



PB INSTITUTE OF RESEARCH AND TECHNOLOGY

P.O Box 21457-00100

Nairobi - Kenya

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Blockchain & Big Data Analytics Training

Duration: 10 days

On-Site

01 Who Should Attend

- This course is ideal for;
- Data Analysts
- Blockchain Developers
- System Architects
- Data Scientists
- Security Professionals
- Big Data Engineers
- Anyone needing blockchain and Big Data analytics skills

02 About the Course

Architect secure, audit-proof, and decentralized data ecosystems with our **Blockchain & Big Data Analytics Training Course**. Tailored for data architects, blockchain developers, and enterprise system leads, this hands-on program equips technical teams to fuse Distributed Ledger Technology (DLT) with high-volume analytics platforms. Guided by blockchain data architects, you will master decentralized storage integration (IPFS/Filecoin), smart contract automation for data access, immutable audit logging, and cryptographic data validation—enabling your enterprise to ensure tamper-proof data provenance, enforce zero-trust data sharing, and build transparent analytics infrastructure at scale.



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03 Workshop Objectives

- Understand the fundamentals of blockchain and Big Data integration.
- Master the principles of distributed ledgers and smart contracts.
- Utilize blockchain for secure data storage and provenance.
- Implement secure data pipelines for Big Data analytics.
- Design blockchain-based data analytics solutions.
- Utilize blockchain for data integrity and transparency.
- Troubleshoot and optimize blockchain-based data systems.
- Implement data security and access control in blockchain environments.
- Integrate blockchain with existing Big Data platforms.
- Understand how to monitor and manage blockchain-based data systems.
- Explore advanced blockchain analytics techniques.
- Apply real world use cases for blockchain and Big Data integration.
- Develop smart contracts for data processing and validation.

04 Module Topics

Module 1: Introduction to Blockchain and Big Data Integration

- Fundamentals of blockchain and Big Data.
- Overview of blockchain technologies and their applications.
- Setting up a blockchain development environment.
- Introduction to blockchain and Big Data tools and frameworks.
- Best practices for blockchain and Big Data integration.

Module 2: Distributed Ledgers and Smart Contracts



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- Understanding distributed ledger technology (DLT).
- Implementing smart contracts for data processing.
- Utilizing blockchain for secure data storage.
- Designing and deploying blockchain networks.
- Best practices for DLT and smart contracts.

Module 3: Blockchain for Secure Data Storage and Provenance

- Utilizing blockchain for data provenance and lineage.
- Implementing secure data storage on blockchain.
- Managing data integrity and immutability.
- Implementing data auditing and compliance.
- Best practices for secure data storage.

Module 4: Secure Data Pipelines for Big Data Analytics

- Designing secure data pipelines for Big Data.
- Utilizing blockchain for data validation and verification.
- Implementing data encryption and access control.
- Ensuring data confidentiality and integrity.
- Best practices for secure data pipelines.

Module 5: Blockchain-Based Data Analytics Solutions

- Designing blockchain-based data analytics platforms.
- Implementing secure data sharing and collaboration.
- Utilizing blockchain for data marketplaces.
- Building decentralized data applications.
- Best practices for blockchain analytics solutions.

Module 6: Data Integrity and Transparency



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- ▶ Utilizing blockchain for data integrity and transparency.
- ▶ Implementing cryptographic techniques for data security.
- ▶ Ensuring data accountability and auditability.
- ▶ Managing data governance on blockchain.
- ▶ Best practices for data integrity.

Module 7: Troubleshooting and Optimization

- ▶ Debugging blockchain-based data systems.
- ▶ Analyzing blockchain network performance.
- ▶ Utilizing monitoring tools and techniques.
- ▶ Optimizing data processing on blockchain.
- ▶ Best practices for troubleshooting.

Module 8: Data Security and Access Control

- ▶ Implementing data security in blockchain environments.
- ▶ Utilizing authentication and authorization.
- ▶ Implementing data encryption and access control policies.
- ▶ Managing data permissions and privileges.
- ▶ Best practices for data security.

Module 9: Integration with Big Data Platforms

- ▶ Integrating blockchain with existing Big Data platforms.
- ▶ Utilizing data connectors and APIs.
- ▶ Implementing data transfer between blockchain and Big Data systems.
- ▶ Best practices for integration.

Module 10: Monitoring and Management



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- Monitoring blockchain network performance and health.
- Implementing alerting and notifications.
- Utilizing monitoring tools and techniques.
- Managing blockchain-based data systems.
- Best practices for monitoring.

Module 11: Advanced Blockchain Analytics Techniques

- Implementing privacy-preserving analytics on blockchain.
- Utilizing federated learning on blockchain.
- Implementing secure multi-party computation.
- Advanced techniques for blockchain data processing.
- Best practices for advanced analytics.

Module 12: Real-World Use Cases

- Implementing blockchain for supply chain data analytics.
- Utilizing blockchain for healthcare data management.
- Implementing blockchain for financial data analysis.
- Utilizing blockchain for government data transparency.
- Best practices for real world applications.

Module 13: Smart Contracts for Data Processing

- Developing smart contracts for data processing and validation.
- Utilizing smart contracts for data automation.
- Implementing smart contracts for data governance.
- Best practices for smart contracts.

Module 14: Blockchain and Data Governance



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- ▶ Implementing data governance policies in blockchain environments.
- ▶ Utilizing metadata management for blockchain data.
- ▶ Implementing data lineage and data dictionary.
- ▶ Best practices for data governance.

Module 15: Future Trends in Blockchain and Big Data Analytics

- ▶ Emerging trends in blockchain and Big Data.
- ▶ Utilizing AI and automation in blockchain analytics.
- ▶ Implementing interoperable blockchain solutions.
- ▶ Best practices for future blockchain.