



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **ICAB4170B Build a database**

**Release: 1**

## ICAB4170B Build a database

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	<p>This unit defines the competency required to build and implement a database using an established design.</p> <p>There may be benefit in concurrent learning with the following unit:</p> <ul style="list-style-type: none"> <li>• ICAB4136B Use structured query language to create database structures and manipulate</li> </ul> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
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### Application of the Unit

<b>Application of the unit</b>	
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### Licensing/Regulatory Information

Refer to Unit Descriptor

### Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## 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.
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## Elements and Performance Criteria

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

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

**REQUIRED SKILLS AND KNOWLEDGE**

- Techniques to elicit information from users, particularly during the prototype phase
- SQL programming skills, particularly during the development phase
- Data modelling skills, particularly during the design and development phases
- Analysis skills
- Communicating with clients
- Preparation of reports and technical documentation
- Data conversion and validation, particularly during implementation
- Installation and use of proprietary software
- Encryption and authentication as they apply to database security features

**Required knowledge**

- Functions and features of databases
- Run time facilities in relation to implementing live database and operation of prototype
- Object-oriented data model, particularly in relation to developing a prototype
- Object model design concepts, particularly in relation to developing data structures, queries, screens and reports
- Logical data model, particularly in relation to developing a prototype
- Physical design concepts, particularly in relation to developing a prototype
- OH&S principles and responsibilities in regard to self and others
- DBMS fundamentals in relation to overall unit of competency, particularly during the design phase

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>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.</p>	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Evidence of the following is essential:</p> <ul style="list-style-type: none"> <li>Assessment must confirm the ability to build and implement a well-structured database that represents the client's business reality and provides the user with a productive business tool.</li> </ul> <p>To demonstrate competency in this unit the person will require access to:</p> <ul style="list-style-type: none"> <li>Database software</li> <li>Database design documentation</li> <li>Business requirements and strategy</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>Appropriate database design with relevance to the organisation's objectives can provide rapid access to information, achieve client satisfaction and provides an ability to change to meet new demands on the organisation.</p> <p>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.</p> <p>Assessment must ensure:</p> <ul style="list-style-type: none"> <li>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</li> </ul>

<b>EVIDENCE GUIDE</b>	
	<p>characteristic.</p> <ul style="list-style-type: none"> <li>• Applications may involve responsibility for, and limited organisation of, others.</li> </ul> <p>An individual performing at this standard will display self-directed application of knowledge and skills, with substantial depth in database design and development where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.</p>
<b>Method of assessment</b>	<p>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.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>
<b>Guidance information for assessment</b>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, such as:</p>

**EVIDENCE GUIDE**

	<ul style="list-style-type: none"> <li>• ICAB4136B Use structured query language to create database structures and manipulate</li> </ul> <p>An individual demonstrating this competency would be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts</li> <li>• Apply solutions to a defined range of unpredictable problems</li> <li>• Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas</li> <li>• Identify, analyse and evaluate information from a variety of sources</li> <li>• Take responsibility for own outputs in relation to specified quality standards</li> <li>• Take limited responsibility for the quantity and quality of the output of others</li> <li>• Maintain knowledge of industry products and services</li> </ul>
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**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 are not limited to:

- Oracle
- Sybase
- Microsoft SQL Server
- Ingres
- DB2
- Informix
- mSQL
- MySQL
- SQL Server PostgreSQL



<b>RANGE STATEMENT</b>	
<b>Requirement</b> may be in reference to:	<ul style="list-style-type: none"> <li>• business</li> <li>• system</li> <li>• application</li> <li>• network</li> <li>• people in the organisation</li> </ul>
<b>Documentation</b> may follow:	<ul style="list-style-type: none"> <li>• ISO/IEC/AS standards</li> <li>• audit trails</li> <li>• naming standards</li> <li>• version control</li> <li>• project management templates</li> <li>• report writing principles</li> </ul>
<b>Database management system</b> may include:	<ul style="list-style-type: none"> <li>• distributed or centralised</li> <li>• on-line</li> <li>• partitioned geographically</li> <li>• thematically distributed</li> </ul>
<b>Client</b> may include but is not limited to:	<ul style="list-style-type: none"> <li>• internal departments</li> <li>• external organisations</li> <li>• clubs</li> <li>• individual people</li> <li>• internal employees</li> </ul>

### Unit Sector(s)

<b>Unit sector</b>	Build
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### Co-requisite units

<b>Co-requisite units</b>	

## Competency field

Competency field	
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