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POWER BI CASE STUDY DOCUMENT

DAY 8

Version	Author	Comment	Reviewed By	Date
V 1.0	I&D Microsoft	Initial draft	Moupiya Das	

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Power BI – Car Sales Case Study

Introduction:

In this Case Study you will be addressing the Issue of '**CarSales**' Company. The solution aims to offer '**CarSales**' Company valuable insights of how their business is doing, what is perfectly working and what should be improved, by addressing different areas of the business   like Car Sales, and Labor Sales. You are provided with Car Sales Data attached within, for creating reports on Power BI. For performing interactive Visualization reporting out of it, first you need to prepare a data model.

Prerequisites:-

→ Latest **Power BI Desktop** should be installed in the system.

CarSales_Tables.xlsx

A. Create References for all queries
I. Create a '*Reference' to the Stock* query so that a copy of the *Stock* query is created. This referenced copy will depend on the source query for its source data. Rename it to *Dim_Vehicle.*
II. Similarly create a reference to *Client* query and rename it to *Dim_Client*.
III. Rename the reference to **InvoiceLines** as *Fact_Sales*.
IV. Rename the reference to **Countries** as *Dim_Country*.

B. Data Transformations
I. Merge *Dim_Vehicle* and *Colors* query using **ColorID** column so that you can add '**Color**' column in *Dim_Vehicle.*
II. Similarly merge *Fact_Sales* with *Invoices, Clients, Stocks* to get **InvoiceDateKey, CountryID, ClientID, Make**, **Model**, **VehicleType** and **ColorID** columns in your fact table.

C. Data Modelling

Date Dimension Table using DAX.

I. Using the DAX formula **CALENDAR()** generate a table '*Date_Dimension'* containing a continuous date range from "**1/1/2012"** to**"31/12/2018".**
II. Rename it to *Date_SK*.
III. Add five new columns as per below :

Column Title	Comments
FullYear	Isolates the year as a four digit number
Quarter	Displays the current quarter in short form like Q1
QuarterNumber	Displays the number of the current quarter. This is essentially used as a sort by column

FullMonth	Displays the full name of the month
MonthNumber	Isolates the number of the month in the year as one or two digits

Define Relationships Between Fact Table and Dimension Tables.
I.   *Dim_Vehicle*.StockID = *Fact_Sales*.StockID
II. *Dim_Country*.CountryID = *Fact_Sales*.CountryID
III. *Date_Dimension*.Date_SK = *Fact_Sales*.InvoiceDateKey
IV. *Dim_Client*.ClientID = *Fact_Sales*.ClientID

Hierarchies
I.   Using '**Make**' field in *Fact_Sales* Table, create a New Hierarchy.
II. Add **Model** field to hierarchy you just made.

Calculated Column

I.   In *Fact_Sales* Table add a new column '**TotalCosts**'

TotalCosts = [CostPrice]-[SpareParts]-[LaborCost]

D. Data Model Optimization

I.   Hide the Surrogate key columns and other non-essential columns.
II. Remove the unnecessary columns.
III. Sort **FullMonth** by **MonthNumber**.
IV. Add Measures with *Fact_Sales* as Home Table.

1. To display Quarterly Sales, add measure 'QuarterSales' using '**SalePrice**' column.
2. Similarly, add measure for Yearly Sales and rename it 'YearSales'
   (Hint: - Use TotalQTD(), TotalYTD() function in DAX)

V.   Change the data types of measures created.

E. Report 1 – Car Sales

I.   Give 'Car Sales' title for the Report.
II.   Use an appropriate image for page background (Download Image from Internet).
III. Show Total Sales on a card.
IV.   Display Make wise Sales in a matrix. It should drill down on Model.
V.   In a Bar Graph show the Sales per Vehicle Type. Each bar should have a unique color
VI.   Show Country wise sales in a map.
VII. Use Slicer to filter the sales by year
VIII. Display Sales by Vehicle Type and Model in a Clustered Column chart.
IX.   Show Sales per Vehicle Type by Year in a line chart. It should Drilldown from Year to Month.
X.   Show Total Sales by Country in a treemap.
XI.   In a pie chart show distribution of Sales by Vehicle Type

F. Report 2- Client Details

I.   In tabular format show all client details.
II. Use map to show Client's Location.
III. Provide a filter for Dealer and Creditworthy Clients
IV. Use Slicer to filter Sales by Client Type.

G. Report 3- Labor Cost Details

    I.   Use a bar graph to show ' Color wise Labor Cost'

    II.   In a Clustered bar graph show 'Labor Cost by Month and Model'. Month should come as January ,February and should not be in ascending by month name

    III.   In a scatter chart show 'Labor Cost per Vehicle Type'.

    IV.   Show 'Labor Cost by Model and Make' in a multi row card.

    V.   Show 'Labor Cost by Month' in a Column chart. Without Using Drill-down display Months on axis grouped by Quarter and then by year. Use image below for your reference.
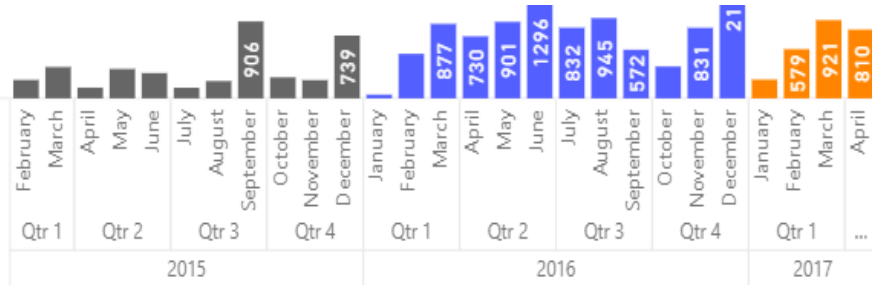
H. Publishing and Sharing Reports

    I.   Now it's time to publish your reports. Create a new app workspace named '*PowerBI_Training'* using Power BI Service.

    II.   Add your friends to workspace so that you can share your reports with them.

    III.   Publish your reports to Workspace.

    IV.   In '*PowerBI_Training'* workspace, create a new dashboard.

    V.   Create a well-designed dashboard to tell insights of your data.

    VI.   Pin Visualizations of your choice from your report to have quick insights into the report.