# **Curriculum - MLOps Mastery In 60 Days**

## **Module 1: Introduction to MLOps**

● Understanding the need for MLOps

● Differences between DevOps and MLOps

● Key challenges in ML model deployment

● Overview of the MLOps lifecycle

## **Module 2: Version Control & CI/CD for ML**

● Git & GitHub fundamentals

● GitHub Actions for CI/CD automation

● Data versioning with DVC

● CI/CD pipeline setup for ML projects

## **Module 3: Experiment Tracking with MLflow**

● Introduction to MLflow

● Logging experiments and parameters

● Model versioning and registry

● MLflow UI and tracking server

## **Module 4: Containerization with Docker**

● Understanding containers and images

● Dockerizing ML applications

● Managing dependencies with Docker

● Running containers in different environments

## **Module 5: Orchestration with Kubernetes**

● Kubernetes fundamentals and architecture

● Deploying ML models on Kubernetes

● Managing resources and autoscaling

## **Module 6: Model Deployment Strategies**

● AWS server based and serverless deployment.

● Deployment methods: REST API, gRPC, and Serverless.

● Scaling deployed models efficiently using EKS.

● Monitoring and logging in production.

## **Module 7: Advanced CI/CD Pipelines**

● Github Actions for MLOps

● Building automated workflows

● Integrating testing in CI/CD pipelines

● Connecting CI/CD pipelines to Kubernetes cluster

## **Module 8: Monitoring & Alerting with Prometheus & Grafana**

● Setting up Prometheus for metrics collection

● Writing PromQL queries for monitoring

● Configuring Grafana dashboards

● Implementing alerting mechanisms

## **Module 9: Cloud & AWS for MLOps**

● AWS fundamentals: IAM, S3, ECR, EC2, EKS

● Deploying ML models using AWS SageMaker

● Serverless ML deployment with AWS EKS

● Cost optimization strategies in cloud environments

## **Module 10: Misc**

● +10 Deployment Strategies

● Serverless Deployment Architecture

● Airflow-Kubeflow

● ArgoCD & ZenML

## **Capstone Projects**

● **Project 1: Machine Learning Model Deployment**

○ Develop and deploy an ML model using Docker & Kubernetes

● **Project 2: AWS SageMaker & Cloud Deployment**

○ Train and deploy a model using AWS SageMaker

● **Project 3: GenAI-Based Production Model**

○ Build and deploy a Generative AI app using serverless principle

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## **Additional Benefits**

● Live mentorship and guidance sessions

● Resume building and interview preparation

● Access to industry expert discussions

● Notes, Q&A sessions, and additional resources

This structured curriculum ensures you gain hands-on experience while mastering industry-standard MLOps tools and techniques.