# Implementing a Machine Learning solution with Azure Databricks

Course DP-3014 1 Days Instructor-led, Hands-on

## Introduction

Azure Databricks is a cloud-scale platform for data analytics and machine learning. Data scientists and machine learning engineers can use Azure Databricks to implement machine learning solutions at scale.

## At Course Completion

Upon successful completion of this course, students will have the following skills and knowledge:

- Explore Azure Databricks
- Use Apache Spark in Azure Databricks
- Train a machine learning model in Azure Databricks
- Use MLflow in Azure Databricks
- Tune hyperparameters in Azure Databricks
- Use AutoML in Azure Databricks
- Train deep learning models in Azure Databricks

## Prerequisites

This learning path assumes that you have experience of using Python to explore data and train machine learning models with common open-source frameworks, like Scikit-Learn, PyTorch, and TensorFlow.

## Outline

### Module 1: Explore Azure Databricks

- Get started with Azure Databricks
- Identify Azure Databricks workloads
- Understand key concepts

### Module 2: Use Apache Spark in Azure Databricks

- Get to know Spark
- Create a Spark cluster
- Use Spark in notebooks
- Use Spark to work with data files
- Visualize data

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## Module 3: Train a machine learning model in Azure Databricks

- Understand principles of machine learning
- Machine learning in Azure Databricks
- Prepare data for machine learning
- Train a machine learning model
- Evaluate a machine learning model

## Module 4: Use MLflow in Azure Databricks

- Capabilities of MLflow
- Run experiments with MLflow
- Register and serve models with MLflow

## Module 5: Tune hyperparameters in Azure Databricks

- Optimize hyperparameters with Hyperopt
- Review Hyperopt trials
- Scale Hyperopt trials

## Module 6: Use AutoML in Azure Databricks

- What is AutoML?
- Use AutoML in the Azure Databricks user interface
- Use code to run an AutoML experiment

## Module 7: Train deep learning models in Azure Databricks

- Understand deep learning concepts
- Train models with PyTorch
- Distribute PyTorch training with Horovod