Contact:
Info@silverlake.sg
+65 - 65882456

The Machine Learning Pipeline on AWS

Course#:aws-ml
Duration:4 Days
Price:0.00

Course Description

This course explores how to use the machine learning (ML) pipeline to solve a real business problem in a project-based learning environment. Students will learn about each phase of the pipeline from instructor presentations and demonstrations and then apply that knowledge to complete a project solving one of three business problems: fraud detection, recommendation engines, or flight delays. By the end of the course, students will have successfully built, trained, evaluated, tuned, and deployed an ML model using Amazon SageMaker that solves their selected business problem.

Objectives

In this course, you will learn to:

- Select and justify the appropriate ML approach for a given business problem
- Use the ML pipeline to solve a specific business problem
- Train, evaluate, deploy, and tune an ML model using Amazon SageMaker
- Describe some of the best practices for designing scalable, cost-optimized, and secure ML pipelines in AWS
- Apply machine learning to a real-life business problem after the course is complete

Audience

This course is intended for:

- Developers
- Solutions Architects
- Data Engineers
- Anyone with little to no experience with ML and wants to learn about the ML pipeline using Amazon

SageMaker

Prerequisites

We recommend that attendees of this course have:

- Basic knowledge of Python programming language
- Basic understanding of AWS Cloud infrastructure (Amazon S3 and Amazon CloudWatch)
- Basic experience working in a Jupyter notebook environment

Content

Day One

Module 0: Introduction

- Pre-assessment

Module 1: Introduction to Machine Learning and the ML Pipeline

- Overview of machine learning, including use cases, types of machine learning, and key concepts
- Overview of the ML pipeline
- Introduction to course projects and approach

Module 2: Introduction to Amazon SageMaker

- Introduction to Amazon SageMaker
- Demo: Amazon SageMaker and Jupyter notebooks
- Hands-on: Amazon SageMaker and Jupyter notebooks

Module 3: Problem Formulation

Overview of problem formulation and deciding if ML is the right solution
Converting a business problem into an ML problem
Demo: Amazon SageMaker Ground Truth
Hands-on: Amazon SageMaker Ground Truth
Practice problem formulation
Formulate problems for projects

Day Two

Checkpoint 1 and Answer Review

Module 4: Preprocessing

Overview of data collection and integration, and techniques for data preprocessing and visualization
Practice preprocessing
Preprocess project data
Class discussion about projects

Day Three

Checkpoint 2 and Answer Review

Module 5: Model Training

Choosing the right algorithm
Formatting and splitting your data for training
Loss functions and gradient descent for improving your model
Demo: Create a training job in Amazon SageMaker

Module 6: Model Evaluation

- How to evaluate classification models
- How to evaluate regression models
- Practice model training and evaluation
- Train and evaluate project models
- Initial project presentations

Day Four

Checkpoint 3 and Answer Review

Module 7: Feature Engineering and Model Tuning

- Feature extraction, selection, creation, and transformation
- Hyperparameter tuning
- Demo: SageMaker hyperparameter optimization
- Practice feature engineering and model tuning
- Apply feature engineering and model tuning to projects
- Final project presentations

Module 8: Deployment

- How to deploy, inference, and monitor your model on Amazon SageMaker
- Deploying ML at the edge
- Demo: Creating an Amazon SageMaker endpoint
- Post-assessment
- Course wrap-up