MLOps Engineering on AWS

Category: AI, Data & Analytics | **Vendor:** Amazon Web Services

Duration: 24.00 hours (3 days) **19.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

This course builds upon and extends the DevOps methodology prevalent in software development to build, train, and deploy machine learning (ML) models. The course is based on the four-level MLOPs maturity framework. The course focuses on the first three levels, including the initial, repeatable, and reliable levels. The course stresses the importance of data, model, and code to successful ML deployments. It demonstrates the use of tools, automation, processes, and teamwork in addressing the challenges associated with handoffs between data engineers, data scientists, software developers, and operations. The course also discusses the use of tools and processes to monitor and take action when the model prediction in production drifts from agreed-upon key performance indicators.

About This Course

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Who Should Attend

This course is intended for:

- MLOps engineers who want to productionize and monitor ML models in the AWS cloud
- DevOps engineers who will be responsible for successfully deploying and maintaining ML models in production

Prerequisites & Entry Requirements

General Prerequisites:

We recommend that attendees of this course have

- AWS Technical Essentials course (classroom or digital)
- DevOps Engineering on AWS (AWSDEVOPS), or equivalent experience
- Practical Data Science with Amazon SageMaker (PDSASM), or equivalent experience

Learning Outcomes

Upon successful completion of this course, participants will be able to:

In this course, you will learn to:

- Explain the benefits of MLOps
- Compare and contrast DevOps and MLOps
- Evaluate the security and governance requirements for an ML use case and describe possible solutions and mitigation strategies
- Set up experimentation environments for MLOps with Amazon SageMaker
- Explain best practices for versioning and maintaining the integrity of ML model assets (data, model, and code)
- Describe three options for creating a full CI/CD pipeline in an ML context
- Recall best practices for implementing automated packaging, testing and deployment. (Data/model/code)
- Demonstrate how to monitor ML based solutions
- Demonstrate how to automate an ML solution that tests, packages, and deploys a model in an automated fashion; detects performance degradation; and re-trains the model on top of newly acquired data

Detailed Course Outline

Day 1

Module 1: Introduction to MLOps

- Processes
- People
- Technology
- Security and governance

- MLOps maturity model

Module 2: Initial MLOps: Experimentation Environments in SageMaker Studio

- Bringing MLOps to experimentation
- Setting up the ML experimentation environment
- Demonstration: Creating and Updating a Lifecycle Configuration for SageMaker Studio
- Hands-On Lab: Provisioning a SageMaker Studio Environment with the AWS Service Catalog
- Workbook: Initial MLOps

Module 3: Repeatable MLOps: Repositories

- Managing data for MLOps
- Version control of ML models
- Code repositories in ML

Module 4: Repeatable MLOps: Orchestration

- ML pipelines
- Demonstration: Using SageMaker Pipelines to Orchestrate Model Building Pipelines

Day 2

Module 4: Repeatable MLOps: Orchestration (continued)

- End-to-end orchestration with AWS Step Functions
- Hands-On Lab: Automating a Workflow with Step Functions
- End-to-end orchestration with SageMaker Projects
- Demonstration: Standardizing an End-to-End ML Pipeline with SageMaker Projects
- Using third-party tools for repeatability

- Demonstration: Exploring Human-in-the-Loop During Inference

- Governance and security

- Demonstration: Exploring Security Best Practices for SageMaker

- Workbook: Repeatable MLOps

Module 5: Reliable MLOps: Scaling and Testing

- Scaling and multi-account strategies

- Testing and traffic-shifting

- Demonstration: Using SageMaker Inference Recommender

- Hands-On Lab: Testing Model Variants

Day 3

Module 5: Reliable MLOps: Scaling and Testing (continued)

- Hands-On Lab: Shifting Traffic

- Workbook: Multi-account strategies

Module 6: Reliable MLOps: Monitoring

- The importance of monitoring in ML

- Hands-On Lab: Monitoring a Model for Data Drift

- Operations considerations for model monitoring

- Remediating problems identified by monitoring ML solutions

- Workbook: Reliable MLOps

- Hands-On Lab: Building and Troubleshooting an ML Pipeline, MLOps Development, MLOps Deployment, Introduction, Introduction to MLOps, Model Monitoring and Operations, Wrap-up

Skills You Will Learn:

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Frequently Asked Questions

Q: What delivery options are available for MLOps Engineering on AWS?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 3-day MLOps Engineering on AWS course provides up to 19.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the MLOps Engineering on AWS training?

The training takes place over 3 day(s), with each day lasting approximately 24.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for MLOps Engineering on AWS?

Yes, we provide corporate training, dedicated training, and closed classes for MLOps Engineering on AWS. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: MLOps Engineering on AWS, Machine Learning, MLOE, Amazon Web Services, vILT

Q: Why choose Nexus Human for MLOps Engineering on AWS?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your MLOps Engineering on AWS training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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