

Program 1:

Conditional Formatting, IF, COUNTIF, SUMIF, AVERAGE, CONCAT

(a) Conditional formatting on Sample Store Data sheet

(i) Apply Conditional formatting on "Reading score" as follows

Step 1: select the entire column to which we want to apply conditional formatting. (applying on "Reading score")

Step 2: Click on Conditional formatting button from Home Tab

Step 3: select Highlight Cell rule Option → select Greater Than option → Enter the Value we want to apply conditional formatting (Value is greater "70")

Similarly, we can apply the conditional formatting for less than, equal to and Between Options also.

(ii) Color Scale Formatting:

select Conditional Formatting from Home Tab → select color scale from Drop down list → select the color code given in the options → Apply

The Highest value will be highlighted by Green and lowest value is highlighted by Red Color.

The range of values will be highlighted by lightening the green color.

(b) If Condition:

If Function is predefined function in Excel, which results in either true or false based on condition.

General Syntax: =IF(logical test, [value if true],



[value-if false]

(Applied on Writing score Field values)  
 = if (H9 > 40, "Pass", "Fail")

(c) Countif Function: Which counts number elements present in the range selected based on condition specified.

Syntax: = COUNTIF (Range, criteria)  
 Range specifies the range of cells selected.  
 (Applied on Data)  
 = countif (H:H, ">50")

(d) sumif Functions: This calculates the sum of values in a range based on criteria specified.  
 Syntax: = SUMIF (range, criteria, [sum\_range])  
 = SumIF (H:H, ">60")  
 (Applied on Writing score Field values)

(e) Average Function: Statistical Function to find the average of given range of cells.  
 Syntax: = AVERAGE (number 1, [number 2], ...) = average (H:H)  
 (Applied on Writing score Field Values)

(f) Concatenate Functions: Used to combine two or more values into single value.  
Syntax: = CONCATENATE (text1, [text2], ...)  
= Concatenate (C8, D8)  
Applied on C8 and D8 cell Address



Program: INDEX, MATCH, UNIQUE, IFs, COUNTIFS, SUMIFS, AVERAGES

(a) Index: It fetches the values present in the specified index.  
 Syntax: = INDEX (table, row-number, column-number)  
 Where Table specifies the range of selected data or M X N values, Row specifies the row number and Column specifies the column number.  
 Example: = index (A1:G8, 3, 4)

(b) Match: The MATCH function searches for a specified item in a range of cells, and then returns the relative position of that item in the range.  
 Syntax: = MATCH (lookup-value, lookup\_list, [match-type])  
 Where, lookup values specifies what we want to search and lookup list specifies the source data set range.  
 Example: = match ("associates's degree", C:C, 1)

(c) Unique: Returns a unique values from a range of array.  
 Syntax: Unique (Array, [by Column], [exactly once])  
 Example: unique (A2:A9)

VLOOKUP, HLOOKUP, XLOOKUP, COUNT, COUNTA

Program 3:

(a) Vlookup:

Looks for a value in the leftmost column of the table, and then returns a value in the same row from the column you specify. By default, the table must be sorted in an ascending order.

Syntax: =VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])

Example: =VLOOKUP(C2, A1:B7, 2, FALSE)

(b) Hlookup:

Looks for a value in the top row of a table or array of values and returns the value in the same column from a row you specify.

Syntax: =HLOOKUP(lookup\_value, table\_array, row\_index\_num, [range\_lookup])

Example: =HLOOKUP(B10, A10:G11, 2, FALSE)

✓(c) Xlookup:

The XLOOKUP function searches a range or an array, and then returns the item corresponding to the first match if it finds.

Syntax: =XLOOKUP(lookup\_value, lookup\_array, return\_array, [if\_not\_found], [match\_found])

Example: =XLOOKUP("Srikanth", A2:A14, B2:B14, "Not found", 0)



(d) Count: Counts the numbers that are appeared in the given range of values.

Syntax: = COUNT (Value1, Value2, ..., Value n)

Example: = count (C5:C14)

(e) CountA: Count the numbers of cells that are not empty.

Syntax: = COUNTA (Value1, Value2, ..., Value n)

Example: = counta (C5:C14)

LEFT, MID, RIGHT, LEN, SUBSTITUTE, SEARCH, ISNUMBER

Sl. No	Text	Formula	Example
1.	Sitadevi Ratanbhand Mahur	= left (text, num char)	= left (A2, 8)
2.	Adarsh College	= mid (text, start pos, num char)	= mid (A3, 4, 4)
3.	Sreekanth	= right (text, num char)	= right (A4, 5)
4.	Rathan	= len (text)	= len (A5)
5.	Data Analytics	= substitute (text, old text, new text, [instances])	= substitute (A6, "Analytics", "Mining")
6.	Python Programming	= search (Find text, within text, [start, num])	= search ("Program", A7)
7.	Computer Networks	= isnumber (value) returns true or false	= isnumber (a) False
8.	545		= isnumber (89) TRUE
9.	Web	= concatenate (text1, text2)	= concatenate (A10, A11)
10.	Programming		



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# TODAY, NOW, YEAR, MONTH, NETWORKDAYS, EOMONTH

Program 5:

Sl.NO	Date Functions	Formula	Example
1	Today	= today()	= today()
2	Now	= now()	= now()
3	Year	= year(serial-num)	= year(today())
4	Month	= month(serial-num)	= Month(1)
5	NetworkDays	= networkdays( start date, end date, [Holidays])	= networkdays (F5, G5)
6	EOMonth	= EOMonth(start date, Months)	= EOMonth(F6, 4)

# EOMonth change the format



Programs:

OFFSET, CHOOSE, LET, MAX, SORT, SORTBY, RANK

(a) Offset: OFFSET can be used with any function expecting a reference argument.

Syntax: =OFFSET (Reference, rows, col, [Height], [Width])

Example: =OFFSET (A5, 3, 2, 2, 2)

(b) Choose: Select the cell where you want the returned value to appear.

Syntax: =CHOOSE (Appears Value, Value1, Value2, ...)

Example: =CHOOSE (5, C3, C4, C5, C6, C7, C8, C9)

(c) Let: The LET functions assigns names to calculation results.

Syntax: =let (name1, value1, name2, value2, Calculation expression)

Example: =LET (x, 3, y, 4, x \* y + x - y)

(d) Sort, Sortby, Rank, Max:

Sort Syntax: = sort (array, [SortBy])

Example: Sort (B2: B9)

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Date.....

Experiment Result.....

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Max Syntax: = max(Value1, value2, ...)

Example: = max(B9:B9)

Sortby Syntax: = sortby(array, 2ndarray, sortby)

Example: = sortby(b2:b9, A9:A9, 1)

Rank Syntax: The number whose rank you want  
to find

Example: = rank(30, \$B\$2:\$B\$9)



FILTER, FREQUENCY, SEQUENCE, RANDARRAY, IFERROR

Program 1:

(a) FILTER:

The FILTER function allows you to filter a range of data based on criteria you define.

Syntax: = filter (Array, include, [If Empty])

Example: = FILTER(A2:D13, B2:B13 = "Keweenaw")

(b) Frequency:

The FREQUENCY function calculates how often values occur within range of values, and then returns a vertical array of numbers.

Syntax: = FREQUENCY (data\_array, bins\_array)

Example: = frequency (H:H, G:G)

(c) Iferror:

Specifies the error caption what we have given in the syntax.

Syntax: = IFERROR (value, value\_if\_error)

Example: = IFERROR (20/0, "Division by zero not possible")  
= IFERROR (30/3, "Division by zero not possible")

Program 8: Pivot tables, What if analysis, data validation, Goal Seek.

a) Pivot Table:

A Pivot Table is a powerful tool to calculate, summarize and analyze data that lets you see comparison, patterns and trends in your data.

Step 1: select the range of cells you want to create as pivot table.

Step 2: select Insert Tab → select Pivot Table

Step 3: select New sheet or existing sheet to place the Pivot Table.

Step 4: select ok.

b) What-if Analysis:

It evaluates how changes in input values impact results, using tools like scenario manager and goal seek.

Step 1: Create the data set values

Step 2: Find the total cost using sum()

Step 3: select Data Tab → select what if analysis → select scenario manager from the dropdown list.

Step 4: Then click add → enter the scenario name give the column in the changing cells → click ok.

Repeat the step 4 to create 2 scenario values.

Step 5: Click ok summary to see report of changes in scenario values.



Goal seek:

- Step 1: In the data tab
- Step 2: Click on what if analysis → Goal seek
- Step 3: In the set cell box, enter the reference for the cell that contains the formula that you want to resolve.

Figure 1: Develop an interactive dashboard for the Financial sample excel workbook.

Income data :

Source	Amount	Frequency
Salary	4000	Monthly
Freelance	800	Monthly
Investments	200	Monthly
Rental Income	1200	Monthly
Total Income	6000	

Expenses data :

Category	Amount	Frequency
Housing	1500	Monthly
Utilities	300	Monthly
Groceries	400	Monthly
Transportation	250	Monthly
Entertainment	200	Monthly
Insurance	150	Monthly
Savings	500	Monthly
Total Expenses	3350	



Step 1: Create a pivot table → select the complete sheet → Insert tab → Pivot table → Create new sheet → OK.

Step 2: In the analysis tab → select pivot chart → select the chart depending on the data field selected → OK.

Step 3: Repeat step 1 and 2 and insert few more charts in different sheets.

Step 4: Select the charts from different sheets and paste it in new sheet to create an active dash board.

Step 5: Click on individual chart → select analyze tab → select insert slicer → select the option depending on data set and chart field → OK

Repeat the ~~step 5~~ for other pivot charts. Now, the dash board is ready.

### # Predictions

```
y_pred_log = logsg.predict(X_test_log)  
y_pred_log
```

### # Model Evaluation

```
accuracy_log = accuracy_score(y_test_log, y_pred_log)  
conf_matrix_log = confusion_matrix(y_test_log, y_pred_log)  
print(f'Accuracy (Logistic Regression): {accuracy_log}')  
print(f'Confusion Matrix (Logistic Regression): \n  
{conf_matrix_log}')
```



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Experiment No. 7	Experiment Result	
<p>1. Introduction to Power BI - Gnet started with Power BI - Sign up for Power BI - Overview: Power BI data sources. Connect to SaaS solution - Upload a local CSV file - Connect to Excel data that can be refreshed - Create a Report with Visualization.</p>		
<p>Introduction to Power BI</p>		
<p>Power BI is a Data Visualization and Business Intelligence tool that converts data from different data sources to interactive dashboards and BI reports. Power BI suite provide multiple software, connectors, and services. Power BI desktop, Power BI service based on SaaS, and mobile Power BI apps available for different platforms. These set of services are used by business users to consume data and build BI reports.</p>		
<p>Connect - to - a - SaaS solution</p>		
<p>Power BI desktop app is used to create reports while Power BI Services (Software as a Service - SaaS) is used to publish the reports, and Power BI mobile app is used to view the reports and dashboard. Power BI desktop is available in both 32-bit and 64-bit version.</p>		
<p>Power BI data sources :</p>		
<p>To see available data sources, in the Home group of the Power BI Desktop ribbon, select the Get data button label or down arrow to open the Common data sources list. If the data source you want isn't listed under Common data sources, select More to open the Get Data dialog box.</p>		
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Connect to Excel data

S1: Click on Get data > Choose File

S2: select The Appropriate sheet

S3: Click on Load or Transform Data

Load - Click on Load If the data is perfect, no change required or no calculated field required on the top of data.

Transform Data - If the data is incomplete you want to add some column or remove any fields basically for the formatting of data click on transform data and apply the changes you need then click on close & apply.  
It will load automatically and visible in the fields section.



2 Using visualizations - Create a new report - Create and arrange visualizations - Format a visualization Use text, map, and gauge visualizations and save a report - Use a slicer to filter visualization Sort, copy, and paste visualizations.

Create a new report:

Power BI offers two main tools for creating reports:

Power BI Desktop and Power BI service

Open Power BI Desktop → select Visual → Add data fields (from Right corner.)

Drag and drop the data fields to the canvas to create visualization.

Report consists of multiple visualization including bar chart, pie chart, map, gauge, etc.

Format a visualization:

select visual → click on the format option →

More options.

Format the visual using formatting pane as per your interest.

Text:

Text can be used to tell a story within your Power BI report. By combining text with visuals, you can create a informative report.

Open Power BI desktop → Text box → Name the Report

3 Modify and Print a Report - Rename and delete report pages - Add a filter to a page or report set visualization interactions - and a report to PowerBI.

Modify the report : You can change the data source by going to the "Home" tab and selecting "Edit Queries." This allows you to modify the data source, apply transformations, and load new data.

Transform data → power Query editor → right click on any column → remove / duplicate column

Rename : Open Power BI Report → right click on page → rename page

Delete : Open Power BI Report → right click on ~~page~~ → delete page

Page -3 is deleted from the report



Copy and paste : use "ctrl c" for copy and "ctrl v" for paste from one page to another page.

Donut chart is copied from report page to page 2 using standard copy, paste functionality

Report to Power Point: create Power BI official account → login using chrome → my workspace → select and open the report → export → powerpoint.

4 Create a Dashboard - Create and manage dashboards - Pin a report tile to a dashboard - Pin a live report page to a dashboard - Pin a tile from another dashboard - Pin an excel element to a dashboard - Add a tile to a dashboard

### Creating dashboard:

Open Power BI service → my workspace → open Report → edit → click on the visual / tile → pin → create new dashboard → pin → go to dashboard.

### Dashboard :-

Multiple tiles / visual are pinned to dashboard

### Manage Dashboard :-

Edit the dashboard or change the theme of the Dashboard, pin the multiple visuals that gives meaningful insights to take decision.