DAX
Data Analysis Expressions

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Data Warehouse
Design & Develop

DataToInsight.ir

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منابع

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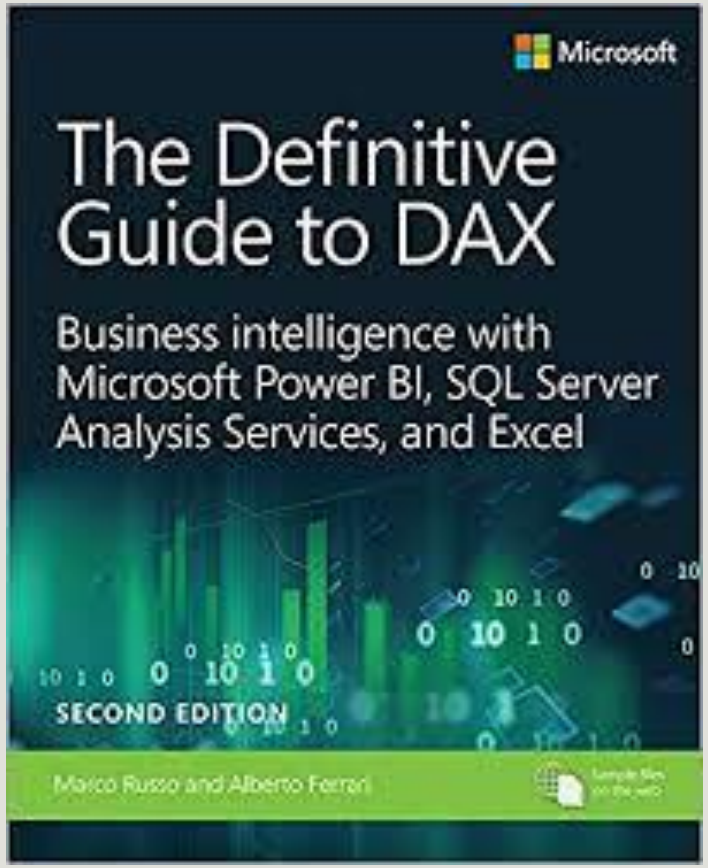

DAX

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- DAX یک زبان بر اساس فرمول نویسی است.
- شبیه به توابع Excel رفتار می کند.

- DAX از دو روش در مدل SSAS بارگزاری می شود:
  - calculated column
  - calculate measure

DAX Formula

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- پس از محاسبه یک مقدار بر می گردانند.
  - برای ایجاد **measure**، **kpi**، **column** استفاده می شوند.
- داده را به صورت یک جدول بر می گردانند.
  - برای ایجاد **dataset** استفاده می شوند.
  - برای تولید مجموعه داده و استفاده در فرمول دیگری استفاده می شوند.

DAX Formula Measure

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- Sum_debit_balance: = SUM('BI FactAccountingVoucher'[DebitBalance])
- count_records := COUNT('BI FactAccountingVoucher'[ID])

- SSAS column summarized by options:
  - Sum
  - Average
  - Count
  - DistinctCount
  - Max
  - Min

DAX Formula
Calculated Columns

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- = 'BI FactAccountingVoucher'[Credit] - 'BI FactAccountingVoucher'[Debit]
- = YEAR('BI DimDate'[GregorianDate])
- = "Y " & YEAR('BI DimDate'[GregorianDate])

DAX Formula Conditions

- IF(<logical_test>,<value_if_true>,<value_if_false>)
- SWITCH(<expression>,<value>,<result>[, <value2>,<result2>, ….][,else])

- =IF('BI FactSales'[SalesDocumentID] = 3, 'BI FactSales'[NetPrice], 0)
- = SWITCH('BI FactSales'[SalesDocumentID], 1, "Sales", 2, "Return Sales", "Net Sales")

DAX Formula String

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- = CONCATENATE("Y ", YEAR('BI DimDate'[GregorianDate]))

- LEFT(<text>,<num_chars>)
- RIGHT(<text>,<num_chars>)

- = LEFT('BI DimDate'[PersianDate], 4)
- = FIND("/",'BI DimDate'[PersianDate],1,0) – 1

DAX Formula Relations

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- RELATED(<column>)
- =RELATED('BI DimAccount'[Title])

- RELATEDTABLE(<tableName>)
- = COUNTROWS(RELATEDTABLE('BI FactAccountingVoucher'))

DAX Formula Filter

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- FILTER(<table>,<filter>)

- sum_of_net_sales:=SUMX(FILTER('BI FactSales', 'BI FactSales'[SalesDocumentID] = 3), 'BI FactSales'[NetPrice])

- sum_debit_1398:= CALCULATE(SUM('BI FactAccountingVoucher'[Debit]), 'BI DimDate'[CalendarYear] = 1398)

- = COUNTROWS(FILTER(RELATEDTABLE('BI FactAccountingVoucher'), 'BI FactAccountingVoucher'[DateID] >= 13980101))

- =COUNTROWS(FILTER(RELATEDTABLE('BI FactAccountingVoucher'), RELATED('BI DimDate'[CalendarYear]) >= 1398))

DAX Formula Filter

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- ALL(<table>|<column>)
  - to remove any conditions that are on your data
  - AllNetSales:= SUMX(ALL('BI FactSales'), 'BI FactSales'[NetSales])

DAX
Query Data

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- Select *
  - EVALUATE 'tablename'
  - EVALUATE 'BI FactAccountingVoucher‘
  - EVALUATE

```
        'BI FactAccountingVoucher'
    ORDER BY
        [ID] DESC
```

DAX
Query Data

- SUMMARIZE

```
EVALUATE
SUMMARIZE(
                'BI FactAccountingVoucher',
                [DateID],
                "Sum of Debit",
                SUM('BI FactAccountingVoucher'[Debit])

        )
```

DAX
Query Data

- SUMMARIZE

```
EVALUATE
SUMMARIZE(
                'BI FactAccountingVoucher',
                'BI DimDate'[CalendarYear],
                "Sum of Debit",
                SUM('BI FactAccountingVoucher'[Debit])

        )
```

DAX
Query Data

- SUMMARIZE

```
EVALUATE
SUMMARIZE(
                'BI FactAccountingVoucher',
                'BI DimDate'[CalendarYear],
                'BI DimAccount'[PrimaryTitle],
                "Sum of Debit",
                SUM('BI FactAccountingVoucher'[Debit])
        )
```

DAX
Query Data

- SUMMARIZE

```
EVALUATE
SUMMARIZE(
                'BI FactAccountingVoucher',
                ROLLUP(
                        'BI DimDate'[CalendarYear],
                        'BI DimAccount'[PrimaryTitle]
                        ),
                "Sum of Debit",
                SUM('BI FactAccountingVoucher'[Debit])
        )
```

DAX
Date Functions

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- =CALENDAR("1/1/2020","1/1/2021")
- =YEAR(DateTable[Date])
- =MONTH(DateTable[Date])
- =FORMAT(DateTable[Date],"MMM")
  - "M": returns month number
  - "MM": returns the 2-digit month number
  - "MMM": returns the first three characters of the month name
  - "MMMM": returns the full length of the month name
- =WEEKDAY(DateTable[Date],1)
- =WEEKDAY(DATEADD(DateTable[Date],1,DAY))
- =FORMAT(WEEKDAY(DateTable[Date]), "DDD")

DAX
Date Functions

- TODAY
  - current date
- NOW
  - current datetime
  - Current_DateTime:=NOW()

DAX
Date Functions

- DATEDIFF
  - SECOND
  - MINUTE
  - HOUR
  - DAY
  - WEEK
  - MONTH
  - QUARTER
  - YEAR
  - first_date := MIN('BI DimDate'[GregorianDate])
  - first_date := FIRSTDATE('BI DimDate'[GregorianDate])
  - last_date := LASTDATE('BI DimDate'[GregorianDate])
  - days_since_first_date :=DATEDIFF(first_date, TODAY(), DAY)

DAX Periods

- sum_debit:= SUM('BI FactAccountingVoucher'[Debit])
- sum_debit_pre_year:= CALCULATE(
  SUM('BI FactAccountingVoucher'[Debit]),
  PARALLELPERIOD('BI DimDate'[GregorianDate], -1, YEAR)
)
- YOY_Growth:=([sum_debit]-[sum_debit_pre_year])/ [sum_debit_pre_year]
- YOY_Growth_New:= IF([sum_debit_pre_year],
  ([sum_debit]-[sum_debit_pre_year])/ [sum_debit_pre_year],
  BLANK()
)

DAX Periods

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- OpeningMonth:=OPENINGBALANCEMONTH(

  SUM('BI FactAccountingVoucher'[Debit]),

  'BI DimDate'[GregorianDate])

- OpeningYear:=OPENINGBALANCEYEAR(

  SUM('BI FactAccountingVoucher'[Debit]),

  'BI DimDate'[GregorianDate])

DAX Periods

DataToInsight.ir

- ClosingMonth:=CLOSINGBALANCEMONTH(

  SUM('BI FactAccountingVoucher'[Debit]),

  'BI DimDate'[GregorianDate])

- ClosingYear:=CLOSINGBALANCEYEAR(

  SUM('BI FactAccountingVoucher'[Debit]),

  'BI DimDate'[GregorianDate])

DAX Periods

DataToInsight.ir

- YTDDebitBalance:=TOTALYTD(SUM('BI FactAccountingVoucher'[Debit]),
  'BI DimDate'[GregorianDate])