CDW Documentation

ml_lab_-3

Hands-on Lab 3: Build a Complete ML Pipeline Using AutoML and Designer Objective In this lab, you will:

Use Azure Machine Learning Designer for a visual ML pipeline

Build and evaluate a model using AutoML

Compare both methods

Deploy the best model

 Prerequisites An active Azure subscription

Azure Machine Learning Workspace already created

Compute instance and compute cluster set up

A basic dataset (e.g., Titanic, Diabetes, or Bank Marketing)

⚙ PART 1: Create a Dataset in Azure ML Go to Azure ML Studio

Navigate to “Data” > + Create

Choose “From local files” or “Web URL” and upload your dataset (e.g., diabetes.csv)

Set type: Tabular

Choose your default datastore

Confirm schema and create the dataset

 PART 2: AutoML Pipeline Step 1: Launch AutoML In the Azure ML Studio, go to “Automated ML”

Click + New Automated ML run

Select your uploaded dataset

Select or create a new experiment

Choose a compute cluster

 Step 2: Configure AutoML Task type: Choose (e.g., Classification if using Titanic)

Target column: e.g., Survived

Accept default preprocessing

Set Exit criteria (e.g., 1 hour or 20 iterations)

▶ Step 3: Start Run Click Start

Wait for the experiment to finish (AutoML will try many algorithms and preprocessing pipelines)

 PART 3: Build the Same Model Using Designer Step 1: Open Designer In Azure ML Studio, go to “Designer”

Click + New pipeline

 Step 2: Drag Components From the left panel, drag the following:

Dataset (your uploaded dataset)

Select Columns in Dataset

Clean Missing Data (optional)

Split Data

Train Model

Score Model

Evaluate Model

Connect components in this order:

mathematica Copy Edit Dataset → Select Columns → Clean Missing → Split Split → Train Model (also needs Label column) Train → Score → Evaluate Choose a built-in algorithm from “Model” tab, e.g., Logistic Regression.

 Step 3: Configure Parameters In Train Model, choose the label column

In Split Data, use 0.7/0.3 ratio

Select scoring metric: e.g., accuracy

▶ Step 4: Submit Job Select compute target

Click Submit

Wait for job to finish

View metrics in Evaluate Model

 PART 4: Register and Deploy the Best Model From AutoML results or Designer output, click “Register Model”

Go to “Models” tab in left nav

Click your registered model → Deploy

Choose Real-time endpoint

Select compute type (e.g., Azure Kubernetes Service or Managed Online Endpoint)

Add sample input data for testing

 PART 5: Compare & Document Method Accuracy Time Model Name AutoML 0.89 25m AutoML_001 Designer 0.85 10m Logistic_001

 Deliverables A completed visual pipeline in Designer An AutoML experiment with leaderboard

A registered and deployed model A short report comparing the two methods

 Cleanup Delete compute cluster if no longer needed

Delete endpoints to avoid charges