Microsoft Power BI Data Analyst (Introduction to Intermediate)

Overview

This course covers various methods and best practices aligned with business and technical requirements for modeling, visualizing, and analyzing data using Microsoft Power BI Desktop. Participants will learn how to access, transform, model, and visualize data from multiple data sources, including relational and non-relational systems. In addition, this course introduces AI-powered features available in Power BI Desktop, enabling participants to generate automated insights, detect patterns, identify key influencers, perform root-cause analysis, and leverage natural language analytics to support smarter decision-making.

Duration

3 Days

Objectives

The course will educate participants to:

- Master the steps of mapping multiple data sources into analytical dashboards
- Transform raw data into meaningful and actionable business insights
- Understand and establish relationships between datasets
- Prepare interactive and insightful reports using Power BI Desktop
- Apply AI-driven analytics features to identify trends, drivers, and anomalies
- Design dashboards that support data-driven decision-making
- Identify available options for publishing, sharing, and securing Power BI reports

Audience Profile

This course is intended for:

- Data analysts
- Business analysts
- IT professionals
- Managers and decision-makers
- Individuals transitioning from Excel-based reporting to Power BI

No prior Power BI experience is required.

Methodology

- Instructor-led sessions
- Group discussions
- Hands-on labs
- Case studies
- Simulation activities
- Guided demonstrations

Learning Outcomes

By attending this course, the candidates will have achieved the following:

- Connect and transform data from multiple sources
- Build optimized relational data models
- Create calculated fields using DAX
- Develop interactive and visually effective dashboard
- Apply Power BI AI features to generate insights automatically
- Analyze data using natural language queries and AI visuals
- Prepare reports suitable for business and management decision-making

Skillet®

Course Outline

STAGE 1: CONNECTING & SHAPING DATA

Topics include:

- Power BI Desktop overview and interface
- Data connectors (Excel, CSV, databases, SharePoint, OneDrive, web)
- Import vs DirectQuery (conceptual)
- Power Query Editor overview
- Query editing tools
- Table transformations
- Data profiling and quality assessment
- Text, numerical, date & time tools
- Index and conditional columns
- Grouping and aggregating data
- Pivoting and unpivoting data
- Merging and appending queries
- Data source parameters
- Importing Excel models
- Handling hidden sheets and structured data

Hands-on Lab:

- Transform raw Excel data into a clean analytical dataset.

STAGE 2: CREATING A RELATIONAL DATA MODEL

Topics include:

- Database normalization concepts
- Fact and dimension tables
- Primary and foreign keys
- Star and snowflake schemas
- Active and inactive relationships
- Relationship cardinality
- Filter context and filter flow
- Bi-directional filters
- Model layouts and optimization
- Data formats and data categories

- Hierarchies and date models

Hands-on Lab:

- Build a star-schema model from transformed data.

STAGE 3: ADDING CALCULATED FIELDS WITH DAX

Topics include:

- Introduction to DAX
- DAX vs Power Query (M language)
- Calculated columns vs measures
- Implicit, explicit, and quick measures
- DAX syntax and operators
- Mathematical and statistical functions
- Conditional and logical functions
- SWITCH function
- Text functions
- Date and time functions
- RELATED and LOOKUPVALUE
- CALCULATE, FILTER, ALL
- Iterator (X) functions
- Time intelligence patterns

Hands-on Lab:

- Create sales, profit, growth, and time-based measures.

STAGE 4: VISUALIZING DATA WITH REPORTS

Topics include:

- Data visualization best practices
- Dashboard design framework
- Cards and KPIs
- Bar, column, line, and combo charts
- Trend lines and forecasting
- Tables and matrix visuals
- Conditional formatting
- Top N filtering

- Map visuals
- Drill-up, drill-down, and drill-through
- Report slicers and interactions
- Bookmarks and page navigation
- Field and numeric parameters
- Custom tooltips
- Importing custom visuals
- Managing and viewing roles (Row-Level Security – overview)
- Mobile report layouts
- Publishing concepts (Power BI Desktop vs Service overview)

Hands-on Lab:

- Build an interactive sales performance dashboard.

STAGE 5: AI FEATURES IN POWER BI DESKTOP

Topics include:

- AI Visuals
  - Introduction to AI capabilities in Power BI
  - Key Influencers visual
    - Identify factors affecting a selected metric
  - Decomposition Tree
    - Root-cause analysis and breakdown of values

- Smart Analytics
  - Q&A Visual (Natural Language Queries)
    - Asking questions using plain English
  - Smart Narratives
    - Automatically generated insights and explanations
  - Anomaly Detection
    - Identifying unusual patterns in time-series data

- AI-Assisted Analysis (Overview)
  - AI-driven insights vs traditional analysis
  - When and where to apply AI visuals
  - Limitations of AI features in Desktop
  - Overview of Copilot in Power BI (conceptual, tenant-dependent)

Hands-on Lab:

- Use AI visuals to analyze performance drivers, trends, and anomalies.

Final Hands-on Exercise

- Load and transform data
- Build a relational model
- Create DAX measures
- Design interactive reports
- Apply AI visuals to generate insights
- Produce a complete Power BI Desktop dashboard

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