MS-DP604T00: IMPLEMENT A DATA SCIENCE AND MACHINE LEARNING SOLUTION FOR AI IN MICROSOFT FABRIC

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
1 Day	Beginner	Azure Data	Instructor-led	NA

INTRODUCTION

In this learning path, Explore the data science process and learn how to train machine learning models to accomplish artificial intelligence in Microsoft Fabric.

AUDIENCE PROFILE

- Data Scientists: Professionals who want to perform the complete data science process, including managing data, notebooks, experiments, and models.
- Data Analysts: Individuals who analyse data and need to understand how to preprocess, explore, and visualize data for machine learning.
- Data Engineers: Those responsible for building and maintaining data pipelines and ensuring data quality for machine learning models.
- Developers: Developers looking to integrate machine learning solutions with other applications and services.
- IT Professionals: People who manage and implement AI and machine learning solutions within their organizations.

PREREQUISITES

- You should be familiar with basic data concepts and terminology.

COURSE OBJECTIVES

- Get started with data science in Microsoft Fabric: Understand the data science process and how to manage data, notebooks, experiments, and models within Microsoft Fabric.
- Explore data for data science with notebooks: Use notebooks in Microsoft Fabric to explore and analyse data, uncovering patterns and relationships.
- Preprocess data with Data Wrangler: Learn to clean data, handle missing values, and transform features to prepare data for machine learning models.
- Train and track machine learning models with MLflow: Train models in notebooks, track experiments, and manage models using MLflow.
- Generate batch predictions using a deployed model: Deploy machine learning models and use them to generate batch predictions, enriching your data.

COURSE CONTENT

Module 1: 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.

Lessons

- Introduction.
- Understand the data science process.
- Explore and process data with Microsoft Fabric.
- Train and score models with Microsoft Fabric.
- Exercise - Explore data science in Microsoft Fabric.
- Knowledge check.

By the end of this module, you'll be able to:

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

Module 2: Explore data for data science with notebooks in Microsoft Fabric

Microsoft Fabric notebooks serve as a comprehensive tool for data exploration, enabling users to uncover hidden patterns and relationships in their datasets.

Lessons

- Introduction.
- Explore notebooks.
- Load data for exploration.
- Understand data distribution.
- Check for missing data in notebooks.
- Apply advanced data exploration techniques.
- Visualize charts in notebooks.
- Exercise: Use notebook for data exploration in Microsoft Fabric.
- Knowledge check.

By the end of this module, you'll be able to:

- Load data and perform initial data exploration.
- Gain knowledge about different types of data distributions.
- Understand the concept of missing data, and strategies to handle missing data effectively.
- Visualize data using various data visualization techniques and libraries.

Module 3: Preprocess data with Data Wrangler in Microsoft Fabric

Data Wrangler serves as a comprehensive tool for preprocessing data. It enables users to clean data, handle missing values, and transform features to build machine learning models.

Lessons

- Introduction.
- Understand Data Wrangler.
- Perform data exploration.
- Handle missing data.
- Transform data with operators.
- Exercise: Preprocess data with Data Wrangler in Microsoft Fabric.
- Knowledge check.

By the end of this module, you'll be able to:

- Learn Data Wrangler features, and its role in the data science workflow.
- Perform different types of preprocessing operations in data science.
- Learn how to handle missing values, and imputation strategies.
- Use one-hot encoding and other techniques to convert categorical data into a format suitable for machine learning algorithms.

Module 4: Train and track machine learning models with MLflow in Microsoft Fabric

In Microsoft Fabric, data scientists can train models in notebooks, track their work in experiments, and manage their models with MLflow.

Lessons

- Introduction.
- Understand how to train machine learning models.
- Train and track models with MLflow and experiments.
- Manage models in Microsoft Fabric.
- Exercise - Train and track a model in Microsoft Fabric.
- Knowledge check.

By the end of this module, you'll be able to:

- Train machine learning models with open-source frameworks.
- Train models with notebooks in Microsoft Fabric.
- Track model training metrics with MLflow and experiments in Microsoft Fabric.

Module 5: Generate batch predictions using a deployed model in Microsoft Fabric

Save and use your machine learning models in Microsoft Fabric to generate batch predictions and enrich your data.

Lessons

- Introduction.
- Customize the model's behaviour for batch scoring.
- Prepare data before generating predictions.
- Generate and save predictions to a Delta table.
- Exercise - Generate and save batch predictions.
- Knowledge check.

By the end of this module, you'll be able to:

- Save a model in the Microsoft Fabric workspace.
- Prepare a dataset for batch predictions.
- Apply the model to dataset to generate new predictions.
- Save the predictions to a Delta table.

ASSOCIATED CERTIFICATIONS & EXAM

There is no Associated Certification & Exam for this course, however, there is a learning path for this course. (Assessment Link)