

KOENIG SOLUTIONS • COURSE OUTLINE

Advanced DAX Techniques in Power BI

Learn to write advanced DAX in Power BI, from evaluation context and CALCULATE to time intelligence and context transition.

3 Days

24 HOURS

18

MODULES

55

TOPICS

COURSE OVERVIEW

An advanced DAX course typically covers a wide range of topics, including time-intelligence functions, advanced filtering techniques, custom aggregation functions, optimization techniques, and working with advanced data modelling techniques such as bidirectional relationships, virtual tables, and hierarchies. The course may also include hands-on exercises and Case Studies to help participants apply their learning to real-world scenarios.

WHO THIS COURSE IS FOR

Power BI Developers

Data Analysts

BI Consultants

Report Developers

Data Modellers

PREREQUISITES

- Understanding of Basic DAX syntax: Participants should be familiar with basic DAX functions and operators, including CALCULATE, FILTER, and SUMX.
- Understanding of Data modelling: Participants should have experience with data modelling concepts, such as relationships between tables and creating calculated columns and measures.
- Power BI or Excel: Participants should be familiar with either Power BI or Excel, as these tools are commonly used in conjunction with DAX.

LEARNING OBJECTIVES

- Apply DAX syntax and formatting conventions
- Differentiate calculated columns from DAX measures
- Explain filter context and row context
- Apply iterators such as SUMX to resolve calculations
- Apply CALCULATE with single and multiple filters
- Use table functions such as FILTER and ALL
- Implement time-intelligence functions with date tables
- Use variables to improve readability and performance

18 Modules, 55 Topics

01

DAX Objects, Syntax and Formatting

TOPICS

DAX Syntax · DAX Formatting

02

Calculated Columns and Measures

TOPICS

Calculated Columns · DAX Measures

03

Evaluation Context

TOPICS

The Filter Context · The Row Context

04

Iterators

TOPICS

The SUMX Function · Total Row Grief

05

The CALCULATE Function

TOPICS

Why You Need CALCULATE · Using Single Filters · Using Multiple Filters

06

DAX Table Functions

TOPICS

Types of DAX Functions · Table Functions · The FILTER Function · Column Filters vs Table Filters

07

The ALL Function and All Its Variations

TOPICS

The ALL Function · The ALLEXCEPT Function · The ALLSELECTED Function · ALL as a Modifier to CALCULATE

08

Calculations on Dates: Using DAX Time Intelligence

TOPICS

Power BI Date Hierarchies · Creating Date Table · Using Time Intelligence Functions

09

Empty Values vs Zero

TOPICS

The BLANK() Function · The ISBLANK() Function · Testing for Zero · Using Measures to find Blanks and Zero · Using the COALESCE function

10

Using Variables: Making Our Code More Readable

TOPICS

Improved Performance · Improved Readability · Reduced Complexity · Variables as Constants

11

Returning Values in the Current Filter

TOPICS

The SELECTEDVALUE Function · The CONCATENATEX Function · Using Parameter Tables · The VALUES Function

12

Controlling the Direction of Filter Propagation

TOPICS

- Programming Bidirectional Filters
- Why you should never use Bidirectional Relationships

13

Working with Multiple Relationships between Tables

TOPICS

Activating Inactive Relationships · Comparing Values in the Same Column

14

Understanding Context Transition

TOPICS

- Overview of DAX Evaluations Contexts
- How Row Context becomes Filter Context
- How Context Transition can return surprising results
- Aggregating Totals using Context Transition

15

Leveraging Context Transition

TOPICS

- **Ranking Data:** Looking at RANKX
- Binning Measures into Numeric Ranges
- Calculating TopN Percent
- Calculating “Like for Like” Yearly Sales using SUMMARIZE
- Using Context Transition in Calculated Column

16

Virtual Relationships: The LOOKUPVALUE and TREATAS Functions

TOPICS

LOOKUPVALUE Function · The TREATAS Function

17

Table Expansion

TOPICS

Revisiting Filters · Expanded Tables Explained ·
Leveraging Expanded Tables

18

The CALCULATETABLE Function

TOPICS

CALCULATETABLE vs FILTER · CALCULATETABLE and Table Expansion

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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