Australian Government

ICTDBS502 Design a database

Release: 1

ICTDBS502 Design a database

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to establish client needs and technical requirements and to design a database that meets those requirements.

It applies to individuals employed as database administrators and designers who are required to design databases.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Database

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Determine database requirements	1.1 Meet with the client, and conduct a user-needs analysis, to determine database functionality 1.2 Analyse the results of a user-needs analysis to identify technical requirements 1.3 Develop a conceptual model of the database 1.4 Submit the conceptual model to the client for review 1.5 Evaluate client feedback and make changes as required
2. Develop a logical data model	2.1 Identify the attributes and determine the data types 2.2 Undertake the normalisation of attributes 2.3 Develop an entity-relationship (ER) diagram in order to

ELEMENT	PERFORMANCE CRITERIA
	clarify the cardinality of relationships 2.4 Document attributes, normalised data, and the ER diagram 2.5 Forward documentation to the client for confirmation
3. Design the data structures	3.1 Confirm primary and foreign keys for tables 3.2 Review client business rules 3.3 Identify the referential integrity constraints 3.4 Establish database management system constraints and incorporate into database design 3.5 Develop the validation rules for data 3.6 Design indexes and develop the data dictionary 3.7 Document the database design
4. Design queries, screens and reports	4.1 Design the user interface for database, including menus, input screens and outputs 4.2 Design queries, based on requirements 4.3 Design output reports, based on requirements 4.4 Compare the physical design with the conceptual model, or user-needs analysis 4.5 Incorporate changes as required
5. Design access and security systems	5.1 Review the business security plan as a basis for commencing the access and security design 5.2 Design the password and access system for the database 5.3 Identify multiple-user requirements 5.4 Develop client access profiles using the client business model
6. Confirm the database design	6.1 Identify the database backup and recovery requirements 6.2 Develop and document the database backup and restore procedures 6.3 Submit the database, and documentation, to the client for final approval

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.2, 1.5, 2.1, 3.2, 3.3, 4.4, 5.1, 6.1	• Interprets textual information obtained from a range of sources and determines how content may be applied to requirements
Writing	1.3, 2.3, 2.4, 3.7, 6.2, 6.3	• Develops content in a manner that supports the purposes and format of the requirements using appropriate structure, layout and specialised technical and programming language
Oral Communication	1.1, 1.4, 1.5, 2.5, 3.2, 5.1, 6.3	• Uses listening, questioning and summarising techniques to identify needs, and uses specific and clear language when engaging with others
Numeracy	3.4, 4.1, 4.3, 4.4	• Makes measurements and performs calculations for work layout, determine field lengths and table size and estimate database size
Get the work done	All	• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks, identify and evaluate alternative strategies and resources • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against the agreed criteria • Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTDBS502 Design a database	ICADBS502A Design a database	Updated to meet Standards for Training Packages.	Equivalent unit

Code and title current version	Code and title previous version	Comments	Equivalence status
		Minor edits to clarify intent of the performance criteria	

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2