Blockchain and Machine Learning Synergy

Duration: 03 days (24 hours)

Training Objectives

By the end of this course, participants will be able to:

- 1. Understand the fundamentals of blockchain technology and its architecture.
- 2. Apply machine learning concepts for predictive analysis and decision-making.
- 3. Explore the intersection of blockchain and machine learning.
- 4. Implement basic smart contracts integrated with AI models.
- 5. Analyze practical use cases and solutions combining the two technologies.

Modules

Day 1: Blockchain Technology

1. Introduction to Blockchain

- Definition and Components
- Public vs. Private Blockchains
- Consensus Mechanisms (PoW, PoS, etc.)

2. Blockchain Applications

- Cryptocurrencies
- Supply Chain Management
- Decentralized Applications (DApps)

3. Hands-On Session

- Setting up a Private Blockchain
- Deploying a Basic Smart Contract

Day 2: Machine Learning Essentials

1. Introduction to Machine Learning

- o Supervised, Unsupervised, and Reinforcement Learning
- Overview of Algorithms (Regression, Decision Trees, Neural Networks)
- 2. Model Training and Evaluation

- Data Preprocessing
- Feature Engineering
- Training and Testing

3. Hands-On Session

- Building a Predictive Model Using Python (e.g., Scikit-learn)
- Evaluating Model Performance

Day 3: Blockchain and Machine Learning Integration

1. Synergy Between Blockchain and ML

- Securing ML Models with Blockchain
- Decentralized AI
- Blockchain for Data Integrity in ML

2. Use Cases and Industry Applications

- Fraud Detection in Financial Systems
- Decentralized AI Models for IoT
- Predictive Maintenance in Supply Chain

3. Practical Implementation

- Integrating Smart Contracts with ML Models
- Building a Decentralized Predictive Analytics App

4. Capstone Project

• Design and Develop a Blockchain-ML Application