. You can click and drag to select the cells with the data you want to include in the chart.
- Click Ok





Step 5: Comprehensive Reports

Project Summary:

1. Project Overview: In this project, we are undertaking the construction of a modern office facility, which will serve as our company's new headquarters.
- The project's primary goal is to create a state-of-the-art workplace that fosters collaboration and productivity among our employees.
- With a focus on sustainability and employee well-being, this project aims to provide an environmentally friendly and employee-centric workspace.
- It represents a significant milestone in our company's growth and commitment to a sustainable future.

2. Total Budget: =SUM('Budget Sheet'!B2:B5)=> 105000
3. Task In Progress: =COUNTIF('Task Sheet'!D2:D6, "In Progress") => 1
4. Task Completed: =COUNTIF('Task Sheet'!D2:D6, "Completed") => 0

Important Project Milestone:

- Project Kickoff Meeting(2023-01-15)
- Completion of foundation work(2023-04-01)
- Start of Framing (2023-04-15)
- Electrical Installation Commencement (2023-05-10)
- Plumbing Work Initiation (2023-05-05)
- Project Review Meeting (2023-06-01)

Project Insight

1. Budget Allocation: The budget is primarily allocated to labor and materials, indicating a strong focus on staffing and essential project resources.
    - This allocation strategy aligns with the project's resource-intensive nature and emphasizes the importance of skilled labor and quality materials in project success.
2. Project Progress: The project has achieved significant milestones on schedule, with the foundation work already in progress.
    - This progress demonstrates effective project management and strong team coordination.
    - It positions the project well for on-time delivery and successful execution.

Experiment 9

1. **Create worksheet with following fields: Empno, Ename, Basic Pay (BP), Travelling Allowance (TA), Dearness Allowance (DA), House Rent Allowance (HRA), Income Tax (IT), Provident Fund (PF), and Net Pay (NP). Use appropriate formulas to calculate the above scenario. Analyze the data using appropriate chart and report the data**

Step1: Table created

	A	B	C	D	E	F	G	H	I
1	Empno	Ename	Basic Pay(BP)	Travelling Allowance(TA)	Dearness Allowance(DA)	House Rent Allowance(HRA)	Income Tax(IT)	Provident Fund(PF)	Net Pay(NP)
2	101	John	50000	5000	7500	7000			
3	102	Alice	55000	5500	8250	7700			
4	103	Bob	60000	6000	9000	8400			
5	104	Sarah	48000	4800	7200	6720			
6	105	James	52000	5200	7800	7280			
7	106	David	62000	6200	9300	8680			
8	107	Emma	51000	5100	7650	7140			
9	108	Micheal	58000	5800	8700	8120			
10	109	Ethan	65000	6500	9750	9100			
11	110	Sophia	53000	5300	7950	7420			

Step2: Apply formulas

1. **Income Tax (IT):** You can use a simple formula to calculate income tax. Assuming a tax rate of 10%
   - In the cell for Income Tax of each employee, enter the formula: **"=0.10*(BP+TA+DA+HRA)"**

	A	B	C	D	E	F	G	H	I
1	Empno	Ename	Basic Pay(BP)	Travelling Allowance(TA)	Dearness Allowance(DA)	House Rent Allowance(HRA)	Income Tax(IT)	Provident Fund(PF)	Net Pay(NP)
2	101	John	50000	5000	7500	7000	=0.10 *(C2 + D2+E2+F2)		
3	102	Alice	55000	5500	8250	7700			
4	103	Bob	60000	6000	9000	8400			
5	104	Sarah	48000	4800	7200	6720			
6	105	James	52000	5200	7800	7280			
7	106	David	62000	6200	9300	8680			
8	107	Emma	51000	5100	7650	7140			
9	108	Micheal	58000	5800	8700	8120			
10	109	Ethan	65000	6500	9750	9100			
11	110	Sophia	53000	5300	7950	7420			

2. **Provident Fund(PF):** Assuming a PF rate of 8%
   - In the cell for Provident Fund of each employee, enter the formula: "=0.08*(BP+TA+DA+HRA)"

	A	B	C	D	E	F	G	H	I
1	Empno	Ename	Basic Pay(BP)	Travelling Allowance(TA)	Dearness Allowance(DA)	House Rent Allowance(HRA)	Income Tax(IT)	Provident Fund(PF)	Net Pay(NP)
2	101	John	50000	5000	7500	7000	6950	=0.08*(C2+D2+E2+F2)	
3	102	Alice	55000	5500	8250	7700			
4	103	Bob	60000	6000	9000	8400			
5	104	Sarah	48000	4800	7200	6720			
6	105	James	52000	5200	7800	7280			
7	106	David	62000	6200	9300	8680			
8	107	Emma	51000	5100	7650	7140			
9	108	Micheal	58000	5800	8700	8120			
10	109	Ethan	65000	6500	9750	9100			
11	110	Sophia	53000	5300	7950	7420			

3. **Net Pay (NP):** Net Pay is calculated by subtracting Income Tax and Provident Fund from the total earnings.
   - In the cell for Net Pay of each employee, enter the formula:
   - **"=(BP + TA + DA + HRA) - IT – PF"**

	A	B	C	D	E	F	G	H	I
1	Empno	Ename	Basic Pay(BP)	Travelling Allowance(TA)	Dearness Allowance(DA)	House Rent Allowance(HRA)	Income Tax(IT)	Provident Fund(PF)	Net Pay(NP)
2	101	John	50000	5000	7500	7000	6950	5560	=(C2+D2+E2+F2)-G2-H2
3	102	Alice	55000	5500	8250	7700			
4	103	Bob	60000	6000	9000	8400			
5	104	Sarah	48000	4800	7200	6720			
6	105	James	52000	5200	7800	7280			
7	106	David	62000	6200	9300	8680			
8	107	Emma	51000	5100	7650	7140			
9	108	Micheal	58000	5800	8700	8120			
10	109	Ethan	65000	6500	9750	9100			
11	110	Sophia	53000	5300	7950	7420			

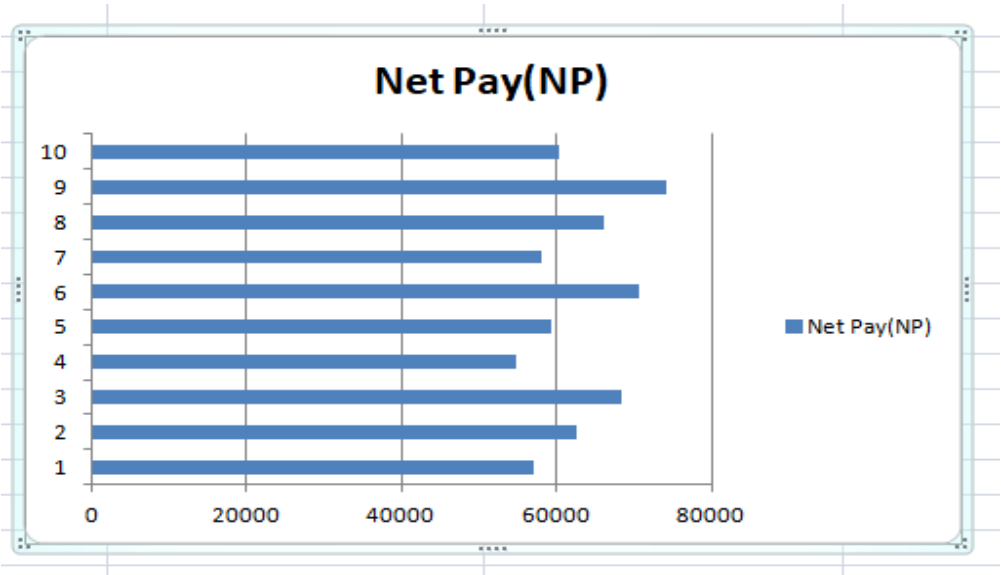
Step3: Result

	A	B	C	D	E	F	G	H	I
1	Empno	Ename	Basic Pay(BP)	Travelling Allowance(TA)	Dearness Allowance(DA)	House Rent Allowance(HRA)	Income Tax(IT)	Provident Fund(PF)	Net Pay(NP)
2	101	John	50000	5000	7500	7000	6950	5560	56990
3	102	Alice	55000	5500	8250	7700	7645	6116	62689
4	103	Bob	60000	6000	9000	8400	8340	6672	68388
5	104	Sarah	48000	4800	7200	6720	6672	5337.6	54710.4
6	105	James	52000	5200	7800	7280	7228	5782.4	59269.6
7	106	David	62000	6200	9300	8680	8618	6894.4	70667.6
8	107	Emma	51000	5100	7650	7140	7089	5671.2	58129.8
9	108	Micheal	58000	5800	8700	8120	8062	6449.6	66108.4
10	109	Ethan	65000	6500	9750	9100	9035	7228	74087
11	110	Sophia	53000	5300	7950	7420	7367	5893.6	60409.4

Step4: Analyze Data using chart

1. Highlight the Net Pay (NP) column for all employees.
2. Go to the "Insert" tab and select "Bar Chart" from the Charts group.
3. Choose the "Clustered Bar" chart style.

	A	B	C	D	E	F	G	H	I
1	Empno	Ename	Basic Pay(BP)	Travelling Allowance(TA)	Dearness Allowance(DA)	House Rent Allowance(HRA)	Income Tax(IT)	Provident Fund(PF)	Net Pay(NP)
2	101	John	50000	5000	7500	7000	6950	5560	56990
3	102	Alice	55000	5500	8250	7700	7645	6116	62689
4	103	Bob	60000	6000	9000	8400	8340	6672	68388
5	104	Sarah	48000	4800	7200	6720	6672	5337.6	54710.4
6	105	James	52000	5200	7800	7280	7228	5782.4	59269.6
7	106	David	62000	6200	9300	8680	8618	6894.4	70667.6
8	107	Emma	51000	5100	7650	7140	7089	5671.2	58129.8
9	108	Micheal	58000	5800	8700	8120	8062	6449.6	66108.4
10	109	Ethan	65000	6500	9750	9100	9035	7228	74087
11	110	Sophia	53000	5300	7950	7420	7367	5893.6	60409.4



Step 5: Report the data

- **Report Title:** Employees Monthly Payroll Analysis
- **Introduction:** The purpose of this report is to analyze monthly payroll data. This analysis aims to provide insights into the financial components of employee compensation, focusing on Income Tax, Provident Fund, and Net Pay. The data includes 10 employees and their respective earnings and deductions.
- **Summary of Key Metrics:**
  Total income tax paid: 77006
  Total Provident Fund Deductions: 61604.8
  Total Net Pay Distributed: 631449.2
- **Findings:**
  - Employee Ethan received the highest Net Pay, while Employee Sarah had the lowest, mainly due to variations in Basic Pay and deductions.
  - Employee Ethan having the highest deduction and Employee Sarah the lowest.
  - A trend emerged, showing that higher earners often faced larger deductions, emphasizing the importance of transparent payroll policies.
- **Conclusion:**
  The payroll analysis reveals variations in Net Pay based on income and deductions. It highlights the significance of clear communication regarding compensation components. To optimize payroll processes, regular tax policy reviews and consistent fund management are recommended, ensuring employee satisfaction and compliance.

Experiment 10

Create worksheet on Inventory Management: Sheet should contain Product code, Product name, Product type, MRP, Cost after % of discount, Date of purchase. Use appropriate formulas to calculate the above scenario. Analyse the data using appropriate chart and report the data.

Step 1: Create a table

Product Code	Product Name	Product Type	MRP	Cost After Discount (%)	Date of Purchase
001	Smartphone	Electronics	100	Formula	2023-10-01
002	T-Shirt	Clothing	75	Formula	2023-10-05
003	Wall Art	Home Decor	120	Formula	2023-10-10
004	Tennis Racket	Sports Gear	50	Formula	2023-10-15
005	Digital Watch	Electronics	80	Formula	2023-10-20
006	Laptop	Electronics	150	Formula	2023-10-25
007	Coffee Table	Home Decor	110	Formula	2023-10-30
008	Jeans	Clothing	90	Formula	2023-11-02
009	Soccer Ball	Sports Gear	60	Formula	2023-11-05
010	Headphones	Electronics	70	Formula	2023-11-10

Step2: Apply Formulas

- For the "Cost After Discount (%)" column, you can apply the formula to calculate the cost after a certain percentage of discount. Assuming a 10% discount for each product
- In the "Cost After Discount (%)" column, you can use this formula for each product "=D2-(D2*0.10)"

DATEVALUE =D2 - (D2 * 0.10)

	A	B	C	D	E	F
1	ProductCode	ProductName	ProductType	MRP	Cost after % of discount	Date of Purchase
2	PCOO1	SmartPhone	Electronics	100	=D2 - (D2 * 0.10)	10/1/2023
3	PCOO2	T-Shirt	Clothing	75		10/5/2023
4	PCOO3	Wall Art	Home Decor	120		10/10/2023
5	PCOO4	Tennis Racket	Sports Gear	50		10/15/2023
6	PCOO5	Digital Watch	Electronics	80		10/20/2023
7	PCOO6	Laptop	Electronics	150		10/25/2023
8	PCOO7	Coffee Table	Home Decor	110		10/30/2023
9	PCOO8	Jeans	Clothing	90		11/2/2023
10	PCOO9	Soccer Ball	Sports Gear	60		11/5/2023
11	PCOO10	Headphones	Electronics	70		11/10/2023

Step3: Result

H13

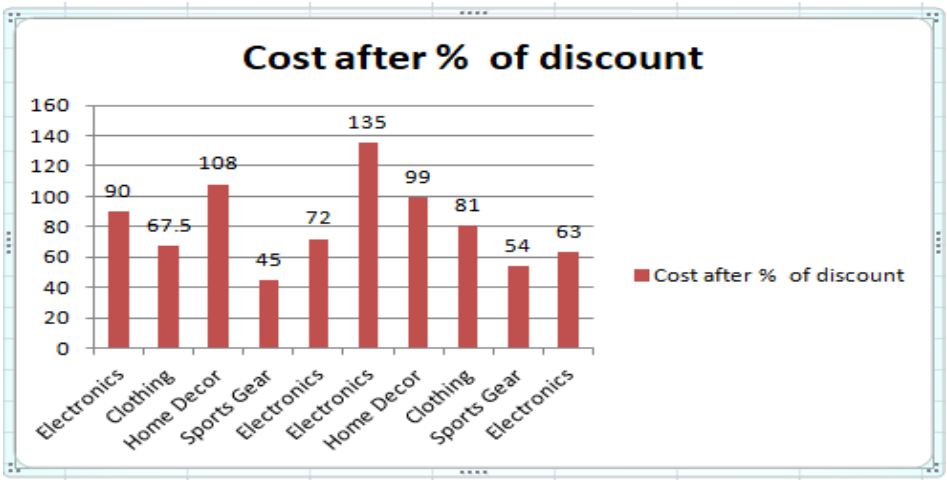
	A	B	C	D	E	F
1	ProductCode	ProductName	ProductType	MRP	Cost after % of discount	Date of Purchase
2	PCOO1	SmartPhone	Electronics	100	90	10/1/2023
3	PCOO2	T-Shirt	Clothing	75	67.5	10/5/2023
4	PCOO3	Wall Art	Home Decor	120	108	10/10/2023
5	PCOO4	Tennis Racket	Sports Gear	50	45	10/15/2023
6	PCOO5	Digital Watch	Electronics	80	72	10/20/2023
7	PCOO6	Laptop	Electronics	150	135	10/25/2023
8	PCOO7	Coffee Table	Home Decor	110	99	10/30/2023
9	PCOO8	Jeans	Clothing	90	81	11/2/2023
10	PCOO9	Soccer Ball	Sports Gear	60	54	11/5/2023
11	PCOO10	Headphones	Electronics	70	63	11/10/2023

Step4: Plot a Chart

1. Highlight the "Product Type" and "Cost After Discount (%)" columns for all products.
2. Go to the "Insert" tab and select "Bar Chart" or "Column Chart" from the Charts group.
3. Customize the chart as needed, adding labels and a title.

E14

	A	B	C	E	F
1	ProductCode	ProductName	ProductType	Cost after % of discount	Date of Purchase
2	PCOO1	SmartPhone	Electronics	90	10/1/2023
3	PCOO2	T-Shirt	Clothing	67.5	10/5/2023
4	PCOO3	Wall Art	Home Decor	108	10/10/2023
5	PCOO4	Tennis Racket	Sports Gear	45	10/15/2023
6	PCOO5	Digital Watch	Electronics	72	10/20/2023
7	PCOO6	Laptop	Electronics	135	10/25/2023
8	PCOO7	Coffee Table	Home Decor	99	10/30/2023
9	PCOO8	Jeans	Clothing	81	11/2/2023
10	PCOO9	Soccer Ball	Sports Gear	54	11/5/2023
11	PCOO10	Headphones	Electronics	63	11/10/2023



Step5: **Report the Data**

- **Report Title:** Inventory Management Report
- **Introduction:** The purpose of this report is to provide an overview of the current inventory management system.
  - It aims to analyze key aspects of the inventory, including product details such as Product Code, Product Name, Product Type, Maximum Retail Price (MRP), and Cost after Discount, and Date of Purchase.
  - This analysis will assist in evaluating inventory levels, tracking product data, and ensuring efficient management of stock. The report also includes a chart for visualizing the product distribution by type.
  - The insights gained from this report can aid in making informed decisions regarding inventory control and procurement strategies.
- **Summary of Key Metrics**
  - Total Products: 10
  - Average cost after discount: 81.45 (=AVERAGE (E2:E11))
- **Finding:**
  - The inventory exhibits a well-diversified product type distribution, with Electronics and Clothing being prominent.
  - The average discounted cost is approximately $[average cost], providing a reference point for profitability assessment.
  - Electronics and Clothing are the most popular product types, guiding procurement and marketing strategies.
- **Conclusion:**
  The analysis highlights well-balanced inventory management, with diversified product types and reasonable average discounted costs. Consistent procurement practices have maintained optimal stock levels. To further enhance efficiency, ongoing monitoring of product popularity and pricing strategies is recommended.

Experiment 11

Create worksheet on Sales analysis of Merchandise Store: data consisting of Order ID, Customer ID, Gender, age, Date of order, month, online platform, Category of product, size, quantity, amount, shipping city and other details. Use of formula to segregate different categories and perform a comparative study using pivot tables and different sort of charts.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Order ID	Customer ID	Gender	age	date of order	month	online platform	Category of product	size	quantity	amount	shipping city	other details
2	1001	101	Male	35	1/10/2023	January	Website	Apparel	M	2	$ 100.00	New York	Gift wrapping requested
3	1002	102	Female	28	2/15/2023	February	Mobile App	Electronics	-	1	$ 200.00	Los Angeles	Special delivery time
4	1003	103	Male	45	3/20/2023	March	Website	Home Decor	-	3	$ 80.00	Chicago	Customer loyalty card
5	1004	104	Female	32	4/25/2023	April	In-Store	Apparel	S	4	$ 150.00	Houston	Gift message included
6	1005	105	Male	38	5/30/2023	May	Mobile App	Electronics	-	2	$ 250.00	Miami	Expedited shipping
7	1006	106	Female	29	6/5/2023	June	Website	Electronics	-	3	$ 180.00	Seattle	-
8	1007	107	Male	40	7/10/2023	July	In-Store	Home Decor	-	2	$ 90.00	Boston	Preferred customer
9	1008	108	Female	35	8/15/2023	August	Mobile App	Apparel	L	2	$ 120.00	San Francisco	-
10	1009	109	Male	30	9/20/2023	September	Website	Electronics	-	1	$ 300.00	Chicago	-
11	1010	110	Female	45	10/25/2023	October	Mobile App	Home Decor	-	3	$ 110.00	New York	-

Step2: use the below formula to segregate different Categories

"=SUMIFS([Amount],[Category of product], "Apparel")"

=SUMIFS(K:K,H:H,"Apparel")

	O
1	Total Sales By category
2	370
3	930
4	170
5	
6	
7	
8	

Step 3: Create a Pivot table for Comparative Analysis

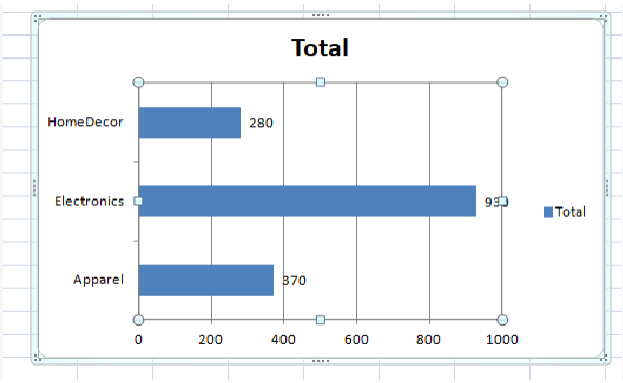
- Plotted the pivot table for Category of product and Amount field
- In the pivot table list drag the Category of product to the "Rows" area and Amount to the "Values" area to see the total amount per Category

Row Labels	Sum of amount
Apparel	370
Electronics	930
HomeDecor	280
Grand Total	**1580**

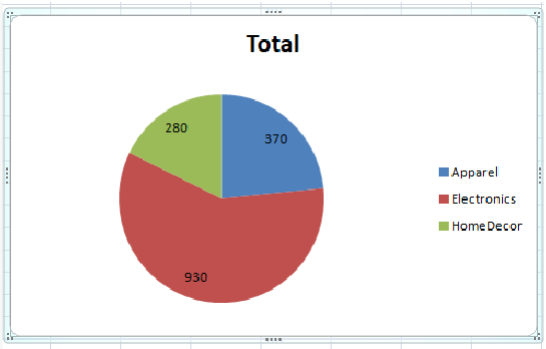
Step 4: Create a Different types of Charts

- Select a cell within your pivot table
- Go to insert tab and choose the type of a chart you want(eg: bar chart, pie chart etc)
- Customize the chart with titles, labels etc

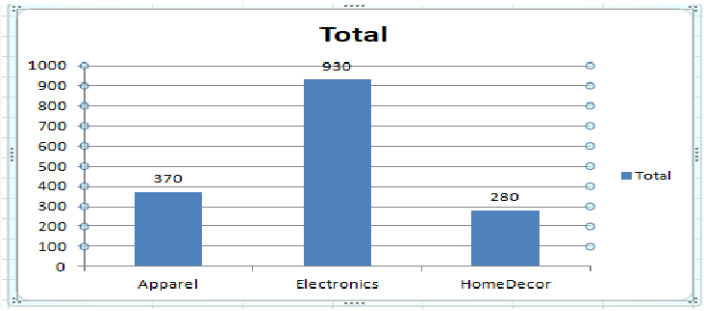
1. **Bar Chart**



2. **Pie Chart**



3. **Column Chart**



Experiment 12

Generation of report & presentation using Autofilter &macro.

Step 1: Prepare a table with Data

	A	B	C
1	OrderId	Category of Products	Amount
2	101	Apparel	$ 100.00
3	102	Electronics	$ 200.00
4	103	Apparel	$ 150.00
5	104	HomeDecor	$ 90.00
6	105	Electronics	$ 110.00
7	106	Books	$ 220.00
8	107	Sports Equipment	$ 300.00
9	108	Books	$ 350.00
10	109	Apparel	$ 200.00
11	110	Sports Equipment	$ 120.00

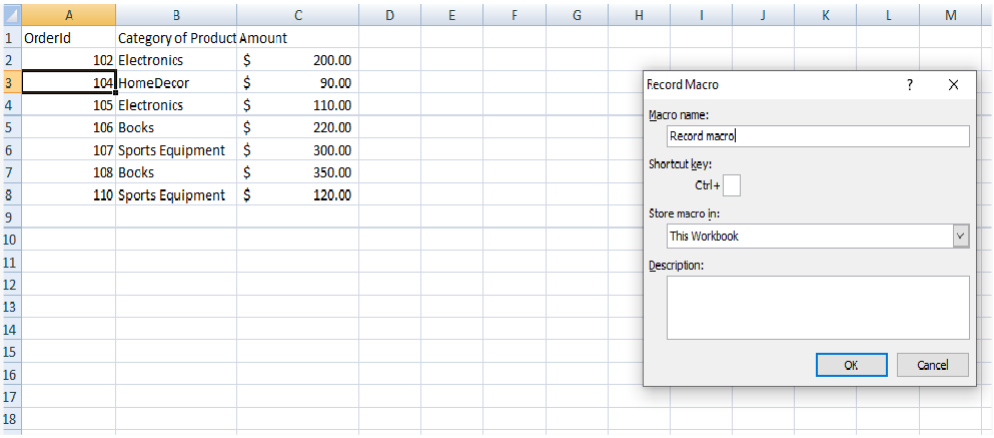
Step 2: Apply AutoFilter

- Select your data range.
- Go to the 'Data' tab in Excel.
- Click on 'Filter' or 'Sort & Filter' to enable Autofilter options.
- Use Autofilter to filter the data as needed, e.g., filter for a specific category.

OrderId	Category of Products	Amount
102	Electronics	$ 200.00
104	HomeDecor	$ 90.00
105	Electronics	$ 110.00
106	Books	$ 220.00
107	Sports Equipment	$ 300.00
108	Books	$ 350.00
110	Sports Equipment	$ 120.00

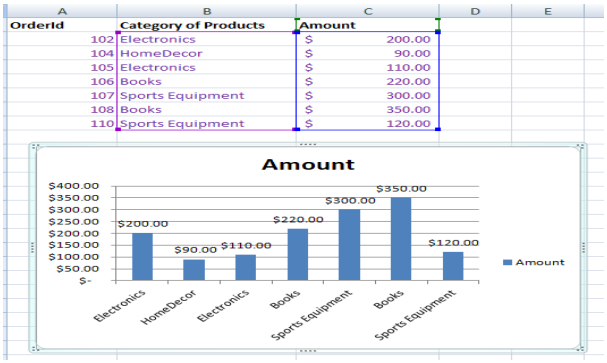
Step 3: Record a Macro

- Go to the "View" tab in Excel.
- Click on "Macros" and choose "Record Macro."
- In the "Record Macro" dialog box, provide a name for your macro, e.g., "GenerateReport."
- In the "Store macro in" dropdown, select "This Workbook" to save the macro within your workbook.
- Click "OK" to start recording.



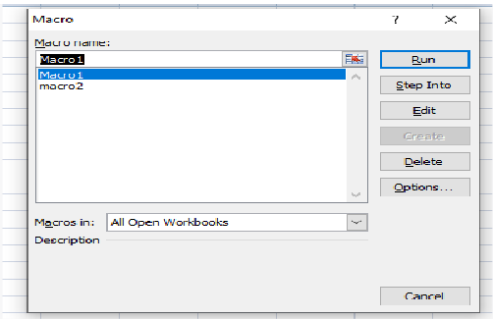
Step 4: Create a Report Manually

- While the macro is recording, manually copy the filtered data by selecting it and pressing Ctrl + C.
- Open a new sheet.
- Manually paste the copied data using Ctrl + V.
- Format the data, add titles, and structure it as you like to create a report.
- Manually create charts to visualize the data.



Step 5: Stop Recording a Macro

- Go to the "View" tab in Excel.
- Click on "Macros" and choose "Stop Recording."



For Generating a presentation

Step 6: Create a presentation manually

- Open Microsoft PowerPoint
- Create a new presentation.
- Copy the content from your report (the filtered data, text, and charts).
- Create slides for your presentation and paste the content onto the slides.
- Format the slides, add titles, and organize the content in a presentation format manually.
- Save the presentation