# DATABASE SECURITY

**UNIT CODE:** SEC/CU/CS/CR/07/6/A

**Relationship to Occupational Standards**
This unit addresses the unit of competency: Secure database

**Duration of Unit:** 72 hours

**Unit Description**
This unit covers the competencies required to secure databases. It involves identifying types of databases, identifying database threats and vulnerabilities, installing database patches, installing database security management system, monitoring database security, monitoring access control and managing database backups.

**Summary of Learning Outcomes**

1. Identify types of databases
2. Identify database threats and vulnerabilities
3. Install databases patches
4. Install database security management systems
5. Monitor database security
6. Manage access control
7. Manage database backups

**Learning Outcomes, Content and Suggested Assessment Methods**

| Learning Outcome | Content | Suggested Assessment Methods |
|---|---|---|
| 1. Identify types of databases | <ul><li>Meaning of terms</li><li>Types of databases</li><li>Classification of databases</li><li>Database management system</li><li>Database concurrence</li><li>Database operational model and cost evaluation</li></ul> | <ul><li>Written tests</li><li>Oral questioning</li><li>Observation</li><li>Practical tests</li></ul> |
| 2. Identify database threats and vulnerabilities | <ul><li>Meaning of terms</li><li>Database testing</li><li>Factors to consider in database testing</li><li>Types of database threats and vulnerabilities</li><li>Assessment of security vulnerabilities, risk</li></ul> | <ul><li>Written tests</li><li>Oral questioning</li><li>Observation</li><li>Practical tests</li></ul> |

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| | and threats in database | |
| 3. Install databases patches | • Meaning of terms<br>• Factors to consider in installation of security patches<br>• Database patches management<br>    • Identification<br>    • Verification<br>    • Monitoring<br>    • Deployment<br>• Environment in installation of database patches | • Observation<br>• Oral questioning<br>• Practical tests<br>• Written tests |
| 4. Install database security management systems | • Meaning of terms<br>• Identification of database of database security management system<br>• Deployment model in database security management system<br>    • Types of deployment models<br>• Hardware sizing in database<br>• Configuration and verification of database security management system<br>• Integration of database security management system | • Observation<br>• Oral questioning<br>• Practical tests<br>• Written tests |
| 5. Monitor database security | • Meaning of terms<br>• Logs collection, analysis and correlation<br>• Logs management<br>    Failed logs<br>    Odd hours<br>• Security control in log management | • Observation<br>• Oral questioning<br>• Practical tests<br>• Written tests |
| 6. Manage access control | • Meaning of terms<br>• Factors to consider in management of database access control system<br>• Implementation, management and monitoring of database access control management system<br>• Database auditing system | • Observation<br>• Oral questioning<br>• Practical tests<br>• Written tests |

| 7. | Manage database backups | • Meaning of terms<br>• Development of backup strategy<br>• Identification database backup solutions<br>• Implement database back up management system<br>• ICT policy in management of database backups<br>• Synchronization of database back up<br>• Monitoring, testing and auditing of database backups<br>• Storage of database backups | • Written tests<br>• Oral questioning<br>• Observation<br>• Practical tests |
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**Suggested Methods of instructions**
- Demonstration by trainer
- Practice by the trainee
- Field trips
- On-job-training
- Discussions

**Recommended Resources**

| Equipment | Materials and supplies |
|---|---|
| • Computers<br>• Printers<br>• Cameras<br>• Phones<br>• Photocopiers | • Stationery |
| **Reference materials**<br>• Manufacturers' manuals<br>• Relevant catalogues<br>• Tables<br>• National and international standards | |