

## Course Outline

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### Course 20778: Analyzing Data with Power BI

**Duration:** 3 days

#### Learning Objective

The main purpose of the course is to give students a good understanding of data analysis with Power BI. The course includes creating visualizations, the Power BI Service, and the Power BI Mobile App.

#### Target Audience

The course will likely be attended by SQL Server report creators who are interested in alternative methods of presenting data.

After completing this course, students will be able to:

- Perform Power BI desktop data transformation.
- Describe Power BI desktop modelling.
- Create a Power BI desktop visualization.
- Implement the Power BI service.
- Describe how to connect to Excel data.
- Describe how to collaborate with Power BI data.
- Connect directly to data stores.
- Describe the Power BI developer API.
- Describe the Power BI mobile app.

#### Course Contents

- Module 1: Introduction to Self-Service BI Solutions Introduces business intelligence (BI) and how to self-serve with BI. Lessons
  - Introduction to business intelligence
  - Introduction to data analysis
  - Introduction to data visualization
  - Overview of self-service BI
  - Considerations for self-service BI
  - Microsoft tools for self-service BI
    - ❖ Lab: Exploring an Enterprise BI solution

- Viewing reports
- Creating a Power BI report
- Creating a Power BI dashboard

After completing this module, students will be able to:

- Describe the trends in BI
- Describe the process of data analysis in Power BI.
- Use the key visualizations in Power BI.
- Describe the rationale for self-service BI.
- Describe considerations for self-service BI.
- Understand how you can use Microsoft products to implement a BI solution.

➤ **Module 2: Introducing Power BI** This module introduces Power BI desktop, and explores the features that enable the rapid creation and publication of sophisticated data visualizations. Lessons

- Power BI
- The Power BI service
  - ❖ Lab: Creating a Power BI dashboard
    - Connecting to Power BI data
    - Create a Power BI dashboard

After completing this module, students will be able to:

- Develop reports using the Power BI Desktop app.
- Use report items to create dashboards on the Power BI portal.
- Understand the components of the Power BI service including licensing and tenant management.

➤ **Module 3: Power BI** At the end of this module students will be able to explain the rationale and advantages of using Power BI. Lessons

- Using Excel as a data source for Power BI
- The Power BI data model
- Using databases as a data source for Power BI
- The Power BI service
  - ❖ Lab: Importing data into Power BI
    - Importing Excel files into Power BI
    - Viewing reports from Excel files

After completing this module, students will be able to:

- Describe the data model and know how to optimize data within the model.
- Connect to Excel files and import data
- Use on-premises and cloud Microsoft SQL Server databases as a data source, along with the R script data connector
- Take advantage of the features of the Power BI service by using Q&A to ask questions in natural query language, and create content packs and groups.

- **Module 4: Shaping and Combining Data with Power BI desktop** you can shape and combine data with powerful, built-in tools. This module introduces the tools that are available for preparing your data, and transforming it into a form ready for reporting. Lessons
  - Power BI desktop queries
  - Shaping data
  - Combining data
    - ❖ **Lab: Shaping and combining data**
      - Shape power BI data
      - Combine Power BI data

After completing this module, students will be able to:

- Perform a range of query editing skills in Power BI
- Shape data, using formatting and transformations.
- Combine data together from tables in your dataset.

- **Module 5: Modelling data** This module describes how to shape and enhance data. Lessons
  - Relationships
  - DAX queries
  - Calculations and measures
    - ❖ **Lab: Modelling Data**
      - Create relationships
      - Calculations

After completing this module, students will be able to:

- Describe relationships between data tables.
- Understand the DAX syntax, and use DAX functions to enhance your dataset.
- Create calculated columns, calculated tables and measures.

- **Module 6: Interactive Data Visualizations** This module describes how to create and manage interactive data visualizations. Lessons
  - Creating Power BI reports
  - Managing a Power BI solution
    - ❖ **Lab: Creating a Power BI report**
      - Connecting to Power BI data
      - Building Power BI reports
      - Creating a Power BI dashboard

After completing this module, students will be able to:

- Use Power BI desktop to create interactive data visualizations.
- Manage a power BI solution.

➤ **Module 7: Direct Connectivity** This module describes various connectivity options using Power BI. Lessons

- Cloud data
- Connecting to analysis services
  - ❖ **Lab: Direct Connectivity**
    - Direct connectivity from Power BI desktop
    - Direct connectivity from the Power BI service

After completing this module, students will be able to:

- Use Power BI direct connectivity to access data in Azure SQL data warehouse, in addition to big data sources such as Hadoop
- Use Power BI with SQL Server Analysis Services data, including Analysis services models running in multidimensional mode.

➤ **Module 8: Developer API** This module describes the developer API within Power BI. Lessons

- The developer API
- Custom visuals
  - ❖ **Lab: Using the developer API**
    - Using custom visuals

After completing this module, students will be able to:

- Describe the developer API.
- Use the developer API to create custom visuals.

➤ **Module 9: Power BI mobile app** This module describes the Power BI mobile app. Lessons

- The Power BI mobile app
- Using the Power BI mobile app
- Power BI embedded

After completing this module, students will be able to:

- Describe the Power BI mobile app.
- Download and use the Power BI mobile app.
- Describe Power BI embedded and when you would want to use it.

## Prerequisites

Before attending this course, students must have:

- Excellent knowledge of relational databases and reporting.
- Some basic knowledge of data warehouse schema topology (including star and snowflake schemas).
- Some exposure to basic programming constructs (such as looping and branching).

- An awareness of key business priorities such as revenue, profitability, and financial accounting is desirable.
- Familiarity with Microsoft Office applications – particularly Excel.

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