MongoDB Course Contents(4 days)
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Module 1: Introduction to MongoDB and NoSQL

- Overview of MongoDB and NoSQL databases
- Key features and benefits of MongoDB
- Setting up a MongoDB environment
- Basic MongoDB commands and syntax
- Introduction to MongoDB data model: documents, collections, and databases

Module 2: MongoDB Data Modeling and Schema Design

- Introduction to MongoDB data modeling and schema design
- Document-oriented data model: documents, arrays, and nested documents
- Schema design principles: normalization, denormalization, and data redundancy
- Creating and managing MongoDB collections and documents
- MongoDB data modeling best practices: data normalization, data denormalization, and data redundancy

Module 3: MongoDB Query Language (MongoQL)

- Introduction to MongoDB query language (MongoQL)
- Basic query operators: eq, ne, gt, lt, and, or
- Advanced query operators: regex, exists, type, size
- Querying MongoDB data: filtering, sorting, and limiting data
- MongoDB query optimization techniques: indexing, caching, and query profiling

Module 4: MongoDB Indexing and Performance

- Introduction to MongoDB indexing and performance
- Types of indexes: single-field, multi-field, and compound indexes
- Creating and managing MongoDB indexes
- Indexing strategies: selective indexing, composite indexing, and covering indexes
- MongoDB performance metrics: query latency, throughput, and memory usage
- MongoDB performance tuning techniques: adjusting variables, optimizing queries, and using caching

Module 5: MongoDB Security and Authentication

- MongoDB security best practices: authentication, authorization, and encryption
- Creating and managing MongoDB users and roles
- MongoDB authentication mechanisms: username/password, Kerberos, and LDAP
- MongoDB authorization mechanisms: role-based access control (RBAC) and attribute-based access control (ABAC)
- MongoDB encryption mechanisms: data encryption and SSL/TLS encryption

Module 6: MongoDB Backup and Recovery

- MongoDB backup strategies: full, incremental, and differential backups
- MongoDB recovery strategies: restoring from backups, recovering from errors
- MongoDB backup and recovery best practices: setting up and managing backups and recovery
- MongoDB backup and recovery troubleshooting: identifying and resolving issues

Module 7: MongoDB Replication and High Availability

- MongoDB replication: master-slave, multi-master, and replica sets
- MongoDB high availability: load balancing, failover, and disaster recovery
- MongoDB replication and high availability best practices: setting up and managing replication and high availability
- MongoDB replication and high availability troubleshooting: identifying and resolving issues

Module 8: MongoDB Monitoring and Troubleshooting

- MongoDB monitoring tools: MongoDB Compass, MongoDB Atlas, and MongoDB Ops Manager
- MongoDB troubleshooting techniques: identifying and resolving performance issues, connection issues, and data consistency issues
- MongoDB monitoring and troubleshooting best practices: setting up and managing monitoring and troubleshooting
- MongoDB monitoring and troubleshooting case studies: real-world scenarios and solutions

Module 9: MongoDB Advanced Topics

- MongoDB advanced query techniques: aggregation pipeline, map-

reduce, and data aggregation
- MongoDB advanced indexing techniques: text search, geospatial indexing, and wildcard indexing
- MongoDB advanced security techniques: access control, encryption, and authentication
- MongoDB advanced performance tuning techniques: query optimization, caching, and data partitioning

Module 10: MongoDB Case Studies and Projects

- Real-world case studies: applying MongoDB skills to real-world scenarios
- Project-based learning: designing and implementing a MongoDB database
- MongoDB troubleshooting and debugging: identifying and resolving issues
- MongoDB best practices: following best practices for MongoDB administration

Module 11: MongoDB Certification and Career Development

- MongoDB certification: preparing for the MongoDB certification exam
- MongoDB career development: building a career in MongoDB administration
- MongoDB job roles and responsibilities: database administrator, data analyst, data scientist
- MongoDB salary and benefits: compensation and benefits for MongoDB professionals