ICTDBS506 Design databases

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.

Application

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

It applies to those who are employed in roles including database administrators or 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 Conduct user-needs analysis with required personnel and determine database functionality requirements 1.2 Determine user-needs analysis technical requirements 1.3 Develop conceptual model of database according to organisational requirements 1.4 Submit conceptual model to required personnel 1.5 Seek and respond to feedback and make required changes
2. Develop logical data model	2.1 Identify attributes and determine data types 2.2 Undertake normalisation of attributes 2.3 Develop entity-relationship (ER) diagram and clarify cardinality of relationships 2.4 Document attributes, normalised data and ER diagram

ELEMENT	PERFORMANCE CRITERIA
	2.5 Submit documentation to required personnel and seek and respond to feedback
3. Design data structures	3.1 Confirm primary and foreign keys according to technical requirements
	3.2 Identify referential integrity constraints and organisational business rules
	3.3 Establish database management system constraints and incorporate into database design
	3.4 Design and develop data validation rules, indexes and data dictionary
	3.5 Document database design according to organisational policies and procedures
4. Design queries, screens and reports	4.1 Design database according to organisational requirements
	4.2 Design required queries and output reports
	4.3 Compare physical design against conceptual model and user-needs analysis
	4.4 Incorporate all required changes into database design
5. Design access and security systems	5.1 Review existing business security plan and use as design base
	5.2 Design database password and access system
	5.3 Identify multiple-user requirements
	5.4 Develop required organisational access profiles
6. Confirm database design	6.1 Determine database backup and recovery requirements
	6.2 Develop and document database backup and restore procedures
	6.3 Submit database and documentation to required personnel
	6.4 Seek and respond to feedback from required personnel
	6.5 Obtain final task sign off from required personnel

Foundation Skills

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

SKILL	DESCRIPTION
Numeracy	• Makes measurements and performs calculations for work layout, determine field lengths and table size and estimate database size
Oral communication	• Uses listening and questioning techniques to confirm information and requirements using industry language for intended audience

SKILL	DESCRIPTION
Reading	• Interprets textual information obtained from a range of sources and determines how content may be applied to requirements
Writing	• Develops documentation detailing data model and design using appropriate structure, layout and specialised technical and programming language
Planning and organising	• 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
Problem solving	• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against the agreed criteria
Technology	• Identifies key principles and concepts underpinning the design, and operation, of digital systems and tools

Unit Mapping Information

Supersedes and is equivalent to ICTDBS502 Design a database.

Links

Companion Volume Implementation Guide is found on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2