



CCW331 Business Analytics LAB Manual

business analytics (Anna University)



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LIST OF EXPERIMENTS:

Use MS-Excel and Power-BI to perform the following experiments using a business data set, and make presentations.

Students may be encouraged to bring their own real-time socially relevant data set.

I Cycle – MS Excel

1. Explore the features of Ms-Excel.
2. (i) Get the input from user and perform numerical operations (MAX, MIN, AVG, SUM, SQRT, ROUND)
ii) Perform data import/export operations for different file formats.
3. Perform statistical operations - Mean, Median, Mode and Standard deviation, Variance, Skewness, Kurtosis
4. Perform Z-test, T-test & ANOVA
5. Perform data pre-processing operations i) Handling Missing data ii) Normalization
6. Perform dimensionality reduction operation using PCA, KPCA & SVD
7. Perform bivariate and multivariate analysis on the dataset.
8. Apply and explore various plotting functions on the data set.

II Cycle – Power BI Desktop

9. Explore the features of Power BI Desktop
10. Prepare & Load data
11. Develop the data model
12. Perform DAX calculations
13. Design a report
14. Create a dashboard and perform data analysis
15. Presentation of a case study

COURSE OUTCOMES:

CO1: Explain the real-world business problems and model with analytical solutions.

CO2: Identify the business processes for extracting Business Intelligence

CO3: Apply predictive analytics for business fore-casting

CO4: Apply analytics for supply chain and logistics management

CO5: Use analytics for marketing and sales.

TOTAL :60 PERIODS

LIST OF EXPERIMENTS		
EXPERIMENT NUMBER	EXPERIMENT NAME	PAGE NO
I Cycle-MS Excel		
EX NO :1	Explore the features of MS-EXCEL	
EX NO: 2	a) Numerical operations (MAX, MIN, AVG, SUM, SQRT, ROUND)	
	b) Perform data import/export operations for different file formats.	
EX NO : 3	Perform statistical operations - Mean, Median, Mode and Standard deviation, Variance, Skewness, Kurtosis	
EX.NO : 4	a) Perform Z-test	
	b) Perform T-test	
	c) Perform ANOVA	
EX.NO : 5	a) Perform data pre-processing operations - Handling Missing data	
	b) Perform data pre-processing operations - Normalization	
EX.NO : 6	Perform dimensionality reduction operation using PCA, KPCA & SVD	
EX.NO : 7	a) Perform bivariate analysis on the dataset	
	b) Perform multivariate analysis on the dataset	
EX.NO : 8	Plotting Functions on The Data Set	
I Cycle- Power BI Desktop		
EX.NO : 9	Explore the features of Power BI Desktop	
EX.NO : 10	Prepare & Load data	
EX.NO : 11	Develop the data model	
EX .NO : 12	Perform DAX calculations	
EX.NO : 13	Design a report	
EX.NO : 14	Create a dashboard and perform data analysis	
EX.NO : 15	Presentation of a case study	

I Cycle-MS Excel

EX NO: 1	
DATE :	Explore the features of MS-EXCEL

AIM:

To explore the features of MS-EXCEL

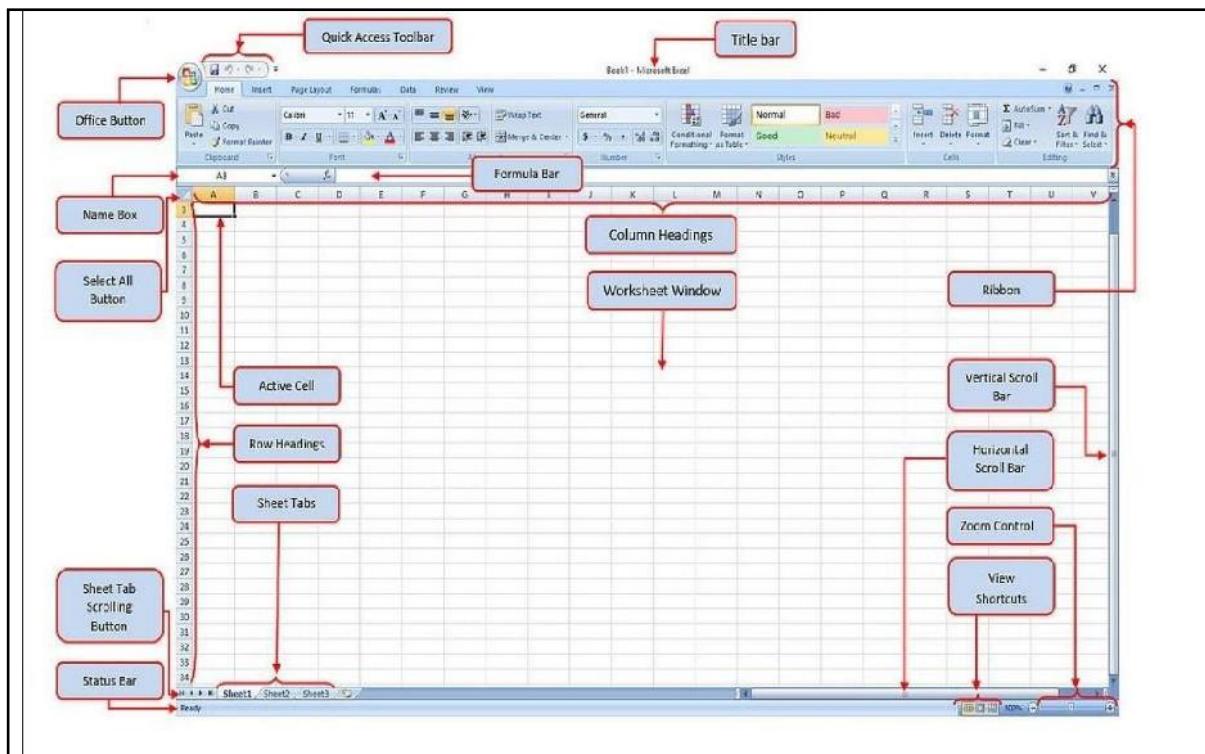
PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office
- Step 2 : Enter text or a number in a cell
- Step 3 : Change the width of a column
- Step 4 : Enter And Edit Formula in Excel
- Step 5: Wrap text in a cell
- Step 6 : Enter And Edit Formula in Excel
- Step 7 : Perform Auto fill and custom fill In Excel
- Step 8 : Save the file in desired location
- Step 9 : Close the Ms Excel application

EX NO: 1**Features of MS-EXCEL****What is Excel? Excel Definition**

Microsoft's Excel spreadsheet programme is a part of the Office family of business software programmes. Users of Microsoft Excel can format, arrange, and compute data in a spreadsheet.

By organising data using tools like Excel, Data Analysts or other users can make information easier to examine when data is added or altered. The Microsoft Office and Office 365 suites include Excel, which works with the other Office programmes. The spreadsheet application can be used on Windows, macOS, Android, and iOS devices.

Parts of MS-Excel window:

Quick Access Toolbar – Collection of buttons that provide one click access to commonly used commands such as Save, Undo or Redo. You can also customize this according to your preference.

Title Bar – A bar that displays the name of active workbook

Ribbon – The main set of commands and controls organized in Tabs and groups, you can also customize the ribbon according to your preference.

Column Headings – The letters that appear along the top of the worksheet to identify the different columns in the worksheet.

Worksheet Window – A window that displays an Excel worksheet, basically this is where you work all the tasks.

Vertical Scroll Bar – Scroll bar to use when you want to scroll vertically through the Worksheet window.

Horizontal Scroll Bar – Scroll bar to use when you want to scroll horizontally through the worksheet window.

Zoom Controls – Used for magnifying and shrinking of the active worksheet.

View Shortcuts – Buttons used to change how the worksheet content is displayed. Normal, Page Layout or Page Break Preview.

Sheet Tabs – Tabs that display the name of the worksheet in the workbook, by default its name sheet 1, sheet 2, etc. You can rename this to any name that best represents your sheet.

Sheet Tab Scrolling Buttons – Buttons to scroll the sheet tabs in the workbook

Row Headings – The number that appears on the left of the worksheet window to identify the different rows.

Select All Button – A button that selects all the cells in the active worksheet

Active Cell – The cell selected in the active worksheet

Name Box – A box that displays the cell reference of the active cell

Formula Bar – A bar that displays the value or formula entered in the active cell

Office Button/File Tab – It provides access to workbook level features and program settings.

You will notice that in Excel 2007 there is a circle

Features of Ms-Excel

Microsoft Excel is an integrated electronic spreadsheet program developed by Microsoft Corporation. It includes the following features.

Autocalc: This feature is very useful to sum a group of numbers if selected them. Their sum will automatically appear in the status area.

Auto complete: Excel now has intelligence to anticipate what you are going to type! Based upon entries you've already made, AutoComplete will try to figure out what you intended to type, once you've entered few letters.

Autocorrect: Excel can support automatically correct mistakes.

Better Drag-and-Drop: Do you want to move a group of cells? Excel's drag and drop feature lets

you reposition selected portion of your spreadsheet by simply dragging them with your mouse.

Cell tips and Scroll Tips: To help you get around better with mouse, Excel now includes scroll tips. When you click and drag a scroll bar, a small window tells you what row or column you are

heading for.

Number Formatting: It's easy to format numbers with excel's new number formatting feature. Select your numbers and choose cells command from format menu.

Templates and Template wizard: Excel's template facility has been greatly enhanced. You can choose from a variety of elegantly designed templates for your home or business. You can even have a template wizard link your worksheets to a database.

Shared Lists: you can now have worksheets that are shared simultaneously over a network.

Conditional Formatting: Conditional formatting helps users to quickly focus on important aspects of a spreadsheet or to highlight errors and to identify important patterns in data.

Sorting and Filtering: Excel spreadsheets help us make sense of large amounts of data. To make it easier to find what you need, you can reorder the data or pick out just the data you need, based on parameters you set within Excel. Sorting and filtering your data will save you time and make your spreadsheet more effective.

Excel Charts: Excel charts help you communicate insights & information with ease. By choosing your charts wisely and formatting them cleanly, you can convey a lot.

ENTERING AND EDITING DATA IN WORKSHEET

You have several options when you want to enter data manually in Excel. You can enter data in one cell, in several cells at the same time, or on more than one worksheet at the same time. The data that you enter can be numbers, text, dates, or times. You can format the data in a variety of ways. And, there are several settings that you can adjust to make data entry easier for you.

Enter text or a number in a cell

1. On the worksheet, click a cell.
2. Type the numbers or text that you want to enter, and then press Enter or Tab.

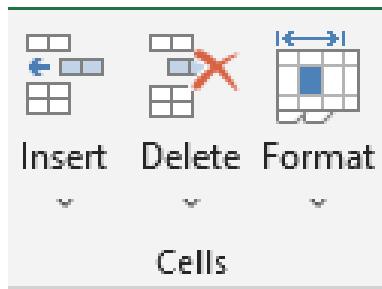
To enter data on a new line within a cell, enter a line break by pressing

Alt+Enter Editing text or a number in a cell

1. Double click the cell containing the data you want to edit.
2. Make any changes to the cell contents.
3. Press enter key. The change will accept. To cancel your changes, press Esc key.

Change the width of a column

- Click the cell for which you want to change the column width.
- On the Home tab, in the Cells group, click Format



- Under Cell Size, do one of the following:

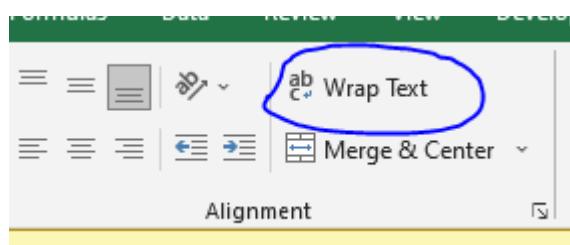
To fit all text in the cell, click AutoFit Column Width.

To specify a larger column width, click Column Width, and then type the width that you want in the Column width box.

If there are multiple lines of text in a cell, some of the text might not be displayed the way that you want. You can display multiple lines of text inside a cell by wrapping the text.

Wrap text in a cell

- Click the cell in which you want to wrap the text.
- On the Home tab, in the Alignment group, click Wrap Text.



Enter And Edit Formula In Excel

A formula performs calculations or other actions on the data in your worksheet. A formula always

starts with an equal sign (=), which can be followed by numbers, math operators (like a + or - sign)

for addition or subtraction), and built-in Excel functions, which can really expand the power of a Formula.

The screenshot shows a Microsoft Excel spreadsheet window. The formula bar at the top displays the formula $=B5+C5+D5$. The cells B5, C5, and D5 are highlighted with dashed blue borders, indicating they are selected for the formula. The cell E5 contains the result of the formula, which is 60. The rest of the spreadsheet is blank with rows numbered from 1 to 19.

For Example, in the above worksheet, the formula $= B5+C5+D5$ adds the contents 10+20+30 and

produce the results. One can enter and edit formula in two ways.

1. Directly into cell by double clicking where the formula wants.
2. At formula bar after selection of required cell.

To edit an existing formula

- Click on the cell which contains the formula or results
- Click in formula bar make necessary changes.
- Press enter key or click on check mark.

Number Formatting in excel

It is very common to enter various types of numbers for various applications. In Excel, you can use

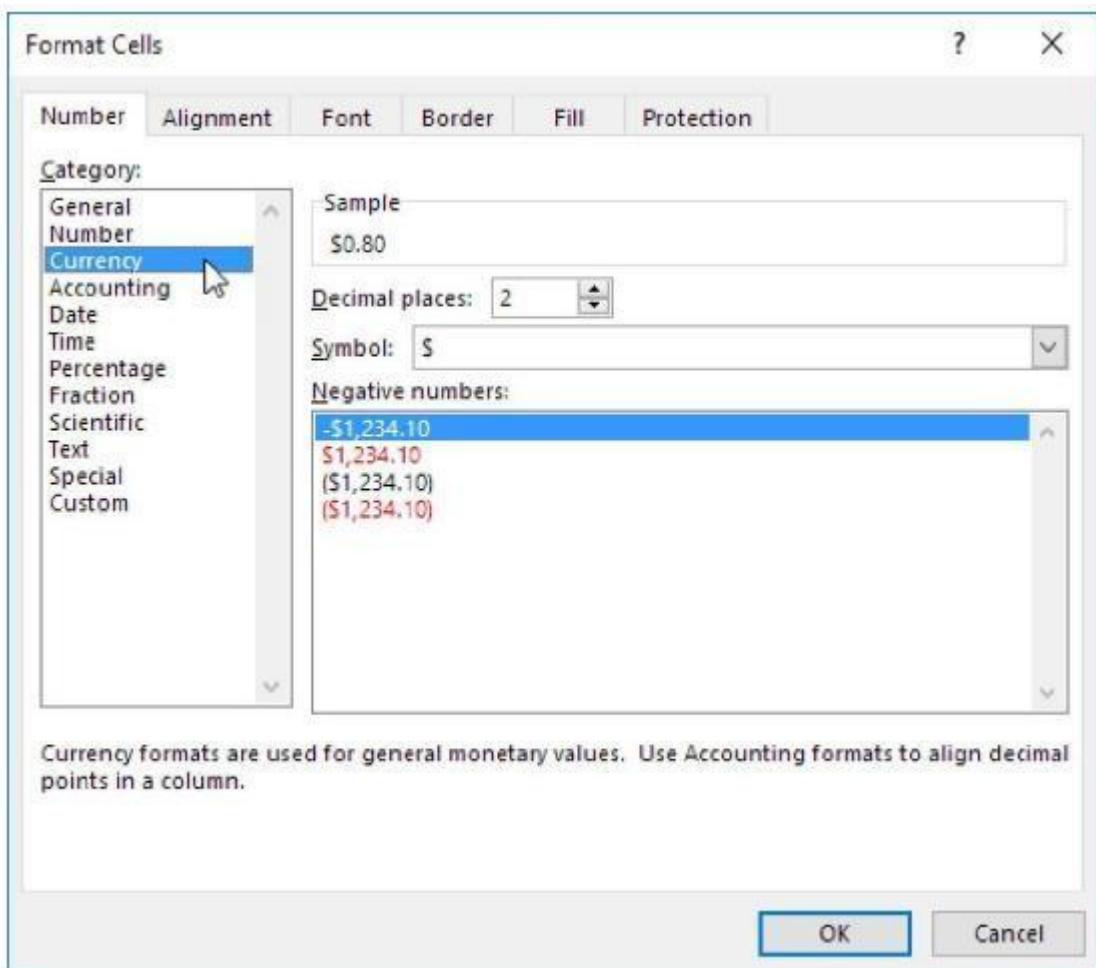
number formats to change the appearance of numbers, including dates and times, without changing the number behind the appearance. The number format does not affect the actual cell value, it changes the appearance only.

1. Select the cell or cells which contain numbers.
2. On the home tab, under Number group click on down arrow mark.

Right click your mouse; from the short hand menu select format cell option

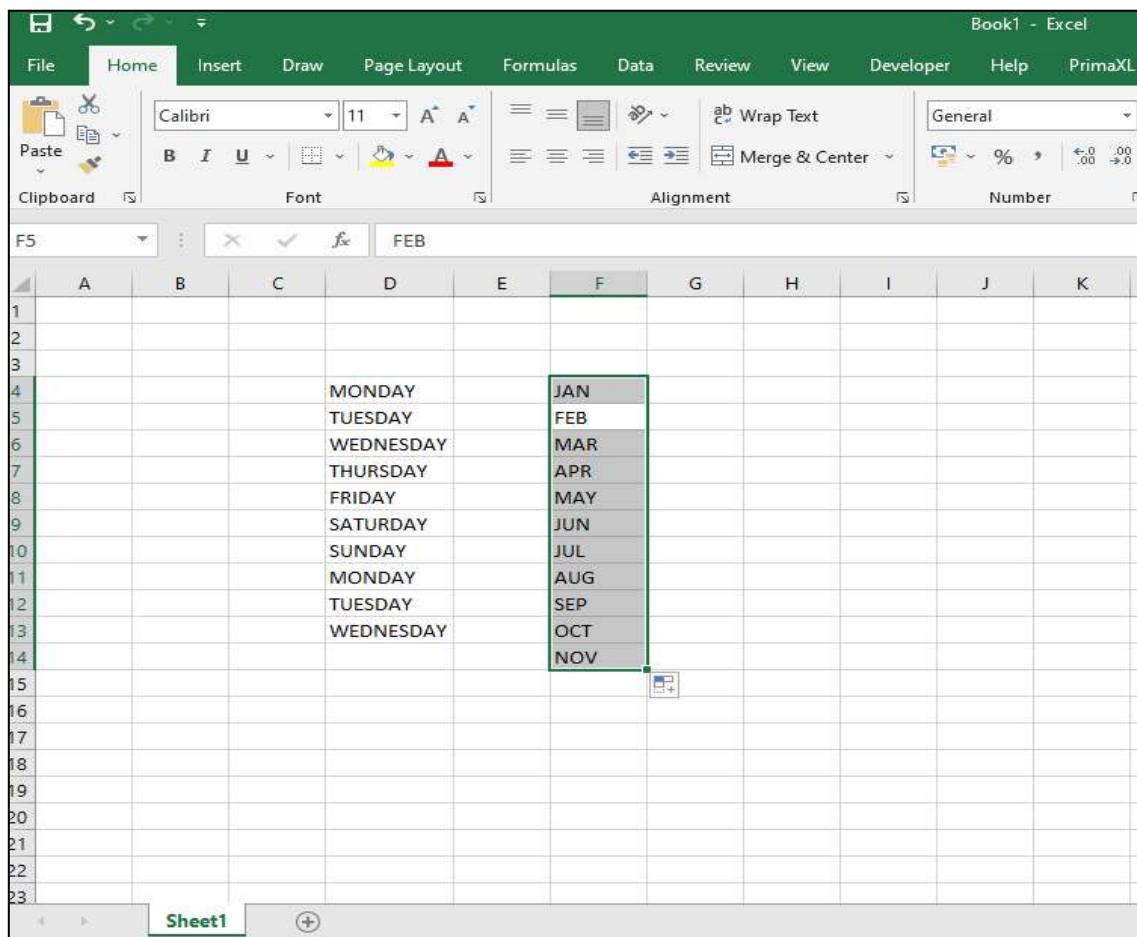
3. It launches Formula cells window. Click on Number tab.

4. It lists all categories of number formatting like general, number, currency, accounting, date, time, and percentage.
5. Select the suitable format and its sub options, click ok button.
6. The numbers in the selected cells will display as per new format.



Auto fill and custom fill

Autofill is one of the feature present in the ms excel. When you're typing a day, month, year and number the automatic series will be appeared by dragging it. This feature is called Autofill. For Example if your typed "Jan" and then dragged then it displays months from "Jan to dec" like.



Result:

The features of MS-EXCEL explored successfully and displayed desired output in neat format.

EX NO: 2a	Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)
DATE :	

AIM:

To implement numerical operations using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : Calculate the Maximum of the given marks using max function.
- Step 4 : Calculate the Minimum of the given marks using MIN function.
- Step 5 : Calculate the average of the given marks using average function.
- Step 6 : Calculate the sum of the given marks using sum function.
- Step 7 : Calculate the square root of the given mark using SQRT function.
- Step 8 : Calculate the Round of the given mark using Roundup function.
- Step 9 : Display the desired output of all numerical operation in neat format.
- Step 10 : Save the excel file and Close the Ms Excel application.

EX NO: 2a

Numerical Operations
(MAX, MIN, AVG, SUM, SQRT, ROUND)

Finding Maximum of the given marks

Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)							
Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and
1	212619104001	ABIRAMI.N	92	87	80	87	84
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87
3	212619104003	DEEPAK.S	80	72	77	87	80
4	212619104004	HARISH.G	80	87	87	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75
6	212619104006	JAYA LAKSHMI. T	71	92	AB	80	AB
		MAX MARKS	=MAX(D6:D11)				
		MIN MARKS					
		AVGERAGE MARKS					
		SUM OF THE MARKS					
		SQRT OF ANY					
		ROUND OF THE MARKS					

Finding Minimum of the given marks

Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)							
Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and
1	212619104001	ABIRAMI.N	92	87	80	87	84
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87
3	212619104003	DEEPAK.S	80	72	77	87	80
4	212619104004	HARISH.G	80	87	87	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75
6	212619104006	JAYA LAKSHMI. T	71	92	AB	80	AB
		MAX MARKS	92	92	87	90	87
		MIN MARKS	=MIN(D6:D11)				
		AVGERAGE MARKS					
		SUM OF THE MARKS					
		SQRT OF ANY					
		ROUND OF THE MARKS					

Finding average of the given marks

Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)								
Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI. T	71	92	AB	80	AB	80
		MAX MARKS	92	92	87	90	87	87
		MIN MARKS	34	72	77	80	75	80
		AVGERAGE MARKS	=AVERAGE(D6:D11)					
		SUM OF THE MARKS						
		SQRT OF ANY						
		ROUND OF THE						
		MARKS						

Finding sum of the given marks

Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)								
Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI. T	71	92	AB	80	AB	80
		MAX MARKS	92	92	87	90	87	87
		MIN MARKS	34	72	77	80	75	80
		AVGERAGE MARKS	74	83	82.2	84	81.2	83.5
		SUM OF THE MARKS	=SUM(D6:D11)					
		SQRT OF ANY						
		ROUND OF THE						
		MARKS						

Finding SORT of the given marks

Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)								
Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI. T	71	92	AB	80	AB	80
		MAX MARKS	92	92	87	90	87	87
		MIN MARKS	34	72	77	80	75	80
		AVGERAGE MARKS	74	83	82.2	84	81.2	83.5
		SUM OF THE MARKS	444	498	411	504	406	501
		SQRT OF ANY	=SQRT(D6)					
		ROUND OF THE MARKS						

Finding Round of the given marks

Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)								
Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI. T	71	92	AB	80	AB	80
		MAX MARKS	92	92	87	90	87	87
		MIN MARKS	34	72	77	80	75	80
		AVGERAGE MARKS	74	83	82.2	84	81.2	83.5
		SUM OF THE MARKS	444	498	411	504	406	501
		SQRT OF ANY	9.591663047	9.32737905	8.94427	9.32738	9.16515	9.32738
		ROUND OF THE MARKS	=ROUNDUP(D16,2)					

OUTPUT:

Numerical Operations (MAX, MIN, AVG, SUM, SQRT, ROUND)								
Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI. T	71	92	AB	80	AB	80
		MAX MARKS	92	92	87	90	87	87
		MIN MARKS	34	72	77	80	75	80
		AVGERAGE MARKS	74	83	82.2	84	81.2	83.5
		SUM OF THE MARKS	444	498	411	504	406	501
		SQRT OF ANY	9.591663047	9.32737905	8.94427	9.32738	9.16515	9.32738
		ROUND OF THE MARKS	9.6	9.33	8.95	9.33	9.17	9.33

Result:

The numerical operations were implemented using MS-EXCEL successfully and the desired output was displayed.

EX NO: 2b	
DATE :	Perform data import/export operations for different file formats

AIM:

To perform data import/export operations for different file formats using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : Save the excel file.
- Step 4 : Export the file into CSV file using file menu and export option.
- Step 5: Next , import CSV file using data menu and get data option.
- Step 6 : Display the desired output in neat format.
- Step 7 : Save the excel file and Close the Ms Excel application.

EX NO: 2b

DATA IMPORT/EXPORT OPERATIONS FOR DIFFERENT FILE FORMATS

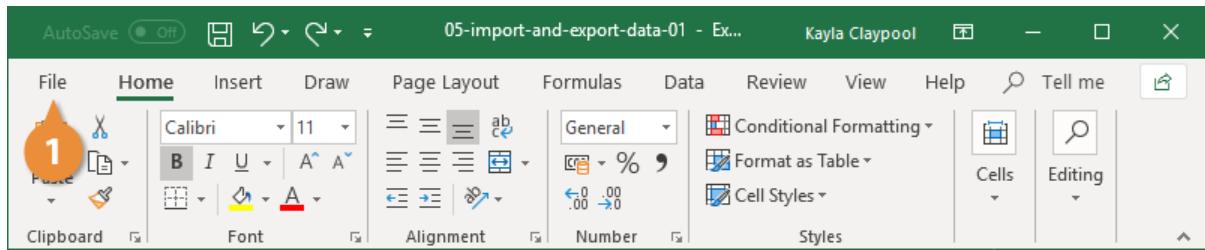
Data Import/Export Operations for Different File Formats

Excel can import and export many different file types aside from the standard .xlsx format. If your data is shared between other programs, like a database, you may need to save data as a different file type or bring in files of a different file type.

EXPORT DATA

When you have data that needs to be transferred to another system, export it from Excel in a format that can be interpreted by other programs, such as a text or CSV file.

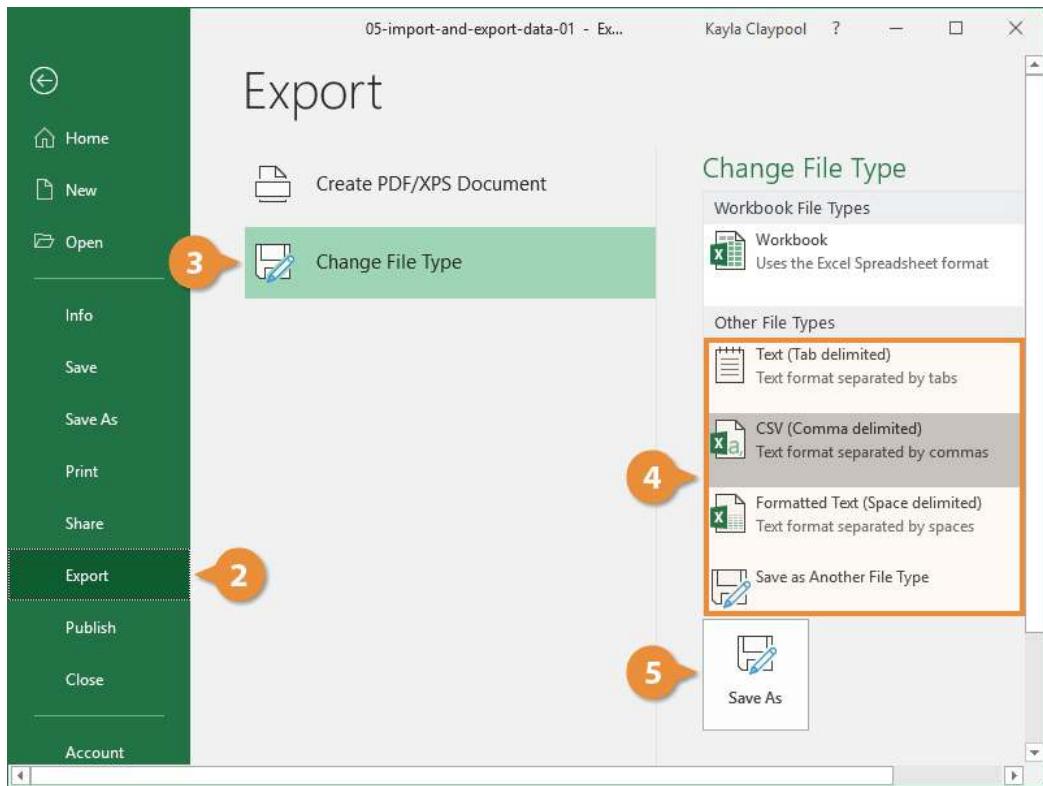
1. Click the **File** tab.



2. At the left, click **Export**.
3. Click the **Change File Type**.
4. Under Other File Types, select a file type.
 - o **Text (Tab delimited)**: The cell data will be separated by a tab.
 - o **CSV (Comma delimited)**: The cell data will be separated by a comma.
 - o **Formatted Text (space delimited)**: The cell data will be separated by a space.
 - o **Save as Another File Type**: Select a different file type when the Save As dialog box appears.

The file type you select will depend on what type of file is required by the program that will consume the exported data.

5. Click **Save As**.

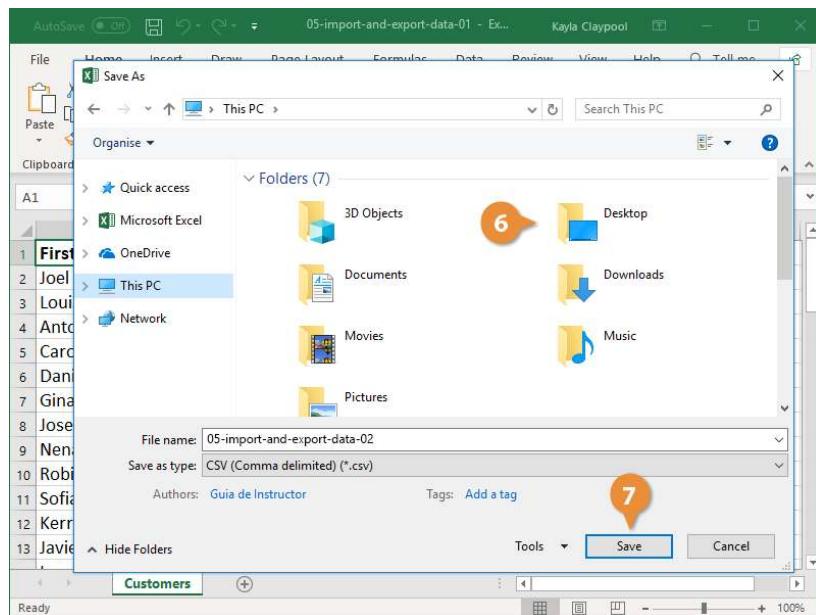


6. Specify where you want to save the file.
7. Click **Save**.

A dialog box appears stating that some of the workbook features may be lost.

8. Click **Yes**.

OUTPUT FOR EXPORTING THE FILE



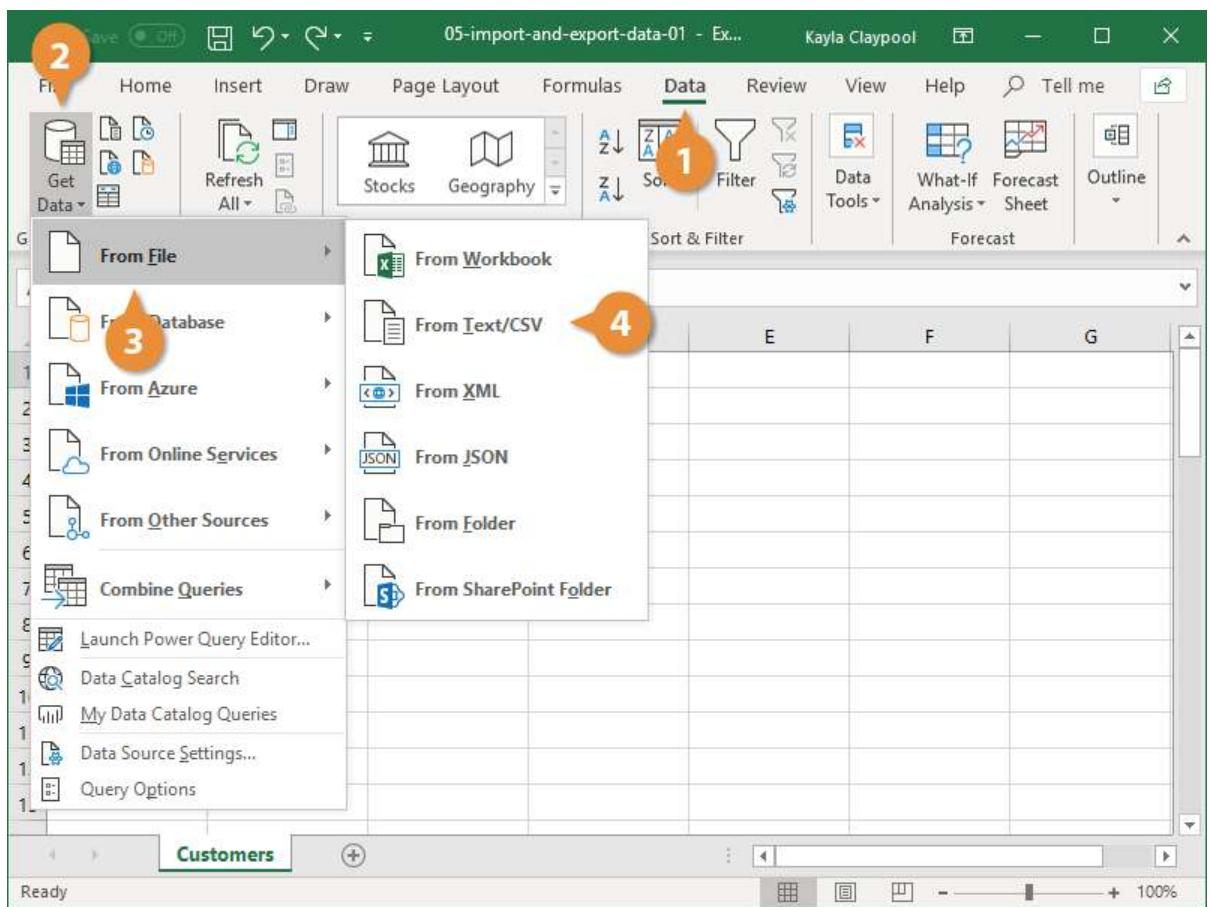
Import Data

Excel can import data from external data sources including other files, databases, or web pages.

1. Click the **Data** tab on the Ribbon..
2. Click the **Get Data** button.

Some data sources may require special security access, and the connection process can often be very complex. Enlist the help of your organization's technical support staff for assistance.

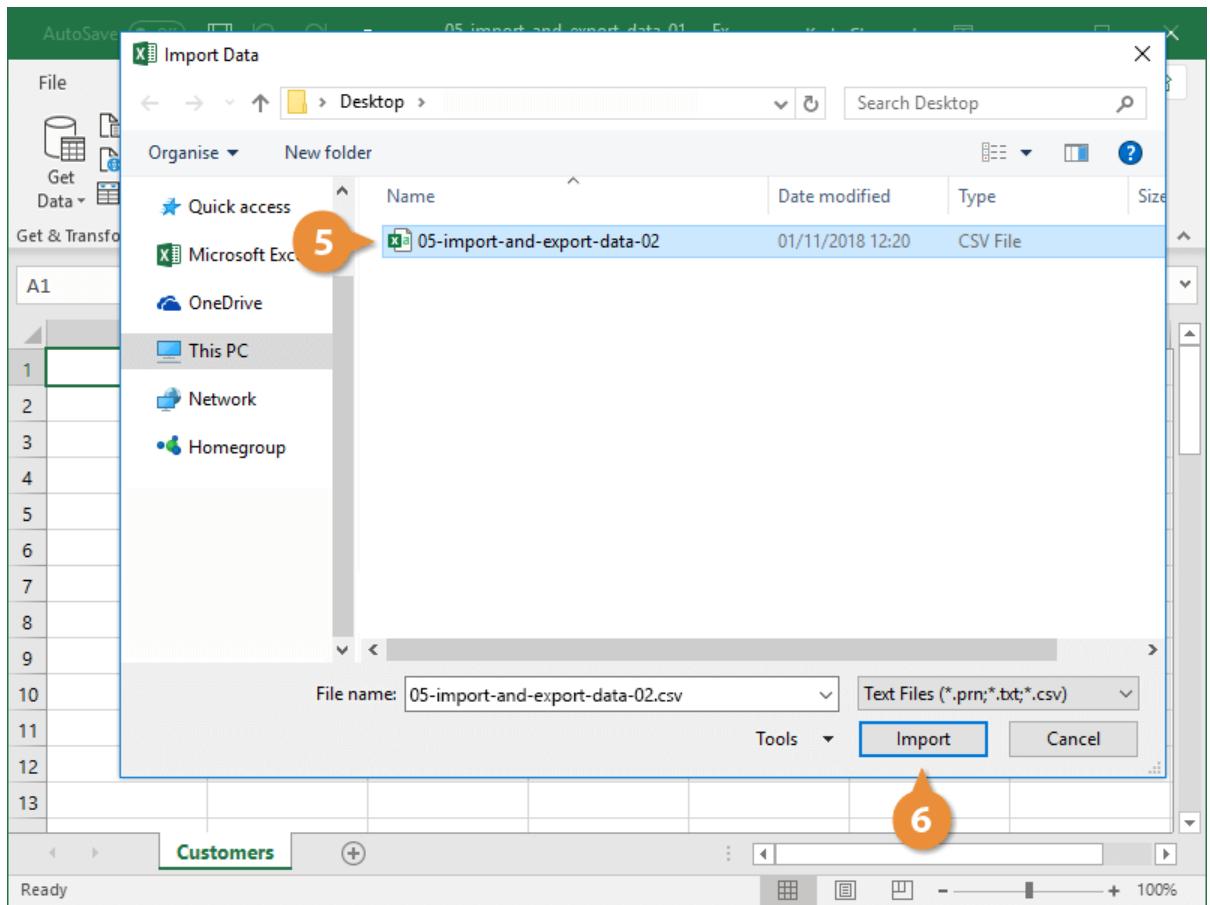
3. Select **From File**.
4. Select **From Text/CSV**.



If you have data to import from Access, the web, or another source, select one of those options in the Get External Data group instead.

5. Select the file you want to import.
6. Click **Import**.

If, while importing external data, a security notice appears saying that it is connecting to an external source that may not be safe, click **OK**.

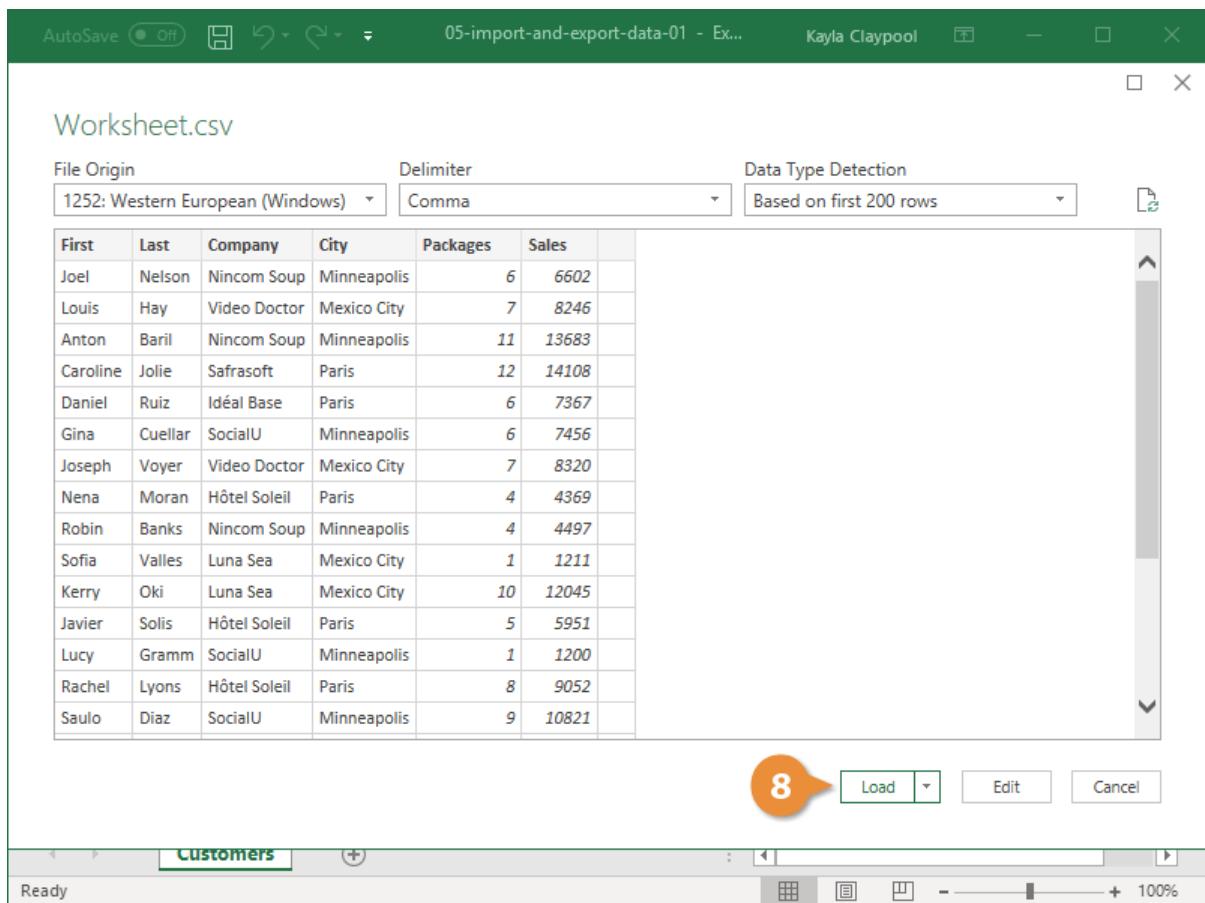


7. Verify the preview looks correct.

Because we've specified the data is separated by commas, the delimiter is already set. If you need to change it, it can be done from this menu.

8. Click **Load**.

OUTPUT FOR IMPORT THE FILE:



The screenshot shows the Microsoft Excel interface with a file titled "Worksheet.csv". The "File Origin" dropdown shows "1252: Western European (Windows)". The "Delimiter" dropdown shows "Comma". The "Data Type Detection" dropdown shows "Based on first 200 rows". The main area displays a table with the following data:

First	Last	Company	City	Packages	Sales
Joel	Nelson	Nincom Soup	Minneapolis	6	6602
Louis	Hay	Video Doctor	Mexico City	7	8246
Anton	Baril	Nincom Soup	Minneapolis	11	13683
Caroline	Jolie	Safrasoft	Paris	12	14108
Daniel	Ruiz	Idéal Base	Paris	6	7367
Gina	Cuellar	SocialU	Minneapolis	6	7456
Joseph	Voyer	Video Doctor	Mexico City	7	8320
Nena	Moran	Hôtel Soleil	Paris	4	4369
Robin	Banks	Nincom Soup	Minneapolis	4	4497
Sofia	Valles	Luna Sea	Mexico City	1	1211
Kerry	Oki	Luna Sea	Mexico City	10	12045
Javier	Solis	Hôtel Soleil	Paris	5	5951
Lucy	Gramm	SocialU	Minneapolis	1	1200
Rachel	Lyons	Hôtel Soleil	Paris	8	9052
Saulo	Diaz	SocialU	Minneapolis	9	10821

At the bottom right of the dialog, there are three buttons: "Load" (highlighted with a red circle), "Edit", and "Cancel".

Result:

The data import/export operations for different file formats were preformed successfully using MS-EXCEL.

EX NO: 3	PERFORM STATISTICAL OPERATIONS [Mean, Median, Mode and Standard Deviation, Variance, Skewness, Kurtosis]
DATE :	

AIM:

To Perform statistical operations using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : If you haven't already installed the **Analysis ToolPak** , Click the **Microsoft Office button**, then click on the **Excel Options** , and then select **Add-Ins** , Click **Go**, check the **Analysis ToolPak box**, and click **Ok**
- Step 4 : Select **Data tab**, then click on the **Data Analysis option**, then selects **Descriptive Statistics** from the list and Click **Ok**. [**Data tab >> Data Analysis >> Descriptive Statistics**]
- Step 5: In the **Input Range** we **select the data**, and then **select Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 6 : Check **Summary Statistics** and **Confidence Level for Mean options**. By default the confidence level is 95%. You can change the level as per the hypothesis standard of study.
- Step 7 : **When you click Ok, you will see the result in the selected output range.**
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 3**PERFORM STATISTICAL OPERATIONS**

student marksheets - Excel

Data

Add-ins available:

- Analysis ToolPak
- Analysis ToolPak - VBA
- Euro Currency Tools
- Solver Add-in

OK Cancel Browse Automation...

Analysis ToolPak
Provides data analysis tools for statistical and engineering analysis

Sno	Regno	Name of the Student	MAR551 Algebra and Number Theory	CS8591 Computer Networks	EC8631 Microprocessor and Microcontrollers	CS8590 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAKS	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JANGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75	80

Sheet1

student marksheets - Excel

Data

Analysis

Now Data analysis tab added, now click on

Analysis

Sno	Regno	Name of the Student	MAR551 Algebra and Number Theory	CS8591 Computer Networks	EC8631 Microprocessor and Microcontrollers	CS8590 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAKS	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JANGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75	80

Sheet1

Screenshot of Microsoft Excel showing the Data Analysis dialog box open. The dialog box lists various statistical tools under "Descriptive Statistics". A callout bubble points to the "OK" button with the text "Now select this option and press ok".

Sno	Regno	Name of the Student	MAT551 Algebra and Number Theory	CS6531 Computer Networks	EC6531 Microprocessor and Microcontrollers	CS6501 Theory of Computation	CS6502 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	90	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIAGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75	80

Screenshot of Microsoft Excel showing the Descriptive Statistics dialog box open. A callout bubble points to the "Input Range" field with the text "Now select this data range".

Sno	Regno	Name of the Student	MAT551 Algebra and Number Theory	CS6531 Computer Networks	EC6531 Microprocessor and Microcontrollers	CS6501 Theory of Computation	CS6502 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	90	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIAGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75	80

Screenshot of Microsoft Excel showing the Descriptive Statistics dialog box. The input range is set to \$D\$4:\$D\$9. The output range is set to \$C\$12. The 'Summary statistics' checkbox is checked. A callout bubble points to the output range field with the text: "Now select the any cell for output range to be displayed".

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessor and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biostatistics	Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	84	87	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80	87
3	212619104003	DEEPAK.S	80	72	77	87	80	87	87
4	212619104004	HARISH.G	80	87	87	80	80	80	80
5	212619104005	JAGANESHW.K	34	80	80	50	75	75	87
6	212619104006	JAYA LAKSHMI.T	71	32	80	80	75	80	80

Screenshot of Microsoft Excel showing the Descriptive Statistics dialog box. The input range is set to \$D\$4:\$D\$9. The output range is set to \$C\$12. The 'Summary statistics' checkbox is checked. A callout bubble points to the 'Summary statistics' checkbox with the text: "Now select this option and press ok".

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessor and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biostatistics	Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	84	87	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80	87
3	212619104003	DEEPAK.S	80	72	77	87	80	87	87
4	212619104004	HARISH.G	80	87	87	80	80	80	80
5	212619104005	JAGANESHW.K	34	80	80	50	75	75	87
6	212619104006	JAYA LAKSHMI.T	71	32	80	80	75	80	80

OUTPUT:

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75	80

Column1	
Mean	74
Standard Error	8.512735557
Median	80
Mode	80
Standard Deviation	20.85185843
Sample Variance	434.8
Kurtosis	3.733266953
Skewness	-1.838637384
Range	58
Minimum	34
Maximum	92
Sum	444
Count	6

Result:

The statistical operations were performed successfully using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 4A	
DATE :	Perform Z-test

AIM:

To Perform Z-test operations using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : If you haven't already installed the **Analysis ToolPak** , Click the **Microsoft Office button**, then click on the **Excel Options** , and then select **Add-Ins** , Click **Go**, check the **Analysis ToolPak box**, and click **Ok**
- Step 4 : Select **Data tab**, then click on **the Data Analysis option**, then selects **Descriptive Statistics** from the list and Click **Ok**. [**Data tab >> Data Analysis >>z-test two sample means**]
- Step 5: In the **Input Range** we **select range of the data for** variable 1 and variable 2 and Give variable 1 and variable 2 value as 0.5. then **select Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 6 : Then **select Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 7 : When you click Ok, you will see the result in the selected output range.
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 4A - Perform Z-test

The screenshot shows a Microsoft Excel spreadsheet titled "student marksheet - Excel". The Data tab is selected, and the Data Analysis button is being used to open the "Data Analysis" dialog box. The "Analysis Tools" section is visible, and the "z-Test: Two Sample for Means" option is highlighted.

Sno	Regno	Name of the Student	MAS551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design
1	212619104001	ABIRAMI.N	92	87	80	87	84
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87
3	212619104003	DEEPAK.S	80	72	77	87	80
4	212619104004	HARISH.G	80	87	87	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75

The screenshot shows the "z-Test: Two Sample for Means" dialog box in Microsoft Excel. The "Input" section has "Variable 1 Range: \$D\$4:\$D\$9" and "Variable 2 Range: \$E\$4:\$E\$9" selected. The "Hypothesized Mean Difference:" field is empty. Under "Output options", the "Output Range:" radio button is selected, and the output range is set to "\$I\$11". A callout bubble points to this setting with the text "(3) Now give values above 1". Another callout bubble points to the "Variable 1 Range" with the text "(1) Now select this data range". A third callout bubble points to the "Output Range" with the text "(3) Now select the any cell for output range to be displayed".

Sno	Regno	Name of the Student	MAS551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design
1	212619104001	ABIRAMI.N	92	87	80	87	84
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87
3	212619104003	DEEPAK.S	80	72	77	87	80
4	212619104004	HARISH.G	80	87	87	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75

OUTPUT:

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI. T	71	92	80	80	75	80
z-Test: Two Sample for Means								
Variable 1 Variable 2								
Mean 74 83								
Known Variance 0.5 0.5								
Observations 6 6								
Hypothesized Mean Difference 0								
z -22.045408								
P(Z<=z) one-tail 0								
z Critical one-tail 1.64485363								
P(Z<=z) two-tail 0								
z Critical two-tail 1.95996398								

Result:

The Z-test operation was performed successfully using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 4B	
DATE :	Perform T-test

AIM:

To Perform T-test operations using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : If you haven't already installed the **Analysis ToolPak** , Click the **Microsoft Office button**, then click on the **Excel Options** , and then select **Add-Ins** , Click **Go**, check the **Analysis ToolPak box**, and click **Ok**
- Step 4 : Select **Data tab**, then click on the **Data Analysis option**, then selects **Descriptive Statistics** from the list and Click **Ok**. [**Data tab >> Data Analysis >> T-test Paired two sample for means**]
- Step 5: In the **Input Range** we select **range of the data for variable 1 and variable 2** and Give alpha value as 0.05. then **select Output Range where you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 6 : Then **select Output Range where you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 7 : When you click Ok, you will see the result in the selected output range.
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 4 B

Perform T-test

The screenshot shows an Excel spreadsheet titled "student marksheets - Excel". The Data tab is selected, and the Data Analysis button is being used to open the Data Analysis dialog box. The "Analysis Tools" section is visible, and the "t-Test: Paired Two Sample for Means" option is highlighted.

Sno	Regno	Name of the Student	MAB551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Instrum	OMD551 Basic of Biomedical Instrum	
1	212619104001	ABIRAMI N		92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N		87	80	87	80	87	80
3	212619104003	DEEPAK.S		80	72	77	87	80	87
4	212619104004	HARISH.G		80	87	87	80	80	80
5	212619104005	JAIGANESH.K		34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T		71	92	80	80	75	80

The screenshot shows the same Excel spreadsheet and Data Analysis dialog box as the previous image. This time, the "t-Test: Paired Two Sample for Means" dialog box is open. A callout bubble points to the "Output Range" field, which contains the value "\$B\$12". Another callout bubble points to the "Variable 1 Range" field, which contains "\$D\$4:\$D\$9".

Sno	Regno	Name of the Student	MAB551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Instrum	OMD551 Basic of Biomedical Instrum	
1	212619104001	ABIRAMI N		92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N		87	80	87	80	87	80
3	212619104003	DEEPAK.S		80	72	77	87	80	87
4	212619104004	HARISH.G		80	87	87	80	80	80
5	212619104005	JAIGANESH.K		34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T		71	92	80	80	75	80

OUTPUT:

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARISH.G	80	87	87	80	80	80
5	212619104005	JAIGANESH.K	34	80	80	90	75	87
6	212619104006	JAYA LAKSHMI. T	71	92	80	80	75	80
<hr/>								
t-Test: Paired Two Sample for Means								
		Variable 1	Variable 2					
Mean		74	83					
Variance		434.8	50.4					
Observations		6	6					
Pearson Correlation		0.113487818						
Hypothesized Mean		0						
df		5						
t Stat		-1.037387876						
P(T<=t) one-tail		0.173548244						
t Critical one-tail		2.015048373						
P(T<=t) two-tail		0.347096488						
t Critical two-tail		2.570581836						

Result:

The T-test operation was performed successfully using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 4C	
DATE :	Perform ANOVA operations

AIM:

To Perform ANOVA operations using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : If you haven't already installed the **Analysis ToolPak** , Click the **Microsoft Office button**, then click on the **Excel Options** , and then select **Add-Ins** , Click **Go**, check the **Analysis ToolPak box**, and click **Ok**
- Step 4 : Select **Data tab**, then click on the **Data Analysis option**, then selects **Descriptive Statistics** from the list and Click **Ok**. [**Data tab >> Data Analysis >> Anova : Single factor**]
- Step 5: In the **Input Range** we select **range of the data** and Give alpha value as 0.05. then **select Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 6 : Then **select Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 7 : When you click Ok, you will see the result in the selected output range.
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 4C - Perform ANOVA

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. A 'Data Analysis' dialog box is open, displaying a list of statistical tools. The 'Anova: Single Factor' option is highlighted. The main worksheet contains a table of student marksheets.

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessor and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	94	87
2	212619104002	DABY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARSH.G	80	87	87	89	80	80
5	212619104005	JAIAGANESH.K	94	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75	80

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. An 'Analysis' dialog box is open, with the 'Input Range' field set to '\$D\$4:\$I\$9'. A callout bubble points to this field with the instruction '(1)Now select this data range'. Another callout bubble points to the 'New Worksheet Ply:' dropdown with the instruction '(2)Now select the NEW WORKSHEET for output to be displayed'.

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessor and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMIN	92	87	80	87	94	87
2	212619104002	DABY DEEPIKA.N	87	80	87	80	87	80
3	212619104003	DEEPAK.S	80	72	77	87	80	87
4	212619104004	HARSH.G	80	87	87	89	80	80
5	212619104005	JAIAGANESH.K	94	80	80	90	75	87
6	212619104006	JAYA LAKSHMI.T	71	92	80	80	75	80

OUTPUT:

Anova: Single Factor

Groups	Count	Sum	Average	Variance
92	5	352	70.4	446.3
87	5	411	82.2	58.2
80	5	411	82.2	20.7
87	5	417	83.4	22.8
84	5	397	79.4	24.3
87	5	414	82.8	14.7

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	607.8666667	5	121.5733333	1.242657581	0.320454766	2.620654148
Within Groups	2348	24	97.83333333			
Total	2955.866667	29				

Result:

The ANOVA operations was performed successfully using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 5A	Perform data pre-processing operations - Handling Missing data
DATE :	

AIM:

To handle the missing data in data pre-processing operations on the dataset using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : If you haven't already installed the **PrimaXL Addin, install it.** Click the **PrimaXL tab** , choose missing
- Step 4 : In the **Input Range** we select marks of all subjects with missing values and select the **Choice** as "*filling of the missing data by taking average*" or "*filling of the missing data by random pick*".
- Step 5: Then select Output Range where you want the output to be stored. If you don't specify the output range it will throw output in the new worksheet.
- Step 6 : Then **select Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 7 : When you click Ok, you will see the result in the selected output range.
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 5A

Perform data pre-processing operations - Handling Missing data

student marksheets 3 - Excel

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K6

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	EC8691 Microprocessors	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87
3	212619104003	DEEPAK RAJ.S	80			87	80
4	212619104004	HARISH.G	80	87	87	80	80
5	212619104005	JAIGANESH.K	34	80		90	75
6	212619104006	JAYA LAKSHMI.T	71	92	80		75

student marksheets 3

Ready Accessibility: Good to go

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student marksheets 3 - Excel

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I14

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	EC8691 Microprocessors	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI.N	92	87	80	87	84
2	212619104002	DAISY DEEPIKA.N	87	80	87	80	87
3	212619104003	DEEPAK RAJ.S	80			87	80
4	212619104004	HARISH.G	80	87	87	80	80
5	212619104005	JAIGANESH.K	34	80		90	75
6	212619104006	JAYA LAKSHMI.T	71	92	80		75

student marksheets 3

Ready Accessibility: Good to go

31°C Sunny Search ENG IN 09:34 04-10-2023

student marksheet 3 - Excel

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Tests ARMA GARCH VAR/ VECM Cointegration Linear Logistic Multi PCA Clusters Network Smoothing Kalman Filter Regression Data Mining Smoothing Charts Curves Plots Random Outliers Covar/Correl Utilities FiAN Research About

D10

Filling of the Missing Data

Input and Specification

Data Range : 'student marksheet 3'!\$D\$3:\$E\$8

Choice : Average of the existing data samples

Output

Output to : 'student marksheet 3'!\$D\$10

Output to a new sheet : Show in red :

Reset

	A	B	C	D	E	F	G
1				MA8551 Algebra and Number Theory	EC8691 Microprocessors Computer Networks	CS8501 Theory of Computat ion	
2 Sno	Regno	Name of the Student					
3 1	212619104001	ABIRAMI.N	92	87	80	87	
4 2	212619104002	DAISY DEEPIKA.N	87	80	87	80	
5 3	212619104003	DEEPAK RAJ.S	80			87	
6 4	212619104004	HARISH.G	80	87	87	80	
7 5	212619104005	JAIGANESH.K	34	80		90	
8 6	212619104006	JAYA LAKSHMI.T	71	92	80		
9						75	87
10						75	80
11							
12							
13							
14							
15							
16							
17							

student marksheet 3

Ready Accessibility: Good to go 31°C Sunny Search ENG IN 04-10-2023 09:39 100%

student marksheet 3 - Excel

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Tests ARMA GARCH VAR/ VECM Cointegration Linear Logistic Multi PCA Clusters Network Smoothing Kalman Filter Data Mining Smoothing Charts Curves Plots Random Outliers Covar/Correl Utilities FiAN Research About

D19

A B C D E F

	Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microproces and Microcontro
2	1	212619104001	ABIRAMI.N	92	87	80
3	2	212619104002	DAISY DEEPIKA.N	87	80	87
4	3	212619104003	DEEPAK RAJ.S	80		
5	4	212619104004	HARISH.G	80	87	87
6	5	212619104005	JAIGANESH.K	34	80	
7	6	212619104006	JAYA LAKSHMI.T	71	92	80
9						
10						
11				92	87	80
12				87	80	87
13				80	85.2	83.5

Filling of the Missing Data

Input and Specification

Data Range : 'student marksheet 3'!\$D\$3:\$I\$8

Run Exit

Choice : Random pick from the existing data samples

Output

Output to : 'student marksheet 3'!\$D\$19

Output to a new sheet : Show in red :

Reset

FILLING OF THE MISSING DATA BY TAKING AVERAGE

92	87	80	87	84	87
87	80	87	80	87	80
80	85.2	83.5	87	80	87

student marksheet 3

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OUTPUT:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
7	5	212619104005 JAIGANESH.K	34	80		90	75	87						
8	6	212619104006 JAYA LAKSHMI. T	71	92	80		75	80						
FILLING OF THE MISSING DATA BY RANDOM PICK														
11			92	87	80	87	84	87						
12			87	80	87	80	87	80						
13			80	85.2	83.5	87	80	87						
14			80	87	87	80	80	80						
15			34	80	83.5	90	75	87						
16			71	92	80	84.8	75	80						
FILLING OF THE MISSING DATA BY TAKING AVERAGE														
19			92	87	80	87	84	87						
20			87	80	87	80	87	80						
21			80	92	87	87	80	87						
22			80	87	87	80	80	80						
23			34	80	87	90	75	87						
24			71	92	80	87	75	80						
25														

Result:

The missing data on dataset was handled successfully using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 5A	Perform data pre-processing operations - Normalization
DATE :	

AIM:

To normalize in the given dataset using MS-EXCEL.

Normalization (Or Min-Max scaling) data in excel

It is the process of scaling data in such a way that all data points lie in a range of 0 to 1. Thus, this technique, makes it possible to bring all data points to a common scale. The mathematical formula for normalization is given as:

$$X' = \frac{X - X_{min}}{X_{max} - X_{min}}$$

where X is the data point, X_{max} and X_{min} are the maximum and minimum value in the group of records respectively. The process of normalization is generally used when the distribution of data does not follow the Gaussian distribution.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for sales data in Ms Excel application.
- Step 3 : Find maximum and minimum values of given data set.
- Step 4 : Calculate the difference between maximum and minimum values
- Step 5: Apply the normalization formula using maximum value, minimum value and difference value.
- Step 6 : Find the best value of the normalized data.
- Step 7 : Display the normalized data in desired format .
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 5A**Perform data pre-processing operations - Normalization****OUTPUT:**

The screenshot shows a Microsoft Excel spreadsheet titled "Unpivot Sales Data - Excel". The data is organized into several columns: sno, Region, State, branch, Month, no of customers, Sales, and no of customers. Row 11 contains summary statistics: MIN (32), MAX (55), and Difference (23). The data is color-coded by region: South (rows 2-4), West (rows 5-7), Central (rows 8-9), and Central (row 10). The Excel ribbon is visible at the top, and the status bar at the bottom shows the date and time.

sno	Region	State	branch	Month	no of customers	Sales	no of customers	Sales	Total	K	L
1	South	Kentucky	A1	Jan	32	10000	0.00	0.00	0.00		
2	2	West	California	A2	Jan	45	12000	0.57	0.10	0.67	
3	3	South	Florida	A3	Jan	55	18000	1.00	0.40	1.40	
4	4	West	California	A4	Jan	50	20000	0.78	0.50	1.28	
5	5	South	North Carolina	A5	Jan	50	22000	0.78	0.60	1.38	
6	6	West	Washington	A6	Jan	40	24000	0.35	0.70	1.05	
7	7	Central	Texas	A7	Jan	52	26000	0.87	0.80	1.67	
8	8	Central	Wisconsin	A8	Jan	50	28000	0.78	0.90	1.68	
9	9	West	Utah	A9	Jan	41	30000	0.39	1.00	1.39	
11					MIN	32	10000				
12					MAX	55	30000				
13					Difference	23	20000				
14											

RESULT:

The given dataset was normalized using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 6	Perform dimensionality reduction operation using PCA, KPCA & SVD
DATE :	

AIM:

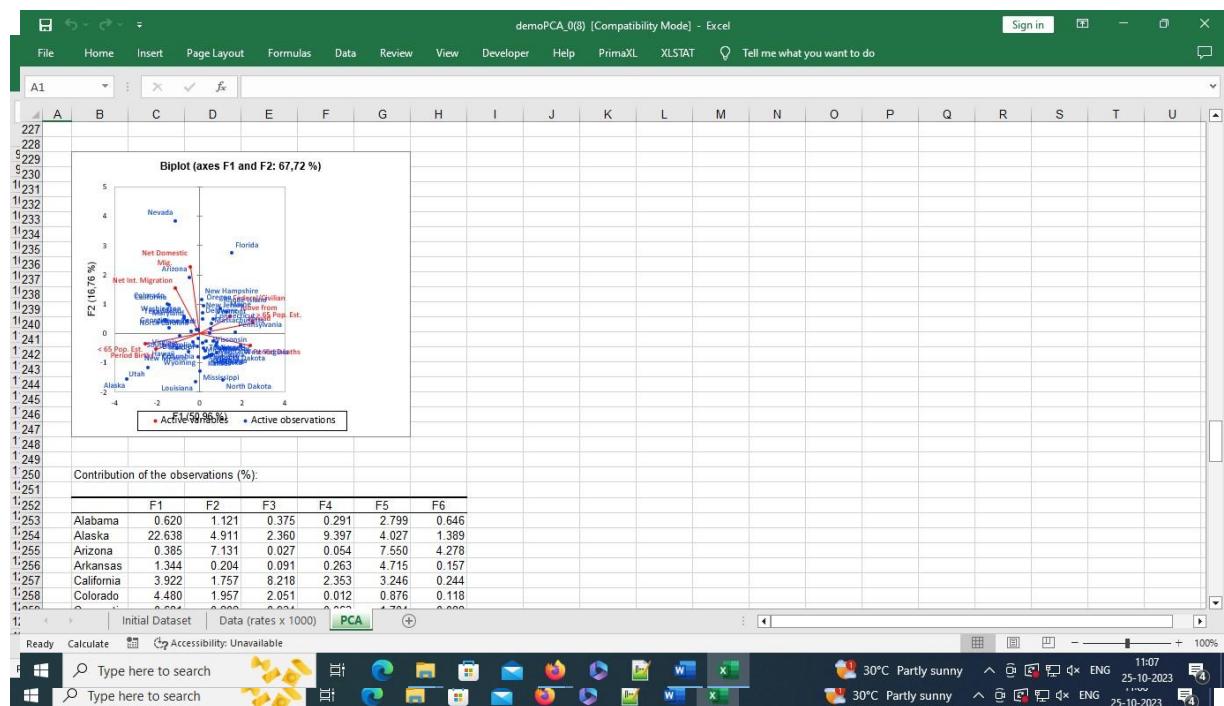
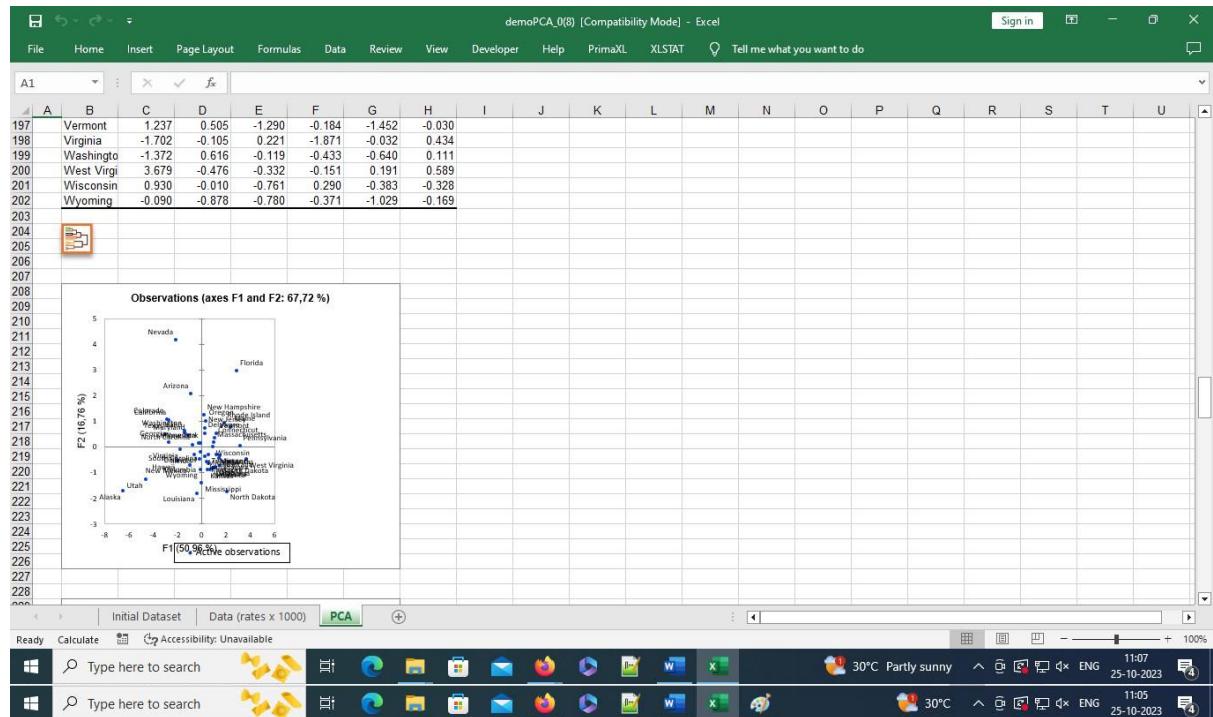
To Perform dimensionality reduction operation using PCA, KPCA & SVD

PROCEDURE:

Step 1 :	Start Ms Excel application in Ms- office.
Step 2 :	Open XLSTAT . Select the XLSTAT / Analyzing data / Principal components analysis command. The Principal Component Analysis dialog box will appear.
Step 3 :	Select the data on the Excel sheet.
Step 4 :	Select Observations/variables in the Data format field because of the format of the input data and Select Correlation in the PCA type field.
Step 5:	In the Outputs tab, activate the option to display significant correlations in bold characters (Test significance).
Step 6 :	In the Charts tab, in order to display the labels on all charts, and to display all the observations (observations charts and biplots), uncheck the filtering option.
Step 7 :	If there is a lot of data, displaying the labels might slow down the global display of the results. Displaying all the observations might make the results unreadable. In these cases, filtering the observations to display is recommended
Step 8:	Click OK to launch the computations.
Step 7 :	Save the excel file and Close the Ms Excel application.

EX NO: 6

Perform dimensionality reduction operation using PCA, KPCA & SVD

OUTPUT:**RESULT:**

The given dataset was performed dimensionality reduction operation using PCA, KPCA & SVD and the desired output was displayed in neat format.

EX NO: 7a	PERFORM BIVARIATE ANALYSIS ON THE DATASET
DATE :	

AIM:

To Perform bivariate analysis on the dataset using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : If you haven't already installed the **Analysis ToolPak** , Click the **Microsoft Office button**, then click on the **Excel Options** , and then select **Add-Ins** , Click **Go**, check the **Analysis ToolPak box**, and click **Ok**
- Step 4 : Select **Data tab**, then click on the **Data Analysis option**, then selects **Descriptive Statistics** from the list and Click **Ok**. [**Data tab >> Data Analysis >>**]
- Step 5: In the **Input Range** we select **quantity** as **x range** and **discount** as **y range** then select Output Range where you want the output to be stored. If you don't specify the output range it will throw output in the new worksheet.
- Step 6 : Then select **Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 7 : When you click Ok, you will see the result in the selected output range.
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 7A - PERFORM BIVARIATE ANALYSIS

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. A context menu is open over a data range in the worksheet, with 'Data Analysis' selected. The 'Analysis Tools' dialog box is displayed, showing 'Regression' as the selected option. The data in the worksheet consists of four columns: Category, Region, Quantity, and Discount, with data points from row 2 to 17.

Category	Region	Quantity	Discount
Furniture	South	2	1
Furniture	South	3	2
Office Supplies	West	2	0.3
Furniture	South	5	0.45
Office Supplies	South	2	0.2
Furniture	West	7	0.6
Office Supplies	West	4	1
Technology	West	6	0.2
Office Supplies	West	3	0.2
Office Supplies	West	5	0.8
Furniture	West	9	0.2
Technology	West	4	0.2
Office Supplies	South	3	0.2
Office Supplies	West	3	0.2
Office Supplies	Central	5	0.8
Office Supplies	Central	3	0.8

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. The 'Regression' dialog box is open, showing 'Input Y Range' as \$D\$2:\$D\$17 and 'Input X Range' as \$E\$2:\$E\$17. A green callout box points to the 'Input X Range' field with the text: 'Select quantity as x range and discount as y range'. The data in the worksheet is the same as the previous screenshot.

Category	Region	Quantity	Discount
Furniture	South	2	1
Furniture	South	3	2
Office Supplies	West	2	0.3
Furniture	South	5	0.45
Office Supplies	South	2	0.2
Furniture	West	7	0.6
Office Supplies	West	4	1
Technology	West	6	0.2
Office Supplies	West	3	0.2
Office Supplies	West	5	0.8
Furniture	West	9	0.2
Technology	West	4	0.2
Office Supplies	South	3	0.2
Office Supplies	West	3	0.2
Office Supplies	Central	5	0.8
Office Supplies	Central	3	0.8

Select any cell for output range to display output and press OK

Category	Region	Quantity	Discount
Furniture	South	2	1
Furniture	South	3	2
Office Supplies	West	2	0.3
Furniture	South	5	0.45
Office Supplies	South	2	0.2
Furniture	West	7	0.6
Office Supplies	West	4	1
Technology	West	6	0.2
Office Supplies	West	3	0.2
Office Supplies	West	5	0.8
Furniture	West	9	0.2
Technology	West	4	0.2
Office Supplies	South	3	0.2
Office Supplies	West	3	0.2
Office Supplies	Central	5	0.8
Office Supplies	Central	3	0.8

OUTPUT:

The screenshot shows a Microsoft Excel spreadsheet titled "Sample Sales Data Excel - Excel". The data is organized into two main sections: "Orders Data" and "SUMMARY OUTPUT".

Orders Data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P			
1		Category	Region	Quantity	Discount			SUMMARY OUTPUT											
2		Furniture	South	2	1			Regression Statistics											
3		Furniture	South	3	2			Multiple R 0.098291647											
4		Office Supplies	West	2	0.3			R Square 0.009661248											
5		Furniture	South	5	0.45			Adjusted R Square -0.066518656											
6		Office Supplies	South	2	0.2			Standard Error 2.00809767											
7		Furniture	West	7	0.6			Observations 15											
8		Office Supplies	West	4	1			ANOVA											
9		Technology	West	6	0.2			df SS MS F Significance F											
10		Office Supplies	West	3	0.2			Regression 1 0.511402057 0.511402057 0.126821477 0.727463464											
11		Office Supplies	West	5	0.8			Residual 13 52.42193128 4.032456252											
12		Furniture	West	9	0.2			Total 14 52.93333333											
13		Technology	West	4	0.2														
14		Office Supplies	South	3	0.2														
15		Office Supplies	West	3	0.2														
16		Office Supplies	Central	5	0.8														
17		Office Supplies	Central	3	0.8														

SUMMARY OUTPUT:

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	4.476637788	0.785154562	5.701600683	7.27351E-05	2.780414482	6.172861095	2.780414482	6.172861095
1	-0.386449917	1.085167593	-0.356120032	0.727463464	-2.730811971	1.957912137	-2.730811971	1.957912137

Result:

The bivariate analysis on dataset was performed successfully using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 7b	PERFORM MULTIVARIATE ANALYSIS ON THE DATASET
DATE :	

AIM:

To Perform multivariate analysis on the dataset using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : If you haven't already installed the **Analysis ToolPak** , Click the **Microsoft Office button**, then click on the **Excel Options** , and then select **Add-Ins** , Click **Go**, check the **Analysis ToolPak** box, and click **Ok**
- Step 4 : Select **Data tab**, then click on the **Data Analysis option**, then selects **Descriptive Statistics** from the list and Click **Ok**. [**Data tab >> Data Analysis >>**]
- Step 5: In the **Input Range** we Select quantity as x range and discount and profit as y range , then select Output Range where you want the output to be stored. If you don't specify the output range it will throw output in the new worksheet.
- Step 6 : Then select **Output Range** where **you want the output to be stored**. If you don't specify the output range it will throw output in the new worksheet.
- Step 7 : When you click Ok, you will see the result in the selected output range.
- Step 8: Save the excel file and Close the Ms Excel application.

EX NO: 7b - PERFORM MULTIVARIATE ANALYSIS

The screenshot shows a Microsoft Excel window titled "Sample Sales Data Excel - Excel". The Data tab is selected in the ribbon. A context menu is open over a data range from E2 to E17, listing options like "From Text/CSV", "Recent Sources", "Get & Transform Data", "Queries & Connections", "Sort & Filter", "Text to Columns", "What-if Forecast Sheet", "Group", "Ungroup", "Subtotal", and "Data Analysis". The "Data Analysis" option is highlighted. A "Data Analysis" dialog box is displayed, showing a list of analysis tools including Covariance, Descriptive Statistics, Exponential Smoothing, F-T test Two-Sample for Variances, Fourier Analysis, Histogram, Moving Average, Random Number Generation, Rank and Percentile, and Regression. The "Regression" option is selected. The main worksheet contains a table with columns: Category, Region, Quantity, Discount, and Profit.

This screenshot is similar to the one above, but the "Regression" dialog box is now open and visible. It shows the "Input" section with "Input Y Range" set to \$D\$2:\$D\$17 and "Input X Range" set to \$E\$2:\$F\$17. A green callout bubble points to the "Input X Range" field with the text "Select quantity as x range and discount and profit as y range". The rest of the dialog box includes fields for "Labels", "Confidence Level" (set to 95%), and various "Output options" like "Output Range", "Residuals", "Normal Probability", and "Plots". The main worksheet table remains the same.

Sample Sales Data Excel - Excel

File Home Insert Draw Page Layout Formulas Data Review View Developer Help PrimaXL Tell me what you want to do

From Text/CSV From Web Recent Sources Existing Connections Refresh Properties All Sort Filter Advanced Text to Columns What-If Forecast Analysis Sheet Group Ungroup Subtotal Outline Data Tools Forecast Outline Analysis

Regression

Input
Input Y Range: \$D\$2:\$D\$17
Input X Range: \$E\$2:\$F\$17
 Labels Constant is Zero
 Confidence Level: 95 %

Output options
 Output Range: \$I\$1
 New Worksheet Ply:
 New Workbook Residuals
 Residuals
 Standardized Residuals
 Residual Plots
 Standardized Residual Plots
 Line Fit Plots Normal Probability
 Normal Probability Plots

OK Cancel Help

Learn more

Category	Region	Quantity	Discount	Profit
Furniture	South	2	1	261.96
Furniture	South	3	2	731.94
Office Supplies	West	2	0.3	14.62
Furniture	South	5	0.45	957.578
Office Supplies	South	2	0.2	22.368
Furniture	West	7	0.6	48.86
Office Supplies	West	4	1	7.28
Technology	West	6	0.2	907.152
Office Supplies	West	3	0.2	18.504
Office Supplies	West	5	0.8	114.9
Furniture	West	9	0.2	1706.18
Technology	West	4	0.2	911.424
Office Supplies	South	3	0.2	15.552
Office Supplies	West	3	0.2	407.976
Office Supplies	Central	5	0.8	68.81
Office Supplies	Central	3	0.8	68.81

Orders Data Sheet1

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OUTPUT:

The screenshot shows a Microsoft Excel spreadsheet titled "Sample Sales Data Excel - Excel". The data is organized into two main sections: "Orders Data" (rows 1-17) and "SUMMARY OUTPUT" (rows 18-21). The "Orders Data" section contains columns for Category, Region, Quantity, Discount, and Profit. The "SUMMARY OUTPUT" section contains three tables: "Regression Statistics", "ANOVA", and "Coefficients".

Regression Statistics:

	Value
Multiple R	0.615357545
R Square	0.378654652
Adjusted R Square	0.275108772
Standard Error	1.655579889
Observations	15

ANOVA:

	df	SS	MS	F	Significance F
Regression	2	20.04398277	10.02199198	3.656612103	0.057538207
Residual	12	31.88595056	2.740775214		
Total	14	52.93533333			

Coefficients:

	Coefficients	Standard Error	t Stat	P value	Lower 95%	Upper 95%	Lower 5%	Upper 5%
Intercept	8.440379003	0.758242525	4.580590045	0.000631787	1.808640570	5.0000117608	1.808640375	5.0000117608
1	-0.170045281	0.398296352	-0.489601492	0.852767779	-2.127554898	1.786374330	-2.127554898	1.786374330
251.99	0.002273EG0	0.000651768	2.69579062	0.020426G38	0.000418019	0.00412970G	0.000413019	0.00412970G

Result:

The multivariate analysis on the dataset was performed successfully using MS-EXCEL and the desired output was displayed in neat format.

EX NO: 8	PLOTTING FUNCTIONS ON THE DATA SET
DATE :	

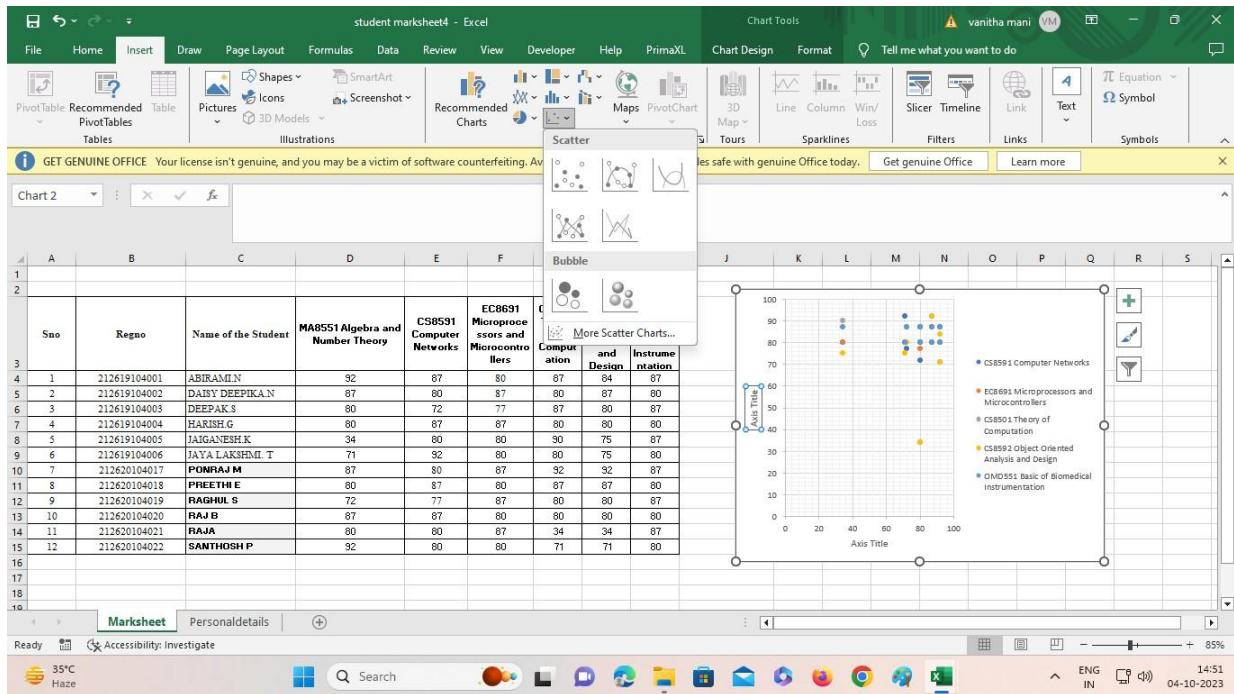
AIM:

To apply and explore various plotting functions on the data set using MS-EXCEL.

PROCEDURE:

- Step 1 : Start Ms Excel application in Ms- office.
- Step 2 : Create datasheet for student marks in Ms Excel application.
- Step 3 : select the data for which a chart is to be created.
- Step 4 : In the INSERT menu, select Recommended Charts.
- Step 5 : Choose any chart from the list of charts Excel recommends for your data on the Recommended Charts tab, and click it to preview how it will look with your data.
- Step 6 : Click on All Charts if you are unable to locate a chart you like.
- Step 7 : Click on the chart that you prefer and then click OK.
- Step 8 : Add chart elements such as axis titles or data labels, customize the appearance of the chart, or change the data displayed in the chart by clicking on Chart Elements, Chart Styles, and Chart Filters in the upper-right corner of the chart.
- Step 9 : Click on the chart TOOLS tab on the ribbon to add additional design and formatting capabilities and then click the options you desire under the DESIGN and FORMAT tabs.
- Step 10: When you click Ok, you will see the result in the selected output range.
- Step 11 : Save the excel file and Close the Ms Excel application.

OUTPUT:



RESULT:

The plotting functions was applied and explored on the data set successfully using MS-EXCEL and the desired output was displayed in neat format.

II Cycle

Power BI Desktop

EX NO: 9	Explore the features of Power BI Desktop
DATE :	

AIM:

To explore the features of Power BI Desktop

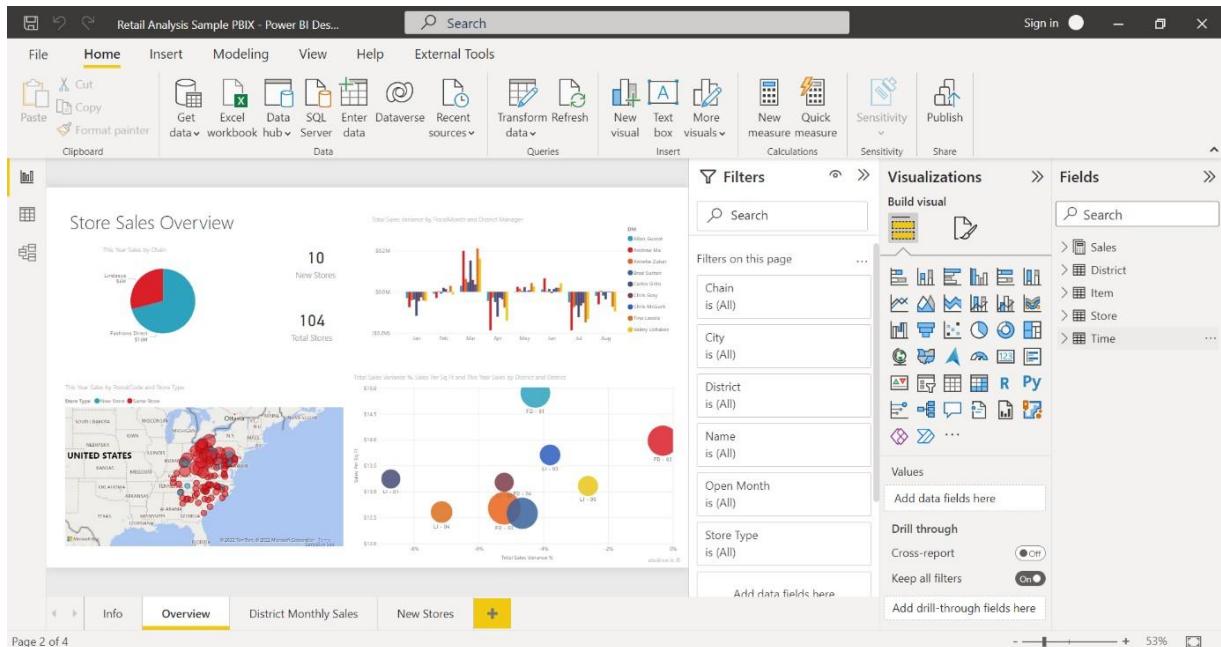
PROCEDURE:

- Step 1 : Start Power BI Desktop
- Step 2 : Connect to data.
- Step 3 : Transform and clean data to create a data model.
- Step 4 : Create visuals, such as charts or graphs that provide visual representations of the data.
- Step 5: Create reports that are collections of visuals on one or more report pages.
- Step 6 : Share reports with others by using the Power BI service.
- Step 7 : Save the file in desired location
- Step 8 : Close the Power BI Desktop application

Explore the features of Power BI Desktop

What is Power BI Desktop?

Power BI Desktop is a free application you install on your local computer that lets you connect to, transform, and visualize your data. With Power BI Desktop, you can connect to multiple different sources of data, and combine them (often called *modeling*) into a data model. This data model lets you build visuals, and collections of visuals you can share as reports, with other people inside your organization. Most users who work on business intelligence projects use Power BI Desktop to create reports, and then use the *Power BI service* to share their reports with others.



The most common uses for Power BI Desktop are as follows:

- Connect to data.
- Transform and clean data to create a data model.
- Create visuals, such as charts or graphs that provide visual representations of the data.
- Create reports that are collections of visuals on one or more report pages.
- Share reports with others by using the Power BI service.

People who are responsible for such tasks are often considered *data analysts* (sometimes referred to as *analysts*) or business intelligence professionals (often referred to as *report creators*). Many people who don't consider themselves an analyst or a report creator use Power BI Desktop to create compelling reports, or to pull data from various sources. They can build data models, and then share the reports with their coworkers and organizations.

Important

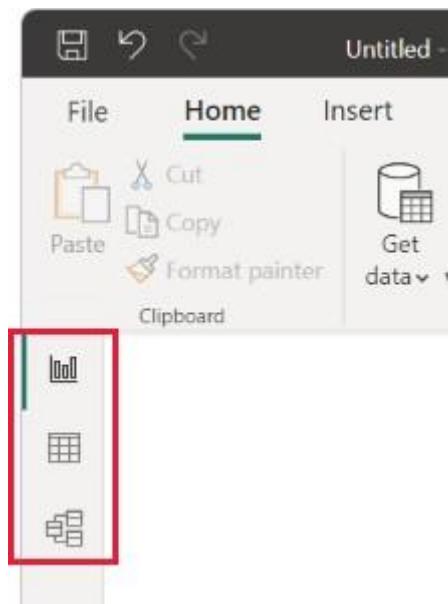
Power BI Desktop is updated and released on a monthly basis, incorporating customer feedback and new features. Only the most recent version of Power BI Desktop is supported; customers who contact support for Power BI Desktop will be asked to upgrade to the most

recent version. You can get the most recent version of Power BI Desktop from the [Windows Store](#), or as a single executable containing all supported languages that you [download](#) and install on your computer.

There are three views available in Power BI Desktop, which you select on the left side of the canvas. The views, shown in the order they appear, are as follows:

- **Report:** You create reports and visuals, where most of your creation time is spent.
- **Data:** You see the tables, measures, and other data used in the data model associated with your report, and transform the data for best use in the report's model.
- **Model:** You see and manage the relationships among tables in your data model.

The following image shows the three views, as displayed along the left side of the canvas:



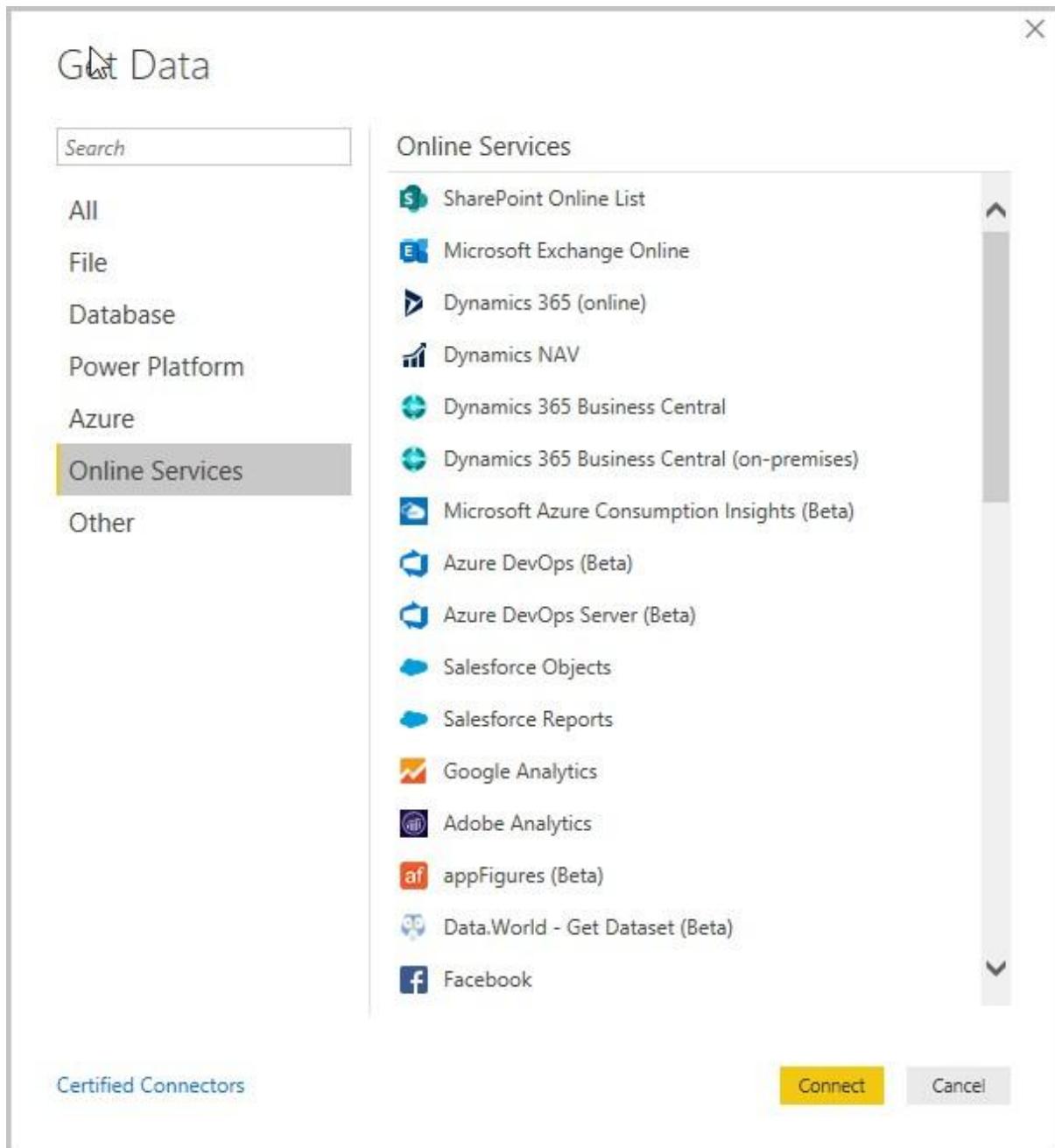
Connect to data

To get started with Power BI Desktop, the first step is to connect to data. There are many different data sources you can connect to from Power BI Desktop.

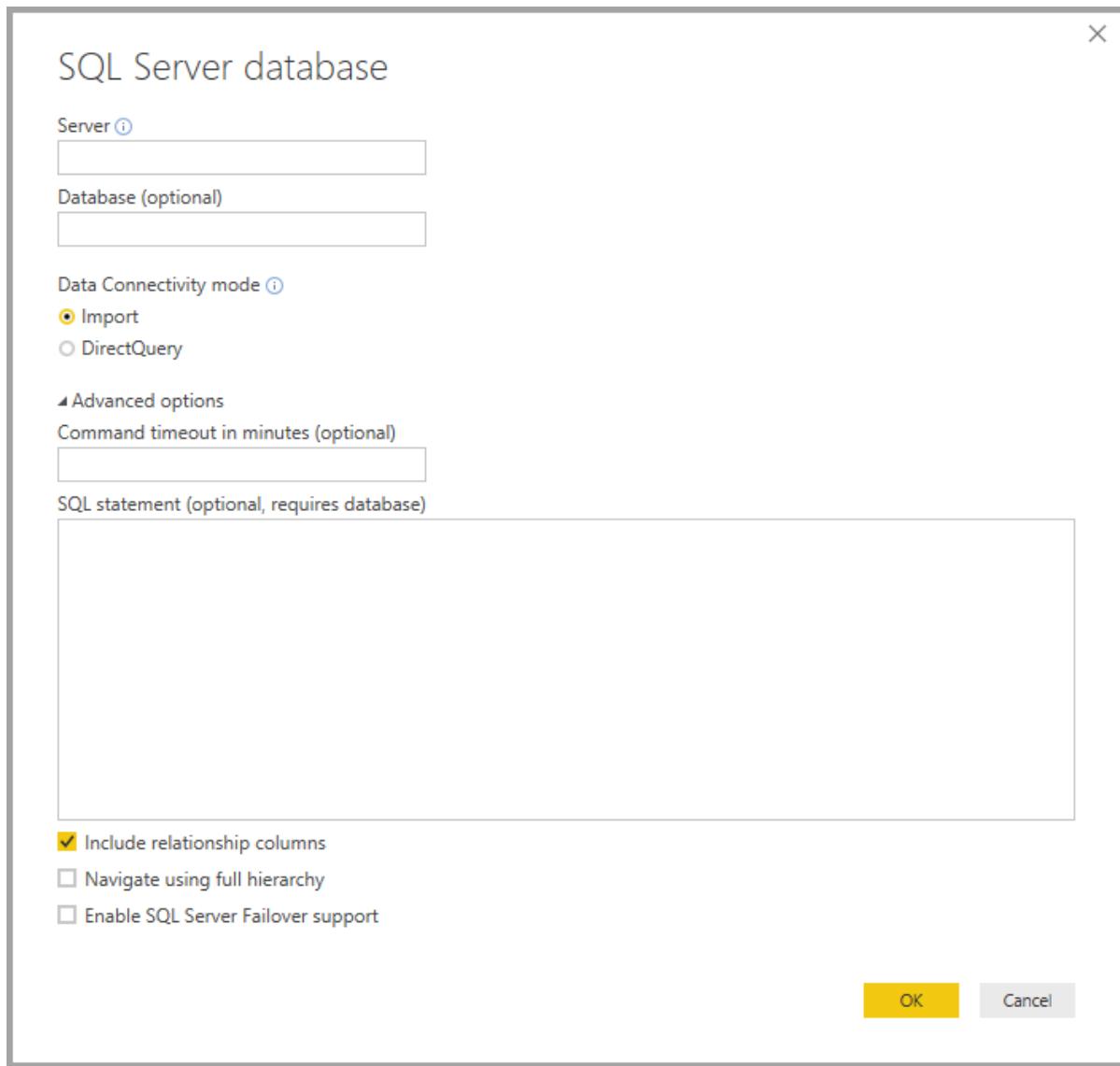
To connect to data:

1. From the **Home** ribbon, select **Get Data > More**.

The **Get Data** window appears, showing the many categories to which Power BI Desktop can connect.



- When you select a data type, you're prompted for information, such as the URL and credentials, necessary for Power BI Desktop to connect to the data source on your behalf.



3. After you connect to one or more data sources, you may want to transform the data so it's useful for you.

Transform and clean data, create a model

In Power BI Desktop, you can clean and transform data using the built-in [Power Query Editor](#). With Power Query Editor, you make changes to your data, such as changing a data type, removing columns, or combining data from multiple sources. It's like sculpting: you start with a large block of clay (or data), then shave off pieces or add others as needed, until the shape of the data is how you want it.

To start Power Query Editor:

- On the **Home** ribbon, in the **Queries** section, select **Transform data**.

The **Power Query Editor** window appears.

The screenshot shows the Power Query Editor interface. The main area displays a table with 7 columns and 52 rows, titled "Ranking of best and worst...". The columns are labeled Column1 through Column5. The "APPLIED STEPS" pane on the right shows a step named "Changed Type".

Each step you take in transforming data (such as renaming a table, transforming a data type, or deleting a column) is recorded by Power Query Editor. Every time this query connects to the data source, those steps are carried out so that the data is always shaped the way you specify.

The following image shows the **Power Query Editor** window for a query that was shaped, and turned into a model.

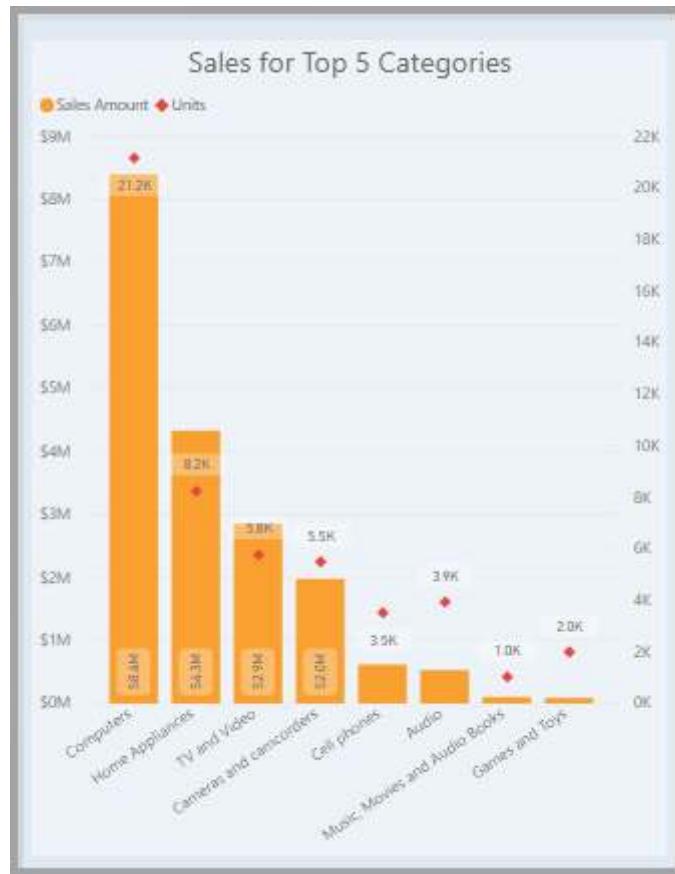
The screenshot shows the Power Query Editor interface. The main area displays a table with 4 columns and 40 rows, titled "Best states for sunglasses...". The columns are labeled State, Overall rank, Affordability, and Weather. The "APPLIED STEPS" pane on the right shows several steps, including "Removed Columns".

Once your data is how you want it, you can create visuals.

Create visuals

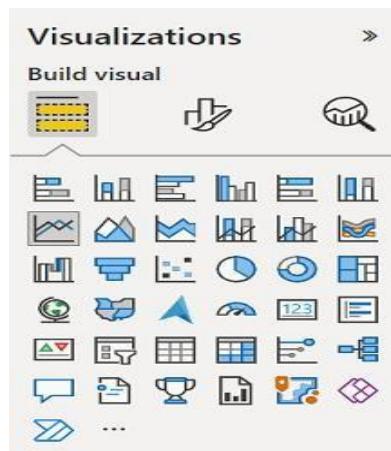
After you have a data model, you can drag *fields* onto the report canvas to create *visuals*. A visual is a graphic representation of the data in your model. There are many different types of

visuals to choose from in Power BI Desktop. The following visual shows a simple column chart.



To create or change a visual:

- From the **Visualizations** pane, select the **Build visual** icon.



If you already have a visual selected on the report canvas, the selected visual changes to the type you selected.

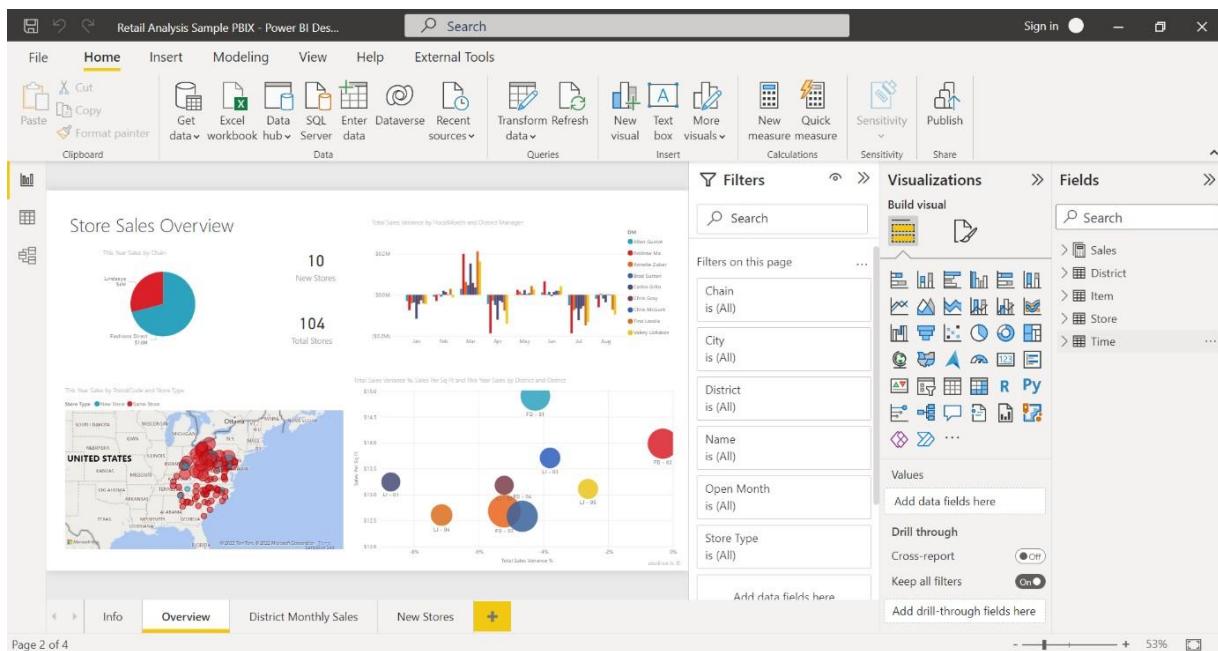
If no visual is selected on the canvas, a new visual is created based on your selection.

Create reports

More often, you'll want to create a collection of visuals that show various aspects of the data you've used to create your model in Power BI Desktop. A collection of visuals, in one Power BI Desktop file, is called a *report*. A report can have one or more pages, just like an Excel file can have one or more worksheets.

With Power BI Desktop you can create complex and visually rich reports, using data from multiple sources, all in one report that you can share with others in your organization.

In the following image, you see the first page of a Power BI Desktop report, named **Overview**, as seen on the tab near the bottom of the image.

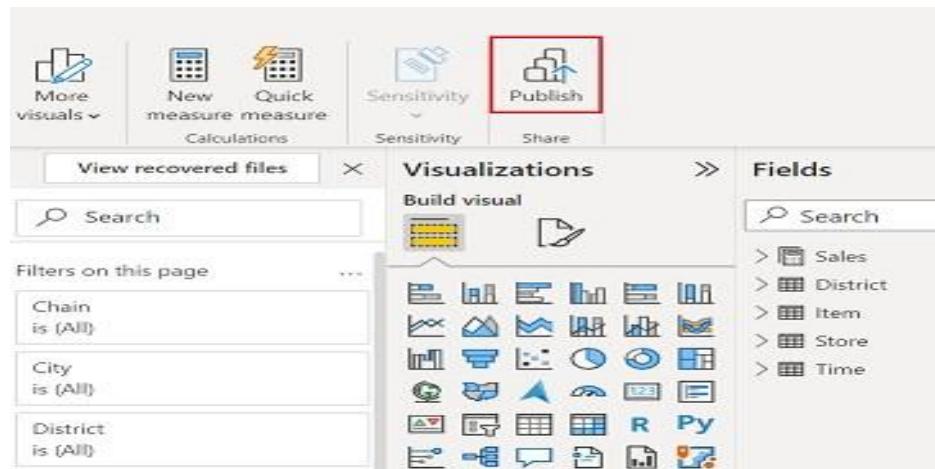


Share reports

After a report is ready to share with others, you can *publish* the report to the Power BI service, and make it available to anyone in your organization who has a Power BI license.

To publish a Power BI Desktop report:

1. Select **Publish** from the **Home** ribbon.



Power BI Desktop connects you to the Power BI service with your Power BI account.

2. You're prompted to select where in the Power BI service you'd like to share the report. For example, your workspace, a team workspace, or some other location in the Power BI service.

Following are some of the features of Power BI -

1. Power BI Desktop

Power BI Desktop is free software that you can download and install, and it allows you to build reports by accessing data easily. For using Power BI desktop, you do not need advanced report designing, or query skills to build a report.

2. Stream Analytics

Power BI's primary advantage is its support stream analytics. From factory sensors to social media sources, Power BI assists in real-time analytics to make timely decisions.

3. Multiple Data Sources

Support for various data sources is one of the vital features of Power BI. You can access various sources of data such as Excel, CSV, SQL Server, Web files, etc. to create interactive visualizations.

4. Custom Visualization

While dealing with complex data, Power BI's default standard might not be enough in some cases. In that case, you can access the custom library of visualization that meets your needs.

RESULT:

The features of Power BI explored successfully and displayed desired output in neat format.

EX NO:10	Prepare & Load data
DATE :	

AIM:

To Prepare & Load data in Power BI Desktop

PROCEDURE:

Step 1 : Start Power BI Desktop

Step 2 : Goto to home menu , select get data and then choose excel worksheet

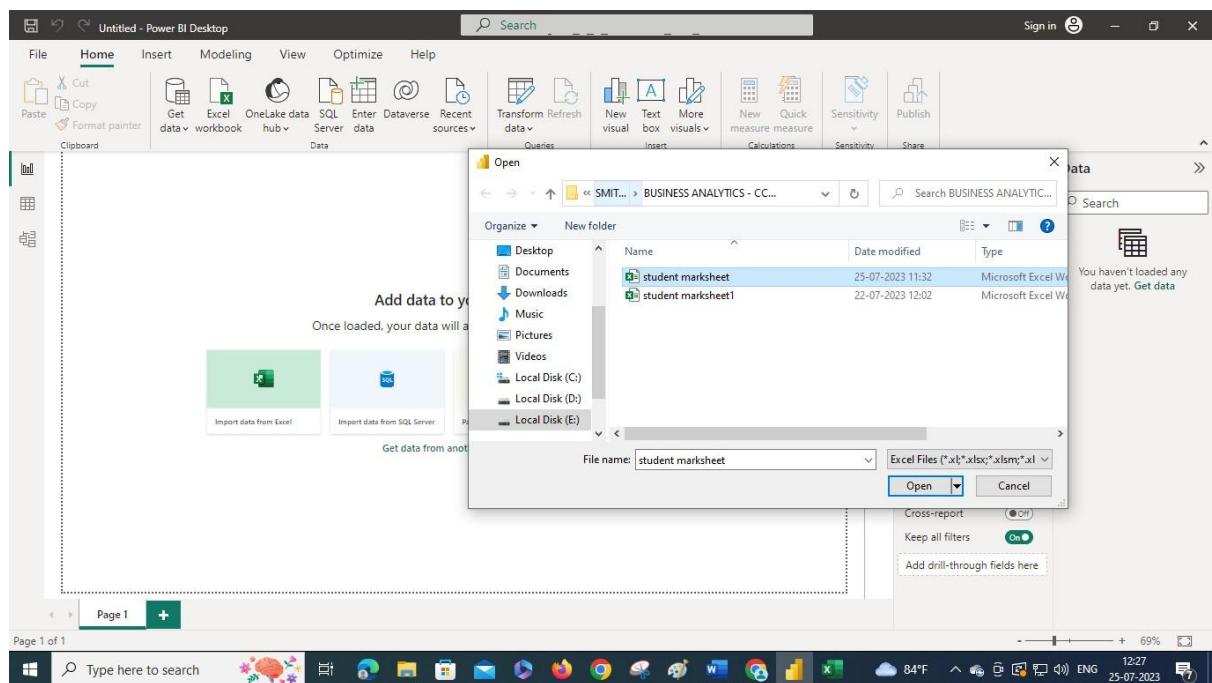
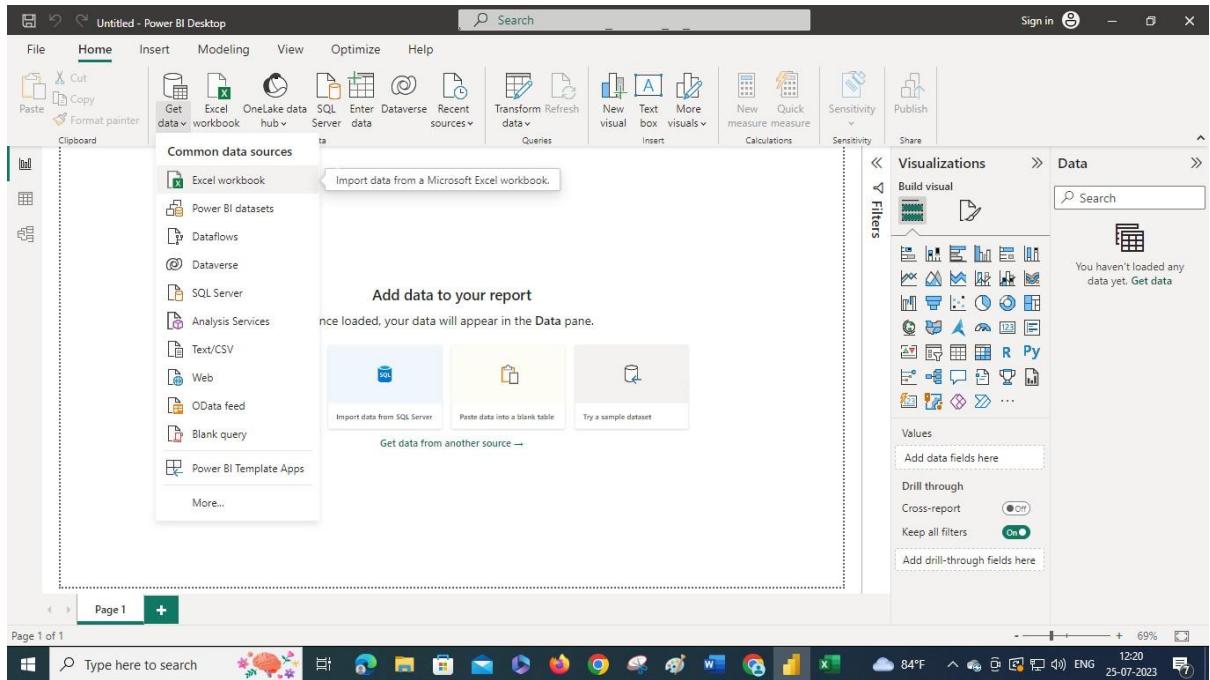
Step 3 : Select your file to load into Power Bi application and press load button

Step 4 : Now the file is loaded and now click data view in the left panel

Step 5: Now the file is loaded in the form of table format

Step 6 : Save the file in desired location

Step 7 : Close the Power BI Desktop application

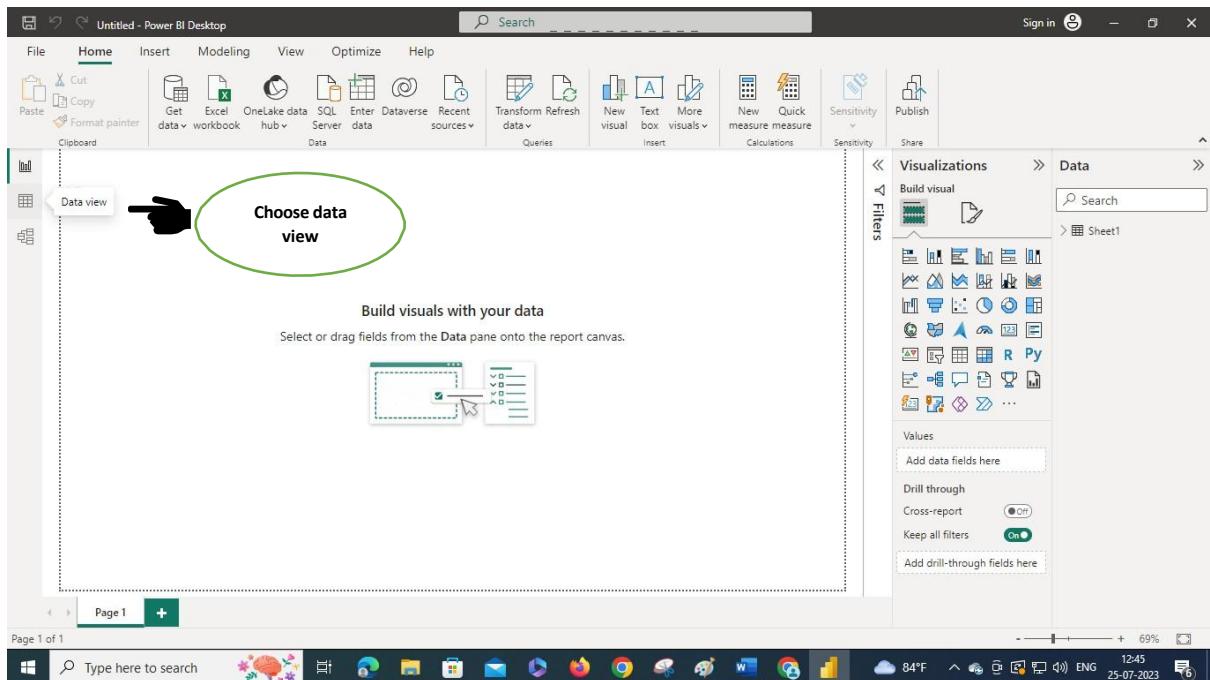
EX NO:10**PREPARE & LOAD DATA in Power BI Desktop**

The screenshot shows the Power BI Desktop interface. The left side features the Navigator pane, which lists 'student marksheets.xlsx [3]' with 'Sheet1' selected. Below it, 'Suggested Tables [4]' are listed: SUMMARY (Sheet2), ANOVA (Sheet2), SUMMARY (Sheet3), and ANOVA (Sheet3). The main area displays 'Sheet1' with the following data:

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory
1	2.12619E+11	ABIRAMI.N	92
2	2.12619E+11	DAISY DEEPIKA.N	85
3	2.12619E+11	DEEPAK.S	81
4	2.12619E+11	HARISH.G	80
5	2.12619E+11	JAIGANESH.K	94
6	2.12619E+11	JAYA LAKSHMI.T	77

The right side of the interface contains the Data pane, which is currently empty. A green oval highlights the text 'Press load button' near the bottom center. The status bar at the bottom shows 'Page 1 of 1'.

The screenshot shows the Power BI Desktop interface with the Home tab selected. The central workspace is titled 'Build visuals with your data' and shows a small preview of a visual. The right side features the Visualizations pane, which is currently displaying 'Sheet1'. A hand icon points to the 'Select sheet1' text in the pane. The status bar at the bottom shows 'Page 1 of 1'.



OUTPUT:

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Th
1	212619104001	ABRAMIN	92	87	80	
2	212619104002	DAISY DEEPIKAN	87	80	87	
3	212619104003	DEEPAK.S	80	72	77	
4	212619104004	HARISH.G	80	87	87	
5	212619104005	JAIGANESH.K	34	80	80	
6	212619104006	JAYA LAKSHMI.T	71	92	80	

RESULT:

The Excel data sheet was prepared and loaded successfully into Power BI Desktop and displayed desired output in neat format.

EX NO:11	DEVELOPING DATA MODEL
DATE :	

AIM:

To Develop the data model using Power BI Desktop

PROCEDURE:

Step 1 : Start Power BI Desktop

Step 2 : Goto to home menu , select get data and then choose excel worksheet

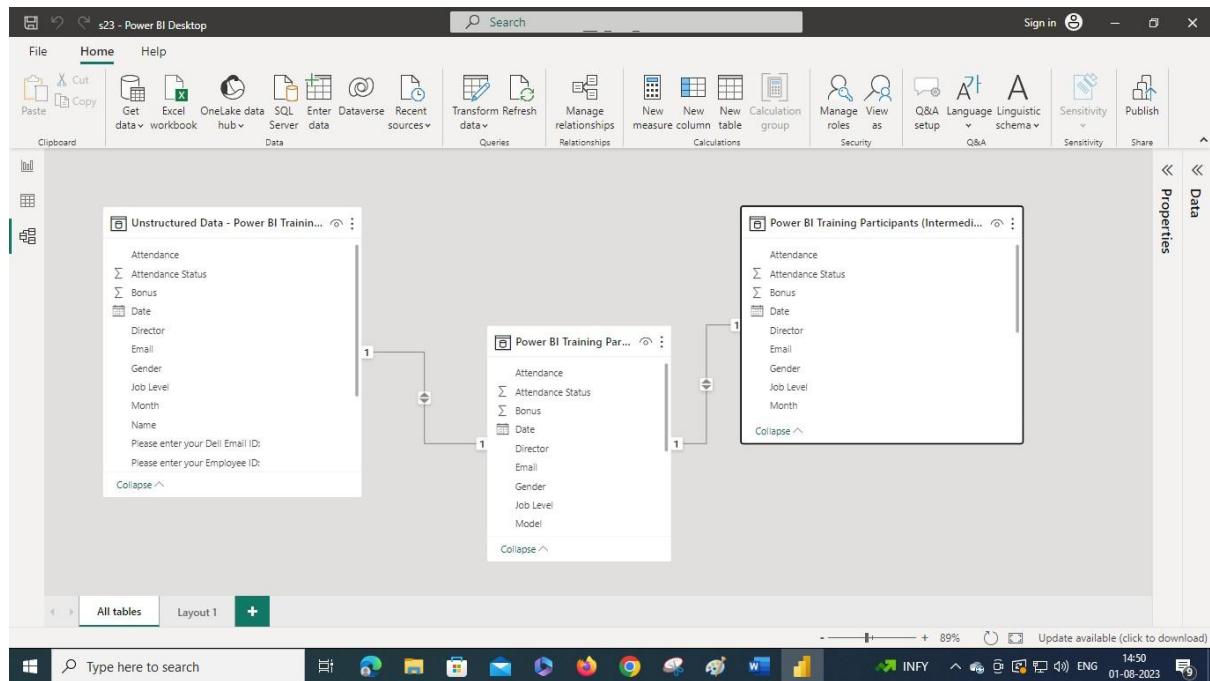
Step 3 : Select your file to load into Power Bi application and press load button

Step 4 : Now the file is loaded and now click model view in the left panel

Step 5: Now data modeling of the given tables are displayed in output screen

Step 6 : Save the file in desired location

Step 7 : Close the Power BI Desktop application

EX NO:11**DEVELOPING DATA MODEL****OUTPUT:****RESULT:**

The data model was developed and loaded successfully using Power BI Desktop and displayed desired output in neat format.

EX NO:12	
DATE :	Perform DAX calculations

AIM:

To perform DAX calculations using Power BI Desktop

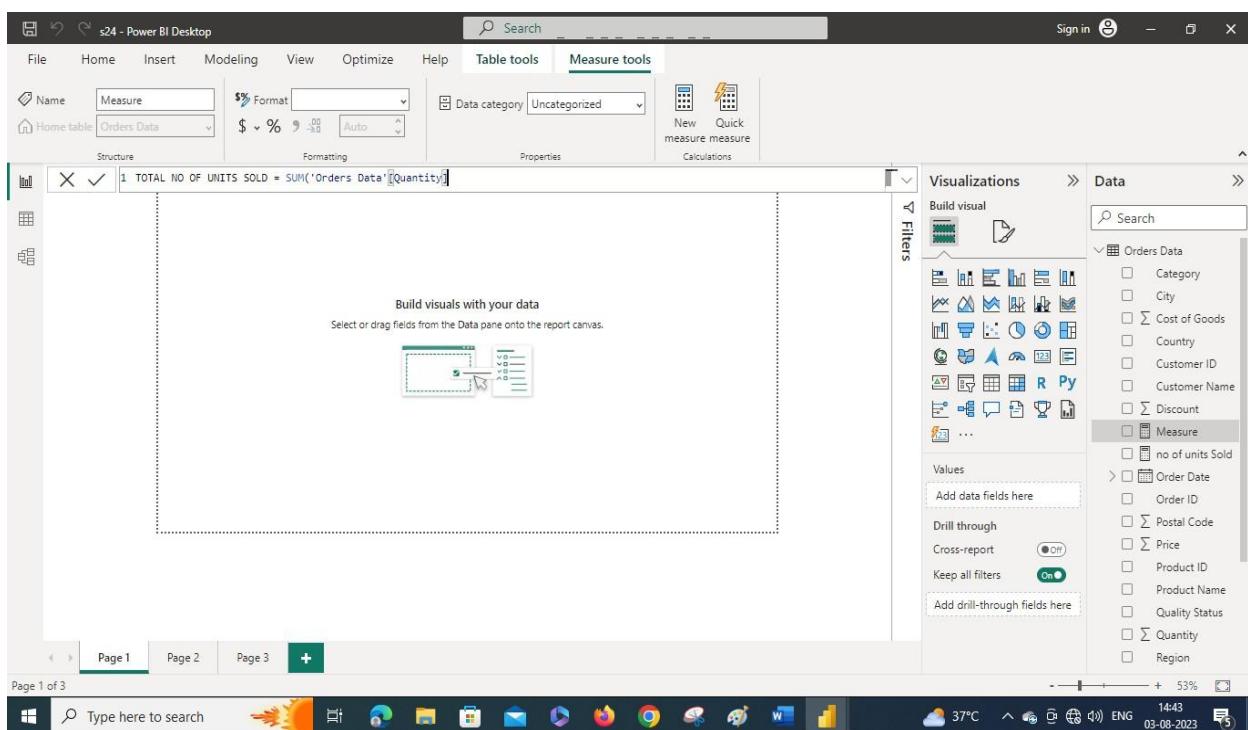
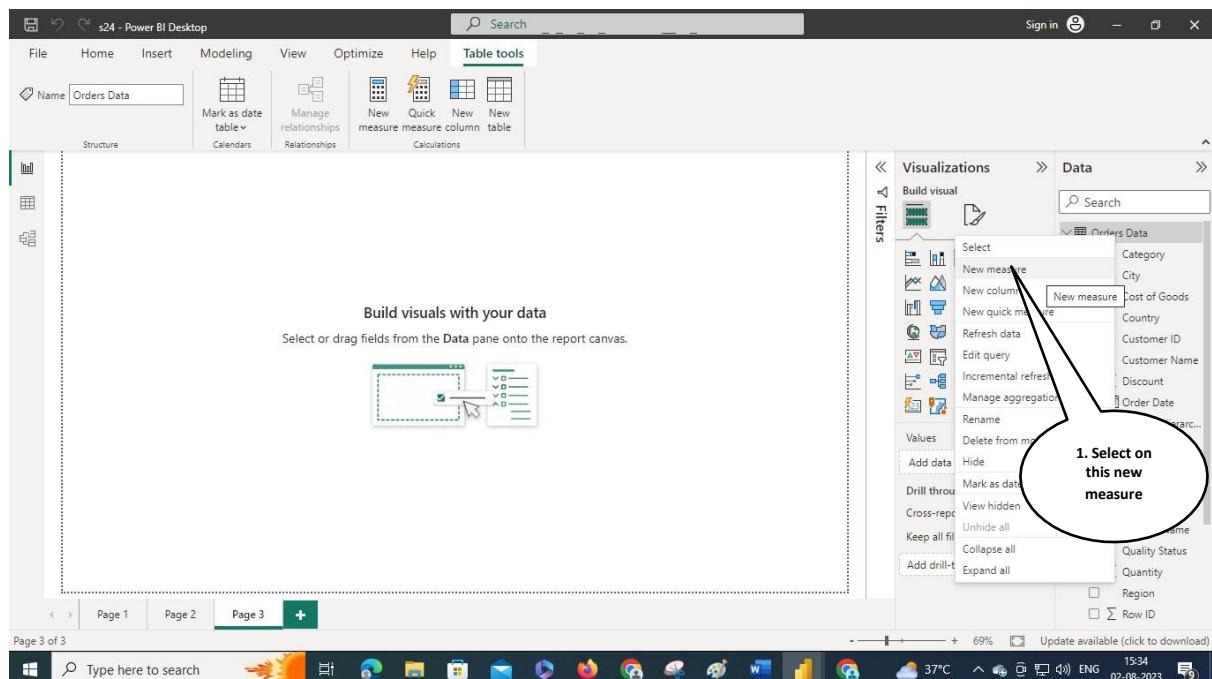
PROCEDURE:

- Step 1 : Start Power BI Desktop
- Step 2 : Goto to home menu , select get data and then choose excel worksheet
- Step 3 : Select your file to load into Power Bi application and press load button
- Step 4 : Now the file is loaded and now click report view in the left panel
- Step 5: Goto data panel and right click on data file and choose new measure
- Step 6 : Type the formula for new measure and click the new measure “ was added
- Step 7 : Drag the corresponding various types of visualization in workspace.
- Step 8 : Save the file in desired location
- Step 9 : Close the Power BI Desktop application

EX NO:12

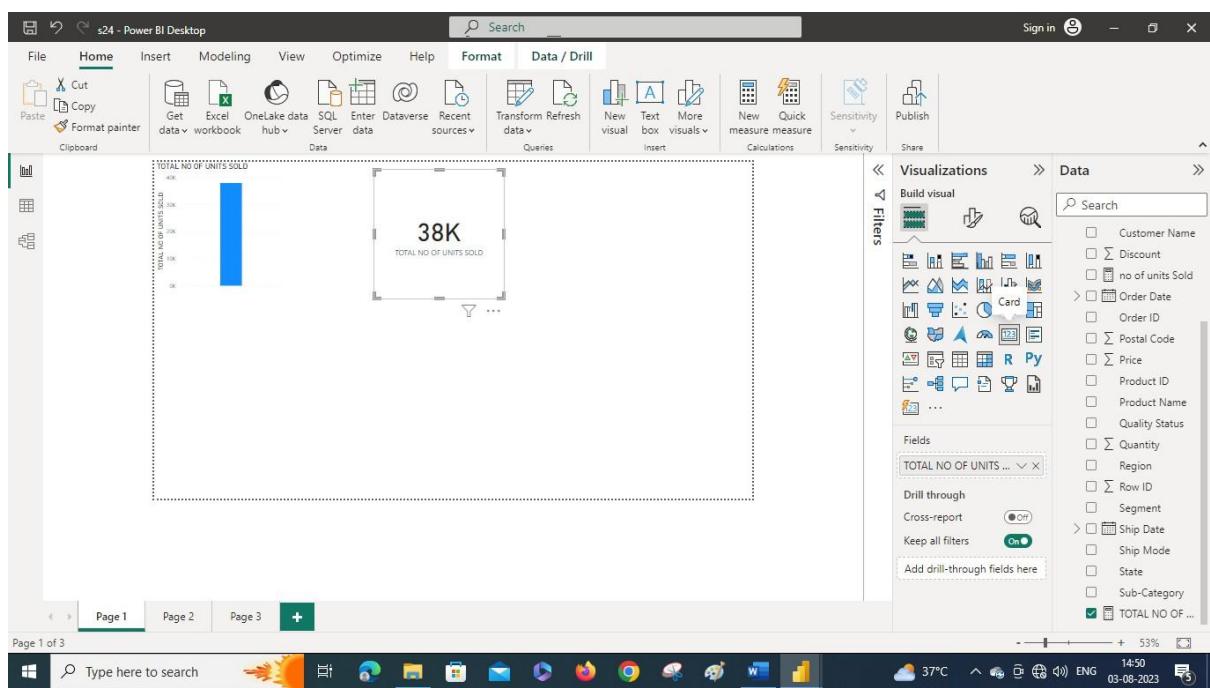
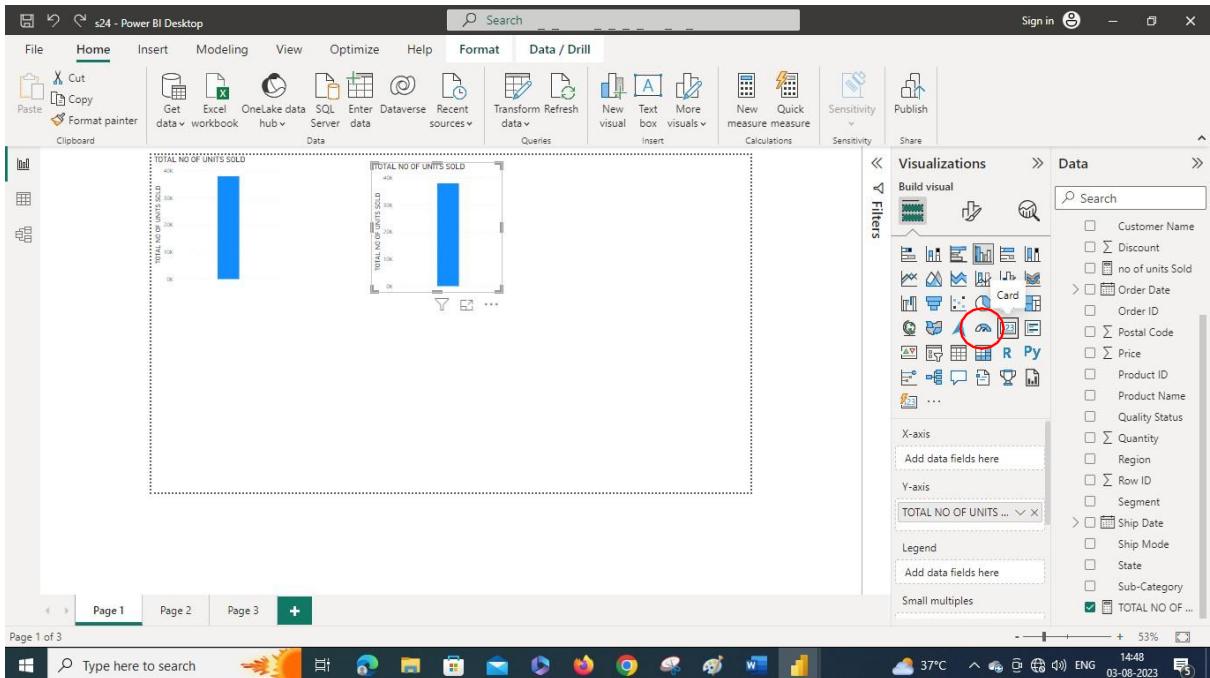
DATE :

Perform DAX calculations



The screenshot shows the Power BI Desktop interface. In the center, there is a bar chart titled "TOTAL No of units Sold" with a single blue bar reaching approximately 200. To the right of the chart is the "Data" pane, which lists various data fields under categories like Customer Name, Order Date, and Product ID. A speech bubble labeled "2. Data displayed in visualization" points to the chart. Another speech bubble labeled "1. Select on this new measure" points to the "Data" pane, specifically to the "TOTAL No of units Sold" field which has a checkmark next to it.

The screenshot shows the Power BI Desktop interface with a context menu open over a bar chart. The menu options include "Show as a table", "Group", "Summarize", and "Copy". The "Copy" option is highlighted with a mouse cursor. A speech bubble labeled "3. Copy and Paste the Same Visual and Change to New Visual" is positioned below the menu. The "Data" pane is visible on the right side of the screen.



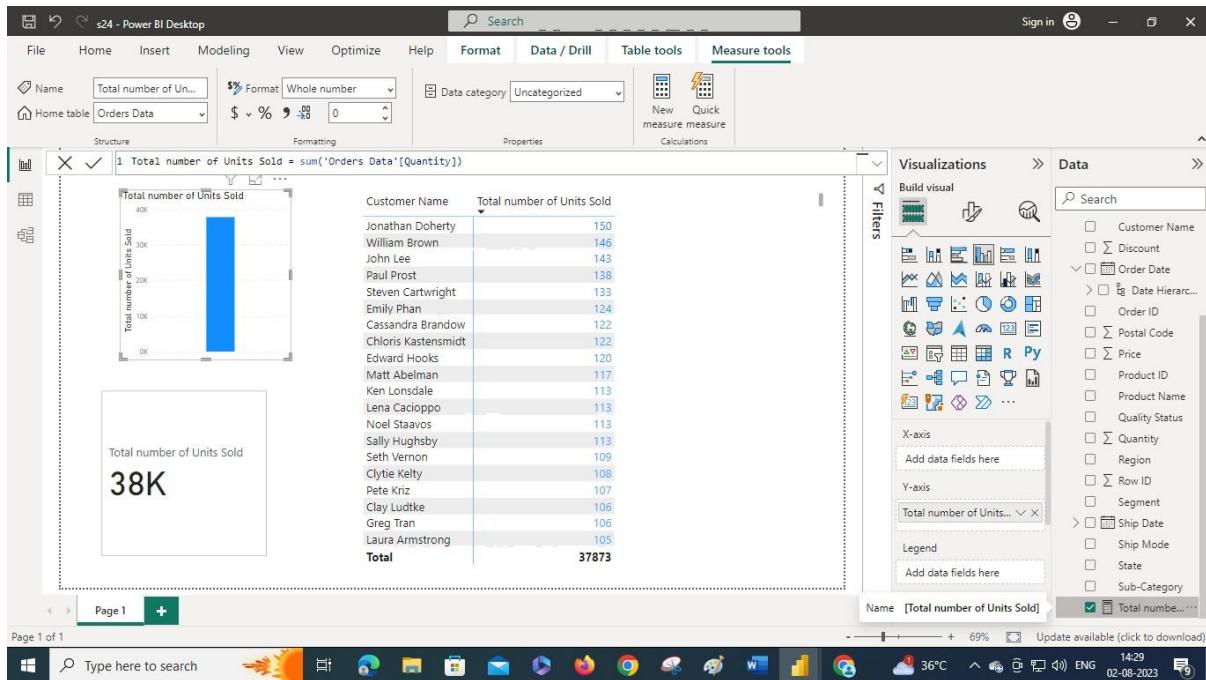
s24 - Power BI Desktop

The screenshot shows the Power BI Desktop interface. On the left, there's a bar chart titled "TOTAL NO OF UNITS SOLD" with a value of "38K". To the right of the chart is a matrix visual showing data from a table. The matrix has "Customer Name" in the rows and "TOTAL NO OF UNITS SOLD" in the columns. The data table is as follows:

Customer Name	TOTAL NO OF UNITS SOLD
Jonathan Debnath	150
William Brown	146
John Lee	144
Paul Scott	138
Steven Carrington	133
Bonita Parker	128
Cassandra Bransford	122
Chetna Kulkarni	122
Edward Hall	120
Matt Abrahams	117
Ken Lonsdale	115
Mark Johnson	113
Noel Stavros	111
Sally Cooper	110
Scott Vernon	109
Clyde Kelly	108
Paul Cole	107
Clay Luther	106
Gerry Tran	106
Linda Langberg	105
Marketh Schwing	105
Zachariah Carroll	105
Janet Scott	104
Dan Nachbush	103
Total	37873

The Power BI ribbon is visible at the top, and the "Data" pane on the right lists various data fields like Customer Name, Order Date, and Price.

OUTPUT:



RESULT:

The perform DAX calculations were performed successfully using Power BI Desktop and displayed desired output in neat format.

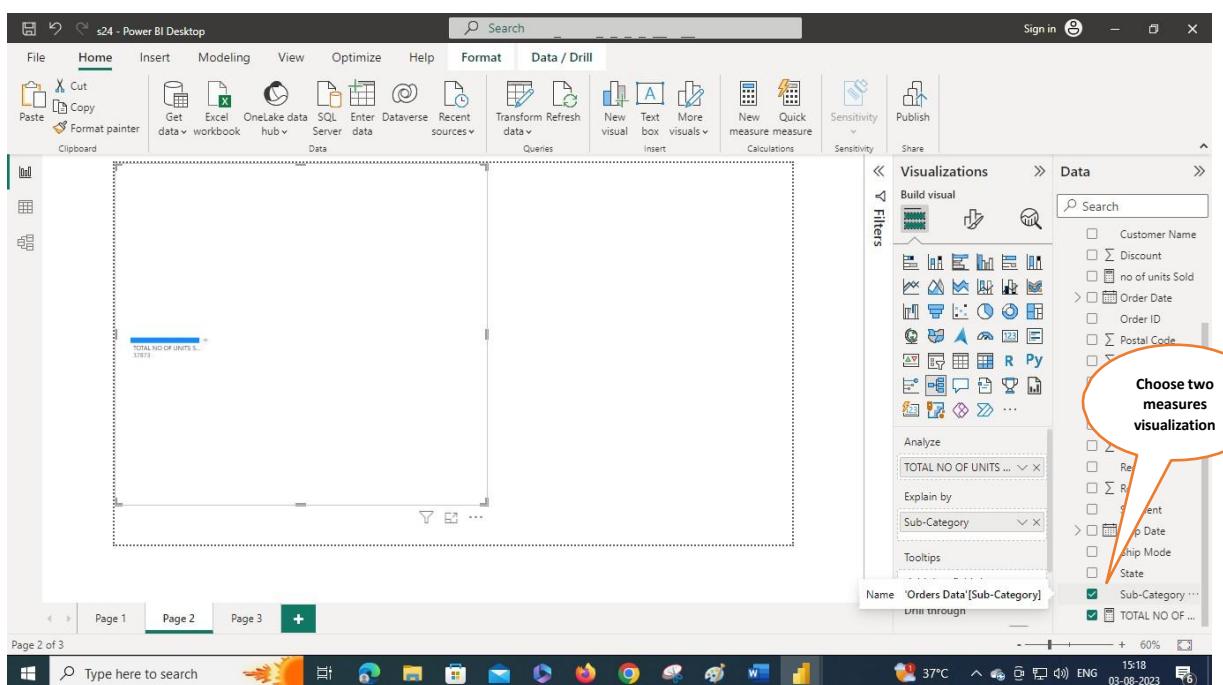
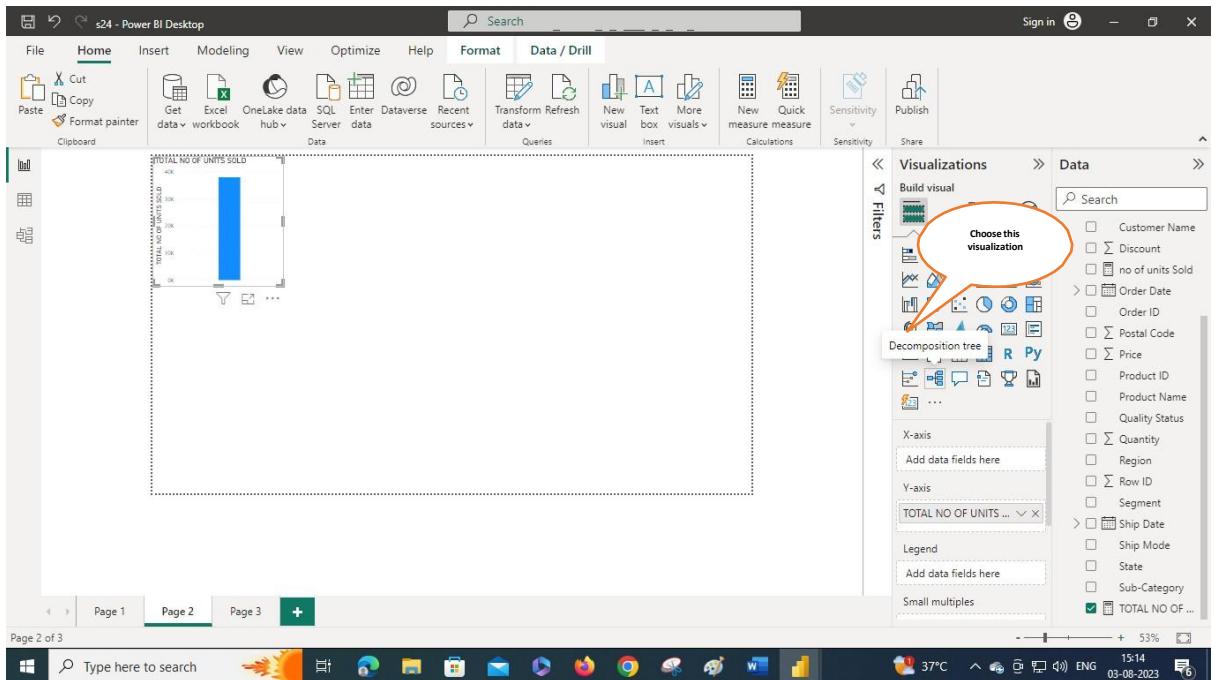
EX NO:13	DESIGN A REPORT
DATE :	

AIM:

To using Power BI Desktop

PROCEDURE:

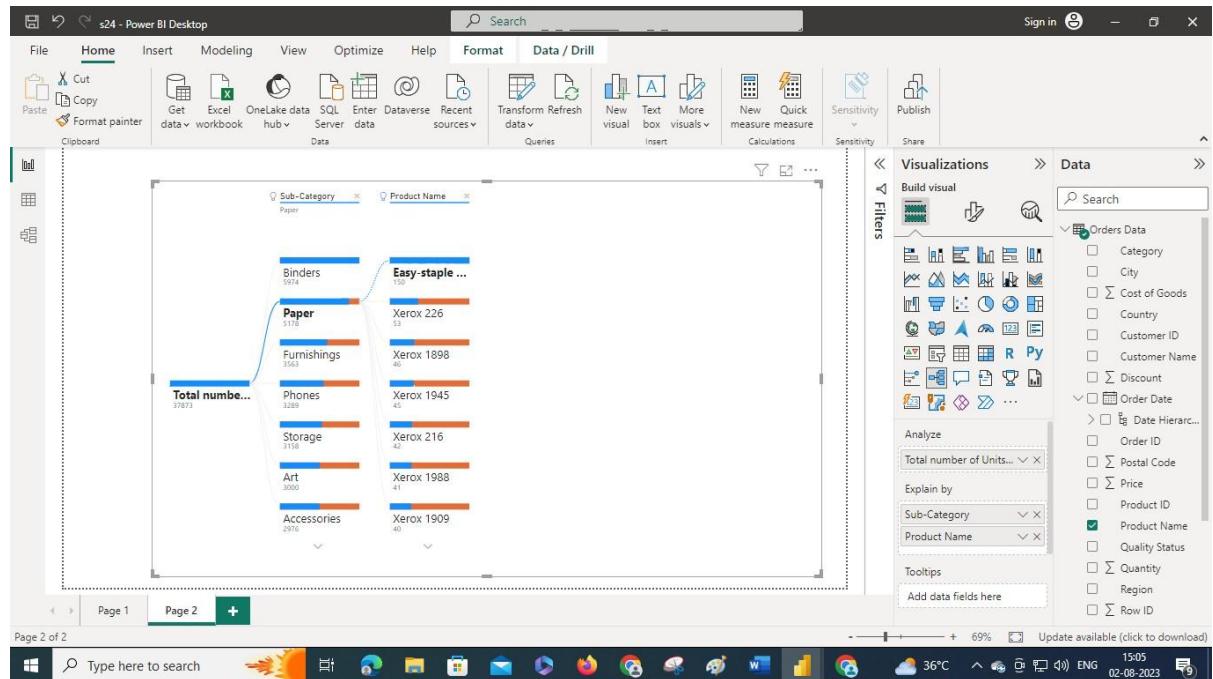
- Step 1 : Start Power BI Desktop
- Step 2 : Goto to home menu , select get data and then choose excel worksheet
- Step 3 : Select your file to load into Power Bi application and press load button
- Step 4 : Now the file is loaded and now click report view in the left panel
- Step 5: Goto data panel and right click on data file and choose new measure
- Step 6 : Type the formula for new measure and click the new measure “ was added
- Step 7 : Select clustered column chat and copy the visualization in workspace.
- Step 8 : Change to decomposition tree visualization in workspace.
- Step 9 : Explore the data in various forms for select filed .
- Step 9 : Save the file in desired location
- Step 10 : Close the Power BI Desktop application



The screenshot shows the Power BI Desktop interface. A tooltip is displayed over a data point in a chart, containing the text "High value" and "Low Find the field with the highest value for your metric Sub-Category". The ribbon menu is visible at the top, and the data pane on the right shows various fields like Customer Name, Discount, and Order Date.

The screenshot shows the Power BI Desktop interface with a chart displaying product categories and their unit counts. An orange callout bubble points to the chart area with the text "2. Now explore". Another orange callout bubble points to the data pane on the right with the text "1. Now Choose product name". The data pane highlights the "Product Name" field under the "Analyze" section.

OUTPUT:



RESULT:

The report was created successfully using Power BI Desktop and displayed desired output in neat format.

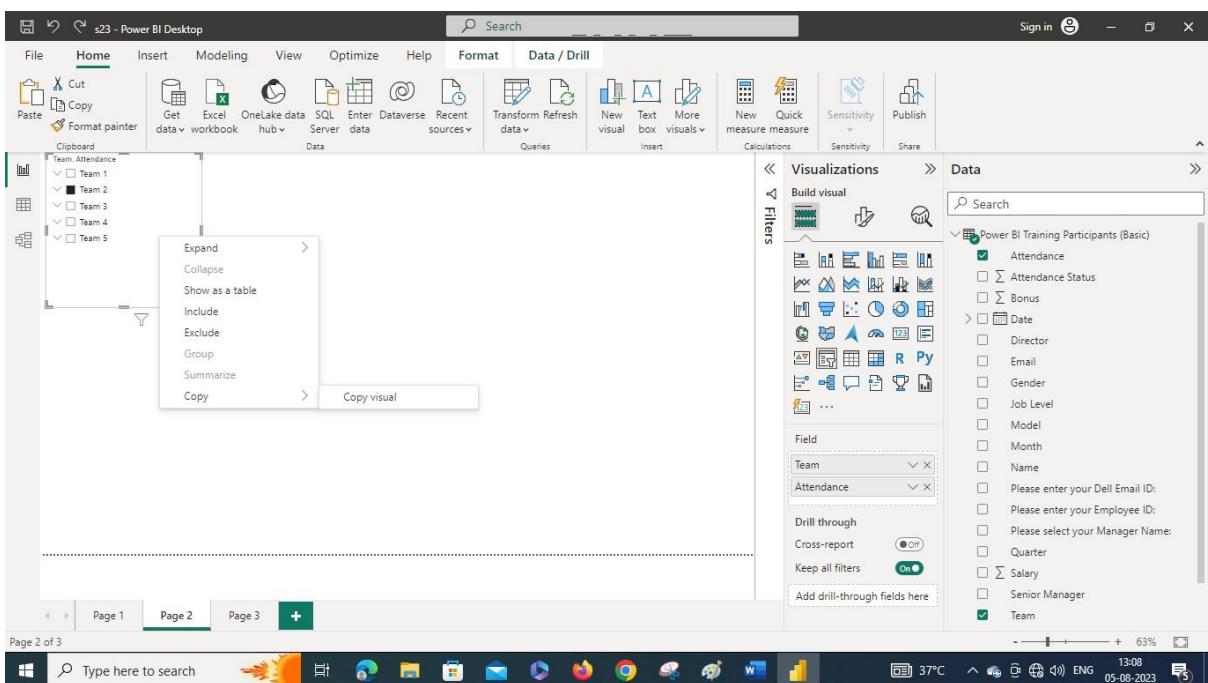
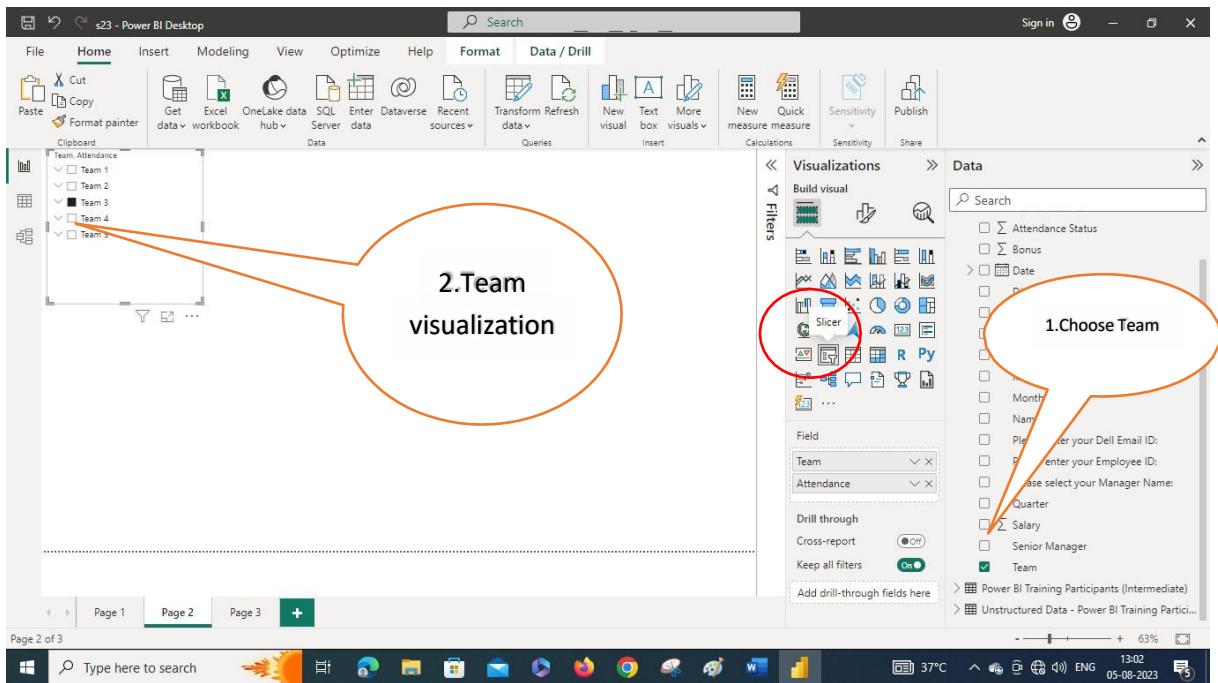
EX NO:14	CREATION OF A DASHBOARD AND PERFORM DATA ANALYSIS
DATE :	

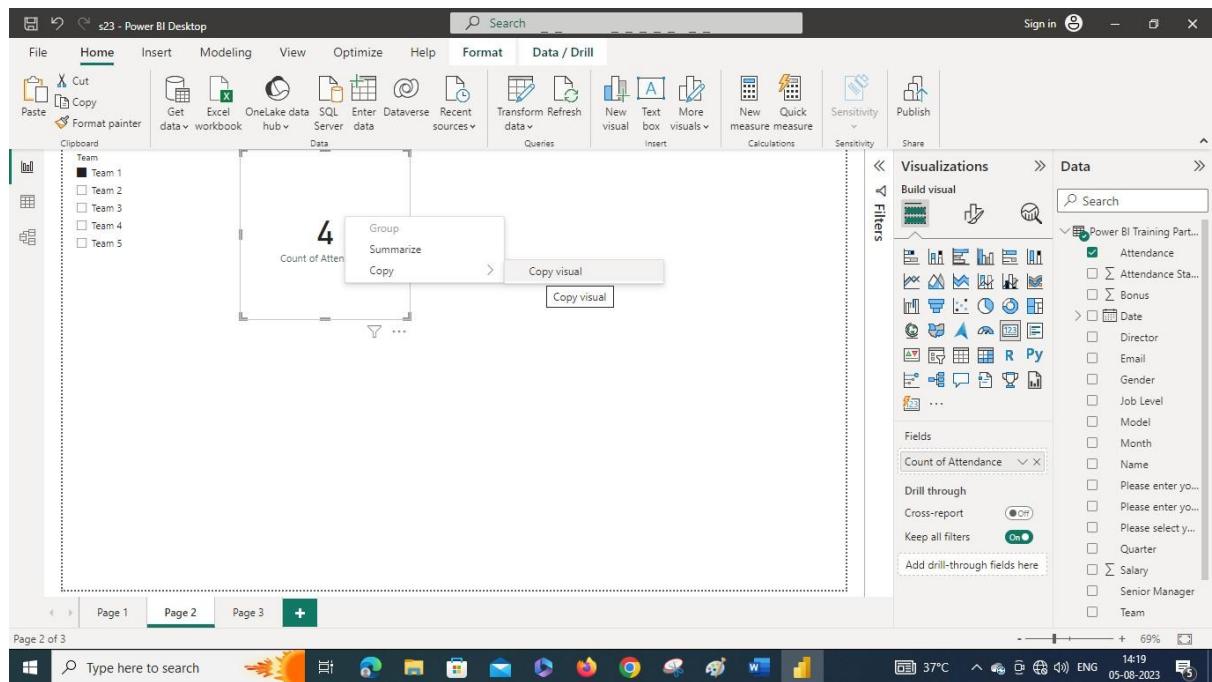
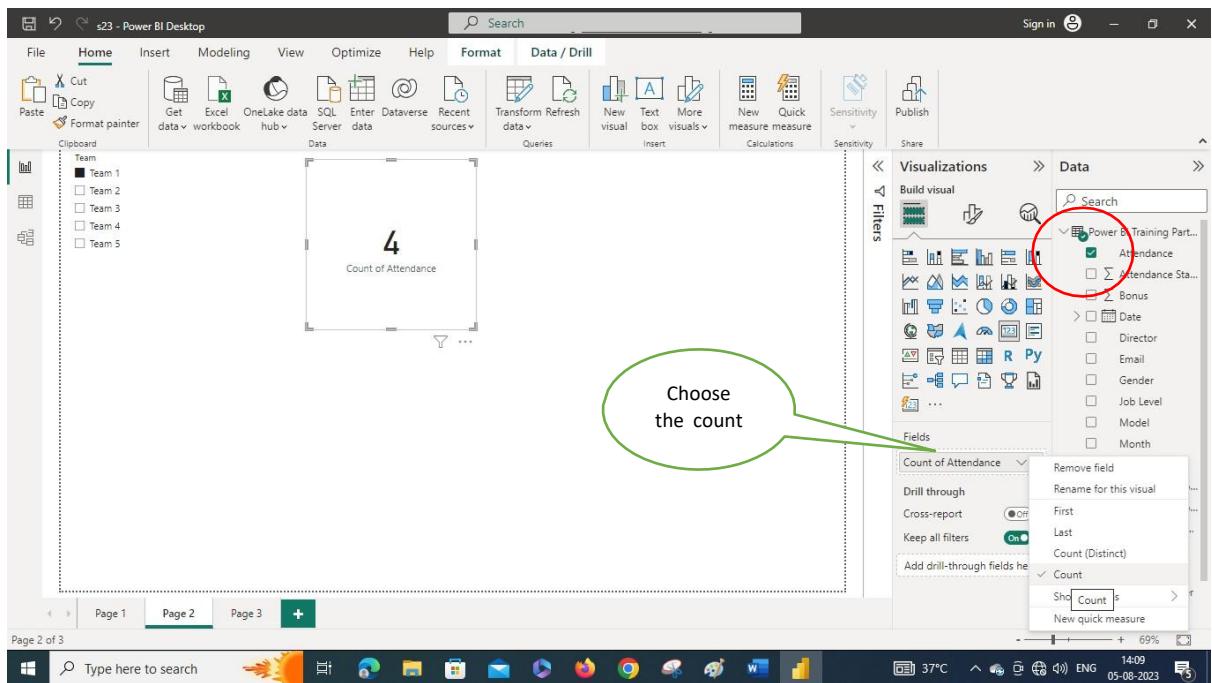
AIM:

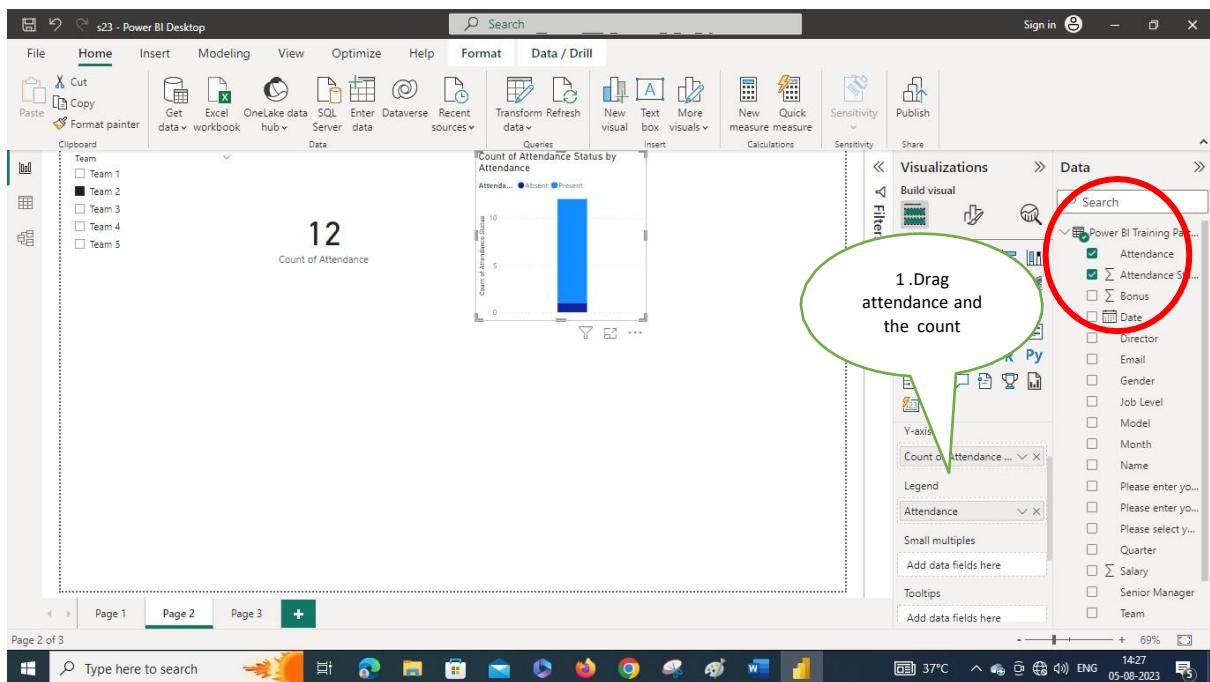
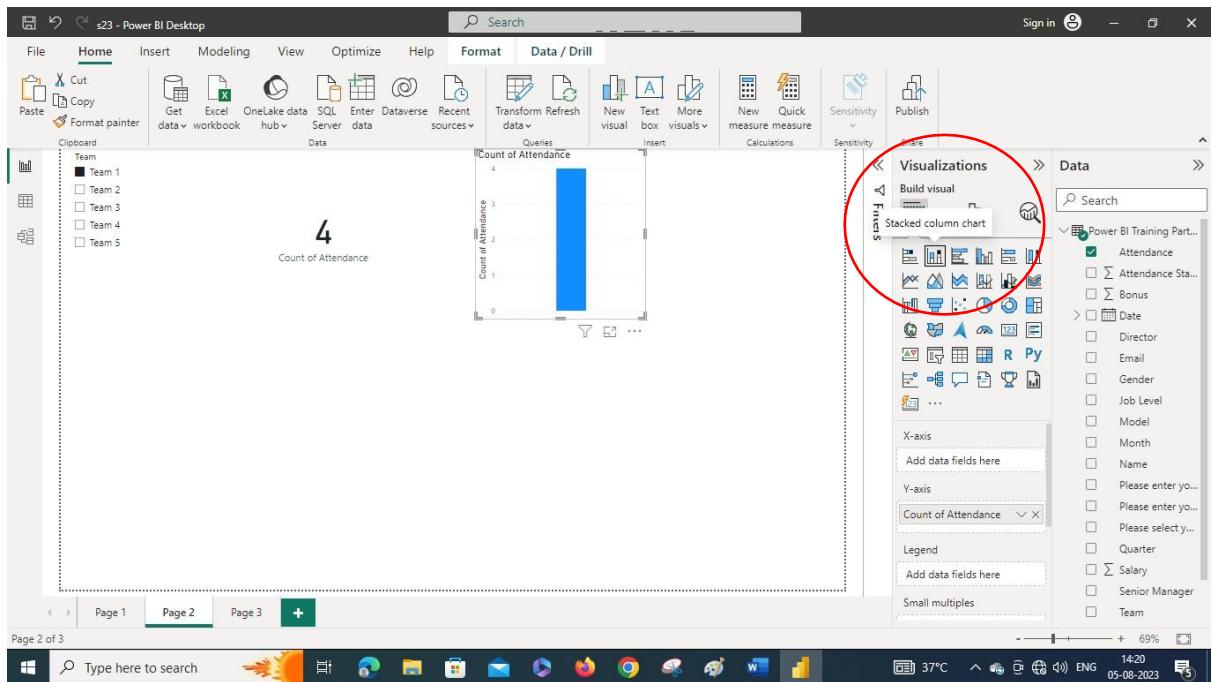
To create of a dashboard and perform data analysis using Power BI Desktop

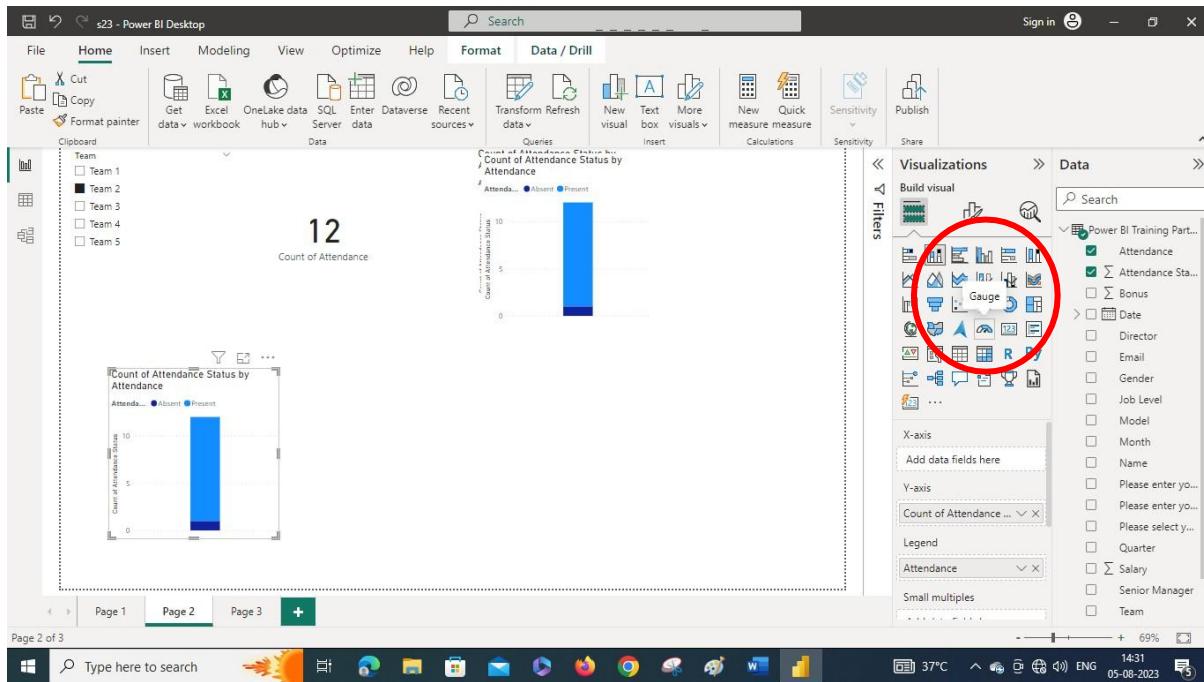
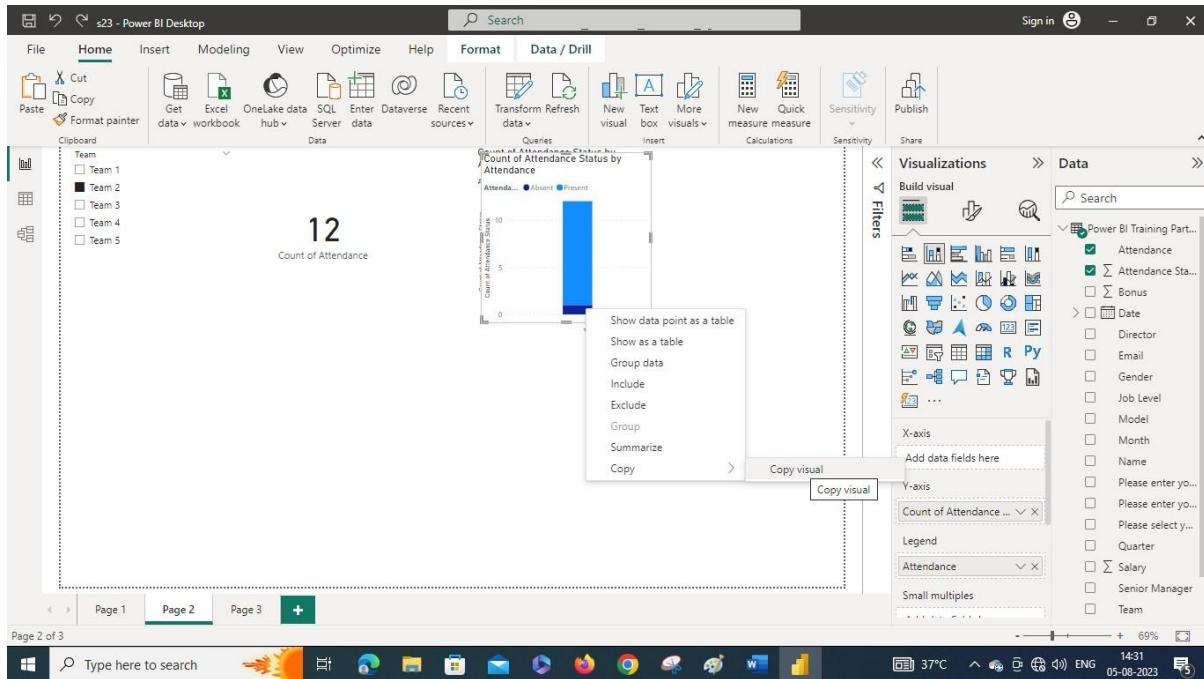
PROCEDURE:

- Step 1 : Start Power BI Desktop
- Step 2 : Goto to home menu , select get data and then choose excel worksheet
- Step 3 : Select your file to load into Power Bi application and press load button
- Step 4 : Now the file is loaded and now click report view in the left panel
- Step 5: Goto data panel and right click on data file and choose team filed and slicer visualization
- Step 6 : Now teamwise slicer was displayed. Next copy the visualization and change to card visualization
- Step 7 : Now copy the visualization and change to gauge visualization
- Step 8 : Next copy the visualization and change to donut visualization and drag gender field and change value filed as count of gender
- Step 9 : Now change and display the visualization as per teamwise
- Step 10 : Save the file in desired location
- Step 9 : Close the Power BI Desktop application

EX NO:14**CREATION OF A DASHBOARD AND PERFORM DATA ANALYSIS**







Count of Attendance Status by Attendance

Attendance: ● Absent ● Present

Status	Count
Absent	12
Present	0

Count of Attendance Status by Attendance

Attendance: ● Absent ● Present

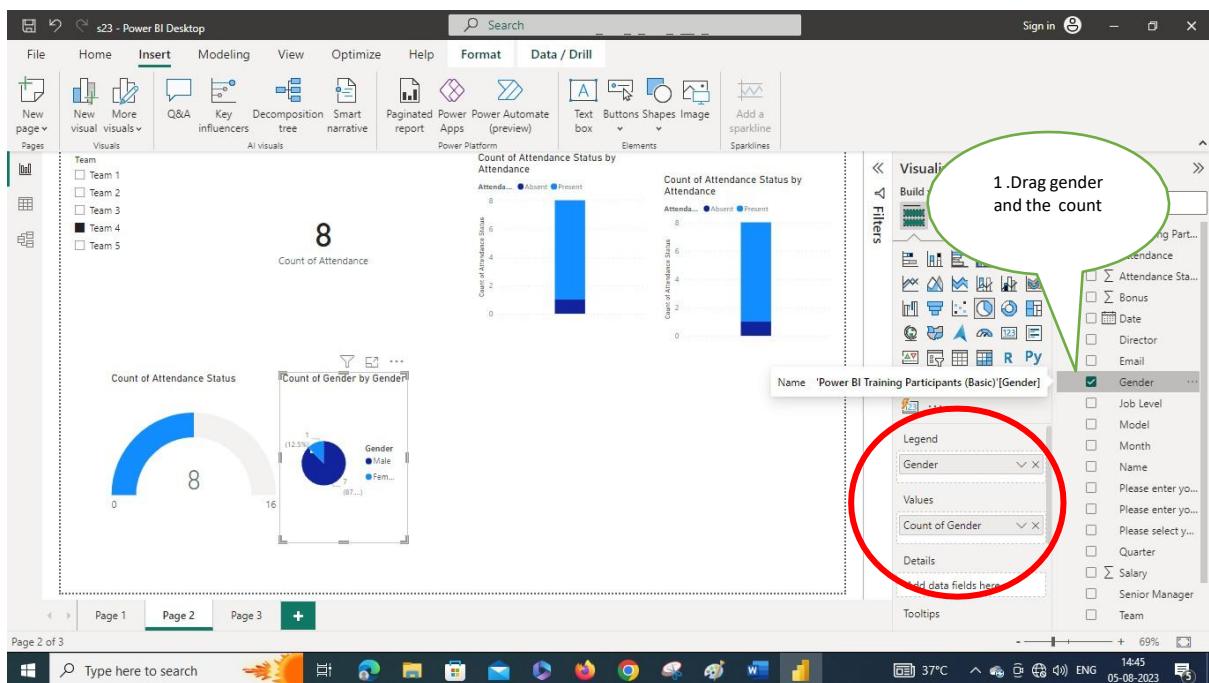
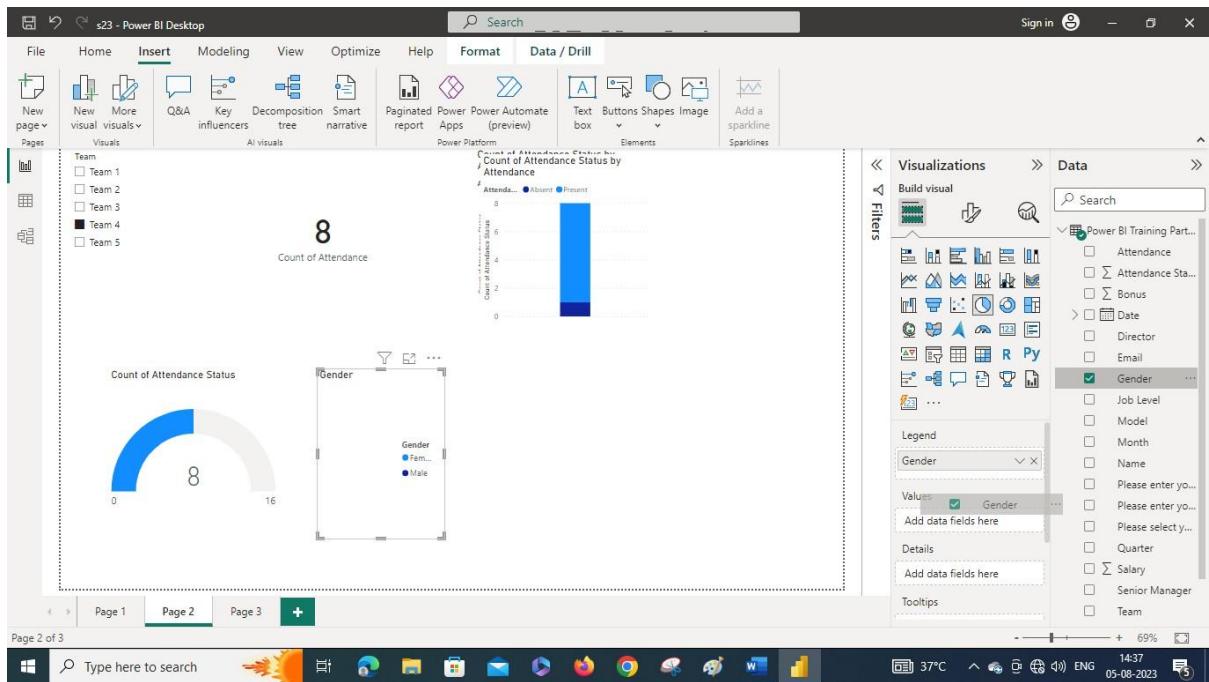
Status	Count
Absent	8
Present	16

The screenshot shows a Power BI Desktop interface with the following details:

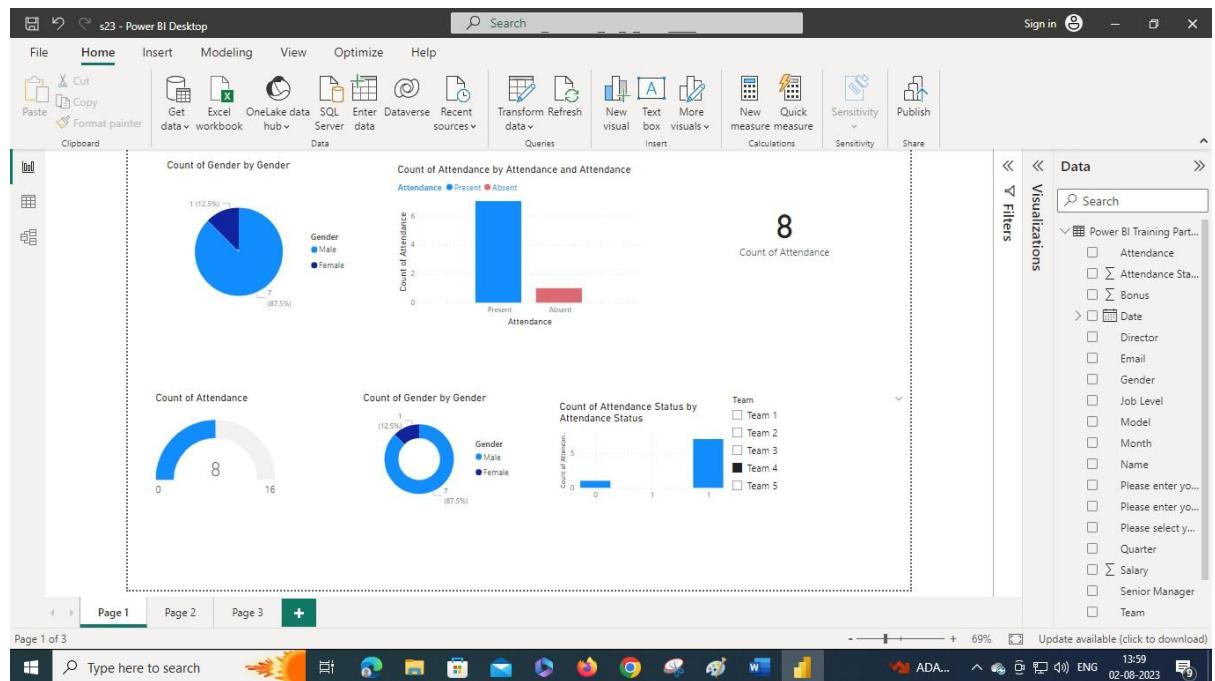
- Report Title:** Count of Attendance Status by Attendance
- Visualizations:**
 - A bar chart titled "Count of Attendance Status by Attendance" showing values for Absent and Present.
 - A gauge chart titled "Count of Attendance Status" with a value of 8.
 - A pie chart titled "Select or drag fields to populate this visual".
- Data Source:** Power BI Training Part...
- Filters:** Team (Team 1, Team 2, Team 3, Team 4, Team 5) and Date (Director, Email, Gender, Job Level, Model, Month, Name, Please enter yo..., Please enter yo..., Please select y..., Quarter, Salary, Senior Manager, Team).
- Page Navigation:** Page 2 of 3

The screenshot shows a Power BI Desktop interface with the following details:

- Report Title:** Count of Attendance Status by Attendance
- Visualizations:**
 - A bar chart titled "Count of Attendance Status by Attendance" showing values for Absent and Present.
 - A gauge chart titled "Count of Attendance Status" with a value of 8.
 - A pie chart titled "Select or drag fields to populate this visual".
- Data Source:** Power BI Training Part...
- Filters:** Team (Team 1, Team 2, Team 3, Team 4, Team 5) and Date (Director, Email, Gender, Job Level, Model, Month, Name, Please enter yo..., Please enter yo..., Please select y..., Quarter, Salary, Senior Manager, Team).
- Page Navigation:** Page 2 of 3



OUTPUT:



RESULT:

The dashboard was created and data analysis was performed successfully using Power BI Desktop and displayed desired output in neat format.

EX NO:15	Presentation of a case study - Campus Recruitment Analysis
DATE :	

AIM:

To Presentation of a case study for Campus Recruitment Analysis using Power BI Desktop

The Challenge

Campus Placements/ Campus Recruitment drives are conducted in various educational institutes for providing job opportunities to the students who are pursuing their particular academic courses.

As much as it is important to the students, it is also important to the institute as it gives a chance to contemplate about the process. This data includes students from various colleges.

The Solution

What every management team wants to know:

- How many companies appeared?
- How many students appeared?
- Which companies have hired the most of the students and from which college?
- How many students accepted the offer?
- Were the companies beneficial in accordance to their vacancies?
- How many students were selected by the companies?
- What was the ratio between students applied and the vacancies available?
- Which college were the most preferred by the students?
- Which technologies were the most preferred by the students?
- Which colleges were benefitted by this recruitment in terms of the selection?
- Which colleges did not perform up to the mark?
- Which colleges were involved the most in terms of the students registered?
- Which companies were beneficial in accordance to their vacancies?

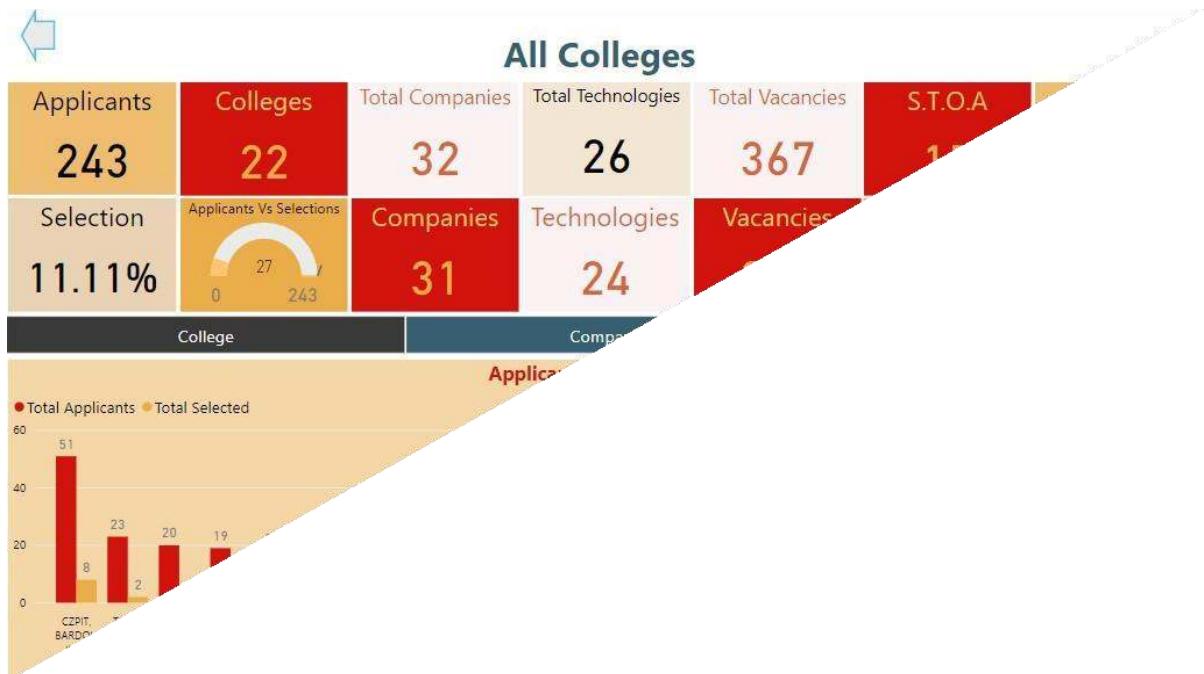
The Extra Mile

- We gave users a menu driven page where they can navigate to the page of their interest.
- Overview of companies with respect to the technologies.
- Overview of students with respect to the technologies, companies and colleges.
- Overview of selected students with respect to the technologies, companies and colleges.
- Insights on basis of the students' priority and the offers given to them.
- We have given extra information apart from what is need about every area of interest.

EX NO:16

Presentation of a case study - Campus Recruitment Analysis

OUTPUT:



RESULT:

The Presentation of a case study for Campus Recruitment Analysis was performed successfully using Power BI Desktop and displayed desired output in neat format.