

CERTIFICATION IN DATA ANALYSIS AND ANALYTICS UTILIZING MICROSOFT EXCEL

Conducted by: **Palani Murugappan**

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Data Analysis Certificate

Certificate from the United Kingdom

Be a trained and certified Data Analyst utilizing Excel!

Understand the implications of raw data and why it is useful!

How to extract vital information from raw data for management decision making!

CERTIFICATION IN DATA ANALYSIS AND ANALYTICS UTILIZING MICROSOFT EXCEL

You shall learn the following:

- ✓ **Analyze data via Pivot Tables, Filters, Subtotals, and Scenario Manager**
- ✓ *Performing various "what-if" scenarios of raw data (based on price changes; availability; duration offered; etc.)*
- ✓ **Forecasting future values and trends based on previously known values**
- ✓ *Working on best/worst/current case scenarios*
- ✓ **Creating drop-down options within a single cell**
- ✓ *Highlighting and formatting specific values or data using Conditional Formatting*
- ✓ **Calculating specific field values based on multiple conditions e.g. measuring KPI of employees based on age, sex, department duration employed, etc.**
- ✓ *Planning total number of Man days required for delivery from a given starting date (with and without holidays in between dates)*
- ✓ **.....plus much more**



DAY 1: VISUAL DATA ANALYSIS USING CHARTS

1. INTRODUCTION TO EXCEL CHARTS

- Significance of Charts
- Understanding what type of data best represents type of chart
- How Excel Handles Charts
- Parts of a Chart
- Creating Charts
- Basic Chart Modifications

2. UNDERSTANDING CHART TYPES

- Conveying a Message with a Chart
- Choosing the right Chart Type
- Analyzing various types of Charts
- Importance of looking good

3. CHANGING CHART ELEMENTS

- Selecting chart elements
- Modifying chart properties using the following:
 - ❖ Format dialog box
 - ❖ Modifying chart area
 - ❖ Modifying plot area
 - ❖ Working with chart titles
 - ❖ Working with legends
 - ❖ Changing chart gridlines
 - ❖ Modifying axes
 - ❖ Displaying values within chart elements

4. FINE TUNING THE CHART

- Modifying one chart to another within the same chart area
- When to add secondary axis
- How to handle large numbers against very small numbers
- When and how to reverse a data category
- Converting horizontal axis values from negative to positive completely
- Moving vertical axis from middle to left when dealing with positive and negative values
- Highlighting lower values with different colors
- Reducing gap width of columns and bars

5. DYNAMIC FORMATTING WITH THE FOLLOWING TYPES OF CHARTS:

- Bar
- Radar
- Pie (various aspects)
- Column (images within columns)
- Scatter (forecasting future values)
- Line
- Doughnut
- Bubble (showing market share)
- Stock (displaying high-low-close values)
- Gantt (for project planning)
- Thermometer
- Histogram and comparative histogram
- Combining multiple charts and many others

DAY 2: MASTERING FORMATTING OF DATA, INTRODUCTION TO DATA ANALYSIS, USE OF LOGICAL FUNCTIONS, AND CREATION OF DATABASES

1. FORMATTING OF DATA

- Converting basic data to various formats
- Using the Format Painter to highlight specific text
- Other tips and shortcut techniques when formatting data
- Various aspects of formatting numbers and limitations within Excel

2. WORKING WITH DATA

- Understanding Relative and Absolute Cell Referencing
- Highlighting specific data based on conditions given
- Validating a range of data based on condition set
- Visualizing data using customized Data Bars, Color Scales, and Icons
- Password protect a range of cells and workbook
- Converting text to numbers from external data file
- Finding duplicate values and removing them
- Changing text orientation
- Creating a watermark

3. INTRODUCTION TO DATA ANALYSIS

- Performing simple what-if calculations using COUNTIF, SUMIF and AVERAGEIF functions
- Linking above functions to Conditional Formatting options in highlighting specific criteria
- Automating the process of highlighting minimum and maximum values from a given range
- Automatically converting values to percentages based on output of data analysis using functions

4. USE OF LOGICAL FUNCTIONS

- Applying the IF statement for comparison purposes
- Combining other functions within the IF statement
- Highlighting specific output retrieved via IF statement Performing comparative analysis using Logical functions
- Applying the Nested IF statement for more than a single condition

5. CREATING VERTICAL AND HORIZONTAL DATABASES AND SEARCHING SPECIFIC VALUES USING VLOOKUP AND HLOOKUP FUNCTIONS

- Understanding differences between vertical and horizontal databases
- Importance of unique column and row of databases
- Identifying when to use VLOOKUP and HLOOKUP functions, and to search specific values from a database
- Calculating bonuses for multi-tier payment scheme
- Complex calculations using VLOOKUP function

DAY 3: ANALYZING DATA USING PIVOT TABLE, FILTERS, SUBTOTALS, AND VARIOUS FUNCTIONS

1. SUMMARIZING AND ANALYZING DATA USING PIVOT TABLE

- Use of Pivot Table
- Updating and modifying Pivot Table
- Changing calculated fields in Pivot Table
- Rearranging Fields in a Pivot Table
- Explaining the Report Layout Options
- Using the Report Filters Feature
- Using Top 10 & Date Filters
- Handling Blank Cells
- Sorting a Pivot Table
- Formatting a Pivot Table

- Grouping of Data
- Creating Custom Formats
- Adding Formulas to a Pivot Table
- Changing a Calculation in a Pivot Table
- Counting with a Pivot Table
- Creating a Pivot Chart

2. ANALYZING & REPORTING DATA USING FILTERS AND SUBTOTALS

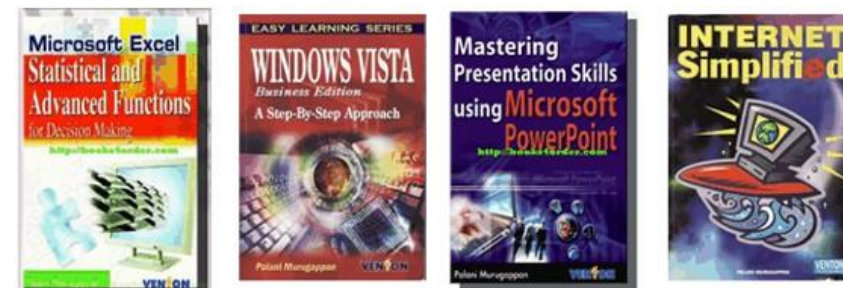
- Using the Filter and Advanced Filter options
- Performing calculations using Filter
- Highlighting and removing duplicate data
- Applying Subtotal for calculations of grouped data
- Using multi-level Subtotals for different functions

3. DEALING WITH PRECISION OF NUMBERS

- Rounding up and down of numbers with decimal positions, and large numbers
- Displaying only a portion of a large number
- Using functions to handle precision of number formats



Sample books authored by Palani Murugappan



Sample books authored by Palani Murugappan

4. APPLICATION OF TEXT FUNCTIONS FOR MANIPULATING DATABASES

- Combining contents of various cells into a single cell
- Comparing contents of one cell with another to check for identical data
- Replacing specific text with another
- Removing unwanted spaces within a cell content
- Repeating characters displayed
- Converting data to upper, lower and proper cases
- Finding length of text within a cell

5. PERFORMING DATE CALCULATIONS

- How Excel handles Date calculations
- Calculating differences of two dates and converting it to years and months
- Understanding various date formats and performing calculations accordingly

6. FORECASTING FUTURE VALUES

- Understanding types of charts for forecasting for linear and exponential growth
- Forecasting future values based on previous results (e.g. sales forecasting, market analysis, etc.)
- When to apply the TREND and GROWTH functions
- Limitations of above functions

7. OTHER EXCEL FUNCTIONS FOR DATA ANALYSIS

- Ranking variables in descending or ascending order
- Performing calculations based on selection of different ranges
- Understanding the use of optional parameters within a function

DAY 4: ADVANCED FORMATTING TECHNIQUES OF DATA, DATA TABULATION, AND ADVANCED ANALYSIS

1. SUMMARIZING & ANALYZING DATA

- Other tips on working with data
- Constructing formulas using Named Ranges
- Consolidating Data
- Using Array Formulas
- Working with various aspects of Tables
- Finding cells containing data for a given period
- Preventing formulas from being displayed
- Protecting entire worksheet except selected columns or rows

2. PERFORMING VARIOUS WHAT-IF ANALYSIS FOR REPORTING PURPOSES

- Introduction to AND, OR, and NOT functions within logical IF statement
- Using the Goal Seek functions for different scenarios
- Applying different scenarios for best, worst, and most likely situations with the Scenario Manager
- Sensitivity analysis using one and two input Data Table

3. WORKING WITH ADVANCED CONDITIONAL FORMATTING

- Visualizing data using customized Data Bars, Color Scales, and Icons
- Using Stop if True in Conditional Formatting
- Comparing Dates with Conditional Formatting
- Highlighting cells by applying formulas within Conditional Formatting

4. UNDERSTANDING LOAN CALCULATIONS

- Difference between long and short term loans
- Effect of interest in long and short term loans
- Understanding reducing balance and straight line calculations
- Performing housing loan calculations
- Calculating the interest and principal portion of loan and paying off loan faster

DAY 5: FUNCTIONALITY OF COMPLEX FORMULAS AND DASHBOARDS

1. CREATING COMPLEX ADVANCED CHARTS TO DASHBOARDS

- What are Excel dashboards?
- Improving data visualizations using dashboards
- Managing functions to create dashboard objects
- Mastering the OFFSET function for dynamic chart purposes

2. CREATING POWERFUL FORMULAS

- Applying Goal Seek in a What-if analysis
- Converting Text to Numbers and vice versa
- Using various Date and Time Functions
- Using INDEX, MATCH, and OFFSET Functions
- Applying various options within Form Control within Developer Tab
- Using the CONVERT Function
- Using the RAND and RANDBETWEEN Functions
- Ranking & Sorting Formulas
- General purpose IFERROR function
- Use of COUNTIFS, SUMIFS, and AVERAGEIFS functions
- Determining the sign of a number
- Using further Text Functions
- Applying Database Functions with criterias to extract information from databases
- Statistical Analysis using Statistical Functions

3. APPLYING ADD-INS IN EXCEL

- Applying Add-Ins to use non-standard features and functions in Excel
- Activating Analysis ToolPak and Solver
- Performing What-If analysis using Solver

4. PUTTING IT ALL TOGETHER AND CASE ANALYSIS

- Participants are to generate raw data based on question given
- Analyze the raw data based on what was covered in the last 4 days
- Present the findings in a meaningful manner

The Trainer



Palani Murugappan (known as *The Interpreter* i.e. helps converge data into information), is a Malaysian Human Resources & Development Fund (“HRDF”) certified trainer who shares with his participants his knowledge and experience culled over 20 years of involvement in the software application training industry. He has helped

- Sales & Marketing personnel forecast future sales patterns;
- Human Resources personnel perform various levels of KPIs from employees’ raw data, and setup a simplified payroll system for Small to Medium Sized Industries;
- Finance personnel to perform various What-If situations;
- Production personnel to create meaningful scenarios should price of raw materials increase by a small or large margin;
- Medical professionals to increase their level of understanding on analyzing lab and various test results including profiling of patients;
- General employees improve their general reporting and presentation skills.

On a personal basis, Palani has authored 51 books to-date (please refer above) on various software applications. He has also contributed numerous articles to business magazines. Palani holds an MBA (majoring in Electronic Commerce) from the Charles Sturt University, Australia.