Bright Star Institute

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Analyzing and Presenting Data with Power BI

Duration: 60 hours

Prerequisites: Familiarity with database concepts and experience with spreadsheet software such as Microsoft Excel. Basic familiarity with relational databases as well as data warehousing is helpful but not required.

Description: This course provides a robust and in-depth introduction to Microsoft's *Power BI* suite of products. Students will learn to use the Power BI Desktop and Power BI online service to import, analyze, and visualize business data, and to share business intelligence.

The course starts with an exploration of the evolution of relational databases, data warehouse and business intelligence. Afterwards, students learn to do tasks such as importing and combining data from diverse data sources, shaping and transforming data, modeling data, developing useful and insightful visualizations, creating and sharing reports and dashboards in the Power BI service, and collaborating in the Power BI service. As the course nears its end, there is also an introduction to Data Analysis Expressions (DAX).

Course Overview

Introduction to Business Analysis

- The Evolution of Data Analysis
  - Databases
  - Normal Forms
  - Data Modeling
  - Data Processing
  - Beyond the Database
  - Data Warehouses
  - Fact and Dimension Tables
  - Data Warehouse Schema
  - Star Schema

Getting Data with Power BI Desktop

- The Power BI Workflow
  - Terminology
  - Opening the Power BI Desktop
  - The Navigation and Filter Panes
  - The Visualizations Pane
  - The Fields Pane
  - Power BI Desktop Settings
- Data Sources
  - On-Premises Data Files

    - Snowflake Schema
    - Big Data
- Self-Service Business Intelligence
    - Enterprise Intelligence
    - Self-Service BI
    - The BI Team
    - The Data Steward
- The Tasks
    - Accessing Data
    - Loading Data
    - Shaping Data
    - Reporting
    - Visualizing Data
    - Collaborating
    - The Tools
    - The Power BI Suite
    - Related Tools

Transforming and Shaping Data

- Getting the Right Data
    - Shaping Data
    - How and Where to Transform Data
    - Formatting Currency
    - Columns and Measures
    - Filters
- The Power Query Editor
    - How Power BI Accesses and Stores Data
    - Query Editor Layout
    - The Transform Tab
    - The Add Column Tab
    - The View Tab
    - Manipulating Columns
    - Applied Steps
    - The Advanced Query Editor

    Databases
    - Online Databases
    - Software as a Service (SaaS) Providers
    - Internet Data
    - Data Access Issues
    - Data Reliability Issues
- Getting Data
    - Import vs. Direct Query
    - Advantages of Direct Query
    - Limitations of Direct Query
    - Data Limits
    - Cleaning Data
    - Selecting Data
    - Fundamentals of Getting Data
    - Importing from Excel
    - Preparing Excel Data
    - Importing from Excel
    - Importing from a Database
    - Selecting Data with SQL
    - Importing from a Web Page
    - Revising Data

Visualizing Data

- Visual Data Processing
    - Why We Visualize
    - Choosing the Right Visualization
    - Report Design
- Creating Visualizations
    - Basic Layout
    - Selecting Data
    - Starting with Data
    - Starting with Visualization Type
    - Sorting
    - Adding Data, Changing Visualizations
    - The Slicer
    - Fields, Format and Analytics in the Visualizations Pane
- Formatting Visualizations
    - General Formatting
    - Formatting Groups

- Title
- Report Themes
- Data Colors
- Data Labels
- Data Labels Display Units
- Axes
- Text Boxes, Images, Shapes

- Visualization Mechanisms
  - The Slicer
  - Q&A
  - Custom Visuals

Types of Visualizations

- Basic Visualizations
  - Tables
  - Matrixes
- Bar/Column Charts
  - Clustered
  - Stacked
  - 100%
  - Ribbon Charts
  - Waterfall Charts
- Line/Scatter/Area Charts
  - Line Chart
  - Scatter Chart
  - Area Charts
  - Line-and-Column Charts
- Pies and Donuts
  - Pie Charts
  - Donut charts
- Map Charts
- Specialized Charts
  - Funnel Chart
  - Gauge Chart
  - Card Chart
  - Multi-Row Card
  - KPI
  - Key Influencers
  - Tree Maps

Modeling Data

- Data Models
  - The Utility of Data Models
  - Data Types
  - Cardinality
  - Cross Filter Direction
- Relationships
  - Understanding Relationships
  - Relationships and Keys
- Hierarchies
  - The Utility of Hierarchies
  - Creating Hierarchies
- The Model View
  - Changing Relationships
  - Using the Model View

The Power BI Service

- Overview
    - Functions by Application
    - Limitations
- Connecting to the Power BI Service
    - Publishing a Report to the Power BI Service
    - Direct Connectivity from the Power BI Service
    - Refreshing Data
    - Gateways
- The Power BI Service Interface
    - Layout
    - My Workspace
    - Report Edit Mode
- Dashboards
    - Dashboard Foundations
    - Dashboards vs. Reports
    - Building Dashboards
    - Editing a Dashboard
    - Filtering a Tile
- Working the Power BI Service
    - Reports
    - Exporting Reports and Data
    - Workbooks
    - Datasets
    - Apps
    - Sharing Reports and Dashboards
    - Q&A
    - Featured Questions
    - Power BI Service Settings
- Administration
    - Power BI Administration
    - Admin Portal
- Power BI Mobile
    - The App
    - To Set Up Your Smartphone Layout
    - Power BI Mobile Features and

Power BI and Programming Languages

- Survey of Power BI Languages
    - Why?
    - The Power BI REST API
    - R
    - M
    - Python
- DAX
    - Data Analysis Expressions
    - DAX Syntax
    - Logical Operators
    - DAX Examples

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