Bright Star Institute

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Analyzing Data Using DAX and M Power Query

Duration: 40 hours

Prerequisites: Familiarity with database concepts, and prior completion of the **Analyzing and Presenting Data with Power BI** course.

Description: This course is an extension of the **Analyzing and Presenting Data with Power BI** course, and focuses on using DAX and M Power Query to increase the flexibility and data analytics capabilities of Power BI reports.

Students will learn beginner and intermediate techniques for adding calculations to their Power BI Data models using DAX. Our hands-on labs provide practical exercises that cover some of the common data modeling problems that users face, and how DAX can be used to solve those. Students will experience flattening out an OLTP database into a star schema by using DAX, resolving common granularity issues with data models, and learn how Measures can be used to solve advanced calculation problems that languages like SQL are unable to tackle.

Students will also learn about the M language that Power Query uses behind its graphical user interface, and how writing M directly can enable advanced queries against the data-sources that populate a model with its data.

Course Overview

DAX Fundamentals

- DAX Capabilities and Common DAX Use Cases
- DAX Formula Syntax Fundamentals
- Formula Evaluation Order
- DAX Operators
- DAX Operator Precedence
- DAX Data Types

Basic DAX Calculations

- Calculated Columns
- Evaluation Context and Row Context
- Working with Relationships
- Using RELATED() and RELATEDTABLE()
- Using Ad-hoc Relationships with USERELATIONSHIP()
- Flattening Models with Calculated Columns

- DAX Type Conversions
- DAX Functions
- Nested Function Execution Order
- Naming Requirements

Advanced DAX Calculations

- Measure Use Cases
- Implicit Measures
- Calculated Measures
- Evaluation Context and Filter Context
- Implicit Filter Context
- Explicit Filter Context
- Filtering with Calculate() and Filter()
- Undoing Filters with All()
- Iterator Fundamentals
- Working with built-in Iterator Functions
- Using Nested Iterators

M and Power Query

- Power Query Basics
- Using the Formula Bar in Power Query
- Using the Advanced Editor in Power Query
- PowerQuery's Standard Function Library
- M Language
- Case Sensitivity in Power Query and M
- Single Literal Values
- Intrinsic Values
- Structured Values: Lists, Records, and Tables
- M Language Operators
- Commenting Code in M
- Using the Let Statement
- Variable Naming in M
- M's Each Statement
- Creating Columns in M
- Conditional Constructs in M
- M Functions

- Calculated Tables

DAX and Modeling

- Resolving Model Granularity Issues
- Flattening Models
- Row Level Security with Row Filters
- Avoiding Ambiguous Relationships with Role Playing Tables

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