Power BI Certification Exam 70-778, DA -100
Microsoft Certified: Data Analyst Associate
Analyzing Data with Microsoft Power BI
Job role: Data Analyst and Power BI

This Course Covers the Content required for the 70-778 and the New DA-100 Power BI Certification Exam.

Course Duration – 60 Hours

Power BI Complete Introduction

- ✓ Power BI Introduction
- ✓ Data Visualization, Reporting
- ✓ Business Intelligence(BI), Traditional BI, Self-Serviced BI
- ✓ Cloud Based BI, On Premise BI
- ✓ Power BI Products
- ✓ Power BI Desktop (Power Query, Power Pivot, Power View)
- ✓ Flow of Work in Power BI Desktop
- ✓ Power BI Service, Power BI Report Server, Power BI Mobile
- ✓ Flow of Work in Power BI / Power BI Architecture
- ✓ A Brief History of Power BI

PBI Desktop Installation Power BI Desktop & Power BI Service Overview

Power BI Desktop Software Installation

- ✓ Download & Installation of Power BI Desktop Software
- ✓ What are the Prerequisites to Install Power BI Desktop Software

Power Query Software Overview

- ✓ Overview of Power Query / Power Query Editor
- ✓ How to Open Power Query / Power Query Editor Software
- ✓ Connecting to Data Sources and Extracting the Data
- ✓ Establish connection to the Excel source, SQL Server
- ✓ Importing Data into Power Query Editor
- ✓ Transforming the Data in Power Query Editor using GUI Options
- ✓ Loading the Data into Power Pivot
- ✓ Understanding the M(Mashup) Language behind the GUI Options

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Power Pivot Software Overview

- ✓ Understanding about Power Pivot – A In Memory Columnar Database
- ✓ Advantage of In Memory Columnar Database
- ✓ Power Pivot - xVelocity In-memory Analytics Engine (Previously called Vertipaq)
- ✓ Overview of Data Modeling – Model View(Previously Relationship View)
- ✓ Enhancing the Data Model – DAX(Data Analysis eXpressions) Language – Data View

Power View Software Overview

- ✓ Overview of Visualizations, Fields, Field Wells
- ✓ Understanding Dimension Columns & Fact Columns
- ✓ Visualizing the Data using Power View and Power Maps – Report View
- ✓ Saving Report
- ✓ Publishing the Report to Power BI Service

Power BI Service Overview

- ✓ Power BI Service Overview
- ✓ Logon to Power BI Service
- ✓ Share the Reports with Clients

Power BI Desktop User Interface

- ✓ Understanding Power BI Desktop User Interface
- ✓ Fields Pane, Visualizations Pane, Filters Pane
- ✓ Ribbon, Multiple Views (Report View, Data View & Model View)
- ✓ Report Canvas, Pages Section

Building Blocks of Power BI

- ✓ Datasets, Visualizations, Reports, Dashboards & Tiles

Power Query

Introduction to Power Query & Power Query Editor User Interface

- ✓ Overview of Power Query / Query Editor
- ✓ How to Open Power Query / Query Editor
- ✓ Extracting the Data from Data Sources
- ✓ Transforming the Data using GUI Options
- ✓ Loading the Data in Power Pivot
- ✓ Query Editor UI(Queries Pane, Data Pane / Results Pane, Power Query Ribbon)
- ✓ Query Settings, Pane Applied Steps, Formula Bar
- ✓ Advanced Editor, Query Dependencies
- ✓ Understanding Power Query Conceptually

Data Processing, Data types and Filters in Power Query

- ✓ How Data Processed in Power Query
- ✓ Data types, Changing the Data type of a Column, Detect Data Type
- ✓ Filters in Power Query and their Purpose
- ✓ Types of Filters in Power Query(Basic Filtering, Advanced Filtering)
- ✓ Auto Filter / Basic Filtering
- ✓ Filter a Column using Advanced Text Filters, Number Filters, Date Filters
- ✓ Filter Multiple Columns

Inbuilt Column Transformations

- ✓ Remove Columns / Remove Other Columns, Choose Columns, Go To Column
- ✓ Name or Rename a Column
- ✓ Reorder Columns or Sort Columns(Move Left, Right, To Beginning, To End)
- ✓ Column from Examples(From All Columns, From Selection)
- ✓ Add Column / Custom Column
- ✓ Duplicate Column, Split Column, Merge Columns
- ✓ PIVOT, UNPIVOT Columns, Transpose Columns
- ✓ Replace Values, Remove Empty

In built Row Transformations

- ✓ Header Row or Use First Row as Headers, Use Headers as First Row
- ✓ Keep Top Rows, Keep Bottom Rows, Keep Range of Rows
- ✓ Keep Duplicates, Keep Errors
- ✓ Remove Top Rows, Remove Bottom Rows, Remove Alternative Rows
- ✓ Remove Duplicates, Remove Blank Rows, Remove Errors
- ✓ Group Rows / Group By

Combine Queries (Merge Queries & Append Queries)
Merge Queries / Join Tables

- ✓ Merge Queries, Merge Queries as New
- ✓ Need of Merge Queries, Minimum requirements to Perform Merge Queries
- ✓ Types of Joins / Join Kinds / Merge Type
  - ➢ Left Outer (all from first, matching from second)
  - ➢ Right Outer (all from second, matching from first)
  - ➢ Full Outer (all rows from both)
  - ➢ Inner (only matching rows)
  - ➢ Left Anti (rows only in first), Right Anti (rows only in second)
- ✓ Cartesian Join or Cross Join, Self-Join
- ✓ Merging the Tables using Multiple Join Conditions
- ✓ How to Merge 3 Tables
- ✓ Use Fuzzy Matching Option

Append Queries / Union ALL Tables

- ✓ Append Queries, Append Queries as New
- ✓ Minimum requirements to perform Append Queries
- ✓ Append Two Tables , Append Three or More Tables
- ✓ Folder as Source
- ✓ Appending Multiple Files of same type from a folder using Single Query
- ✓ Appending Multiple Excel Files and Multiple Sheets using Single Query
- ✓ Union All, How to get Union Result

Query Options

- ✓ Copy Query, Paste Query, Delete Query, Rename Query
- ✓ Enable Load, Include in report Refresh
- ✓ Duplicate Query, Reference Query
- ✓ Move to Group, Move Up, Move Down
- ✓ Create Function, Convert To Parameter
- ✓ Advanced Editor, Properties

Home Tab Options

- ✓ Close & Apply, Apply, Close
- ✓ New Source, Recent Sources, Enter Data, Data Source Settings
- ✓ Manage Parameters(Manage Parameters, Edit Parameters, New Parameter)
- ✓ Suggested Values(Any Value, List of Values, Query), Convert to List
- ✓ Query Parameters and Power BI Templates
- ✓ .pbix(Power BI File) and .pbit(Power BI Template File)
- ✓ Refresh Preview, Refresh All, Cancel Refresh
- ✓ Sorting Data

Transform Tab Options

- ✓ Reverse Rows, Count Rows, Replace Values, Replace Errors, Fill Down, Fill Up
- ✓ Text Column, Number Column, Date & Time Column Options
- ✓ Structured Column(Expand, Aggregate, Extract Values)
- ✓ Run R Script, Run Python Script

Add Column Tab Options

- ✓ Create Custom Function, Invoke Custom Function
- ✓ Conditional Column, Index Column, Duplicate Column
- ✓ From Text, From Number, From Date & Time Column Options

View Tab, Tools Tab & Help Tab Options

Power Pivot

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- ✓ Enhancing the Data Model – DAX(Data Analysis eXpressions) Language – Data View

Power BI Data Modeling – Model View (Previously Relationship View)

- ✓ Data Modeling Introduction
- ✓ Relationships, Need of Relationship Between Tables
- ✓ Dimension Column, Fact Column, Dimension Table, Fact Table
- ✓ Star Schema, Snowflake Schema
- ✓ Galaxy Schema or Hybrid Schema or Fact Constellation Schema
- ✓ Relationship Types / Cardinality in General
- ✓ One-to-One, One-to-Many (or Many-to-One), Many-to-Many
- ✓ AutoDetect the relationship, Create a new relationship
- ✓ Edit existing relationships, Delete a relationship
- ✓ Make Relationship Active or Inactive
- ✓ Cross filter direction (Single, Both), Apply Security Filter in Both Directions
- ✓ Assume Referential Integrity

Enhancing the Data Model - DAX

- ✓ What is DAX(Data Analysis eXpressions) Language – Functional Language
- ✓ New Column, New Measure / Quick Measure, New Table
- ✓ DAX Table and Column Name Syntax
- ✓ Creating New Column, Creating New Measure
- ✓ Implicit Measures, Explicit Measures
- ✓ Difference Between New Columns & New Measures
- ✓ DAX Operators, Types of Operators
- ✓ Arithmetic Operators, Comparison Operators
- ✓ Text Concatenation Operator, Logical Operators

DAX Functions - Categories

- ✓ Text Functions
- ✓ Logical Functions
- ✓ Date and Time Functions
- ✓ Filter Functions
- ✓ Math & Statistical Functions
- ✓ Time Intelligence Functions

DAX Text Functions

- ✓ LEN, CONCATENATE (&)
- ✓ LEFT, RIGHT, MID
- ✓ UPPER, LOWER
- ✓ TRIM, SUBSTITUTE, REPLACE, BLANK

DAX Logical Functions

- ✓ IF, Nested IF
- ✓ TRUE, FALSE, NOT, OR, IN, AND
- ✓ IFERROR
- ✓ SWITCH

DAX Date & Time Functions

- ✓ Creating Date Dimension Table for performing Time Intelligence Analysis
- ✓ YEAR, QUARTER, MONTH, DAY
- ✓ WEEKDAY, WEEKNUM
- ✓ FORMAT (Text Function) → Month Name, Weekday Name
- ✓ DATE, TODAY, NOW
- ✓ HOUR, MINUTE, SECOND, TIME
- ✓ DATEDIFF, YEARFRAC, CALENDAR, CALENDARAUTO
- ✓ EDATE, EOMONTH, DATEVALUE
- ✓ Week Number of Month, Fiscal Year, Fiscal Quarter

DAX Filter Functions

- ✓ CALCULATE, CALCULATETABLE
- ✓ ALL, ALLSELECTED, ALLEXCEPT
- ✓ RELATED, RELATEDTABLE
- ✓ LOOKUPVALUE (Information function)
- ✓ USERELATIONSHIP
- ✓ FILTER, DISTINCT(Column), DISTINCT(Table), VALUES, SELECTEDVALUE

DAX Math and Statistical Functions

- ✓ INT, ROUND, ROUNDUP, ROUNDDOWN
- ✓ DIVIDE, EVEN, ODD, POWER, SIGN, SQRT, FACT
- ✓ SUM, SUMX, MIN, MINX, MAX, MAXX, COUNT, COUNTX
- ✓ AVERAGE, AVERAGEX
- ✓ COUNTROWS, COUNTBLANK
- ✓ RANKX, SUMMARIZE

DAX Time Intelligence Functions

- ✓ Time Intelligence Introduction
- ✓ Date Dimension Table, Mark as Date Table
- ✓ TOTALMTD, TOTALQTD, TOTALYTD
- ✓ PREVIOUSDAY, PREVIOUSMONTH, PREVIOUSQUARTER, PREVIOUSYEAR
- ✓ NEXTDAY, NEXTMONTH, NEXTQUARTER, NEXTYEAR
- ✓ SAMEPERIODLASTYEAR
- ✓ YOY Growth, QOQ Growth, MOM Growth
- ✓ FIRSTDATE, LASTDATE

Quick Measures

- ✓ Creating Measures without writing the DAX Formula using Quick Measures
- ✓ Sales YoY%, Sales YTD, Sales MTD

Power View

Report View / Power View

- ✓ Report View User Interface / Power BI Desktop User Interface
- ✓ Fields Pane, Visualizations pane, Filters Pane
- ✓ Ribbon, Multiple Views, Report Canvas, Pages Section
- ✓ Fields, Filed Wells, Formatting, Analytics

Visuals Interactions

- ✓ Visual Interactions
- ✓ Interaction Type (Highlight, Filter, None)
- ✓ Visual Interactions Default Behavior
- ✓ Changing the Default Interaction Behavior, Edit Interactions

Filters in Power View

- ✓ Filters, Filter Types in Power View
- ✓ Filters on this Visual, Filters on this Page, Filters on All Pages
- ✓ Drill Through Filters, Cross Report Drill Through, Keep All Filters
- ✓ Filter Sub Types - Basic Filtering, Advanced Filtering, Top N, Relative Date Filtering
- ✓ Numeric field filters, Text field filters, Date and Time field Filters

Hierarchies and Drill-Down Reports

- ✓ Hierarchy Introduction, Default Date Hierarchy
- ✓ Creating Hierarchy, Creating Custom Date Hierarchy, Change Hierarchy Levels
- ✓ Drill Actions - Drill Down, Drill Up, Show Next Level, Expand Next Level
- ✓ Apply Drill Down filters to Selected Visual

Power BI Visualizations

- ✓ Visualizing Data, Why Visualizations
- ✓ Visualization types, Field Wells
- ✓ Visuals for Filtering, Visualizing Categorical Data, Visualizing Trend Data
- ✓ Visualizing KPI Data, Visualizing Tabular Data, Visualizing Geographical Data
- ✓ Leveraging Power BI Custom Visuals

Visuals for Filtering

- ✓ Slicer Visualization, When to use a Slicer
- ✓ Create and format Slicer Visualization
- ✓ Hierarchy Slicer (Custom Visualization)
- ✓ When to use a Hierarchy Slicer, Create and format Hierarchy Slicer
- ✓ Advantages of Hierarchy Slicer
- ✓ Play Axis (Dynamic Slicer) - Custom Visualization
- ✓ When to use a Play Axis Visual, Create and format Play Axis Visual

Visualizing Categorical Data

- ✓ Purpose of Pie and Donut Charts, Create and Format Pie and Donut Charts
- ✓ Purpose of Tree map Visual, Create and Format the Tree Map Visual
- ✓ Purpose of Bar & Column Charts
- ✓ Create and Format Bar and Column Charts
- ✓ Create and Format Stacked Bar Chart, Stacked Column Chart
- ✓ Create and Format Clustered Bar Chart, Clustered Column Chart
- ✓ Create and Format 100% Stacked Bar Chart, 100% Stacked Column Chart
- ✓ Purpose of Scatter Chart, Create and Format Scatter Chart

Visualizing Trend Data

- ✓ Purpose of Line and Area Charts
- ✓ Create and Format Line Chart, Area Chart, Stacked Area Chart
- ✓ Combo Charts
- ✓ Create and Format Line and Stacked Column Chart, Line and Clustered Column Chart
- ✓ Create and Format Ribbon Chart, Waterfall Chart

Visualizing KPI Data

- ✓ Create and Format Gauge Visual, KPI Visual
- ✓ Create and Format Card Visualization, Multi Row Card
- ✓ Create and Format Funnel Chart

Visualizing Tabular Data

- ✓ Create and Format Table Visual, Matrix Visualization

Visualizing Geographical Data

- ✓ Create and Format Map Visual, Filled Map Visual

Grouping, Binning & Sorting

- ✓ Grouping and Binning Introduction
- ✓ Using grouping, Creating Groups on Text Columns
- ✓ Using binning, Creating Bins on Number Column and Date Columns
- ✓ Sorting Data in Visuals, Changing the Sort Column, Changing the Sort Order
- ✓ Sort using column that is not used in the Visualization
- ✓ Sort using the Sort by Column button

Tooltip Page

- ✓ Create a Report Tooltip Page, Configure your Tooltip Report Page
- ✓ Manually setting a Report Tooltip

Bookmarks, Selection Pane & Buttons

- ✓ Bookmarks, Selection Pane & Buttons
- ✓ Changing the chart type dynamically
- ✓ Changing the Axis of Chart Dynamically

Power BI Service

Power BI Service Introduction

- ✓ Power BI Service Introduction, Power BI Cloud Architecture
- ✓ Cloud Vs. On Premise
- ✓ Creating Power BI Service Account, SIGN IN to Power BI Service Account
- ✓ Power BI Pro & Power BI Premium
- ✓ My Workspace & Project Workspace

Adding Dataset to Power BI Service and Creating Multiple New Reports

- ✓ Publishing Reports to the Power BI service, Import / Getting the Report to PBI Service
- ✓ Creating Multiple Reports using Dataset
- ✓ Power BI Datasets Live Connection using Desktop to Create New Report
- ✓ Creating New Reports in Cloud using Published Datasets
- ✓ Shared and Certified Datasets, Sharing Dataset across Multiple Projects

Dashboards Development

- ✓ Dashboard, Creating Dashboards using Multiple Reports
- ✓ Pin Visuals and Pin LIVE Report Pages to Dashboard
- ✓ Advantages of Dashboards
- ✓ Interacting with Dashboards
- ✓ Adding Tiles to Dashboards
- ✓ Web Content, Image, Text Box, Video
- ✓ Formatting Dashboard

Building Blocks of Power BI
- ✓ Datasets, Visualizations, Reports, Dashboards & Tiles

Data Connectivity Modes in Power BI
- ✓ Import, Direct Query & Connect Live / Live

Installing & Configuring the Data Gateways
- ✓ Introduction to Data Gateways, How Data Gateways work
- ✓ Connect to an on premise Data Source by using a Data Gateway
- ✓ Download Data Gateway, Installing a Data Gateway
- ✓ Types of Gateways – Enterprise & Personal Gateway
- ✓ Difference Between Enterprise & Personal Gateway
- ✓ Manage Data Gateway
- ✓ Sharing the Gateway, Add and Remove Administrators
- ✓ Add Data Source, Add or Remove Users to a Data Source
- ✓ Refresh On Premise Data
- ✓ Configuring Automatic Refresh using Schedules
- ✓ Full Refresh / Truncate & Load , Incremental Refresh the Data in Dataset

Understanding Sub folder in Workspace
- ✓ Datasets + Dataflows - Dataflows, Datasets
- ✓ Content - Workbooks, Reports & Dashboards
- ✓ All - Dataflows, Datasets, Workbooks, Reports & Dashboards

Dataflows
- ✓ Dataflows, Purpose of Dataflows
- ✓ Creating and Working with Dataflows
- ✓ Using Dataflows to Create a Dataset in Power BI Desktop
- ✓ Power BI Architecture with Dataflows

Dataset Actions
- ✓ Refresh, Schedule Refresh, Analyze in Excel, Create Report
- ✓ Delete Dataset, Get Quick Insights, Security, Rename, Settings, Download .pbix
- ✓ Manage Permissions, View Lineage

Excel Workbooks
- ✓ Import Excel Data into Power BI as Dataset
- ✓ Upload you Excel file to Power BI

Report Actions
- ✓ Share, Mark as Favorite, Analyze in Excel, Delete, Quick Insights, Save a Copy, Settings
- ✓ View usage Metrics Report, View Lineage

Dashboard Actions
- ✓ Share, Mark as Favorite, Delete, Settings, View usage Metrics Report, View Lineage

Team Collaboration in Power BI using Workspaces

- ✓ Introduction to Workspaces
- ✓ Classic Workspaces, Upgraded Workspaces
- ✓ Create an Workspace, Add Members to Workspace to Collaborate
- ✓ Workspace Access - Admin, Member, Contributor, Viewer Roles

Sharing Power BI Content using Basic Sharing, Content Packs and Apps

- ✓ Sharing Reports & Dashboards using Direct Sharing / Basic Sharing
- ✓ Content Pack Introduction
- ✓ Create Content Pack, Sharing Content Packs
- ✓ Specific Groups, My Entire Organization
- ✓ Selecting the Content / Items to Publish or Share
- ✓ Introduction to App
- ✓ Publish an App, Update a Published App
- ✓ Manage Content in App, Include in App, Exclude in App
- ✓ Sharing App
- ✓ Entire Organization, Specific individuals or group
- ✓ Un publishing an App

Row Level Security in Power BI

- ✓ Introduction to Row Level Security
- ✓ Row Level Security (RLS) with DAX
- ✓ Manage Roles, Creating Roles, Testing Roles
- ✓ Adding Members to Roles in Power BI Service
- ✓ Dynamic Row Level Security
- ✓ Creating Users Table and Adding to the Model
- ✓ Capturing users using UserName () or UserPrincipalName () DAX Functions

Syncing Published Power BI Report Files Using OneDrive

- ✓ Refresh a Dataset stored on OneDrive
- ✓ Schedule Refresh the Dataset stored on OneDrive

Deployment Pipelines

- ✓ Create a Deployment Pipeline
- ✓ Assign a workspace to a Deployment Pipeline