**DAX Documentation**

**Tool: Power BI**

**Module: 1 (2)**

**Number of lessons: 6**

**Contents at a glance**

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**Intro DAX**

**1 What is DAX ?**

DAX – DATA ANALYSIS EXPRESSIONS

**DAX** is a formula and query language that is designed to work with tabular data models and is primarily used to simplify data analysis and calculation tasks in [Power BI](https://www.geeksforgeeks.org/power-bi-tools-and-functionalities/), Microsoft PowerPivot, SQL, and Server Analysis Services (SSAS). It provides users with the ability to create sophisticated calculations, define custom metrics, and perform complex data manipulations.DAX has many powerful functions which Excel does not have.

**SQL Query**

select

DC.FirstName,

sum(FIS.SalesAmount) as Total\_Sales

from [dbo].[FactInternetSales] as FIS

inner join [dbo].[DimCustomer] as DC

on FIS.CustomerKey = DC.CustomerKey

where DC.Gender = 'M'

group by DC.FirstName

order by Total\_Sales desc

**DAX Query**

EVALUATE

    SUMMARIZE(

        FILTER(DimCustomer,DimCustomer[Gender] = "M"),

        DimCustomer[FirstName],

        "Total\_Sales", sum(FactInternetSales[SalesAmount])

    )

    ORDER BY [Total\_Sales] desc

**DAX Data Types**

**1: Whole Number**

**2: Decimal Number**

**3: Currency (Currency), a fixed decimal number internally stored as an integer**

**4: Date( DateTime)**

**5: Boolean (True\False)**

**6: text (String)**

**7: Binary Large Object**

**DAX Operators**

**1: ()**

**2: +,-,\*,/**

**3: =,<>,>,<,>=,<=**

**4: & (concatenate)**

**5: && or || ( AND, OR)**

**Variables**

**--- Define VAR keyword, after using VAR , Expression should have RETURN keyword**

**Text Functions**

**1: Concatenate 5: Format 9: Mid 13 Search**

**2: Exact 6: Left 10: Replace 14 Trim**

**3: Find 7: Len 11: Rept 15 Upper**

**4: Fixed 8: Lower 12: Right 16 Substitute 17 V1alue**

**Implicit measures --**

**Explicit measure –**

**Scalar functions**

* **Aggregate functions**
* **Logical functions**
* **Information functions**
* **Mathematical functions**
* **Conversion Functions**

**Aggregation Functions – (Sum, Average, Min, Max, STDEV, and VAR) – only work for numerical value**

**50,60,85,70,67**

**Logical Functions – ( IF,AND,OR,NOT,SWITCH,COALESCE,ISBLANK,TRUE,FALSE)**

**Information Functions – (Isblank, IsNumber, IsText, IsNonText, IsError, IsLogical, IsEmpyt)**

**Math Functions - ( ABS, Ceiling, Floor, divide, Power, Sqrt, Trunc , rand, randbetween, Odd, Even)**

**Rounding Functions – ( Round, Round down, Round up, Mround)**

**Tabular Functions**

**Ex: ConcatenateX**

**Ex: related and relatedtable**

**--- related -- In a one-to-many relationship, RELATED can access the one-side from the many-side**

**( sales\_amount = SUMX(FactInternetSales,FactInternetSales[OrderQuantity] \* RELATED(DimProduct[DealerPrice]))**

**--- relatedTable --- RELATEDTABLE returns a table containing all the rows related to the current one.**

**--- Countrows – count(\*)**

**--- count – with duplicate**

**--- count distinct --- unique**

**--- Filter**

**--- Evaluate**

**--- All – you can use All function to get all values in a table or columns, or you can use multiple columns which will get combination of columns**

**--- calculate**

**--- calculatetable**