



Practical Data Science with Amazon SageMaker

Duration: 1 Day **Course Code: GK0630** **Version: 1.0**

Overview:

In this intermediate-level course, individuals learn how to solve a real-world use case with Machine Learning (ML) and produce actionable results using Amazon SageMaker. This course walks through the stages of a typical data science process for Machine Learning from analyzing and visualizing a dataset to preparing the data, and feature engineering. Individuals will also learn practical aspects of model building, training, tuning, and deployment with Amazon SageMaker. Real life use cases include customer retention analysis to inform customer loyalty programs.

Target Audience:

This course is intended for: Developers Data Scientists

Objectives:

- In this course, you will learn how to:
 - Prepare a dataset for training
 - Train and evaluate a Machine Learning model
 - Automatically tune a Machine Learning model
 - Prepare a Machine Learning model for production
 - Think critically about Machine Learning model results
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Prerequisites:

- Familiarity with Python programming language
 - Basic understanding of Machine Learning
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Content:

Day One

Module 1: Introduction to Machine Learning

- Types of ML
- Job Roles in ML
- Steps in the ML pipeline

Module 2: Introduction to Data Prep and SageMaker

- Training and Test dataset defined
- Introduction to SageMaker
- Demo: SageMaker console
- Demo: Launching a Jupyter notebook

Module 3: Problem formulation and Dataset Preparation

- Business Challenge: Customer churn
- Review Customer churn dataset

Module 4: Data Analysis and Visualization

- Demo: Loading and Visualizing your dataset
- Exercise 1: Relating features to target variables
- Exercise 2: Relationships between attributes
- Demo: Cleaning the data

Module 5: Training and Evaluating a Model

- Types of Algorithms
- XGBoost and SageMaker
- Demo 5: Training the data
- Exercise 3: Finishing the Estimator definition
- Exercise 4: Setting hyperparameters
- Exercise 5: Deploying the model
- Demo: Hyperparameter tuning with SageMaker
- Demo: Evaluating Model Performance

Module 6: Automatically Tune a Model

- Automatic hyperparameter tuning with SageMaker
- Exercises 6-9: Tuning Jobs

Module 7: Deployment / Production Readiness

- Deploying a model to an endpoint
- A/B deployment for testing
- Auto Scaling
- Demo: Configure and Test Autoscaling
- Demo: Check Hyperparameter tuning job
- Demo: AWS Autoscaling
- Exercise 10-11: Set up AWS Autoscaling
- Cost of various error types
- Demo: Binary Classification cutoff

Module 9: Amazon SageMaker Architecture and features

- Accessing Amazon SageMaker notebooks in a VPC
- Amazon SageMaker batch transforms
- Amazon SageMaker Ground Truth
- Amazon SageMaker Neo

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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