



Azure Data scientist Associate DP100

Description:

Through this course, candidates for the Azure Data Scientist Associate certification should will be able to implement and execute machine learning workloads on Azure using data science and machine learning abilities.

Start Date:

Doubt Clear Time:

Course Time:

Features:

- # Roadmap
- # Real-Time implementation
- # ML/DL model testing and monitoring
- # Scenario-based questions
- # Challenges

Downloadable resources

Quizzes

Completion Certificate

What we learn:

Learn basics of Python programming language

How to make models and implement solutions for Azure ML Platform

Tackle the Microsoft DP-100 Microsoft Azure Machine Learning test

Be up-to-date on the latest updates of this ever-changing platform

Requirements:

No prior knowledge in programming as well as cloud

Zero-knowledge of Azure portal

Azure free or paid account

A system with internet connection

Your dedication

Instructor:

Name:

MD Imran

Description:

Working as Data Scientist with experience in solving real world business problems across different domains.

>Course introduction:

>>Introduction to Course

>>Create Your Free Azure Account

>Basics of Machine Learning:

>>Machine Learning part 1

>>Machine Learning part 2

>>Types of Machine Learning

>>Walkthrough of Azure ML

>Basic statistics:

>>Statistics part 1

>>Statistics part 2

>>Statistics part 3

>>Statistics part 4

>>Statistics part 5

>Getting started with Azure ML:

>>What is Azure ML studio

>>Overview of Azure ML studio

>>Azure ML experiment workflow

>Data processing:

>>How to upload data

>>How to import data

>>Add rows/columns and remove duplicates

>>Add Rows/Columns and Remove duplicates

>>Apply SQL Transformation,Clean Missing Data

>>Sample and data partition

>>Split data

>Classification:

>>Different classification algorithms

>>What is logistic regression

>>Hands-On - Logistic regression part 1

>>Hands-On - Logistic regression part 2

>>Logistic regression - Understand parameters and their impact

>>Confusion matrix, AUC, accuracy etc

>>Logistic regression model selection and impact analysis

>>Demo on Logistic regression part 1

>>Demo on Logistic regression part 2

>>What is Decision tree

>>What is Bagging and Boosting ?

>>Two class boosted Decision tree

>>Demo on two class boosted Decision tree

>>Decision forest parameters explained

>>Demo on two class Decision forest

>>Demo multi-class Decision forest IRIS data

>>What is SVM ?

>>Demo on SVM part 1

>>Demo on SVM part 2

>Hyperparameter tuning:

>>What is hyperparameter tuning

>>Demo on hyperparameter tuning

>Deploy webservice:

>>Azure ML webservice-prepare the experiment for webservice

>>Demo Deploy Machine Learning Model as a web service

>>Demo - use the web service example of excel

>Regression Analysis:

>>What is Linear regression

>>Regression analysis comma metrics

>>Demo linear regression using OLS

>>R squared

>>Gradient descent

>>Online gradient descent

>>Demo online gradient

>>What is a regression tree

>>What is boosted decision tree

>>Demo boosted decision tree part 1

>>Demo boosted decision tree part 2

>Clustering:

>>What is cluster analysis theory

>>What is cluster analysis

>>Demo on cluster analysis part 1

>>Demo on cluster analysis part 2

>Hands-on data processing:

>>How to Summarize Data

>>Demo on summarizing data

>>What is outliers and outlier treatment

>>Demo on outliers

>>Cleaning missing data with MICE

>>Hands-on cleaning missing data with MICE

>>SMOTE- create new synthetic observations

>>Demo on SMOTE

>>Data normalization - scale and reduce

>>Demo on data normalization

>>What is PCA

>>Demo on PCA

>>Join data

>>Demo on join data

>Feature selection:

>>Feature selection

>>Pearson correlation coefficient

>>Chi-Square test of independence

>>Kendall correlation coefficient

>>Spearman rank correlation

>>Demo on filter based selection

>>Fisher based LDA

>>Demo on LDA

>Recommendation system:

>>What is recommendation

>>Data preparation using recommender split

>>What is matchbox recommender

>>How to score the matchbox recommender

>>Restaurant recommendation experiment

>>Understanding the matchbox recommendation results

>Text analytics and Natural

language Processing:

>>What is text analytics and Natural Language Processing

>>Text pre-processing

>>Bag of words and n-gram models for text features

>>Feature hashing

>>Demo on text analytics

>About DP certification exam:

>>Exam curriculum discussion

>Azure Machine learning with Studio Designer:

>>What this section covers for topics

>Set up Azure Machine Learning Workspace:

>>Azure ML service architecture

>>Create the Azure ML workspace

>>View and manage workspace

>>Overview of new Azure ML studio

>>What is Azure ML datastore and dataset

>>Create and register a datastore

>>How to create dataset

>>Understanding the Azure ML compute resources

>>Create a compute cluster and compute instance

>Train models and Azure pipeline:

>>What is the Azure ML pipeline

>>Create a pipeline using Azure ML designer

>>Submit the designer pipeline run

>>Create an inference pipeline

>Deploy and consume the models:

- >>Deploy a real-time endpoint using designer
- >>Create a batch inference pipeline
- >>Run a batch inference pipeline from designer

>Pandas and scikit learn in designer/classic studio:

- >>Pandas - import data from experiments
- >>Selecting columns using pandas
- >>Clean missing data
- >>Edit metadata of columns using pandas
- >>Summary statistics of data
- >>Remove outliers
- >>Covert and save a delimited file using pandas
- >>Data normalization
- >>Label encoding of categorical string data
- >>What is encoding
- >>Hot encoding using pandas get_dummies
- >>Split the data for training and testing
- >>Build logistic regression using python part 1
- >>Build logistic regression using python part 2

>Azure machine learning with

Azure ML SDK:

>>Introduction to Azure ML SDK

>DP 100 set up Azure Machine

Learning workspace:

>>Create Azure ML workspace using SDK

>>Verify the workspace and write the workspace config file

>>Create and register a datastore using Azure ML SDK

>>Create and register a dataset using SDK

>>Access workspace, datastore and datasets using SDK

>>Pandas dataframe and Azure ML dataset conversions

>>Upload local data to storage account via datastore

>DP 100 run and experiments

and train models:

>>Problem statement - run a sample experiment and log values

>>Run a sample experiment using Azure ML SDK - part 1

>>Run a sample experiment using Azure ML SDK - part 2

>>Run a script in Azure ML environment - part 1

>>Run a script in Azure ML environment - part 2

>>Run a script in Azure ML environment - part 3

>>Run a script in Azure ML environment - part 4

>>Run a script in Azure ML environment - part 5

- >>Train and run a model script in Azure ML part 1
- >>Train and run a model script in Azure ML part 2
- >>Train and run a model script in Azure ML part 3
- >>Train and run a model script in Azure ML part 4
- >>Train and run a model script in Azure ML part 5
- >>Provisioning compute cluster using SDK
- >>Automate model training using Azure ML SDK
- >>Automate model training - define pipeline steps
- >>Automate model training - define run configuration
- >>Automate model training - define build and run
- >>Detour - command line arguments
- >>Automate model training - create dataprep step
- >>Automate model training - create training step
- >>Run the pipeline and see the results

>Python scripts in Azure ML

designer:

- >>Simple python script in designer
- >>Execute python script using zip bundle
- >>Execute python script using zip bundle - hands-on

>Azure AutoML:

- >>What is Azure AutoML?
- >>Use the automated ML interface in Azure Machine Learning studio

>>View the AutoML run result

>>Use automated ML from the Azure Machine Learning SDK

>>Retrieve the best model and view results

>Azure hyperdrive:

>>Introduction to Azure hyperdrive

>>Define the hyperparameter search space

>>Select a sampling method

>>Define early termination options

>>Configure the hyperdrive run

>>Create the training script for hyperdrive run

>>Retrieve the best model

>Model explainers to interpret models:

>>Why is model explanation necessary?

>>Understanding shapley value

>>Interpretability techniques in Azure

>>Implement interpretability - initial set-up

>>Implement interpretability - global explanations

>>Implement interpretability - local explanations part 1

>>Implement interpretability - local explanations part 2

>>Run interpret model script in Azure workspace

>>Visualize explanations in Azure ML studio

>>Retrieve/Download feature importance values.

>Model registration and deployment using Azure ML SDK:

>>Model deployment steps

>>Understanding model/object serialization

>>Hands-on - serialization using joblib

>>Handling onehotencoding/dummy values in production

>>Hands-on - dummy variables in production

>>Train the model for web service deployment

>>Register the model using run_id

>>Register the model using a local.pkl file

>>Retrieve all the registered models from the workspace

>>Provisioning AKS production cluster using SDK

>>Create the inference and deployment configuration for webservice

>>Entry script - init function

>>Understanding data processing using JSON, dictionary and dataframe

>>Entry script - run function

>>Create web services deployment object

>>Deploy a real-time endpoint using SDK

>>Consume the web service from Python program

>>Consume the web service as an end point.

>Databricks with Azure ML:

- >>Databricks with Azure ML
- >>Databricks update to DP-100
- >>(Optional) what is Big data?
- >>(Optional) what is Hadoop?
- >>Create an Azure databricks workspace
- >>Note on deleting databricks resource in Azure portal
- >>Note on increasing vCPU quota limits
- >>Create an Azure databricks cluster
- >>Create an Azure databricks cluster
- >>Link Azure ML workspace with the databricks workspace
- >>Create and run notebooks in Azure databricks part-1
- >>Create and run notebooks in Azure databricks part-2
- >>Mount blob storage to databricks using duties part-1
- >>Mount blob storage to databricks using duties part-2
- >>Run a sklearn experiment with databricks notebook
- >>Overview to run a training script using databricksstep in a pipeline
- >>Saving data to Azure blob storage from databricks
- >>Passing parameters between Azure databricks notebooks
- >>Attach a databricks cluster as an attached computer target
- >>Verify databricks cluster as attached compute
- >>Databricks pipeline - initial set-up
- >>Databricks pipeline - build databricksstep
- >>Databricks pipeline - databricks and Python notebook

>>Databricks pipeline - submit the pipeline and verify the output

>Azure fundamentals:

>>Azure storage services

>>Azure virtual machine

>>Azure network resources

>Product overview:

>>Product overview

>Python basics:

>>An important note

>>Install Anaconda

>>Hello world and know your environment

>>Python identifiers and reserved words

>>What are variable and variable types

>>Basic operators

>>Decision making

>>Python loops

>>Python numbers

>>Python list

>>Python tuple

>>Python string

>>Python sets

>>Python dictionary

>>Python functions

>>Python arguments

>>Object-Oriented programming

>>Packages and modules in python