

Power BI

- Power BI Developer • Data Analytics • Data Scientists
- Real-Time Working • Detailed Subject • Interview Suitable • PL-300 Guidance

- Mr. Vinay [12+ years of IT Exp, 6+ in Power BI]**
- 60 hours (Normal Track), Daily 1 hour**
- Online: Rs. 12,000 (\$130) Offline: Rs. 10,000 (\$108)**
- 7 AM, 8 AM, 9 AM, 10 AM, 5 PM, 6 PM, 7 PM, 8 PM (IST timing)**
- Other Modes: Fast Track / 1 on 1 / Customized/ Weekend / Self-Paced Videos**



INSTITUTE PROVIDES

- * Two **Near Real Time** Projects
- * In-Depth **Theory & Practical** Material
- * Complete **Practical Oriented** Training
- * Mock Interviews
- * Case Studies / User Stories / Sprints
- * **Daily Live Class Videos**
- * **FAQ Tests** in Whatsapp
- * **Resume Preparation Sessions**

POWER BI CLOUD COMPONENTS

Power BI **Desktop & DAX**
Power BI **Service**

POWER BI ON-PREMISE COMPONENTS

Power BI **Report Server Desktop**
Power BI **Report Server**

PAGINATED REPORT COMPONENTS

Paginated **Report Builder**

OTHER COMPONENTS

Gateway
Power BI **Embedding**
Power BI **Mobile**

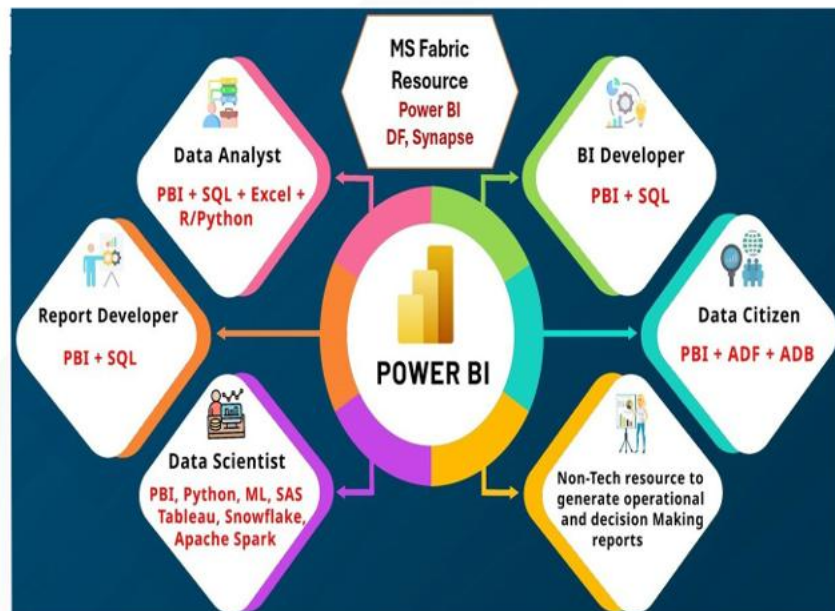
POWER BI CONCEPTS

Power **Query**
Power **Pivot**
Power **View**
Power **Map**

ADDITIONAL CONCEPTS

SQL Server (3-4 hours)
Power Apps (1.5 hours)
Power Automate (1.5 hours)
MS Fabric & ADF (2 hour)

Power BI USAGE AREAS



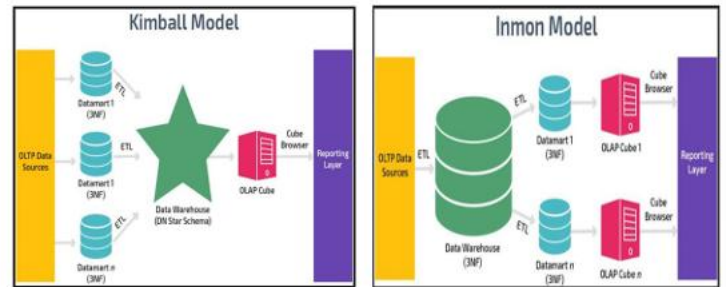
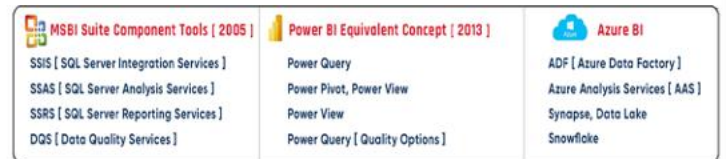
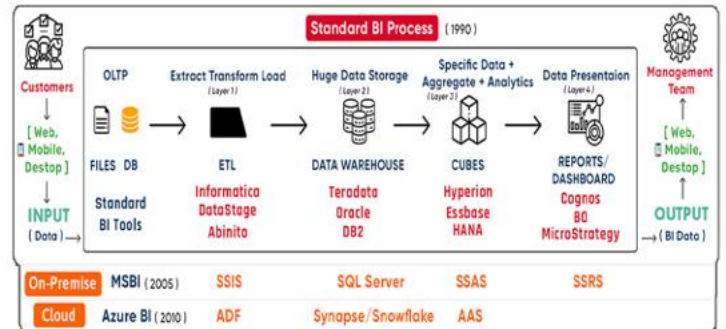
MANDATORY TOPIC 1: KNOW YOUR ENVIRONMENT

Power BI & Project Environment

- ▶ Data, Data Availability types in IT
- ▶ IT data storage areas [File stream, Database]
- ▶ Data warehouse, BI definitions and layers
- ▶ Power BI existence in IT, Product services
- ▶ Power BI Features, Self Service BI
- ▶ Power BI Tools and Components
- ▶ On-Premise vs. Cloud, AI Copilot
- ▶ Power BI opportunities vs support
- ▶ BI history, MSBI, Azure BI, Power BI
- ▶ OLAP vs. OLTP vs. Insights and Analytics
- ▶ Power BI history, releases and blogs
- ▶ Power BI usage in IT Companies
- ▶ Microsoft Power Platform & Fabric Features

Data warehouse Environment

- ▶ Data warehouse, Data mart and differences
- ▶ Types of data marts and real-time usage
- ▶ ODS, Stage, EDW, and DW definitions
- ▶ Data Lake and Blob Storages
- ▶ DWH Life Cycles, DWH principles
- ▶ DWH Approaches (INMON and KIMBALL)
- ▶ Data Granularity, Data movement stages

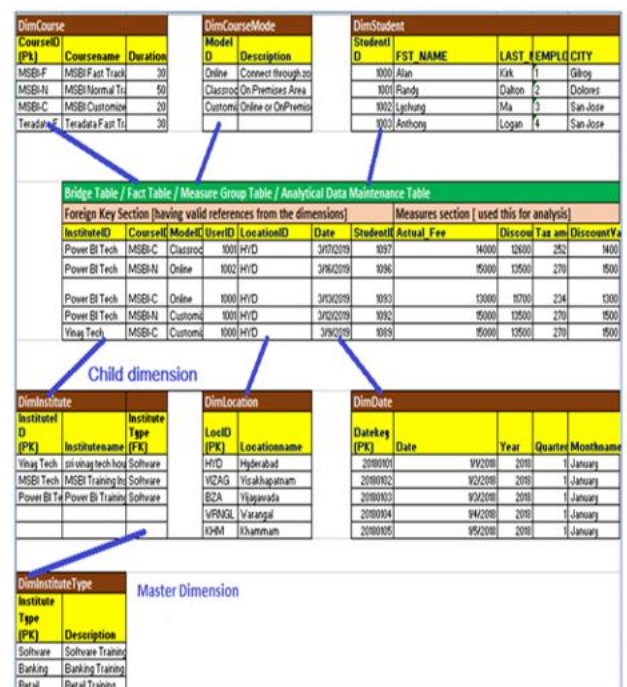


MANDATORY TOPIC 2: DATA MODEL THEORY AND PRACTICAL

[Theory and detailed practical with real-scenarios]

- ▶ Data model, use of data model in Power BI
- ▶ Business, Conceptual, Logical, Physical models
- ▶ Dimension, Dimension table & types (Conformed, Roleplay, Degenerated, Junk, SCD)
- ▶ Measures & Types (fully additive, semi additive, non additive)
- ▶ Fact table & Types (Snapshot, Incremental, Factless fact)
- ▶ Schemas (Star, Snow Flake, Galaxy & Hybrid)
- ▶ Surrogate key and usages in real time
- ▶ 1:1, 1: Many, Many: Many relationships
- ▶ Active, Inactive relationships
- ▶ Single and Bi-directional, Cross filter
- ▶ Advanced properties of fields (sort order, date category, aggregators)
- ▶ Snow Flake schema examples

Snowflake Schema



TOPIC 1: INSTALLATION [POWER BI DESKTOP, GATEWAY, SERVER, REPORT BUILDER & DAX STUDIO]

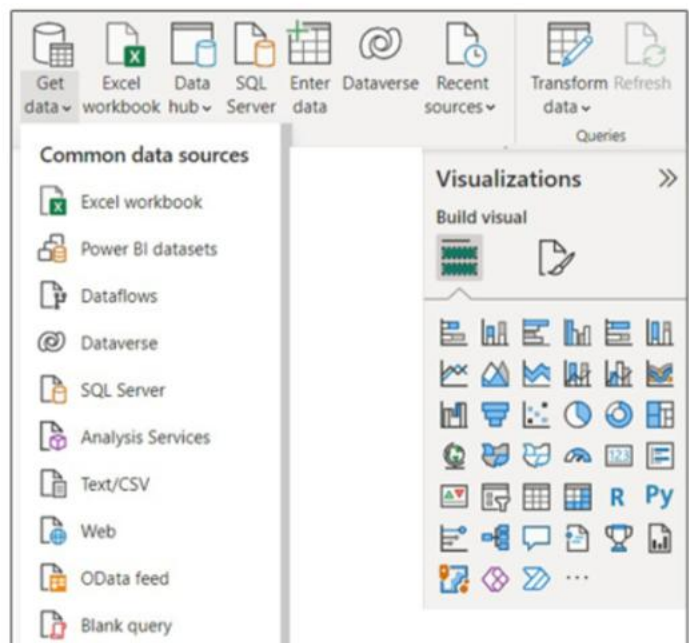
- ▶ Power BI Components
- ▶ Release impact on installation
- ▶ Power BI Cloud Desktop installation
- ▶ Power BI Report Server Desktop installation
- ▶ DAX Studio installation
- ▶ Report Server Installation
- ▶ Paginated Report Builder Installation
- ▶ Gateway Installation



TOPIC 2: WORKING WITH POWER BI DESKTOP AND CONNECTING TO MULTIPLE DATA SOURCES

● [Theory and Complete Practical]

- ▶ Desktop over view and building blocks of PBI Desktop
- ▶ Connecting to various sources and retrieving data
 1. Flat files
 2. CSV files
 3. JSON files
 4. Databases (SQL Server & Oracle)
 5. Excel files
 6. Web
 7. Semantic Models
 8. Azure SQL database and DWH
 9. Datamart, Data Lake, Lakehouse
 10. M-Retrieval
 11. Multiple files load at a time



TOPIC 3: WORKING WITH DATABASES, SEMANTIC MODELS, DATAMARTS, DATAFLOWS AND STORAGES MODES

- ▶ Dataset or Semantic Model (Storage modes)
Import, Direct Query, Mixed, Connect Live (Live Connection)
- ▶ Single Table Modes
(Import, Direct Query, **Dual**)
- ▶ Detailed explanation, practice, and examples
Industry Tips and Techniques on this section



TOPIC 4: WORKING ON POWER BI DESKTOP COMPONENTS

- ▶ Power Query, Power Pivot
Power View, Power Map
- NOTE: Copilot, Understanding Provided



TOPIC 5: POWER VIEW VISUALIZATION CONCEPTS, MENU TAB OPTIONS-RIBBON OPTIONS & REAL-TIME



● File Tab [All options-Detailed Practical]

- a) New, Open, Save report
- b) Export Power BI Template (PBIT), PDF
- c) Import Power BI Template, Power Query, View, Model, Visual files
- d) Options and Settings & About

● Home Tab [All options- Detailed Practical]

- a) External Data:
 - Get Data, Recent Sources, Enter Data
- b) Transform data & edit parameters
- c) Publishing to cloud service
- d) Prop data AI (2025)
- e) Quick sources
- f) Sensitivity

● Insert Tab [All options - Detailed Practical]

- ▶ **Visuals:** New Page, New Visual, More Visuals
- ▶ **AI Visuals:** Key Influencers, Decomposition Tree, Smart Narrative, Q & A
- ▶ **Elements:** Text box, Buttons, Shapes, Image
- ▶ **Power Platform:** Paginated Report, Power Apps, Power Automate
- ▶ **Sparklines:** Add a Sparkline

● Format Tab [All options-Detailed Practical]

- a) Edit interactions for the visual for cross highlighting, cross filtering, and none options.
- b) Bring forward, send backward etc... visual option (Z-Order)

● Data / Drill Tab [All options-Detailed Practical]

- a) Drill down report creation
- b) Drill one level down, multiple levels, & data drill
- c) Visual table, Data point table

● View Tab [All options -Detailed Practical]

- ▶ Report Phone Layout / Desktop View
- ▶ Show Gridlines, Snap Objects to Grid
- ▶ Locking Objects on the surface
- ▶ **Bookmarks** creation, viewing, & using in Dashboard Selection Pane [Hiding and showing objects]
- ▶ **Slicer and Sync Slicers** explanation with practical Performance analyzer test run
- ▶ **Scale to fit:** Page view, Mobile: Mobile layout, Page options
- ▶ **Show panes:** Filters, Bookmarks, Selection, Performance Analyzer, Sync slicers

● Modeling Tab [All options-Detailed Practical]

- a) **Relationships:** Manage Relationships
- b) Create roles and implement row-level security & dynamic row-level security
- Page Refresh:** Change detection
- Parameters:** New parameter
- Security:** Manage roles, View as
- Calculations:** New measure, Quick measure, New column, New table
- Q & A:** Language, Linguistic Schema

● HELP Tab [All options-Detailed Practical]

- a) Guided learning, documentation, training videos, **blogs, communities**, Power BI for developers, support and consulting services

● External tools tab

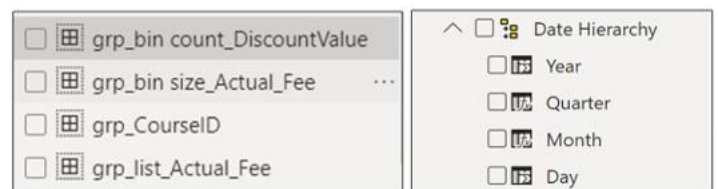
DAX studio

● Optimize tab (2024)

Refresh, Pause, Preset, Optimization

TOPIC 6: POWER BI DATASET PROPERTIES

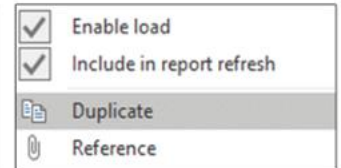
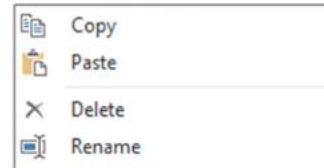
- ▶ Create hierarchies and analyzing data
- ▶ Create Groups (List, Bin)
- ▶ Hide / Unhide columns usage in real-time
- ▶ Consider table as Date Table
- ▶ Expand and collapse columns
- ▶ Incremental refresh & manage aggregations



TOPIC 7: POWER QUERY TRANSFORMATIONS [M-Language]

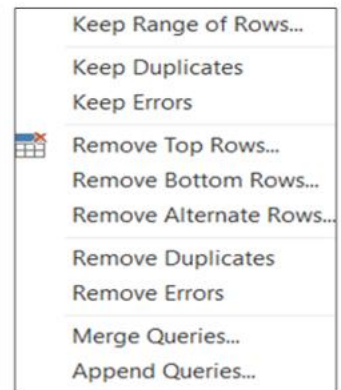
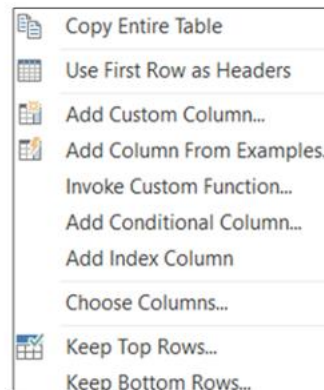
Queries properties [All options –Detailed Practical]

- Real-time practical on duplicates and references
- Create groups to classify tables
- Refreshing table data and enabling data to tables
- Creating reusable functions



Query Properties

- Perform data transformations by adding, removing and retaining columns, duplicates, error
- Working on reusable functions
- Merging multiple queries
- Joining multiple queries to get matched, unmatched and both matched and unmatched rows.



Column Properties

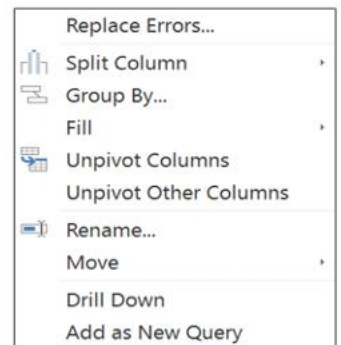
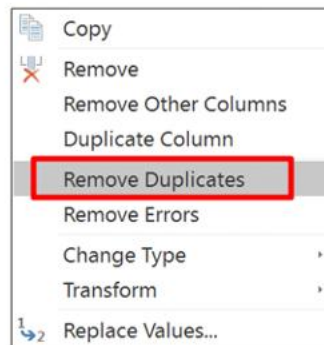
Data types, Different types of data transformations on

- Numeric columns
- String columns (split strings)
- Date columns

Full real-time examples on the data transformations

Filter properties

Working on Number, String, and Date
Various filter options



Parameters properties

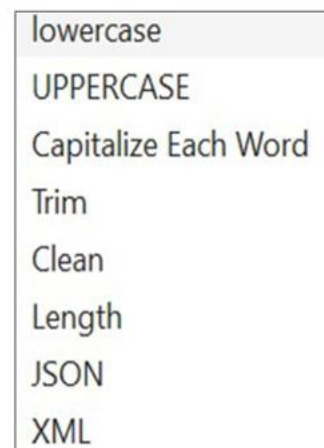
Working on Any, List & Query Parameters
Working on multiple parameters
Working on cascading parameters
Working on cascading parameters

Miscellaneous Transformations

Transpose rows, reverse rows,
Pivot & Unpivot
View options [monospaced font, column profiling, Column distribution, performance monitoring]

Mash up (M) language

Syntax, protocols, variables & conventions
Let, In, functions, Expressions



TOPIC 8: POWER BI VIEWS, FILTERS, VISUALS AND VISUAL FORMATING OPTIONS

Types of views in PBI Desktop

- a) Report View b) Data View
- c) Relationship View, d) **DAX Query view (2024)**

Working with different level of filters

- a) Visualization level b) Page level c) Report Level
- d) Drill through page level
- e) Drill through cross report level

Data Display Visuals

Card, Multi-row, Table, Matrix, **New -card (2024)**

Simple KPI visuals

KPI, Gauge, Bullet Chart

More categories visuals

Charts

Rounded charts : Pie, donut

Bar: Stacked, Clustered, 100% Stacked

Trend: Line, Area, Stacked Area, Ribbon,
Mixed Charts, Rectangle Tree Map,
Funnel, Scatter, Waterfall

Maps (Bubble, Filled, Shape, ARCGis, **Azure map 2024**)

AI Visuals: Key-influencer, De-composition,
Smart Narrative, QA

Others: Sparklines, Metric, Paginated Report, R, Python

Custom Visuals

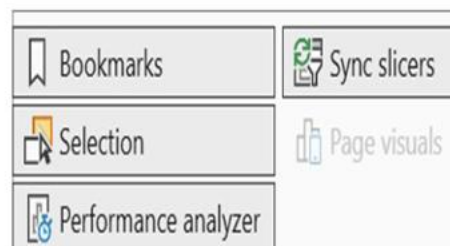
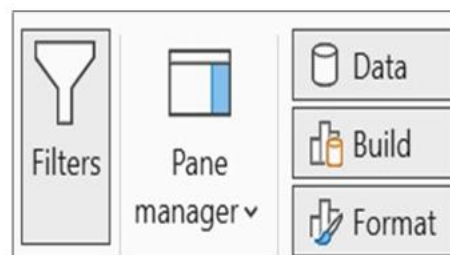
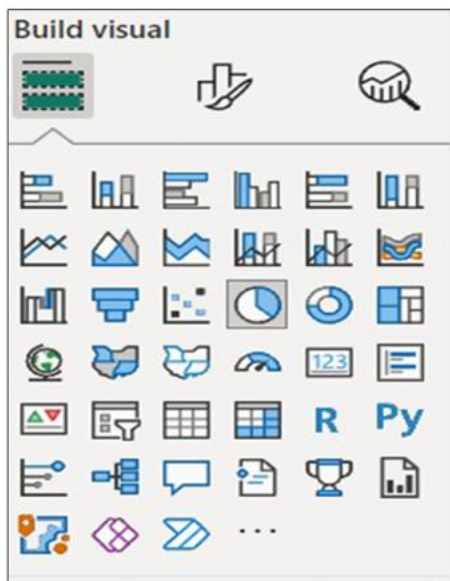
- a) Bullet Chart b) Chiclet Slicer c) Hierarchy Slicer
- d) Gantt Chart e) Histogram Chart f) Dual KPI
- g) Scroller

Non field visuals

- a) Image b) Textbox c) Shapes d) Button actions
- Actions: Bookmark, page navigation, back , QA,
URL, apply slicers & clear slicers

Visual Interactions

- a) Slicers: types, usages, sync slicer
- b) Filters & types
- c) Edit Interactions
- d) Parameters & What-if parameters



TOPIC 9: POWER BI CLOUD SERVICE (app.powerbi.com) Concepts CLOUD PRACTICE ACCOUNTS PROVIDED

WEB PORTAL NAVIGATIONS

- 1) Navigation pane
- 2) Portal URL explanation
- 3) App Launcher
- 4) Settings
- 5) Help & Support
- 6) Feedback
- 7) Account Information
- 8) Copilot Usage

WORKSPACES

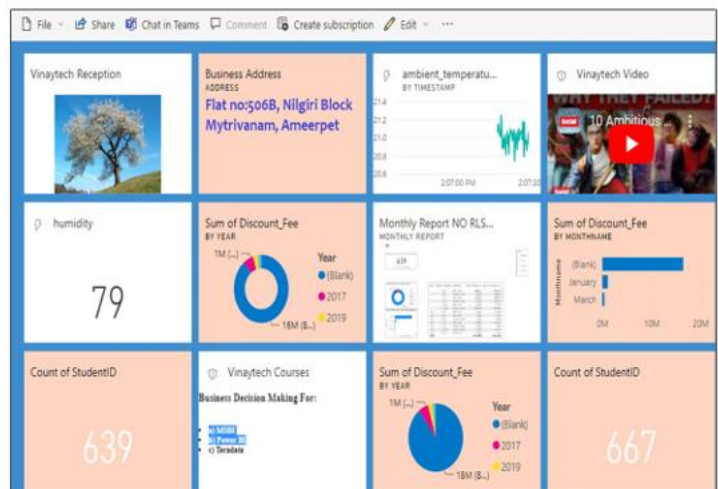
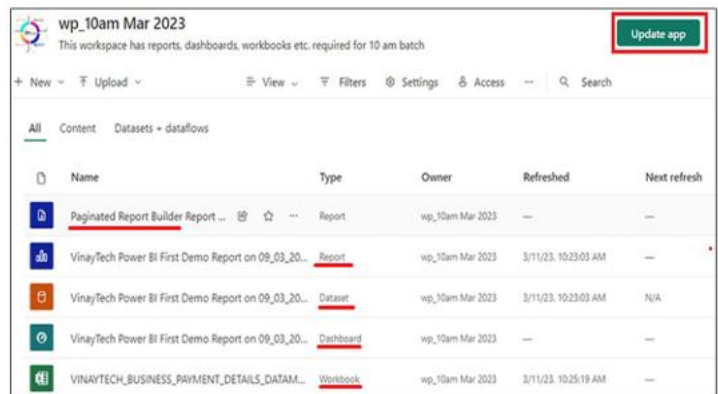
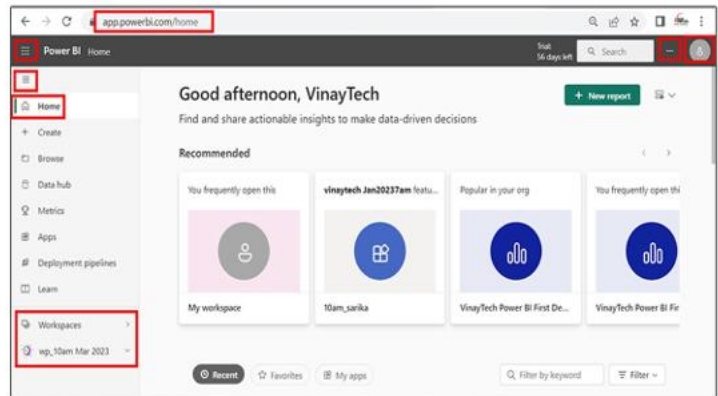
- ▶ My workspace and properties
- ▶ User app workspaces and properties
- ▶ Workspace Settings and Roles
- ▶ Workspace Access

DASH BOARD TEMPLATE

- ▶ Create dashboards
- ▶ Add the below tiles
 - a) Image tile
 - b) Text box tile
 - c) Video tile
 - d) Streaming tile
 - e) Live page tile
 - f) Visual tile
 - g) Book mark tile
 - h) Workbook tile
 - i) Insight tile
 - j) Usage Metrics tile
- ▶ Share and Subscribe dash board
- ▶ Refresh Dashboard
- ▶ Manage Alerts
- ▶ Tile & dashboard properties

APP WORKSPACES (or) CONTENT PACK

- ▶ Create, modify, and delete appspace
- ▶ Add content (show or hide)
- ▶ Audience (organization or users)
- ▶ Additional Settings (copy, build)
- ▶ Publish and Update app
- ▶ Browse App in Web, Desktop and Mobile
- ▶ END USER EXPERIENCE PROVIDED
- ▶ Settings (Admin Operations)
 - 1) Manage gateways & sources
 - 2) Admin portal
 - 3) item settings, Language settings, QA
 - 4) Manage group storage
 - 5) Manage Personal Storage





◆ DATASET PROPERTIES

- ▶ Refresh (on-demand and scheduled)
- ▶ Security (Row Level Security)
- ▶ Download, Generate reports, Paginated reports
- ▶ Dataset Settings (Gateway and others)
- ▶ Parameters & Data Source Credentials
- ▶ Data Connections
- ▶ Cache Settings > QA Settings > Manage Permissions

◆ POWER BI GATEWAYS [STANDARD AND PERSONAL]

- ▶ Download and Install Power BI Gateways
- ▶ Install & Configure Gateways
- ▶ Add Data Sources
- ▶ Desktop, Service, and Mobile App
- ▶ Refresh (on-demand, scheduled and automated)
- ▶ Gateway trouble shooting
- ▶ Refresh Flat Files & data bases

◆ DEPLOYMENT PIPELINES

- ▶ Deployment and Deployment pipelines
- ▶ New and updates entities deploy
- ▶ Settings, Access, History of pipelines

◆ REPORT PROPERTIES

- ▶ Edit Report, Mobile and Web View
- ▶ Quick Insights and Usage Metrics
- ▶ Persistent Filters and Cross Report
- ▶ Share, Subscribe, and Refresh
- ▶ Lineage view, View Related
- ▶ Comments and ChatinTeams
- ▶ Manage Permissions

◆ SCORECARDS AND METRICS

- ▶ Scorecard and Metrics or Goals
- ▶ Refresh Metrics

◆ DATAFLOWS

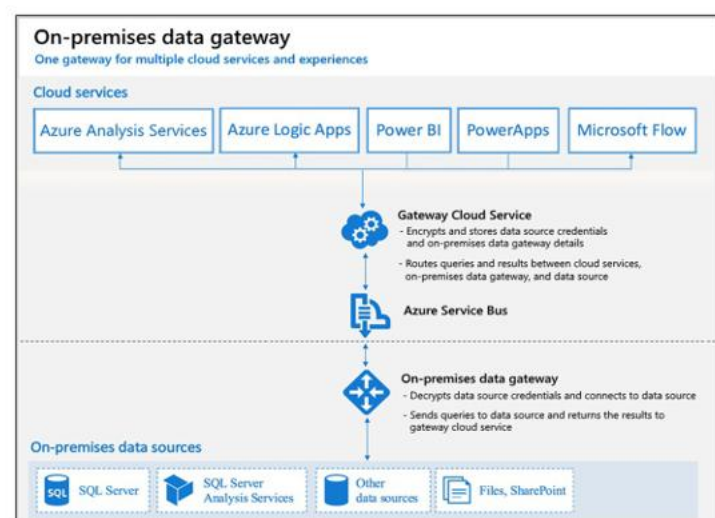
- ▶ Create and modify dataflow
- ▶ Power Query Operations
- ▶ Common Data Model [CDM] usage
- ▶ Save and Use Dataflow
- ▶ Refresh (On-demand, Scheduled, Incremental Refresh)

Admin portal

- Tenant settings
- Usage metrics
- Users
- Premium Per User
- Audit logs
- Capacity settings
- Refresh summary
- Embed Codes
- Organizational visuals
- Azure connections**
- Workspaces
- Custom branding
- Protection metrics
- Featured content

Connect to Azure resources

- ▶ Tenant-level storage
- ▶ **Workspace-level storage permissions**
 - ☒ Allow workspace admins to connect their own storage account
 - Save** **Cancel**
- ▶ Workspace-level Log Analytics permissions (preview)
- ▶ Data in space (preview)



TOPIC 10: DAX [DATA ANALYSIS EXPRESSIONS] DAX Expression, Query Language & DAX Studio (10 hrs)

● DAX Language General Topics & Advanced

- ▶ Syntax and usage
- ▶ Naming conventions, parameters
- ▶ Operators, functions (15 categories)
- ▶ **Context transition** (row, column, filter, multi-row)
- ▶ DAX Queries, DAX Studio and SSMS
- ▶ DAX FAQs, Optimization & Standards

● DAX Functions [Very Detailed Practice]

- ▶ Good material provided for all the functions
 - a) Date b) Filter c) Math & Trig d) Statistical
 - e) Table Manipulated f) Informational
 - g) Relationship h) Logical i) Parent Child
 - j) Time Intelligence j) INFO Function
- h) Windows Functions (2022 Dec)**
- i) NEW Functions (2024)**
- Statements: Evaluate, Define, Var, Order By

● DATE FUNCTIONS

- ▶ Calendar, Calendarauto, Day, Month, Year
- YearFrac, Date, Time, DateValue, TimeValue,
- Edate, EOMonth, Weekday, WeekOfMonth
- Today, UTCToday, Now, UTCNow, DateDiff

● TIME INTELLIGENCE FUNCTIONS

- ▶ DatesBetween, DatesInPeriod,
- ClosingBalanceofmonth, Quarter, Year
- OpeningBalanceOfMonth, Quater, Year
- Datesytd, Datesqtd, Datesmtd
- Totalqtd, Totalmtd, Totalytd ,DirstDate,
- FirstNonBlankDate, LastDate,
- Lastnonblankdate, NextDay, NextMonth,
- NextYuarter, NextYear, ParallelPeriod,
- SamePeriodLastYear, PreviousDay,
- PreviousMonth, Quarter, Year
- StartOfMonth, Quarter Year

● LOGICAL FUNCTIONS

- ▶ And, Or, Not, Iferror, If, Switch, In,
- True , False, Coalesce

● PARENT & CHILD FUNCTIONS

- ▶ Path, Pathlength, Pathcontains,
- Pathreverse, PathItem

**Practice DAX on Power BI Desktop,
DAX Studio and Tabular Model Cube
Instances**

● FILTER FUNCTIONS

- ▶ Addmissingitems, Filter, Filters,Distinct,
- Values, Countrows, All, Allexcept, Earlier,
- Earliest, KeepFilters, Remove filters,
- Calculate, Calculatetable, AllSelected,
- AllNoBlankRow

● RELATIONSHIP FUNCTIONS

- ▶ Related, Relatedtable, UseRelationship,
- Crossfilter, ContainsStringExact

● INFORMATION FUNCTIONS

- ▶ ContainsRow, Contains, ContainsString,
- Iseven, Isodd, Istext, UserName,
- UserPrincipalName, LookUpValue, IsError,
- IsNonText, IsNumber, IsLogical, Isinscope,
- Isonorafter,Hasonefilter, IsCrossFiltered

● AGGREGATE FUNCTIONS

- ▶ Sum, Sumx, Average, AverageX, AverageA,
- Max,MaxX,MaxA, Min, Minx,MinA,Count,
- CountX, CountA, CountBlank, DistantCount,
- DistantCountNoBlank, Product, ProductX,
- Courtrows, Approximate, Distinctcount

● MATH AND TRIG FUNCTIONS

- ▶ Round, MRound, Roundup, Rounddown, Rand,
- RandBetween , Sqrt, Trunc, In, Ceiling, Floor,
- Gcd, Lcd, Exp, Fact, Even, Odd, ABS, Convert,
- Currency, Sign

● STATISTICAL FUNCTIONS

- ▶ Permut, Rank.eq, Rankx, Sampl,
- Statistical data, Operation functions

● TABLE MANIPULATION FUNCTIONS

- ▶ AddColumns, AddMissingItems, CrossJoin,
- CurrentGroup, DataTable, DetailRows,
- DistinctColumn, DistinctTable, Except,Filters,
- Generate, GenerateSeries, Groupby,
- DataTable, Except, Intersect, Union,
- Symmarize, Summarizecolumn,
- GenerateSeries, NaturalInnerJoin,
- NaturalLeftOuterJoin, Crossjoin, Treatas,
- Isempy, Row SelectColumns, Values,

● TEXTUAL FUNCTIONS

- ▶ Blank, Code,Unichar,Concatenate,
- Combinevalues, Cacatinatex, Trim, Rept,
- Replace, Substitute, Find, Search, Format,
- Mid, Left, Right, Value, Upper, Lower



● INFO FUNCTIONS

- ▶ INFO.View.Measures, INFO.View.Columns, INFO.view.Tables

● WINDOWS FUNCTIONS (2022)

- ▶ INDEX, OFFSET, PARTITION, WINDOW

● NEW FUNCTIONS (2024)

- ▶ FIRST, LAST, PREVIOUS, NEXT, RANK, ROWNUMBER, LINEAST, MATCH

TOPIC 11: ADDITIONAL SESSIONS (4-6 HOURS) EMBEDDING AND USING IN POWER BI

- ▶ MICROSOFT FABRIC BASIC AWARENESS

- ▶ AZURE DATA ENGINEERING BASIC AWARENESS

- ▶ POWER APPS BASIC AWARENESS

- ▶ POWER AUTOMATE BASIC AWARENESS

A Big Thank you

COURSES WE OFFER

POWER BI

DATA ANALYST/ ANALYTICS

MICROSOFT FABRIC

SQL SERVER

ADE / AZURE BI

ADF: AZURE DATA FACTORY

ADB: AZURE DATA BRICKS

MSBI

POWER APPS

POWER AUTOMATE

INFORMATICA

EXCEL

PYTHON



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