**PRACTICE LAB**

LAUNCH POWER BI DESKTOP > GET DATA > BROWSE FOR, ADD GIVEN FIVE CSV FILES (ONE AT A TIME).

THEN POWER BI WILL AUTO DETECT THE RELATIONS BASED ON THREE FACTORS:

1. DATA TYPE

2. COLUMN NAME

3. UNIQUENESS OF COLUMN VALUES

IF TWO COLUMNS ACROSS TWO TABLES HAVE SAME NAME AND SAME DATA TYPE WITH ATLEAST ONE OF THESE SIMILAR COLUMNS (FROM IDENTIFIED TWO TABLES) HAVE UNIQUE VALUES, THEN ONE RELATIONSHIP IS AUTO DETECTED.

FROM POWER BI CANVAS > MODELLING BUTTON > MANAGE RELATIONSHIP.

WE IDENTIFY ONE MISSING RELATION TABLE : **DIMENSION DATE**

GO TO MODELING TAB > RELATIONSHIP MANAGEMENT > NEW RELATION > OK.

SOURCE : FACT TABLE (COLUMN : INVOICE DATE KEY)

DESTINATION : DIM TIME TABLE (COLUMN : DATE)

FROM POWER BI CANVAS > REPORT BUTTON > VERIFY DATA.

TO DEFINE **DAX MEASURES**, IT IS ADVISABLE TO CONSIDER THE TABLE THAT HAS MORE RELATIONS.

IN THIS CASE, IT WOULD BE "FACT SALE" TABLE.

**RIGHT CLICK FACT SALE TABLE > DEFINE MEASURES AS BELOW :**

*Requirement #1: How to Report Total Tax Value?*

Total\_Tax = SUM('Fact Sale'[Tax Amount])

*Requirement #2: How to report Total Quantity based on each Color?*

, is for JOIN

Inner Join

We need not specify the join condition.

Reason: Only one relation is available between tables in Power BI. Join occurs automatically based on that related columns.

Sales\_All\_Stock = CALCULATE (SUM('Fact Sale'[Quantity]), 'Dimension Stock Item'[Color])

Equivalent T-SQL Query:

SELECT Color , SUM(QUANTITY) FROM FACTSALE AS F

INNER JOIN

Dimension Stock Item AS S

ON

*F.STOCKKEY = S.STOCKKEY*

*GROUP BY* Color

*Requirement #3: How to report Total Quantity based a specific Color?*

Sales\_Filtered = CALCULATE (SUM('Fact Sale'[Quantity]), 'Dimension Stock Item'[Color] = "Red" )

Equivalent T-SQL Query:

SELECT Color , SUM(QUANTITY) FROM FACTSALE AS F

INNER JOIN

Dimension Stock Item AS S

ON

*F.STOCKKEY = S.STOCKKEY*

*WHERE*

Color = 'Red'

*GROUP BY* Color

*Requirement #4: How to compute averaged Item Price for End User Reporting?*

Avg Item Price = DIVIDE (

[Total\_Tax],

SUM('Fact Sale'[Quantity])

)

*Requirement #5: How to compute Report Total Sale Quantity?*

*If Total Sale Quantity is above 0 then report. If not specify a Text Message.*

Sales Text = VAR SalesQty = SUM('Fact Sale'[Quantity])

VAR Text1 = "This month we sold "

VAR Text2 = " Items"

VAR **Result** = IF(SalesQty > 0, Text1 & SalesQty & Text2, "No sales this month")

RETURN **Result**

*Requirement #6: How to Report content in Visualizations based on a selected Field Member?*

*Example: If customer select 2014 Year, then message "Not a Valid Year"*

Sum of Quantity =

**IF**(SELECTEDVALUE('Dimension Date'[Calendar Year])=2014, "NOT VALID YEAR",

FORMAT(SUM ('Fact Sale'[Quantity]),"$#,000"))

Requirement #7: How to Join Multiple Tables (Entities) in DAX For Columns?

Alternative to , for Inner Join in DAX: RELATED () Function

*Estimated Weight =*

*'Fact Sale'[Quantity] \** ***RELATED****( 'Dimension Stock Item'[Typical Weight Per Unit])*

EXAMPLE #8: TIME INTELLIGENCE FUNCTIONS

Quantity YTD = TOTALYTD(SUM('Fact Sale'[Quantity]), 'Dimension Date'[Date].[Day])

EXAMPLE #9:

Quantity QTD = TOTALQTD(SUM('Fact Sale'[Quantity]), 'Dimension Date'[Date].[Day])

EXAMPLE #10:

Quantity MTD = TOTALMTD(SUM('Fact Sale'[Quantity]), 'Dimension Date'[Date].[Day])

***Write DAX Formulas / Expressions for the following requirements?***

*Task 1: Report sum of Quantity for all sales and products from 2004?*

*Task 2: Report Average of Quantity for all sales and products from 2004 and 2005 ?*

*Task 3: If above Average of Quantity for all sales and products is greater than 1000 then Represent in USD. If not, then no such currency format is needed.*

*Task 4: What are the factors using which the relations are auto detected by Power BI?*

*Task 5: What are the cautions you need to consider to define new relationships in Power BI?*