Software Skills Training, Inc.

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Analyzing Data with Power BI, DAX, and Power Query M

Duration: 5 Days *(Face-to-Face & Remote-Live)*, or 35 Hours *(On-Demand)*

Price: $2495 *(Face-to-Face & Remote-Live)*, or $895 *(On-Demand)*

Discounts: We offer multiple discount options. Click here for more information.

Delivery Options: Attend face-to-face in the classroom, remote-live or via on-demand training.

Description

This course provides a robust and in-depth introduction to Microsoft's Power BI suite of products and gives students a solid understanding of data analysis with Power BI, DAX, and Power Query M. Students will learn to use the Power BI Desktop and Power BI online service to import, analyze, and visualize business data, and to share business intelligence. In addition, students will learn beginner and intermediate techniques for adding calculations to their Power BI Data models using DAX, as well as how to use the Power Query M language to write advanced queries in order to populate a data model from external data sources.

The course starts with an exploration of the evolution of relational databases, data warehouse and business intelligence. Afterwards, students dive into topics such as the importing and combining of data from diverse data sources, shaping and transforming data, modeling data, developing useful and insightful visualizations, creating and sharing reports and dashboards in the Power BI service, and collaborating in the Power BI service. Additional topics include the use of DAX to solve common data modeling problems, how to flatten out an OLTP database into a star schema by using DAX, resolving common granularity issues with data models, and using Measures to solve advanced calculation problems that languages like SQL are unable to tackle.

Students who want Power BI training but do not need detailed coverage of DAX and Power Query M should instead attend the Analyzing and Presenting Data with Power BI course rather than this course.

Prerequisites

Before attending this course, students must have:

- High degree of computer literacy
- Experience with office applications
- Familiarity with spreadsheet functionality
- An understating of fundamental business analysis issues such as revenue, profitability, financial accounting, and reporting
- Basic familiarity with relational databases and data warehousing is helpful but not required

Course Overview

Introduction to Business Analysis

- The Evolution of Data Analysis
  - Databases
  - Normal Forms
  - Data Modeling
  - Data Processing
  - Beyond the Database
  - Data Warehouses
  - Fact and Dimension Tables
  - Data Warehouse Schema
  - Star Schema
  - Snowflake Schema
  - Big Data
- Self-Service Business Intelligence
  - Enterprise Intelligence
  - Self-Service BI
  - The BI Team
  - The Data Steward
- The Tasks
  - Accessing Data
  - Loading Data
  - Shaping Data
  - Reporting
  - Visualizing Data
  - Collaborating
  - The Tools
  - The Power BI Suite
  - Related Tools

Getting Data with Power BI Desktop

- The Power BI Workflow
  - Terminology
  - Opening the Power BI Desktop
  - The Navigation and Filter Panes
  - The Visualizations Pane
  - The Fields Pane
  - Power BI Desktop Settings
- Data Sources
  - On-Premises Data Files
  - Databases
  - Online Databases
  - Software as a Service (SaaS) Providers
  - Internet Data
  - Data Access Issues
  - Data Reliability Issues
- Getting Data
  - Import vs. Direct Query
  - Advantages of Direct Query
  - Limitations of Direct Query
  - Data Limits
  - Cleaning Data
  - Selecting Data
  - Fundamentals of Getting Data
  - Importing from Excel
  - Preparing Excel Data
  - Importing from Excel
  - Importing from a Database
  - Selecting Data with SQL
  - Importing from a Web Page
  - Revising Data

Transforming and Shaping Data

- Getting the Right Data
  - Shaping Data

Visualizing Data

- Visual Data Processing
  - Why We Visualize

        - How and Where to Transform Data
        - Formatting Currency
        - Columns and Measures
        - Filters
    - The Power Query Editor
        - How Power BI Accesses and Stores Data
        - Query Editor Layout
        - The Transform Tab
        - The Add Column Tab
        - The View Tab
        - Manipulating Columns
        - Applied Steps
        - The Advanced Query Editor
        - Choosing the Right Visualization
        - Report Design
    - Creating Visualizations
        - Basic Layout
        - Selecting Data
        - Starting with Data
        - Starting with Visualization Type
        - Sorting
        - Adding Data, Changing Visualizations
        - The Slicer
        - Fields, Format and Analytics in the Visualizations Pane
    - Formatting Visualizations
        - General Formatting
        - Formatting Groups
        - Title
        - Report Themes
        - Data Colors
        - Data Labels
        - Data Labels Display Units
        - Axes
        - Text Boxes, Images, Shapes
    - Visualization Mechanisms
        - The Slicer
        - Q&A
        - Custom Visuals

Types of Visualizations

- Basic Visualizations
    - Tables
    - Matrixes
- Bar/Column Charts
    - Clustered
    - Stacked
    - 100%
    - Ribbon Charts
    - Waterfall Charts
- Line/Scatter/Area Charts
    - Line Chart
    - Scatter Chart
    - Area Charts
    - Line-and-Column Charts
- Pies and Donuts
    - Pie Charts
    - Donut charts
- Map Charts
- Specialized Charts
    - Funnel Chart
    - Gauge Chart

Modeling Data

- Data Models
    - The Utility of Data Models
    - Data Types
    - Cardinality
    - Cross Filter Direction
- Relationships
    - Understanding Relationships
    - Relationships and Keys
- Hierarchies
    - The Utility of Hierarchies
    - Creating Hierarchies
- The Model View
    - Changing Relationships
    - Using the Model View

        - Card Chart
        - Multi-Row Card
        - KPI
        - Key Influencers
        - Tree Maps

The Power BI Service

- Overview
    - Functions by Application
    - Limitations
- Connecting to the Power BI Service
    - Publishing a Report to the Power BI Service
    - Direct Connectivity from the Power BI Service
    - Refreshing Data
    - Gateways
- The Power BI Service Interface
    - Layout
    - My Workspace
    - Report Edit Mode
- Dashboards
    - Dashboard Foundations
    - Dashboards vs. Reports
    - Building Dashboards
    - Editing a Dashboard
    - Filtering a Tile
- Working the Power BI Service
    - Reports
    - Exporting Reports and Data
    - Workbooks
    - Datasets
    - Apps
    - Sharing Reports and Dashboards
    - Q&A
    - Featured Questions
    - Power BI Service Settings
- Administration
    - Power BI Administration
    - Admin Portal
- Power BI Mobile
    - The App
    - To Set Up Your Smartphone Layout
    - Power BI Mobile Features and Limitations

Power BI and Programming Languages

- Survey of Power BI Languages
    - Why?
    - The Power BI REST API
    - R
    - M
    - Python
- DAX
    - Data Analysis Expressions
    - DAX Syntax
    - Logical Operators
    - DAX Examples

DAX Fundamentals

- DAX Capabilities and Common DAX

Basic DAX Calculations

- Calculated Columns

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

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