



Xerxez Solutions
Cooperate Training Road Map
On
Amazon SageMaker Pro - Advanced Training

This document provides the curriculum outline of the Knowledge, Skills, and Abilities that a **Machine Learning Developer** and **MLOps Administrator** can be expected to demonstrate on Amazon Web Service Cloud Platform.

Prerequisite:

- Basic Understanding of Machine Learning and Deep Learning.
- Fundamentals of Python Programming and Object-Oriented Technique.
- Basic Understanding of AWS Cloud Service – EC2, EKS, ECS, EBS, S3 Bucket and RDS.
- Basic Understanding Visual Studio Framework and Notebook Instance.

Out Come:

After attending this training, the trainees will gain the skills on Full Stack AI/ML Model Design, Development, Deploy & DevOps/MLOps Orchestration, Docker, and Lambda Function with end-to-end Model Deployment and Orchestration.

- ML/MLOps Vs DevOps Framework using Amazon Cloud Architecture.
- Proficiency in Machine Learning Workflow, Accelerated Model Development.
- Optimized Model Training, Scalability and Performance Improvement.
- Advanced Model Deployment and Management.
- Integrating with AWS Versioning, Experimentation and Model Versioning.
- Security and Compliance Considerations.
- Understanding the Deployment Options.
- Troubleshooting and Debugging Skills.

Local setup (Physical Mode)	Remote Lab Setup (Optional)	Cloud Account
Laptop/Desktop with high-speed internet connection, Windows 10 and above	OS: Windows 10 and above	Amazon Web Service (AWS)
Memory: 4 GB RAM	Memory: 32 GB RAM	
CPU: 1 CPU Cores	CPU: 8 CPU Cores	
Storage: 20 GB	Storage: 500 GB SSD	

Pilot Project

- 1. Model Building & Deployment using SageMaker Development Pipeline.**
- 2. Model Building & Deployment using SageMaker Notebook & Lambda and API Gateway.**
- 3. SageMaker Wrangler and Mechanical Truck**
- 4. SageMaker Studio, Autopilot and MLOps tools Integration**

Topics Covered:

1. Core Concepts of AWS SageMaker:

- SageMaker Machine Learning Lifecycle
- SageMaker Architecture
- SageMaker Training Techniques.
- SageMaker Pre Built Algorithm.

Hands-on:

Lab No. 1: Amazon SageMaker – Groundtruth

Lab No. 2: Amazon SageMaker – Machine Learning Model Training Technique & Deployment

Lab No. 3: Amazon SageMaker – Pre-Build Algorithm

2. SageMaker Notebook Overview and Model Management

- SageMaker Notebook Overview
- Model Building using SageMaker Notebook

Hands-on:

Lab No. 4: Regression based Model Building using SageMaker Notebook.

3. DevOps Development Pipeline:

- SageMaker Development Pipeline
- SageMaker Debugger
- Deploy Trained model using SageMaker.
- SageMaker Clarify

Hands - on:

Lab 5: Pipeline and Model Deployment using AWS Lambda and API Gateway

4. SageMaker Notebook, Studio, Autopilot & MLOps tool Integration

- SageMaker Machine Learning Architecture and Lifecycle
- Model Building Using SageMaker Notebook, Development Pipeline
- Model Building Using SageMaker Studio
 - SageMaker Debugger
 - Deploy Trained Model using SageMaker
 - SageMaker Autopilot, Mechanical Truck
 - Setup CI/CD Pipeline
- End to End Implementation on Text Analytics and Sentiment Classification
- Challenges

Hands-on:

Lab 6: End to End Implementation on Sentiment Classification

5. SageMaker Studio for MLOps

- Model Building using SageMaker Studio.
- SageMaker Wrangler
- SageMaker Studio DeepDive and AutoML
- Setup CI/CD Pipeline
- No-Code Machine Learning using Amazon AWS SageMaker Canvas

Hands-on:

Lab 7: End to End Machine Learning Project with Model Orchestration

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