Power BI with Power Query

Duration: 40 Hours (5 Days)

Pre-requisites: None

Course Overview:

This course covers various concepts related to the M-Language and the various methods and best practices that are in line with business and technical requirements for modelling, visualizing, and analysing data with Power BI. The course will show how to access and process data from a range of data sources including both relational and non-relational sources. Finally, this course will also discuss how to manage and deploy reports and dashboards for sharing and content distribution.

Learning Paths:

Learning Path 1: Get started with Microsoft data analytics

- Module 1: Discover data analysis
  - Different data roles
  - Data analyst tasks
- Module 2: Get started building with Power BI
  - Data analytics with Microsoft
  - Building blocks of Power BI

Learning Path 2: Prepare Data in Power BI Desktop using Power Query

- Module 1: Get data in Power BI
  - Retrieve data from various data sources
  - Select storage mode
  - Resolve import errors
- Module 2: Power Query M language specification
  - Introduction
  - Lexical Structure
  - Basic Concepts
  - Values
  - Types
  - Operators
  - Let
  - Conditionals
  - Functions
  - Error Handling
  - Sections
  - Consolidated Grammar

- Module 3: Power Query M language Functions
    - Functions overview
    - Understanding Power Query M functions
    - Accessing data functions
    - Popular Binary functions
    - Popular Combiner functions
    - Popular Comparer functions
    - Popular Date functions
    - Popular Logical functions
    - Popular Number functions
    - Popular Table functions
    - Popular Text functions
    - Popular Time functions

  Module 4: Adding a custom column
    - Create a custom column
    - Modify an existing custom column
- Module 5: Using Parameters
    - Creating a parameter
    - Parameter properties
    - Where to use parameters
    - Multi-value or list parameters
- Module 6: Data Transformations
    - Group By
    - Referencing Queries
    - Merging Queries
    - Appending Queries
    - Data Profiling
    - The advanced editor
    - Keep Rows/Remove Rows
    - Change data structure
- Module 7: Custom Functions
    - Create a custom function from a table reference
    - Create a custom function from a reusable piece of logic
- **CASE STUDY: HR ANALYTICS PART ONE**
    - In this part of the case study, we'll start by bringing all your data into Power BI and connecting your data model. Once the data is ready, we'll start by rolling our sleeves up and doing some initial exploratory data analysis on general HR trends.

Learning Path 3: Model data with Power BI Desktop

- Module 1: Design a data model in Power BI
    - Data types
    - Star schema
    - Create relationships

- Cardinality
- Edit relationships
- Create hierarchies
- Calculation Group
- Field/Numeric parameters

- Module 2: Introduction to DAX
  - What is DAX
  - Calculated measures, columns, and tables
- Module 3: Advanced DAX concepts
  - Filter context
  - Popular Filter Functions
  - Popular Aggregation Function
  - Popular Logical Functions
  - Popular Information Functions
  - Popular Text functions
  - Popular Table manipulation functions
  - Popular Relationship functions
  - Popular Maths Functions
  - Popular Semi-additive measures
  - Popular Time intelligence functions
- Module 4: Optimize DAX performance
  - Variables in DAX expressions
  - Performance analyzer
- **CASE STUDY: HR ANALYTICS PART TWO**
  - This part is about using Power BI skills to extract insights using DAX and learn how to build custom visuals that you can use throughout your report. Atlas Labs would like some answers on its employee demographics and performance.

Learning Path 4: Build Power BI visuals and reports

- Module 1: Work with visuals
  - Add visuals to report
  - Choose effective visuals
  - Format and configure visuals
- Module 2: Report layout and interactions
  - Design appealing report layout
  - Cross-highlight and drill down
  - Themes
- Module 3: Navigation and filtering
  - Navigate and sort report
  - Filters and slicer visual
- Module 4: Report design elements
  - Add shapes, buttons, text, images
  - Bookmarks and drill through

- Selection order (accessibility)
- Integration with Power Automate and Power Apps
- When to use paginated reports

- Module 5: Perform Advanced Analytics with Power BI Desktop
  - Explore insights with Advanced Analytics
  - Data comparison with Analyze feature
  - Group and bin data
  - Cluster data and find outliers with Scatter chart visual
  - Key Performance Indicator visual
  - What-if parameters for scenario planning
  - Leverage AI visuals
  - AI insights during data preparation
  - Use key influencers and decomposition tree visuals
- **CASE STUDY: HR ANALYTICS PART THREE**
  - It's almost time to deliver your report to the key stakeholders at Atlas Labs. In this final chapter, you'll be focusing on delivering insights on attrition and what factors affect employee retention. Finally, you'll be cleaning up the overall layout of the report to create a user-friendly, clean, and branded experience.

Learning Path 5: Manage workspaces and datasets in Power BI

- Module 1: Power BI workspaces
  - Create and manage workspaces
  - Workspace Roles
  - Interact with workspace items
- Module 2: Distribute and manage content
  - Create apps for distribution
  - Refresh, protect, and endorse datasets
  - On premises Gateway
  - Review Usage Metrics report
  - Power BI service licensing
- Module 3: Dashboards in Power BI service
  - Create and use dashboards
- Module 4: Row-Level Security overview
  - Enforce row-level security