Five-Day Training Guide

Comprehensive Power BI Data Analysis and Visualization Training

Day 1: Introduction to Power BI and Basic Data Import

Objectives:

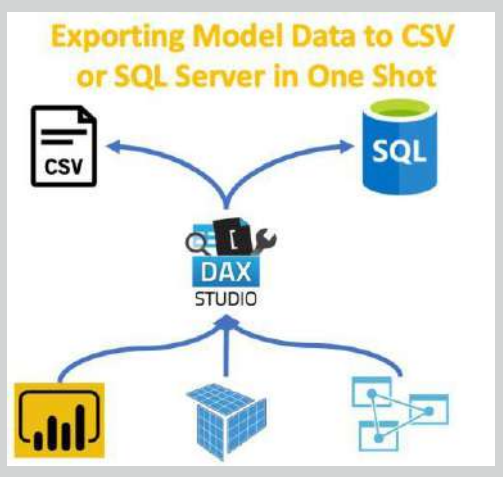
- Understand the Power BI ecosystem.
- Learn basic data import and transformation techniques.
- Create simple visualizations.

Key Topics:

- **Overview of Power BI:**
  - Power BI Desktop, Service, and Mobile.
  - Installation and setup.
  - Interface overview and navigation.
- **Data Import:**
  - Importing data from various sources (Excel, CSV, databases).
  - Basic transformations in Power Query (filtering, sorting, merging).
- **Data Modelling Basics:**
  - Creating relationships between tables.
  - Introduction to the Data Model and schema.
- **Basic Visualizations:**
  - Creating and customizing basic charts (bar, line, pie).
  - Understanding visuals, fields, and formatting options.

Hands-On Activities:

- Import and clean a dataset from Excel.
- Create a simple data model with relationships.
- Build basic charts and a simple report dashboard.



Materials:

- Sample Excel datasets.
- Power BI Desktop installation instructions.
- Basic Power BI guide.

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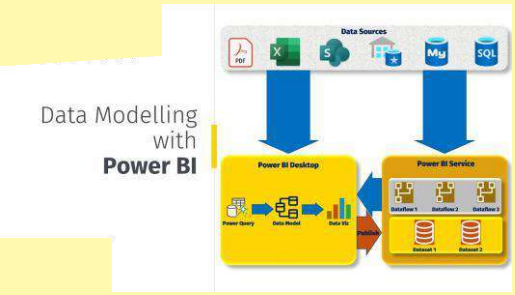
Day 2: Intermediate Data Transformation and Modelling

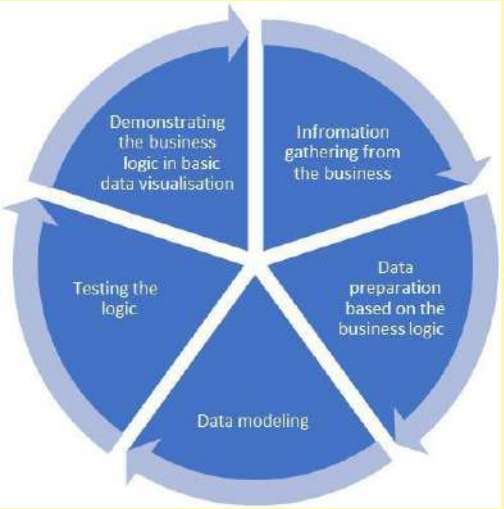
Objectives:

- Perform intermediate data transformations using Power Query.
- Develop data models with calculated columns and relationships.



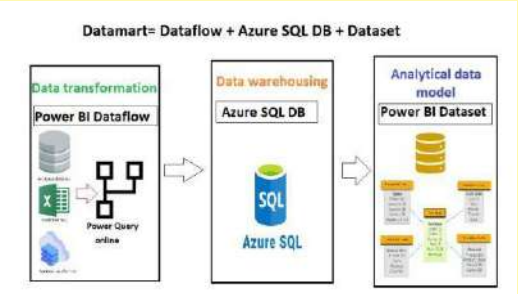
Key Topics:

- **Intermediate Power Query:**
  - Using more advanced transformations (pivoting, unpivoting, grouping).
  - Merging and appending queries.
  - Introduction to the M language.
- **Data Modeling:**
  - Creating calculated columns and measures.
  - Handling data hierarchies and categorization.
  - Managing data types and formatting.
- **Intermediate Visualizations:**
  - Advanced formatting options.
  - Using slicers and filters.
  - Introduction to drill-down and drill-through features.



Hands-On Activities:

- Perform intermediate transformations on a complex dataset.
- Create calculated columns and basic measures.
- Design a report with slicers and drill-through capabilities.



Materials:

- More complex datasets (e.g., sales data with multiple tables).
- Power Query and M language reference sheets.

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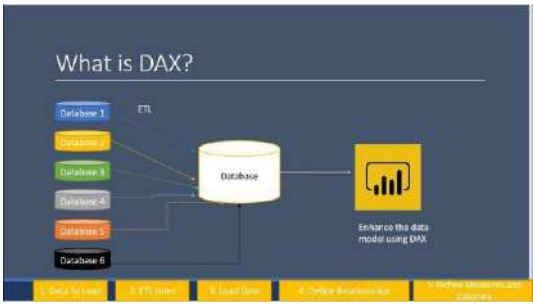
Day 3: Advanced Data Analysis with DAX

Objectives:

- Develop advanced DAX skills for creating complex measures.
- Utilize DAX for data analysis and business metrics.



Key Topics:

- **DAX Basics Review:**
  - Measures vs. calculated columns.
  - DAX syntax and basic functions.
- Advanced DAX:
  - CALCULATE, FILTER, and context modifiers.
  - Time intelligence functions (e.g., SAMEPERIODLASTYEAR, TOTALYTD).
  - Complex calculations (e.g., rolling averages, year-over-year growth).
- Optimizing DAX:
  - Understanding row context and filter context.
  - Performance tuning for DAX measures.

Hands-On Activities:

- Create complex DAX measures for sales and performance analysis.
- Implement time intelligence calculations.
- Optimize DAX calculations for performance in a large dataset.

Materials:

- DAX formula guide and cheat sheet.
- Sample datasets with time-series data.

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Day 4: Advanced Visualizations and Reporting Techniques

Objectives:

- Master advanced visual techniques and custom visuals.
- Create interactive and dynamic reports.

Key Topics:

- **Advanced Visual Techniques:**
  - Conditional formatting and data-driven visual updates.
  - Using custom tooltips, drill-down, and drill-through.
  - Creating interactive elements (e.g., buttons, bookmarks).
- **Custom Visuals:**
  - Importing and configuring custom visuals from the marketplace.
  - Utilizing R and Python for creating unique visuals.
- **Advanced Report Design:**
  - Designing interactive and dynamic dashboards.
  - Using themes and templates for consistent styling.

Hands-On Activities:

- Build an interactive dashboard with custom visuals and dynamic elements.
- Implement custom tooltips and drill-through actions in a report.
- Create a visual using Python or R script.

Materials:

- Power BI custom visuals from the marketplace.
- Scripts and examples for R and Python visuals.

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Day 5: Advanced Data Modelling, Deployment, and Best Practices

Objectives:

- Implement advanced data modelling techniques.
- Learn deployment strategies and best practices for managing reports.

Key Topics:

- **Advanced Data Modelling:**
  - Star schema and snowflake schema designs.
  - Composite models and aggregations.
  - Handling large datasets and optimizing performance.
- **Deployment and Management:**
  - Power BI Service and Report Server.
  - Configuring deployment pipelines and version control.
  - Implementing row-level security (RLS) and managing permissions.
- **Best Practices:**
  - Performance optimization for models and reports.
  - Documentation and report auditing.
  - Integrating Power BI with other tools (e.g., Teams, Excel).

Hands-On Activities:

- Design and implement a star schema model for a complex business scenario.
- Deploy a report to the Power BI Service and configure RLS.
- Optimize a Power BI model and report for performance.

Materials:

- Guidelines for advanced data modelling.
- Deployment scenarios and sample datasets.

Additional Resources

* Microsoft Press eBook: Introducing Power BI by Alberto Ferrari and Marco Russo. ISBN: 978-1-5093-0228-4
* Microsoft Power BI Quick Start Guide: The ultimate beginner's guide to data modelling, visualization, digital storytelling, and more, 3rd Edition by Devin Knight. ISBN: 978-1-8046-1349-8
* Microsoft Power BI Cookbook: Gain expertise in Power BI with over 90 hands-on recipes, tips, and use cases, 2nd Edition by Greg Deckler and Brett Powell. ISBN: 978-1-7882-9723-3