
DP-600T00-A: Microsoft Fabric Analytics Engineer

Overview

This course covers methods and practices for implementing and managing enterprise-scale data analytics solutions using Microsoft Fabric. Students will learn how to use Fabric dataflows, pipelines, and notebooks to develop analytics assets such as semantic models, data warehouses, and lakehouses. This course is designed for experienced data professionals skilled at data preparation, modeling, analysis, and visualization, such as the PL-300: Power BI Data Analyst certification.

Course Duration: 4 Days

Audience Profile

The primary audience for this course is data professionals with experience in data modeling and analytics. DP-600 is designed for professionals who want to use Microsoft Fabric to create and deploy enterprise-scale data analytics solutions. Learners should have prior experience with one of the following programming languages: Structured Query Language (SQL), Kusto Query Language (KQL), or Data Analysis Expressions (DAX).

Course Outline

Module 1: Introduction to end-to-end analytics using Microsoft Fabric

Discover how Microsoft Fabric can meet your enterprise's analytics needs in one platform. Learn about Microsoft Fabric, how it works, and identify how you can use it for your analytics needs.

Lesson

- Describe end-to-end analytics in Microsoft Fabric

Module 2: Get started with lakehouses in Microsoft Fabric

Lakehouses merge data lake storage flexibility with data warehouse analytics. Microsoft Fabric offers a lakehouse solution for comprehensive analytics on a single SaaS platform.

Before starting this module, you should understand fundamental data storage and analytics concepts.

Lesson

- Describe core features and capabilities of lakehouses in Microsoft Fabric.
- Create a lakehouse.
- Ingest data into files and tables in a lakehouse.
- Query lakehouse tables with SQL.

Module 3: Use Apache Spark in Microsoft Fabric

Apache Spark is a core technology for large-scale data analytics. Microsoft Fabric provides support for Spark clusters, enabling you to analyze and process data in a Lakehouse at scale.

Before starting this module, you should be familiar with the Microsoft Fabric interface and core concepts.

Lesson

- Configure Spark in a Microsoft Fabric workspace
- Identify suitable scenarios for Spark notebooks and Spark jobs
- Use Spark dataframes to analyze and transform data
- Use Spark SQL to query data in tables and views
- Visualize data in a Spark notebook.

Module 4: Work with Delta Lake tables in Microsoft Fabric

Tables in a Microsoft Fabric lakehouse are based on the Delta Lake storage format commonly used in Apache Spark. By using the enhanced capabilities of delta tables, you can create advanced analytics solutions.

Before starting this module, you should be familiar with Microsoft Fabric lakehouses and Apache Spark

Lesson

- Understand Delta Lake and delta tables in Microsoft Fabric
- Create and manage delta tables using Spark
- Optimize delta tables
- Use Spark to query and transform data in delta tables
- Use delta tables with Spark structured streaming.

Module 5: *Orchestrate processes and data movement with Microsoft Fabric*

Microsoft Fabric includes Data Factory capabilities, including the ability to create pipelines that orchestrate data ingestion and transformation tasks.

Before starting this module, you should be familiar with Microsoft Fabric and data orchestration.

Lesson

- Describe pipeline capabilities in Microsoft Fabric.
- Use the Copy Data activity in a pipeline.
- Create pipelines based on predefined templates.
- Run and monitor pipelines.

Module 6: Ingest Data with Dataflows Gen2 in Microsoft Fabric

Data ingestion is crucial in analytics. Microsoft Fabric's Data Factory offers Dataflows for visually creating multi-step data ingestion and transformation using Power Query Online.

Before you start this module, you should be familiar with Microsoft Fabric and core data preparation concepts.

Lesson

- Describe Dataflow capabilities in Microsoft Fabric
- Create Dataflow solutions to ingest and transform data
- Include a Dataflow in a pipeline

Module 7: Get started with data warehouses in Microsoft Fabric

Data warehouses are analytical stores built on a relational schema to support SQL queries. Microsoft Fabric enables you to create a relational data warehouse in your workspace and integrate it easily with other elements of your end-to-end analytics solution.

Before starting this module, you should be familiar with the Microsoft Fabric interface and core concepts.

Lesson

- Describe data warehouses in Fabric.
- Understand a data warehouse vs a data Lakehouse.
- Work with data warehouses in Fabric.
- Create and manage fact tables and dimensions within a data warehouse.

Module 8: Get started with Real-Time Intelligence in Microsoft Fabric

Analysis of real-time data streams is a critical capability for any modern data analytics solution. You can use the Real-Time Intelligence capabilities of Microsoft Fabric to ingest, query, and process streams of data.

Before starting this module, you should be familiar with Microsoft Fabric.

Lesson

- Microsoft Fabric includes Real-Time Intelligence capabilities that you can use to capture, analyze, visualize, and act on real-time streams of event data.

Module 9: Get started with data science in Microsoft Fabric

In Microsoft Fabric, data scientists can manage data, notebooks, experiments, and models while easily accessing data from across the organization and collaborating with their fellow data professionals.

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Lesson

- Understand the data science process
- Train models with notebooks in Microsoft Fabric
- Track model training metrics with MLflow and experiments.

Module 10: Administer a Microsoft Fabric environment

Microsoft Fabric is a SaaS solution for end-to-end data analytics. As an administrator, you can configure features and manage access to suit your organization's needs.

Lesson

- Describe Fabric admin tasks
- Navigate the admin center
- Manage user access
- Govern data in Fabric.

Module 11: Get started with data warehouses in Microsoft Fabric

Data warehouses are analytical stores built on a relational schema to support SQL queries. Microsoft Fabric enables you to create a relational data warehouse in your workspace and integrate it easily with other elements of your end-to-end analytics solution.

Before starting this module, you should be familiar with the Microsoft Fabric interface and core concepts.

Lesson

- Describe data warehouses in Fabric.
- Understand a data warehouse vs a data Lakehouse.
- Work with data warehouses in Fabric.
- Create and manage fact tables and dimensions within a data warehouse.

Module 12: Load data into a Microsoft Fabric data warehouse

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Before starting this module, you should be familiar with the basic principles of a data warehouse.

Lesson

- Learn different strategies to load data into a data warehouse in Microsoft Fabric.
- Learn how to build a data pipeline to load a warehouse in Microsoft Fabric.
- Learn how to load data in a warehouse using T-SQL.
- Learn how to load and transform data with dataflow (Gen 2).

Module 13: Query a data warehouse in Microsoft Fabric

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Before starting this module, you should be familiar with the basic principles of data warehousing

Lesson

- Use SQL query editor to query a data warehouse.
- Explore how visual query editor works.
- Learn how to connect and query a data warehouse using SQL Server Management Studio.

Module 14: Monitor a Microsoft Fabric data warehouse

A data warehouse is a vital component of an enterprise analytics solution. It's important to learn how to monitor a data warehouse so you can better understand the activity that occurs in it.

Before starting this module, you should be familiar with Microsoft Fabric and Transact-SQL.

Lesson

- Monitor capacity unit usage with the Microsoft Fabric Capacity Metrics app.
- Monitor current activity in the data warehouse with dynamic management views.
- Monitor querying trends with query insights views.

Module 15: Secure a Microsoft Fabric data warehouse

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Before starting this module, you should be familiar with the Microsoft Fabric interface and core concepts.

Lesson

- Learn the concepts of securing a data warehouse in Microsoft Fabric.
- Learn how to implement dynamic data masking to obscure sensitive information.
- Learn how to configure row-level security to provide granular control.
- Learn how to implement column-level security to protect sensitive data.
- Learn how to configure granular permissions using T-SQL.

Module 16: Add measures to Power BI Desktop models

In this module, you'll learn how to work with implicit and explicit measures. You'll start by creating simple measures, which summarize a single column or table. Then, you'll create more complex measures based on other measures in the model. Additionally, you'll learn about the similarities of, and differences between, a calculated column and a measure.

Lesson

- Determine when to use implicit and explicit measures.
- Create simple measures.
- Create compound measures.
- Create quick measures.
- Describe similarities of, and differences between, a calculated column and a measure.

Module 17: Design scalable semantic models

Good modeling practices lead to scalable semantic models that simplify analysis and reporting of large, complex data, enhancing Power BI reports for an optimal user experience

Lesson

- Choose appropriate storage modes for your semantic model.
- Enable large semantic model storage format and incremental refresh.
- Create relationships between tables in a semantic model.
- Design dynamic elements to extend calculations in a semantic model.

Module 18: Optimize a model for performance in Power BI

Performance optimization, also known as performance tuning, involves making changes to the current state of the semantic model so that it runs more efficiently. Essentially, when your semantic model is optimized, it performs better..

Lesson

- Review the performance of measures, relationships, and visuals.
- Use variables to improve performance and troubleshooting.
- Improve performance by reducing cardinality levels.
- Optimize DirectQuery models with table level storage.
- Create and manage aggregations.

Module 19: Create and manage Power BI assets

Create Power BI assets for your analytics environment for structure and consistency, such as Power BI template and project files. Reusable assets and using the XMLA endpoint support application lifecycle management, including continuous integration and deployment.

Lesson

- Create core and specialized semantic models.
- Create Power BI Template and Power BI Project files.
- Use lineage view and endorse data assets in Power BI service.
- Use XMLA endpoint to connect semantic models.

Module 20 Enforce Power BI model security

Enforce model security in Power BI using row-level security and object-level security.

Lesson

- Restrict access to Power BI model data with RLS.
- Restrict access to Power BI model objects with OLS.
- Apply good development practices to enforce Power BI model security.

Module 21: Administer a Microsoft Fabric environment

Microsoft Fabric is a SaaS solution for end-to-end data analytics. As an administrator, you can configure features and manage access to suit your organization's needs.

Lesson

- Describe Fabric admin tasks
- Navigate the admin center
- Manage user access
- Govern data in Fabric.

Module 22: Secure data access in Microsoft Fabric

Microsoft Fabric uses a multi-layer security model with access controls at different levels.

Lesson

- Describe the permissions model in Microsoft Fabric.
- Configure workspace and item permissions.
- Apply granular permissions.

Module 23: Secure a Microsoft Fabric data warehouse

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Lesson

- Learn the concepts of securing a data warehouse in Microsoft Fabric.
- Learn how to implement dynamic data masking to obscure sensitive information.
- Learn how to configure row-level security to provide granular control.
- Learn how to implement column-level security to protect sensitive data.
- Learn how to configure granular permissions using T-SQL.

Module 24: Govern data in Microsoft Fabric with Purview

Learn how Microsoft Purview enables the highest level of data governance for your Microsoft Fabric data lakes. Ensure that data is both tightly controlled and highly available for compliant analysis.

Lesson

- Describe the data governance features Microsoft Fabric includes before adding Microsoft Purview.
- Justify the addition of Microsoft Purview for robust data governance and protection.
- Connect Microsoft Purview to Microsoft Fabric.
- Investigate Microsoft Fabric data in the Microsoft Purview hub.

Prerequisites

- You should be familiar with basic data concepts and terminology