Microsoft

Machine Learning in a Day

Hands-On Azure Workshop Series

About Azure Labs

Azure Hands-On Labs

Microsoft Azure Labs is a hands-on community development experience offered to select customers that have some Azure workload experience and are committed to using Azure as a strategic platform. The aim of the Cloud Workshop event is to enable Azure community development and expand knowledge of the Azure services through a hands-on community activity.

Value for you

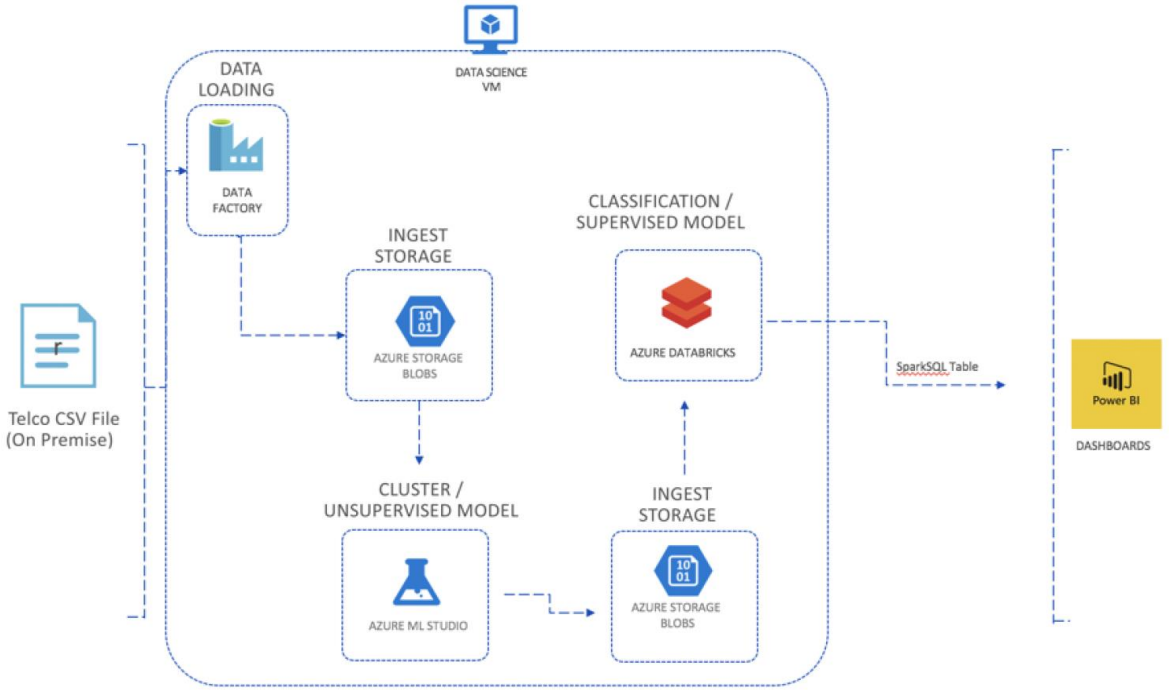
- Knowledge of best practices with Azure deployment
- Understand the value of the Microsoft Azure
- Collaborate with Microsoft to further develop your own enterprise-class Azure solutions
- Architect relevant Azure solutions and design for your own platform

Lab Scenario 1 – Machine Learning in Azure

In this workshop we will be looking at operationalizing a Machine Learning use case. The use case involves completing Machine Learning model to predict travel delays given flight delay data and weather conditions and calling it from an application like Excel and Power BI.

This would involve uploading sample data into a data store in Azure, preparing the data for Machine learning, and then waking through the Data Science process that includes use of Azure tools like Azure Databricks and Azure ML Studio.

Workshop Architecture



Lab Agenda

TIME	AGENDA ITEM	DETAILS
10 Min	**Intro & Set Up**	• Team introductions • Azure Set Up • Test connectivity
30 Min	**Getting Started**	• Machine Learning 101 • Machine Learning offerings @ Microsoft • Overview of Dataset for the Lab
30 Min	**Deploy Data Science VMs**	• Create a Resource Group to contain DSVM and all products and services deployed in this lab (DSVM can be deployed pre-lab to save time)
30 min	**Preparing the Data**	• Downloading Churn CSV dataset • Create a blob storage container • Upload Churn CSV dataset to blob container with Azure Data Factory V2
60 Min	**Clustering Model in AML Studio**	• Import dataset from Blob to AML Studio • Create a clustering model • Export clustered dataset back to blob storage container
60 min	**Azure Databricks Pipeline Configuration**	• Create an Azure Databricks workspace • Create an Azure Databricks cluster • Create an Azure Databricks notebook and import and read new dataset with a cluster from blob storage container into a spark Dataframe
90 min	**Machine Learning - Classification model in Azure Databricks**	• Feature Engineering and Transformation of Dataset for Machine Learning • Training and Testing split of Dataset for evaluation purposes • Build a logistic regression model with pyspark to identify churn • Train and fit logistic regression pipeline on the training dataset • Use predicted results to evaluate accuracy against the test dataset
50 min	**View for Consumption with Power BI**	• Register a view of the scored dataset for outside access from Databricks • Connect Power BI to Spark View • Create visualization on top of view to visualize retention rates of customers who have and have not been predicted to churn

Lab Pre - Requisites

- Each participant needs to have an organization enabled Azure Subscription
- Requisite ports enable to access Azure from your laptop/desktop
- Please speak with your internal IT to enable Azure access and ports
- Remote desktop capabilities from your laptop
- Azure Data Bricks needs to be provisioned
- Azure ML Experimentation Service set up
- See instructions
- Power BI Pro account
- Modern browser e.g. Edge, Chrome, Firefox
- Sample dataset will be provided by Microsoft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