



Course: CockroachDB

Duration: 30 Hrs (Changeable) | Fees: Individual / Batch

Since 2007, Nestsoft TechnoMaster has been providing training, internships, and services in IT technologies, both online and offline, with the expertise of over 250 industry experts. We have delivered internships, training, and seminars to more than 50,000 students, resulting in numerous success stories. We offer 100% placement support through JobsNEAR.in

Our Courses/Internship

- Python/Django Fullstack
- Artificial Intelligence
- Machine Learning
- Data Science
- Software Testing (All)
- Wordpress, Woocommerce
- Digital Marketing, SEO
- Php/MySQL, Laravel
- Flutter, Android, IOS
- Asp.net MVC
- Web Design, Javascript
- Angular JS, React JS
- CCNA, MCSA, CCNP
- AWS, GCP, Azure
- Odoo, SalesForce, Sap
- Microsoft Excel
- Ethical Hacking



Syllabus on the Next Page ..



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CockroachDB Detailed Syllabus

Module 1: Introduction to CockroachDB

- * Overview of CockroachDB
- * What is CockroachDB?
- Features and Benefits
- Comparison with Traditional Databases (MySQL, PostgreSQL)
- Use Cases and Industries
- Architecture and Design Principles
- Distributed SQL Database
- * Shared-Nothing Architecture
- * Multi-Active Availability
- * Automatic Sharding and Replication

Module 2: Installation and Setup

- * Installing CockroachDB
- * System Requirements
- Installing on Local Machine
- * Running in Docker
- Deploying on Kubernetes
- * Configuring CockroachDB
- Cluster Configuration
- * Networking and Connectivity
- * Security Considerations

Module 3: CockroachDB Cluster Management

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- * Creating a CockroachDB Cluster
- Single-Node Cluster
- * Multi-Node Cluster Setup
- Scaling the Cluster
- Cluster Health Monitoring
- CockroachDB Admin UI
- Performance Metrics and Monitoring Tools
- Handling Failures and Recovery
- Managing Nodes and Replication
- * Adding and Removing Nodes
- * Data Distribution and Load Balancing
- * Replication Factor and Consistency

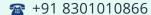
Module 4: SQL and Querying in CockroachDB

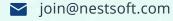
- * SQL Compatibility
- PostgreSQL Compatibility
- * SQL Features Supported
- Schema Design
- Tables, Indexes, and Constraints
- * Partitioning and Data Locality
- * Best Practices for Schema Optimization
- Writing Queries
- * CRUD Operations

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- * Joins, Aggregations, and Transactions
- * Using JSON and Arrays
- * Query Performance Optimization
- Query Planning and Execution
- Indexing Strategies
- * EXPLAIN and Query Profiling

Module 5: Transactions and Consistency

- * Transaction Model in CockroachDB
- * ACID Transactions
- Serializable Isolation Level
- * Optimistic Concurrency Control
- Savepoints and Rollbacks
- Managing Distributed Transactions
- * Handling Deadlocks and Performance Tuning

Module 6: Backup, Restore, and Disaster Recovery

- * Backup Strategies
- * Full and Incremental Backups
- * Cloud Storage Integration
- * Restoring Data
- * Point-in-Time Recovery
- Restoring Partial Data
- * High Availability and Disaster Recovery

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- * Failover Handling
- * Handling Node and Region Failures

Module 7: Security and Access Control

- * Authentication and Authorization
- * User Management
- Role-Based Access Control (RBAC)
- Managing SQL Privileges
- * Data Encryption
- * Encryption at Rest and in Transit
- * TLS Configuration
- * Auditing and Compliance
- * Logging and Auditing Queries
- * Compliance with GDPR, HIPAA, etc.

Module 8: CockroachDB in Cloud and Hybrid Environments

- * Deploying CockroachDB on Cloud Platforms
- * AWS, GCP, and Azure Deployments
- * CockroachDB Dedicated vs Self-Managed
- * Multi-Region Deployment
- * Latency Considerations
- * Geo-Partitioning Data
- * Hybrid Cloud and On-Premises Setup

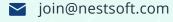
Module 9: Advanced Topics

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- * Workload Management
- * Performance Tuning and Scaling
- * Query Caching and Optimization
- Observability and Logging
- Using Prometheus and Grafana for Monitoring
- Query Debugging with Logs
- * Custom Functions and Extensions

Module 10: Hands-on Projects

- * Setting up a Production-Ready CockroachDB Cluster
- * Developing a Scalable Web Application with CockroachDB
- * Implementing Multi-Region Data Replication
- * Performance Benchmarking and Optimization

(Click on Course for more details)

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- Thank You -

N.B:This syllabus is not final and can be customized as per requirements / updates.

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