

Data Visualization Workshop using Power BI

Telecom networks are continuing to transform in fundamental ways - cloud platforms are enabling networks to be run as software-based functions. This enables the management of these networks to become software centric and thus require the use of scripting and software-oriented approaches to automate and manage tasks performed on these networks. Industries are starting to leverage feature-rich tools that analyze massive, varied data sets to complete tasks more productively and effectively. This course teaches data visualization techniques by taking large datasets of network performance data and creating close to 50 visualizations. This includes visualizations like Line Charts, Scatter Maps, Tree Maps, Heat Maps, Box-Whisker Maps, Histograms and covers the use of Joins, Blends, Calculated Columns, Reports and Dashboards to create powerful visualizations.

Intended Audience

This workshop is intended for anyone who wants to build knowledge and skills related to leveraging data tools to be more productive.

Objectives

After completing this course, the student will be able to:

- Connect to Data Sources using Query Editor
- Extract, Transform using Query Editor
- Visualize different data types and large data sets
- Visualize KPIs using Bar Charts, Scatter Maps and Pie Charts
- Visualize KPIs using Tree Maps, Heat Maps, Box-Whisker Maps
- Join/Blend data to visualize data from multiple sources
- Create Dashboards
- Use PowerBI for Data Modeling

Prerequisites

- Basic knowledge of Excel

Required Equipment

- Students will need a laptop with access to Power BI Desktop

Course Outline

1. Getting Started with Power BI

- **Exercise:** Connect to a Data Source
- **Exercise:** Navigate Power BI Desktop

2. Data Query in Power BI

- 2.1 Introduction to ETL
- 2.2 Navigate the Query Editor
- 2.3 Import Data vs Direct Query
- 2.4 3 Types of Transformation: Content, Shape, Combine datasets
- 2.5 Tall vs Wide Data Sets
- 2.6 Managing the Query List, Applied Steps
- 2.7 Load vs Edit
- 2.8 Extract from data sources: Excel, CSV, JSON, Web, API, Database
- **Exercise:** Extract, Transform, Load

3. Visualizations I

- 3.1 Visualization Concepts and Process
- 3.2 Dimensions, Measures
- 3.3 Relationship View, Data View, Report View
- 3.4 Filtering Techniques: Filters, Slicers
- 3.5 Tables and Matrices
- 3.6 Bar Charts: Simple, Clustered, Stacked
- 3.7 Time Series: Discrete vs Continuous
- **Exercise:** Create Visualizations in Report View

4. Visualizations II

- 4.1 Key features and differences of Pie Charts and Donut Charts
- 4.2 Reinforcing data points using Cards and Multirow Cards
- 4.3 Play Axis animation in Scatter Charts
- 4.4 Troubleshooting using Tree Maps
- 4.5 Visuals with colors and Heat Maps
- 4.6 Using Histograms for data distribution
- 4.7 Grouping and Binning data
- 4.8 Geographical data and Filled Maps
- 4.9 Understanding the interaction between Visuals to create a Dashboard
- 4.10 Report Drill Through
- 4.11 Custom KPI in Data View - New Column vs New Measure
- **Exercise:** Create Visualization with Joins and Blends
- **Exercise:** Create a Dashboard

5. Data Modeling for Power BI

- 5.1 Introduction to the Data Modeling Concept
- 5.2 Dim Tables and Fact Tables
- 5.3 Star and Snowflake schema
- 5.4 Single vs Bidirectional Relations
- 5.5 Creating Date/Time Dimension Tables
- 5.6 Leveraging the Time Intelligence Functions of Power BI
- **Exercise:** Creating relationships between Dim Tables and Fact Tables