ICAS4125B Monitor and administer a database

Release: 1

ICAS4125B Monitor and administer a database

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to manage, monitor and administer a database.
	The following units are linked and form an appropriate cluster:
	• ICAB4060B Identify physical database requirements • ICAB4061B Monitor physical database implementation • ICAS4108B Complete database back up and recovery • ICAS4113C Identify and resolve common database performance problems • ICAS4114B Implement maintenance procedures
	No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	
	ICAS3024B	Provide basic system administration

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Start up a database	1.1. Configure system for *database* start-up
	1.2. Monitor *database* start-up and operation for irregularities
2. Manage database	2.1. Take action to ensure that a data dictionary has been compiled and that data structures are in place
	2.2. Maintain data integrity constraints according to *business requirements*
	2.3. Create and design indexes and multiple-field keys according to *business requirements*
	2.4. Monitor the locking options chosen for the *database*
	2.5. Confirm that recent back-ups of the *database* have been stored and that back-ups can be retrieved as a full working copy
	2.6. Monitor the data storage space for ongoing viability and resize as needed
	2.7. Update data according to *organisational guidelines*
3. Manage database access	3.1. Allocate or remove access privileges according to user status
	3.2. Monitor *network server* log-in log file for illegal log-in attempts or for security breaches
	3.3. Manage *system* resources in the context of *database* administration

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• Analysis skills in relation to working database processes • Report writing skills for business • Database management skills requiring depth in some areas • Analysis and evaluation of information relating to database performance • Problem solving skills in database processes • Research skills for identifying, analysing and evaluating features of a particular database

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- General knowledge of structured query language (SQL)
- General knowledge of database administration
- Detailed knowledge of tuning methodologies
- General knowledge of the principles of databases
- Detailed knowledge of database management tools
- Detailed knowledge of back-up and recovery methodologies
- Detailed knowledge of database security

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Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to consistently manage and administer a database. To demonstrate competency in this unit the learner will require access to: • A live database, preferably on a LAN on which there is a server that offers log-in functionality
Context of and specific resources for assessment	Databases offer shared collections of logically related data, designed to meet the information needs of multiple users. These stores of data describe entities and the relationships between the entities and are generally supported by a database management system which is the software mechanism for managing the data. Databases are in place for most organisations and provide the fundamental underpinnings for online facilities required for data provision and data retrieval. The effective management and administration of databases are of critical importance to businesses which rely on accurate and up to date information availability. Applications involve responsibility for database administration. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

EVIDENCE GUIDE	
	Assessment must ensure:
	• Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
	• Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.
	• Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
	• Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

EVIDENCE GUIDE	
	for example: - ICAB4060B Identify physical database requirements - ICAB4061B Monitor physical database implementation - ICAS4108B Complete database back-up and recovery - ICAS4113C Identify and resolve common database performance problems - ICAS4114B Implement maintenance procedures An individual demonstrating this competency would be able to: - Demonstrate skills in administering a database - Monitor data and provide solutions to a defined range of unpredictable problems - Identify and apply skills and knowledge related to database problems - Identify, analyse and evaluate information from a variety of sources - Take limited responsibility for the administration of a database Additionally, an individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Database may include but is not limited to:	• relational databases • object-relational databases • proprietary databases • commercial off the shelf (COTS) database packages such as Oracle, PostgreSQL, Sybase, Microsoft SQL server, Microsoft Access, Ingres, DB2, DB4, Informix, mSQL, MySQL, SQL server
Business requirements may include:	• customer • supplier • payroll • inventory • tax requirements
Network server may include but is not limited to:	• Novell NetWare 5 or above or any operating system that has multi-user ability • Linux • Mac OS • Windows 2000 or above
System may include but is not limited to:	• hardware and software components that run a computer
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms.
User may include:	• a person within a department • a department within the organisation

RANGE STATEMENT	
	• a third party

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	