CompTIA DataSys+

Duration: 5 Days

Course Description:

CompTIA DataSys+ is a certification designed for professionals with 2–3 years of experience in database administration. It validates the skills needed to deploy, manage, and secure data systems while ensuring business continuity and compliance with industry standards. This vendor-neutral certification equips you with the knowledge to build, support, and maintain databases, implement security best practices, and manage data assets effectively in today's growing and complex data environments.

Target Audience:

CompTIA DataSys+ is ideal for professionals advancing in database administration roles. It is valuable for roles such as database administrator, system DBA, application DBA, and data security administrator. It is also suitable for IT support specialists, software developers, and network administrators transitioning into database-focused roles.

Prerequisites:

- With 2–3 years of experience in a database administrator role recommended

Course Objectives:

Build skills with CompTIA learning and validate them with DataSys+ certification.

- Understand database structure types and develop, modify, and run SQL code to gather, store, and manage data assets across various operating systems.
- Plan and design databases, implement and test systems, and optimize data deployment processes for effective database deployment.
- Monitor and report on database performance, perform maintenance tasks and create critical documentation to support database management and maintenance.
- Secure databases, protect against attacks, manage authorization, and ensure governance and regulatory compliance to enhance data and database security.
- Prepare for and recover from incidents by implementing disaster recovery, backup, and restoration best practices for database management systems.

Course Outlines:

Database fundamentals

- **Database structure types:** comparing relational and non-relational databases like NoSQL, DynamoDB, and MongoDB.
- **SQL code development:** applying data definition language (DDL), data manipulation language (DML), transaction control language (TCL), ACID (atomicity, consistency, isolation, durability) principles, stored procedures, and views.
- **Scripting methods:** comparing server-side vs. client-side scripting and using languages like Python, PowerShell, and command-line scripting.
- **Programming impact:** using object-relational mapping (ORM) tools like Hibernate and Entity Framework, validating SQL code, and analyzing database server impact.

Database deployment

- **Planning and design:** gathering requirements, designing database architecture, and creating documentation like data dictionaries and entity relationship diagrams (ERDs).
- **Implementation and testing:** validating schemas, performing stress tests, managing version control, and testing database connectivity.
- **Deployment phases:** installing, configuring, provisioning, and validating scalability.

Database management and maintenance

- **Monitoring and reporting:** tracking system alerts, performance metrics, transaction logs, and resource utilization.
- **Maintenance processes:** optimizing queries, managing patches, planning capacity, and tuning performance.
- **Documentation and tools:** using data dictionaries, ERDs, standard operating procedures (SOPs), and compliance documentation.
- **Data management tasks:** modifying data, managing redundancy, defining relationships, and using views/materialized views.

Data and database security

- **Data security concepts:** applying encryption (in transit, at rest), data masking, and destruction techniques.
- **Governance and compliance:** implementing data loss prevention, retention policies, and regulations like the General Data Protection Regulation (GDPR) and Payment Card Industry Data Security Standard (PCI DSS).
- **Authentication and authorization:** managing access controls, password policies, and identity management.
- **Infrastructure security:** applying physical controls like biometrics and fire suppression, and logical controls like firewalls and port security.
- **Threat mitigation:** addressing SQL injection, denial of service (DoS), phishing, ransomware, and brute-force attacks.

Business continuity

- **Backup and recovery:** creating disaster recovery plans, replication strategies, and failover processes.
- **High availability:** implementing clustering, load balancing, and system redundancy.
- **Risk assessment:** conducting impact analysis, risk mitigation, and continuity testing.