

***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

**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**

**Power Pivot Software Overview**

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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, TIMEVALUE
* Creating Date Dimension Table (Calendar Year, Fiscal Year)
* 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**

* 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
* Create and Format Pie and Donut Charts
* Create and Format the Tree Map Visual
* Create and Format Scatter Charts

**Visualizing Trend Data**

* 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, Funnel Chart

**Visualizing KPI Data**

* Create and Format Gauge Visual, KPI Visual
* Create and Format Card Visualization, Multi Row Card

**Visualizing Tabular Data, Geographical Data**

* Create and Format Table Visual, Matrix Visualization
* Create and Format Map Visual, Filled Map Visual, Arc GIS Maps 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

**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
* Creating Power BI Service Account, SIGN IN to Power BI Service Account
* Publishing Reports to the Power BI service, Import / Getting the Report to PBI Service
* My Workspace / App Workspaces Tabs
* DATASETS, WORKBOOKS, REPORTS, DASHBOARDS
* Working with Datasets, Creating Reports in Cloud using Published Datasets
* Power BI Datasets Live Connection using Desktop
* Working with Workbooks, working with Reports, Sharing Reports

**Dashboards Development**

* Creating Dashboards
* 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
* Sharing Dashboard

**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
* On-premises Data Gateway, On-premises Data Gateway (personal mode)
* Manage Data 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

**Collaboration in Power BI using App Workspace**

* Introduction to App Workspaces
* Create an App Workspace
* Add Members to App Workspace to Collaborate
* App Workspace Access
* Admin, Member, Contributor

**Sharing Power BI Content using Apps and Content Packs**

* 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
* Content Pack Introduction
* Create Content Pack
* Sharing Content Packs
* Specific Groups, My Entire Organization
* Selecting the Content / Items to Publish or Share

**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

**ADD ON**

* Real-time Project Explanation
* Resume Preparation
* Interview Questions Discussions
* Mock Interviews