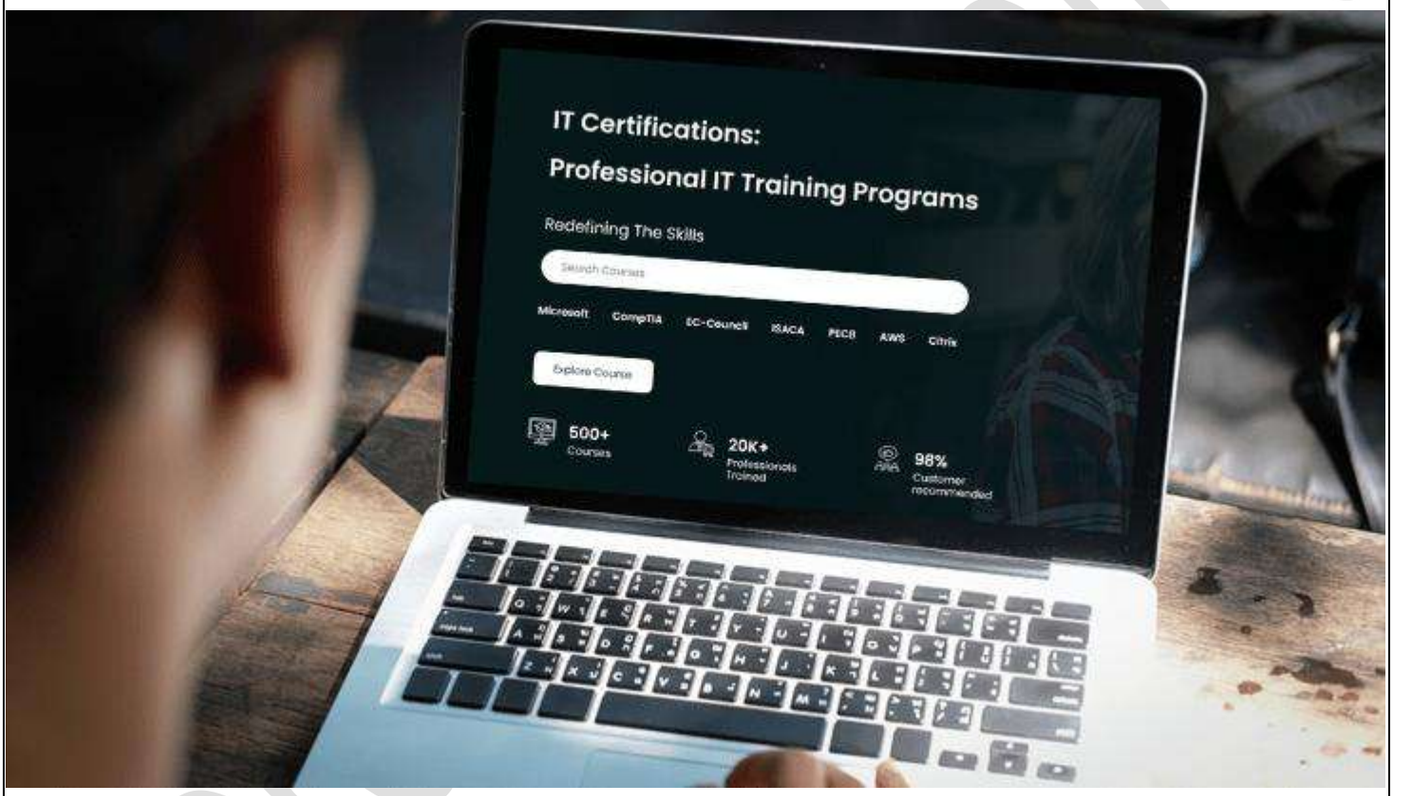
MICROTEK LEARNING | Redefining The Skills



DP-100T01: DESIGNING AND IMPLEMENTING A DATA SCIENCE SOLUTION ON AZURE TRAINING

Duration: 3 Days

Course Description

DP-100T01: Designing and Implementing a Data Science Solution on Azure Training teaches is focused on proving skills in working with machine learning solutions at the cloud scale. This technical course enhances and supports professionals' current knowledge of machine learning and Python. Further, using this upgrade for managing data preparations and machine learning solutions with Microsoft Azure.

This course consists of an in-depth understanding of concepts from Data preparation, and model training to management. Throughout the course, participants will be engaging in hands-on labs that include creating Azure Machine Learning workspace, workflows, and pipelines.

Our enterprise training program is best for organizations and companies. Its prominent focus is on automation, management, and monitoring of machine learning by using Azure Learning Service.

This training program is ideal for data scientists with experience in machine learning frameworks and python, who want to develop and work with machine learning solutions in the cloud.

Who should attend this course?

- Data Scientists who are experienced in Python and have an understanding of how machine learning works. This can include TensorFlow, PyTorch, and Scikit-Learn.
- These experienced professionals who are willing to create and manage machine learning solutions in the cloud.
- Given below are professionals who can use Designing and Implementing a Data Science Solution on Azure Training to upskill their current positions:
    - Data Scientist
    - AI Engineers
    - DevOps Engineers
    - Software Developers
    - Machine Learning Engineers
    - IT professionals
    - Cloud Solution Architects
    - Technical Team Leads

What you will learn

- Doing Data Science on Azure
- Doing Data Science with Azure Machine Learning service
- Automating Machine Learning with Azure Machine Learning service
- Managing and Monitoring Machine Learning Models with the Azure Machine Learning service
- Exploring and configuring machine learning workspace
- Optimizing model training with Azure Machine Learning
- Deploy and consumer models with Azure Machine Learning

Prerequisites

- One should have a fundamental knowledge of Microsoft Azure
- One should understand the basics of data science and machine learning concepts
- Familiarity with common science processes which include data exploration, feature engineering, model training, and evaluation.
- Required experience with Python programming

- Basic fundamental knowledge of cloud computing fundamentals, specifically with Microsoft Azure ecosystem

Curriculum

Module 1: Design a machine learning solution

- Design a data ingestion strategy for machine learning projects
  - Identify your data source and format
  - Choose how to serve data to machine learning workflows
  - Design a data ingestion solution
- Design a machine learning model training solution
  - Identify machine learning tasks
  - Choose a service to train a model
  - Choose between compute options
- Design a model deployment solution
  - Understand how a model will be consumed.
  - Decide whether to deploy your model to a real-time or batch endpoint.
- Design a machine learning operations solution
  - Explore an MLOps architecture.
  - Design for monitoring.
  - Design for retraining.

Module 2: Explore and configure the Azure Machine Learning workspace

- Explore Azure Machine Learning workspace resources and assets
  - Create an Azure Machine Learning workspace.
  - Identify resources and assets.
  - Train models in the workspace.
- Explore developer tools for workspace interaction
  - The Azure Machine Learning studio.
  - The Python Software Development Kit (SDK).
  - The Azure Command Line Interface (CLI).
- Make data available in Azure Machine Learning
  - Access data by using Uniform Resource Identifiers (URIs).
  - Connect to cloud data sources with datastores.
  - Use data asset to access specific files or folders.
- Work with compute targets in Azure Machine Learning
  - Choose the appropriate compute target.
  - Work with compute instances and clusters.
  - Manage installed packages with environments.
- Work with environments in Azure Machine Learning
  - Understand environments in Azure Machine Learning.
  - Explore and use curated environments.
  - Create and use custom environments.

Module 3: Experiment with Azure Machine Learning

- Find the best classification model with Automated Machine Learning
  - Prepare your data to use AutoML for classification.
  - Configure and run an AutoML experiment.
  - Evaluate and compare models.

- Track model training in Jupyter notebooks with MLflow
    - Configure to use MLflow in notebooks
    - Use MLflow for model tracking in notebooks

Module 4: Optimize model training with Azure Machine Learning

- Run a training script as a command job in Azure Machine Learning
    - Convert a notebook to a script.
    - Test scripts in a terminal.
    - Run a script as a command job.
    - Use parameters in a command job.
- Track model training with MLflow in jobs
    - Use MLflow when you run a script as a job.
    - Review metrics, parameters, artifacts, and models from a run.
- Perform hyperparameter tuning with Azure Machine Learning
    - Define a hyperparameter search space.
    - Configure hyperparameter sampling.
    - Select an early-termination policy.
    - Run a sweep job.
- Run pipelines in Azure Machine Learning
    - Create components.
    - Build an Azure Machine Learning pipeline.
    - Run an Azure Machine Learning pipeline.

Module 5: Manage and review models in Azure Machine Learning

- Register an MLflow model in Azure Machine Learning
    - Log models with MLflow.
    - Understand the MLmodel format.
    - Register an MLflow model in Azure Machine Learning.
- Create and explore the Responsible AI dashboard for a model in Azure Machine Learning
    - Understand Azure Machine Learning's built-in components for responsible AI.
    - Create a Responsible AI dashboard.
    - Explore a Responsible AI dashboard.

Module 6: Deploy and consume models with Azure Machine Learning

- Deploy a model to a managed online endpoint
    - Use managed online endpoints.
    - Deploy your MLflow model to a managed online endpoint.
    - Deploy a custom model to a managed online endpoint.
    - Test online endpoints.
- Deploy a model to a batch endpoint
    - Create a batch endpoint.
    - Deploy your MLflow model to a batch endpoint.
    - Deploy a custom model to a batch endpoint.
    - Invoke batch endpoints.