

Building Analytical Dashboards with Power BI

(BI-PWRBI19-301-EN)

Description

Power BI is an innovative solution helping businesses make better decisions by providing an intuitive way for users to share data across their organization. The Power BI ecosystem allows users to obtain data from many sources, integrate and convert the raw data into useful information to be shared via the native visualization and collaboration tools. *Power BI allows users to act on data insights!*

Target Audience

This course is intended for the novice as well as experienced business and data analysts who have prior experience using data visualization tools and are looking to integrate Power BI into their organization.

Prerequisites

Before attending this course, it is recommended that students have the following skills:

- Desire to learn more about Power BI
- Prior exposure to the Power BI ecosystem is recommended, but not necessary
- Understanding of dimensional modeling is recommended

Course Objectives

The objective of the course is to provide students with the necessary knowledge and structure to use Power BI effectively within their organization. Practical use cases have been incorporated into the sessions allowing for real-world application.

- Import data from heterogeneous sources
- Design, refine and optimize data models
- Create analytical calculations using Data Analysis eXpressions (DAX)
- Create interactive reports and dashboards
- Share insights within the organization using app workspaces
- Leverage content on various mobile platforms

Upon completion of this course, the student will be able to:

- Understand the key components of an effective Business Intelligence Solution
- Understand the Power BI Ecosystem and how each component works
- Load data from various sources into the Power BI data model
- Perform a variety of transformations on the data
- Understand the concepts of Dimensional Modeling and the importance of the Data Model



- Create and customize visualizations
- Share Power BI content with others

Course Summary Outline

Module 00: Introductions & Setup

- Introductions
- Course Overview
- Course Materials & Setup

Module 01: Introduction to Business Intelligence

- Business Intelligence Overview
- Business Analytics
- Business Trends
 - Self Service
 - Enterprise
- Common Approaches
- Common Pitfalls
- Common Architectures
- Business Intelligence Applications
- Microsoft BI Tool
- Module Summary

Module 02: Introduction to Power BI Ecosystem

- Power BI Overview
- Components of the Ecosystem
 - Power BI Desktop
 - Power BI Service
 - Power BI Mobile
 - Power BI Embedded
 - Power BI Report Server
- Components of Power BI
- Power BI Licensing
 - **DEMO 02-01** – High level walkthrough of final report that will be built within the class (Power BI Desktop)
- Module Summary

Module 03: Introduction to Power BI Desktop

- Power BI Development Life Cycle
 - Data Discovery
 - Data Modeling
 - Data Visualization
- Power BI Desktop: Core Activities
- Power BI Desktop Key Features & Navigation
 - Main Canvas
 - Left Navigation Pane
 - Visualization Navigation Pane
 - Fields Navigation Pane
 - **DEMO 03-01** – Walkthrough desktop features discussed above
- Module Summary

Module 04: Get Data – Gathering & Cleansing

- Data Source – Connectors
 - **DEMO 04-01** – Show *Get Data* features
- Getting Data
 - **DEMO 04-02** – Connect and load source data into model using Import Data
- Query Editor
- Advanced Editor – Welcome to M
 - **DEMO 04-03** – Show operations with Query
 - Work with Transformations
 - Navigate the Process Pane
 - Load the Model
 - Show Advanced Editor options
 - **LAB 04-01**
- Module Summary

Module 05: Modeling – Dimensional Modeling

- Terminology
- Basic Concepts
 - OLTP/OLAP
- Data Warehouse
 - Inmon/Kimball
- Element of an Analytical System
 - Fact/Dimensions
- Handling Changes – SCD
- Module Summary

Module 06: Modeling – Improving the Data Model

- Key Concepts
- Basic Modeling Enhancements

- Tables/Column
- Data Formatting and Categorization
- Relationships
- Hierarchies
 - **DEMO 06-01** – Apply modeling enhancement to existing model
- Introduction to DAX
- Measures & Calculated Columns
 - Implicit/Explicit Measures
 - Calculated Columns
- Date Table
 - **DEMO 06-02** – Create Simple explicit measures; Create calculated column; Create Date table
 - **LAB 06-01**
- Module Summary

Module 07: Visualize – Introduction to Visuals & Chart Interactions

- Power BI Reports (Desktop)
- Visualization Pane
- Fields Pane
- Top Navigation Ribbon
 - **DEMO 07-01** – Show Navigation, Visualization, Field, & Navigation ribbon
- Key Visual Elements
 - Visuals
 - Slicers
 - Visual Interaction
 - Data/Drill
 - See Records/Data
 - Maps
- Drillthrough
 - **DEMO 07-02** – Show visual contextual menu; Interactions; Drillthrough; Drill down; Create a report with map visual
 - **LAB 07-01**
- Module Summary

Module 08: Introduction to Power BI Service

- Power BI Service
- Navigating Power BI Service
 - **DEMO 08-01** – Publish into Power BI Desktop; Navigate Power BI Service; Show Get data features
- Workspaces
 - Creation
 - Roles
 - Limitations

- Workspace Content
 - Dataset
 - Workbooks
 - Reports
 - Dashboards
 - **DEMO 08-02** – Show workspaces and associated content
 - **LAB 08-01**
- Module Summary

Module 09: Get Data – Advanced Transformations

- Advanced Transformations
 - **DEMO 09-01** – Show some of the advanced transformations
- Power Query (M Language)
- Parameters/Functions
 - **DEMO 09-02** – Show parameters; Load data using M script
- R & Python (Transformations)
 - **DEMO 09-03 (Optional)** – Use R script to import data into Power BI (Use Date Script)
 - **LAB 09-01**
- Module Summary

Module 10: Modeling – Introduction to DAX

- DAX Explained
- DAX Function
- Understanding Context
 - Row Context
 - Query Context
 - Filter Context
- CALCULATE Function
- Time Intelligence – Date Table
- Variables (VAR)
 - **DEMO 10-01 (Optional)** – Show Calculate Function working; Show example of Variable being used
- Module Summary

Module 11: Modeling – Advanced Modeling Techniques

- Calculated Tables
- Disconnected Slicers
- Time Intelligence
- Relationships
 - Active/Inactive
 - Cross Filter
- Role-Playing Dimensions
- Q&A(Desktop)
- What-If Parameters

- Grouping & Binning Data
 - **DEMO 11-01** - Create Calculated Table; Show Time Intelligence; Difference Between Duplicate & Reference Query; Show Q&A; Create What-if Parameter; Create grouping
 - **LAB 11-01**
- Module Summary

Module 12: Visualize – Advanced Visualizations

- Visuals
- Analytical Pane
 - Reference Lines
 - Trend Lines
 - Percentile Lines
 - Forecasting
- Importing Visuals
- Dynamic Visuals
- Custom Visuals
- R & Python Visualizations
 - **DEMO 12-01** – Import visuals from Marketplace; Create dynamic visuals
 - **LAB 12-01**
- Module Summary

Module 13: Visualize – Advanced Features

- Bookmarks
 - **DEMO 13-01** – Create a simple bookmark
- Report Design
 - Buttons, Images, Shapes
 - Filters
 - Conditional Formatting
 - Tool Tips
 - Sync Slicers
 - Themes
 - Templates
 - **DEMO 13-02** – Create a button and link an action; Create a custom tool tip; Apply a new theme; Save as a Template
 - **LAB 13-01**
- Module Summary

Module 14: Share – Publishing and Sharing using Power BI Service

- Datasets
 - Quick Insights
 - Security

- Refresh
 - Permissions
- Dashboards
 - Tiles
 - Q&A
 - **DEMO 14-01** – Show datasets; Demonstrate Quick Insight; Show where to refresh; Create dashboard; Demonstrate Q&A
- Power BI Service Apps
- Sharing
 - **DEMO 14-02** – Create App workspace; Publish App; Show Apps content list
 - **LAB 14-01**
- Module Summary

Module 15: Power BI Mobile

- Mobile Support
- Design Considerations
 - **DEMO 15-01** – Walkthrough Mobile App & Features; Create mobile view and Publish; Synch changes between Power BI Service and Mobile App
 - **LAB 15-01**
- Module Summary

Module 16: Modeling – Security

- Security Overview
- Roles
- Row Filters
- Row Level Security
- Role Members
 - **DEMO 16-01** – Create Role Security and Test
 - **LAB 16-01**
- Module Summary

Module 17: Administration

- Data Gateway
- Performance Analyzer
- Power BI Administrator Roles
- Power BI Environment
- Tenant Settings
- Usage Monitoring & Auditing
- Automating Power BI Administration
- Module Summary