

Power BI

• Power BI Developer • Data Analytics • Data Scientists

• Real-Time Working • Detailed Subject • Interview Suitable • PL-300 80% Coverage

-  **Mr. Vinay [12+ years of IT Exp, 6+ in Power BI]**
-  **60 hours (Normal Track) , Daily 1 hour**
-  **Normal / Fast Track / 1 on 1 / Customized**
-  **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)**



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

MICROSOFT FABRIC

AZURE DATA FACTORY

AZURE SYNAPSE

DATA ACTIVATOR

POWER BI

(A component in MS Fabric Suite, with the below concepts)

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**

OTHER COMPONENTS

Paginated **Report Builder**, Gateway, Power BI **Embedding**

POWER BI CONCEPTS

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

ADDITIONAL CONCEPTS

Power Apps (2 hours), **Power Automate** (2 hours),
SQL Server (3-4 hours), **Tabular Cubes** (1 hour), **ADF** (1 hour)

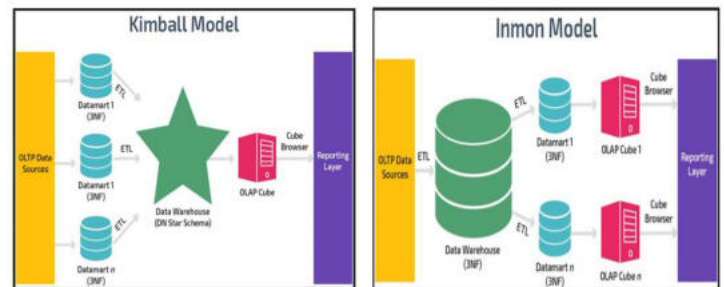
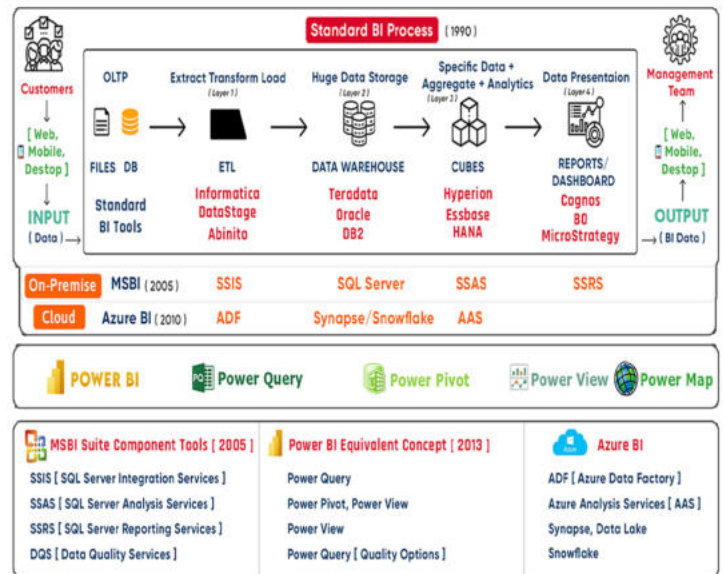
MANDATORY TOPIC 1: POWER BI DEMO & DATA WAREHOUSE FUNDAMENTALS

Power BI Demo content

- ▶ 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
- ▶ 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 Fundamentals

- ▶ 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 exmaples

Snowflake Schema

DimCourse			DimCourseMode		DimStudent				
CourseID (PK)	Coursename	Duration	Model (PK)	Description	StudentID (PK)	FST_NAME	LAST	EMPLID	CITY
MSBI-F	MSBI Fast Track	30	Online	Connect through 20	1000	Alan	Kirk	1	Gilroy
MSBI-N	MSBI Normal Tr	50	Classroom	On Premises Area	1001	Randy	Dalton	2	Dolores
MSBI-C	MSBI Custom	20	Custom	Online or OnPremis	1002	Lachung	Ma	3	San Jose
Teradata-F	Teradata Fast Tr	30			1003	Anthony	Logan	4	San Jose

Bridge Table / Fact Table / Measure Group Table / Analytical Data Maintenance Table										
Foreign Key Section (having valid references from the dimensions)						Measures section (used this for analysis)				
InstituteID	CourseID	ModeID	UserID	LocationID	Date	StudentID	Actual_Fee	Discount	Tax amt	DiscountYr
Power BI Tech	MSBI-C	Classroom	1001	HYD	3/17/2019	1007	10000	12000	252	1000
Power BI Tech	MSBI-N	Online	1002	HYD	3/18/2019	1006	15000	12500	270	1500
Power BI Tech	MSBI-C	Online	1000	HYD	3/13/2019	1003	12000	10700	234	1200
Power BI Tech	MSBI-N	Custom	1001	HYD	3/13/2019	1002	15000	12500	270	1500
Vinay Tech	MSBI-C	Custom	1000	HYD	3/12/2019	1003	15000	12500	270	1500

DimInstitute			DimLocation		DimDate				
InstituteID (PK)	InstituteName	Institute Type (FK)	LocID (PK)	LocationName	DateKey (PK)	Date	Year	Quarter	MonthName
Vinay Tech	vinaytechhous	Software	HYD	Hyderabad	20190101	912019	2019	1	January
MSBI Tech	MSBI Training In	Software	WZAB	Vizagapatnam	20190102	922019	2019	1	January
Power BI Te	Power BI Trainin	Software	BGA	Vijayawada	20190103	932019	2019	1	January
			VRNGL	Varangal	20190104	942019	2019	1	January
			KHM	Khammam	20190105	952019	2019	1	January

DimInstituteType	
Type (PK)	Description
Software	Software Training
Banking	Banking Training
Retail	Retail Training

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

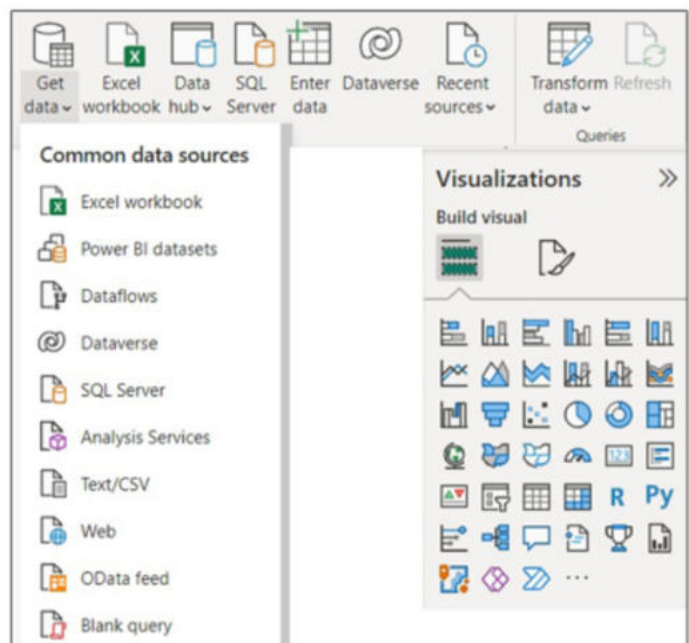
- ▶ Power BI Components
- ▶ Release impact on installation
- ▶ Power BI Cloud Desktop installation
- ▶ Power BI Report Server Desktop installation
- ▶ DAX Studio installation
- ▶ Report Server Installation
- ▶ Paginated Report Builder Installation
- ▶ Gateway Installation



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. Analysis Services Models (Tabular & Multi-dimensional)
 8. Azure SQL database and DWH
 9. Python Script
 10. M-Retrieval
 11. Multiple files load at a time



TOPIC 3: WORKING WITH DATABASES, CUBES, MODES & CHANGING MODES

- ▶ Working on data modes[very detailed]
 - Import
 - Direct Query
 - Connect Live
 - Mixed mode
 - Changing modes
- ▶ Differences between Load and Edit options.
- ▶ Retrieve data from related data bases and cube



TOPIC 4: WORKING ON POWER BI DESKTOP COMPONENTS

- ▶ Power Query, Power Pivot
- Power View, Power Map



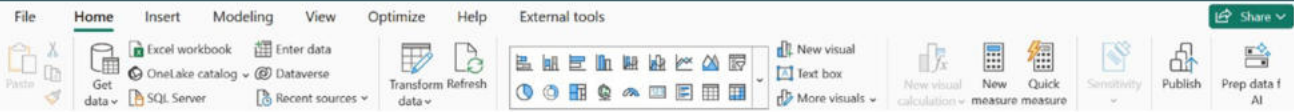
Query

Pivot

View

Map

TOPIC 5: POWER VIEW 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

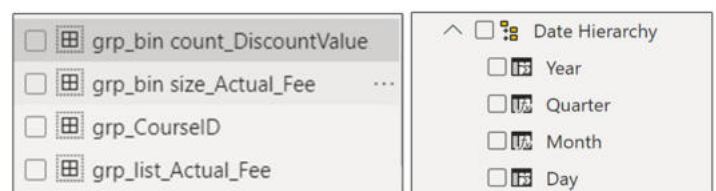
DAX studio

● Optimize tab (2024)

Refresh, Pause, Preset, Optimization

TOPIC 6: POWER BI DATASET PROPERTIES

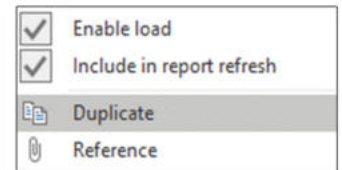
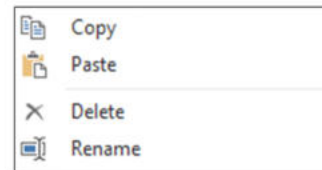
- ▶ Create hierarchies and analyzing data
- ▶ Create Groups (List, Bin)
- ▶ Hide / Unhide columns usage in real-time
- ▶ Consider table as Date Table
- ▶ Expand and collapse columns
- ▶ Incremental refresh & manage aggregations



TOPIC 7: POWER QUERY PROPERTIES [8 types of properties and M-Language]

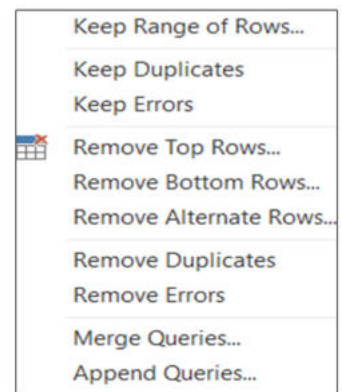
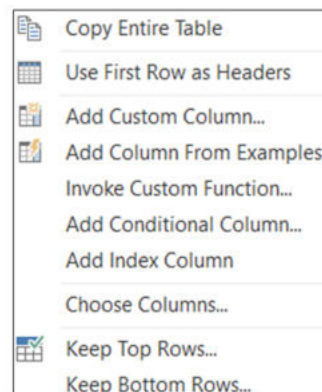
Queries properties [All options –Detailed Practical]

- 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.

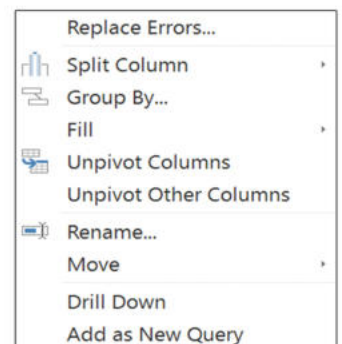
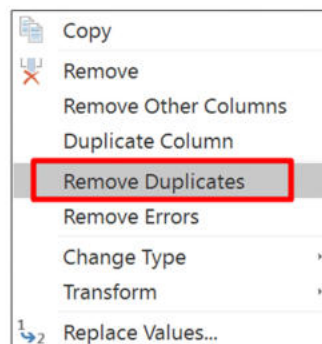


Column Properties

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

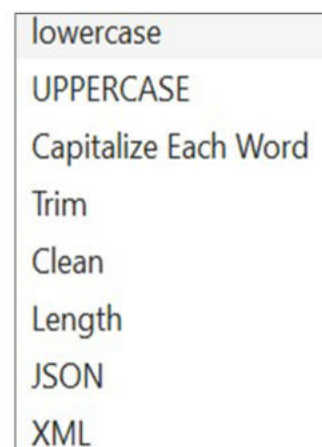
Working on Any, List & Query Parameters
Working on multiple parameters
Working on cascading parameters
Working on cascading parameters

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, semicolon, and other functions



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 though 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

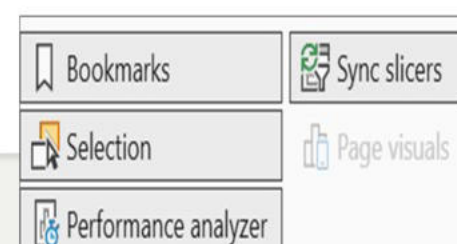
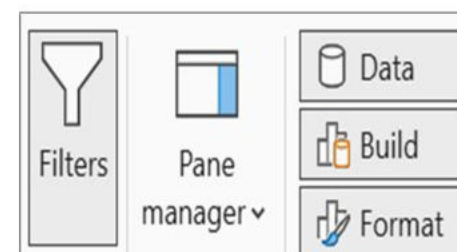
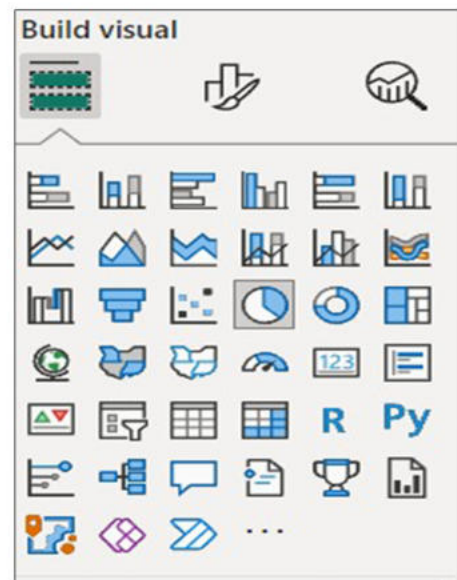
- a) Bullet Chart b) Chiclet Slicer c) Hierarchy Slicer
- d) Gantt Chart e) Histogram Chart f) Dual KPI
- g) Scroller

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)

WEB PORTAL NAVIGATIONS

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

WORKSPACES

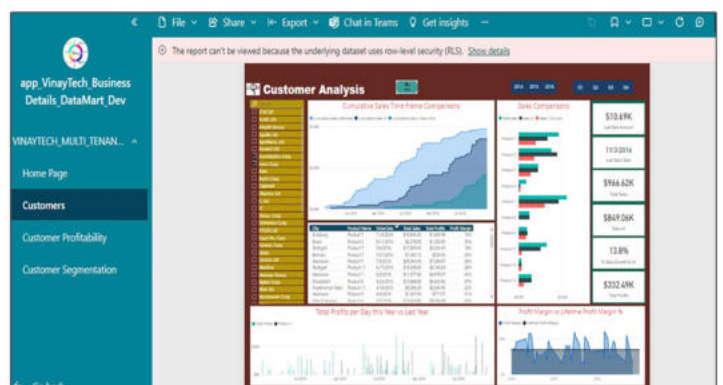
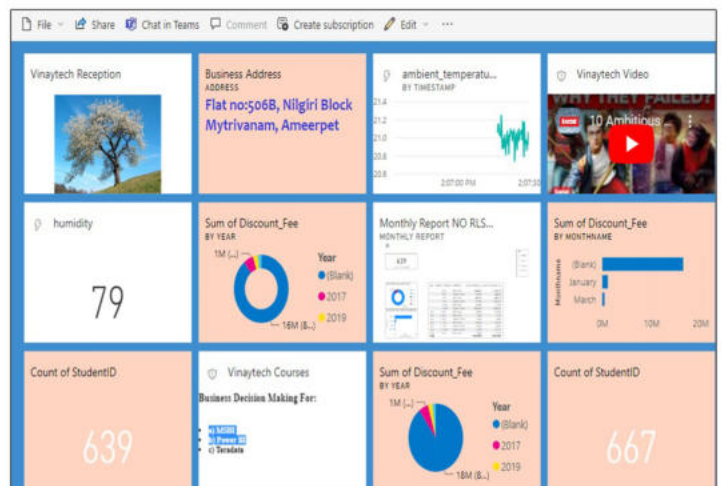
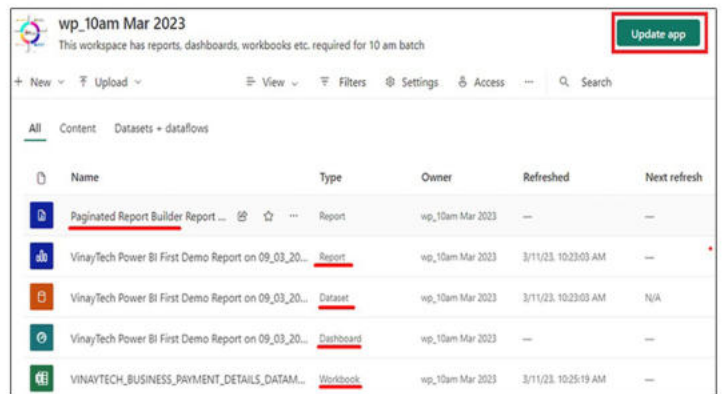
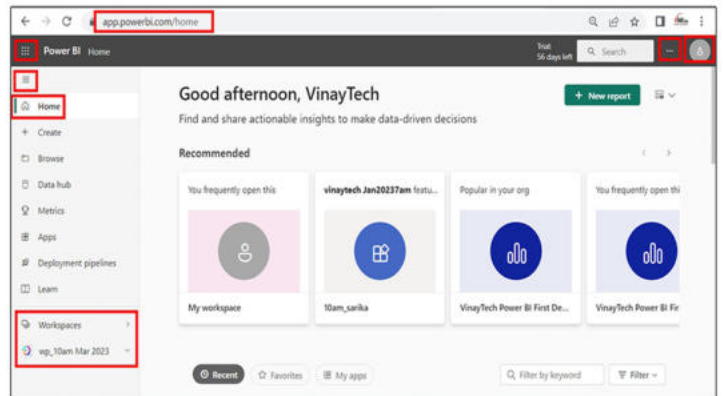
- ▶ My workspace and properties
- ▶ User app workspaces and properties
- ▶ Workspace Settings and Roles
- ▶ Workspace Access

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
 - 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

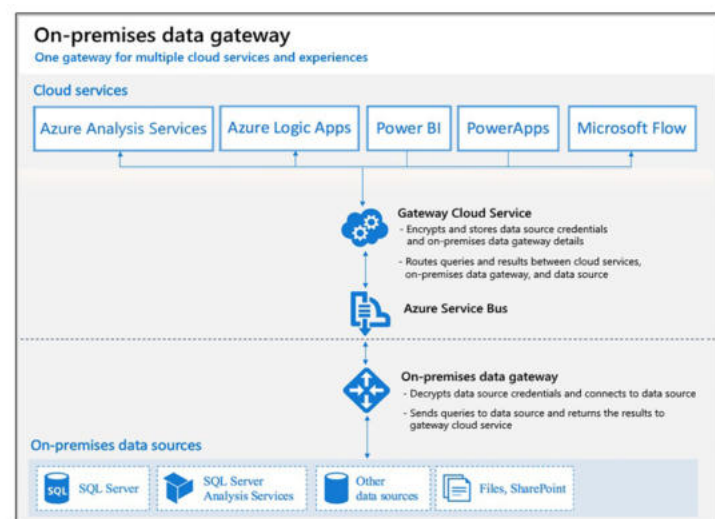
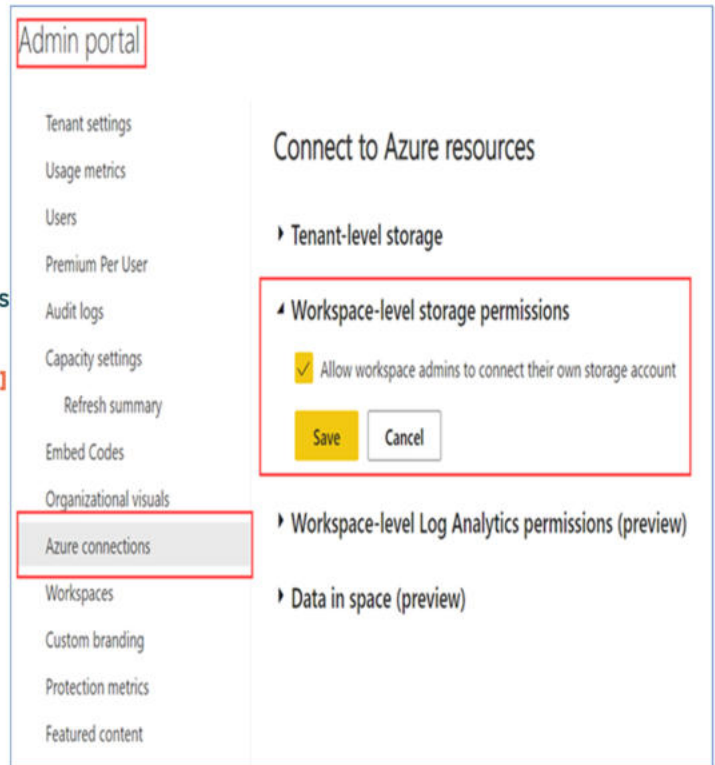
- ▶ Edit Report, Mobile and Web View
- ▶ Quick Insights and Usage Metrics
- ▶ Persistent Filters and Cross Report
- ▶ Share, Subscribe, and Refresh
- ▶ Lineage view, View Related
- ▶ Comments and ChatinTeams
- ▶ Manage Permissions

● 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)



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,
- UserPricipalName, 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

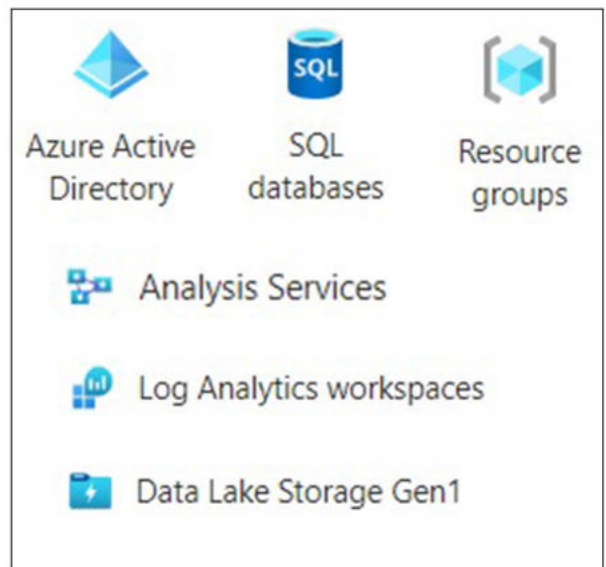
◎ NEW FUNCTIONS (2024)

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

TOPIC 11: ADDITIONAL SESSIONS [MICROSOFT FABRIC UNDERSTANDING, AZURE SESSIONS]

◎ AZURE SESSIONS

- ▶ Azure cloud and introduction
- ▶ Azure portal, resources, and resource groups
- ▶ Azure account creation and pay-as-you-go
- ▶ Azure SQL Database, Data warehouse, & Analysis Services Databases
- ▶ Azure Blob and Data Lake Storages Introduction
- ▶ Azure Data Factory [ADF] Introduction
- ▶ ADF- Pipelines, Sources, Sync, and Azure Log Analytics Workspace
- ▶ Azure Active Directory [AAD]



TOPIC 12: POWER AUTOMATE, POWER APP & POWER BI EMBEDDING

◎ [Theory and Complete Practical]

- ▶ Microsoft Power Automate [Microsoft flow]
- ▶ Power Automate overview
- ▶ make.powerautomate.com understanding with accounts and components
- ▶ Scheduling the Dataset refresh
- ▶ Implement set of operations using flow EMAIL, Dataset Refresh, Power Apps

◎ [Theory and Complete Practical]

- ▶ Power Apps Overview
- ▶ Make.powerapps.com understanding
- ▶ Understanding different apps [Canvas, Model Driven, Portal from Blank]
- ▶ Power Apps few scenarios practice
- ▶ APP showing Power BI Report [Embedding] APP to connect to report and edit details. Create and manage a data form from OneDrive.

Basic Material and Live Class Videos Shared

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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