MLOps Foundation Certification

Curriculum 3 Days

Day - 1

Welcome and Introduction
- Overview of the certification program.
- Expectations and outcomes.

Understanding MLOps
- Definition and importance of MLOps.
- Key components of the MLOps lifecycle.
- Differences between traditional DevOps and MLOps.

Machine Learning Basics
- Overview of machine learning concepts.
- Types of machine learning (supervised, unsupervised, reinforcement learning).

MLOps Lifecycle
- Stages of the MLOps lifecycle: data collection, model training, deployment, monitoring, and maintenance.
- Importance of collaboration between data scientists and operations teams.

Tools and Technologies
- Overview of popular MLOps tools (e.g., MLflow, Kubeflow, TFX).
- Setting up the environment for hands-on labs.

Day - 2

Data Management in MLOps
- Data versioning and management techniques.
- Data pipelines and ETL processes.
- Tools for data management (e.g., DVC, Apache Airflow).

Model Development and Training
- Best practices for model development.
- Experiment tracking and management.
- Introduction to automated ML (AutoML) tools.

Model Deployment Strategies
- Techniques for deploying machine learning models.
- Continuous integration and continuous deployment (CI/CD) for ML.
- Using Docker and Kubernetes for model deployment.

Hands-on Lab: Model Deployment
- Deploy a machine learning model using a selected tool (e.g., Flask, FastAPI).
- Hands-on exercises to reinforce concepts.

Day - 3

Model Monitoring and Maintenance

- Importance of model monitoring in production.
- Techniques for monitoring model performance.
- Handling model drift and retraining strategies.

MLOps Governance and Compliance

- Governance practices in MLOps.
- Regulatory compliance and ethical considerations in ML.

Capstone Project

- Group activity: Develop an end-to-end MLOps pipeline using learned concepts.
- Presentation of group projects and feedback.

Certification Exam

- Review of key concepts.
- Administer the certification exam.
- Closing remarks and next steps.