Australian Government

Department of Education, Employment and Workplace Relations

ICADBS412A Build a database

Release: 1

ICADBS412A Build a database

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build and implement a database using an established design.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to database administrators and designers who are required to build databases.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
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

1. Confirm database design	1.1 Review ***database*** design ***documentation***, including data structures, queries, reports and user interface 1.2 Compare database access and security feature design with organisational security plan 1.3 Document inconsistencies in database and security design
2. Create prototype	2.1 Develop prototype according to database design 2.2 Populate database tables with suitable data, including current business data 2.3 Write conversion programs to import data from existing systems 2.4 Develop test data to assess database features 2.5 Assess functionality of prototype with client, including identifying errors in program code and modifying screens and reports 2.6 Incorporate feedback from client into prototype 2.7 Obtain client sign-off for the prototype
3. Test database	3.1 Develop implementation plan for the database 3.2 Install ***database management system*** software on network 3.3 Populate database tables with business data 3.4 Implement security and access controls 3.5 Test database output and security controls and record results
4. Evaluate database	4.1 Review database with client for final approval 4.2 Complete database documentation 4.3 Identify and document user training ***requirements*** 4.4 Seek and secure client acceptance of database

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to review and detect inconsistencies in database design
- communication skills to liaise with users, particularly during the prototype phase
- literacy skills to:
  - document user-training requirements
  - prepare reports and technical documentation
- planning and organisational skills to:
  - complete tasks within required timeframe
  - complete tasks using organisation's business structures
- problem-solving skills to debug errors in coding
- technical skills to:
  - convert and validate data during implementation
  - encrypt and authenticate database security features
  - install and use proprietary software
  - model data, particularly during the design and development phases
  - program structured query language (SQL), particularly during the development phase.

Required knowledge

- overview knowledge of:
  - database management system (DBMS) fundamentals related to overall unit of competency, particularly during the design phase
  - OHS principles and responsibilities in regard to self and others while working in an IT environment
- detailed knowledge of:
  - functions and features of databases
  - logical data model, particularly related to developing a prototype
  - object-model design concepts, particularly related to developing data structures, queries, screens and reports
  - object-oriented data model, particularly related to developing a prototype
  - physical design concepts, particularly related to developing a prototype
  - run time facilities related to implementing live database and operation of prototype
  - SQL programming language.

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 ability to:
	• build and implement a well-structured database that
	  • represents the client's business reality
	  • provides the user with a productive business tool
	  • conforms to the client's standards and structures.

Context of and specific resources for assessment	Assessment must ensure access to: • business requirements and strategy • database design documentation • database software • programming language • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• verbal or written questioning to assess candidate's knowledge of functions and features of databases and the process of developing a prototype
	• evaluation of database
	• review of:
	  • database documentation, including security controls
	  • test data used to test database functionality.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

	with targeted questioning to assess required knowledge.

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:	• DB2 • Informix • Ingres • Microsoft SQL (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Postgre Structured Query Language (Postgre SQL) • Sybase.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.
Client may include:	• clubs • external organisations • individuals • internal departments • internal employees.
Database management system may include:	• distributed or centralised • online • partitioned geographically • thematically distributed.
Requirements may relate to:	• application • business • network • people in the organisation • system.

Unit Sector(s)

Database