Australian Government

Department of Education, Employment and Workplace Relations

ICASAD501A Model data objects

Release: 1

ICASAD501A Model data objects

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 understand business operations, identify entities and data, diagrammatically represent their relationships and prepare a data model.

Application of the Unit

This unit applies to systems designers who are required to prepare data models.

Licensing/Regulatory Information

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.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

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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. Identify entities and relationships	1.1 Analyse business data to understand operations 1.2 Identify boundaries of the ***system*** 1.3 Identify ***entities***, attributes, ***data types*** and ***relationships*** of data 1.4 Review business rules to determine impact 1.5 Document relationships in an entity relationship diagram
2. Develop normalisation	2.1 Identify suitable business data 2.2 Undertake normalisation of business data and document results 2.3 Compare normalisation results with entity relationship diagram 2.4 Reconcile differences between data
3. Validate model	3.1 Validate data model with client 3.2 Resolve issues or recommendations 3.3 Document completed data model 3.4 Submit to client for final approval

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Required Skills and Knowledge

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

Required skills

- analytical skills to analyse business data
- communication skills to liaise with clients
- problem-solving skills to solve problems that arise with the entity relationships
- technical skills to:
  - develop entity-relationship models in tables
  - relate identifier selection to business domain
  - relate user specifications to data model
  - transfer customer requirements into data model.

Required knowledge

- detailed knowledge of:
  - database identifiers and their impact on database usability
  - normalisation rules and processes
  - type hierarchies, including sub-types, super-types, root-types related to development of structured data types
  - validation procedures and processes
- function and features of:
  - an approach to data modelling, such as the entity-relationship model
  - keys, e.g. unique keys, composite keys, primary keys and primary index
  - time stamps related to the use of keys
  - user-defined types, structured types, reference types and user-defined functions
- particular business or domain.

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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: • model valid data objects • normalise the model • validate the model.
Context of and specific resources for assessment	Assessment must ensure access to: • appropriate learning and assessment support when required • modified equipment for people with special needs • client business requirements • database software • computer-aided software engineering tools or other suitable software.

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:
	• observation of candidate's use of computer-aided software engineering (CASE) tool or other appropriate software
	• verbal or written questioning to assess candidate's knowledge of:
	  • data modelling techniques
	  • normalisation
	  • entity relationship diagrams
	• review of completed data model and associated documentation prepared by candidate.

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

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	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.

System may include:	• application service provider • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.
Entities may include:	• concept • object • person.
Data types may include:	• character large object (CLOB), double-byte character large object (DBCLOB) • character string • date-time and binary string • double-byte (or graphic) character string • large object (LOB), binary large object (BLOB) • numeric • structured types and reference types • user-defined type (UDT).
Relationships may include:	• many-to-many • many-to-one • one-to-many • one-to-one.

Unit Sector(s)

Systems analysis and design

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