



Australian Government

ICTWEB451 Apply structured query language in relational databases

Release: 1

ICTWEB451 Apply structured query language in relational databases

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 produce structured query language (SQL) statements to work with server-side scripts, enabling web developers to interact with web server databases.

The unit applies to individuals in a range of roles who are responsible for creating server-side interaction with dynamic web pages, using SQL as a means of communicating with databases.

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

Unit Sector

Web

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify database requirements	1.1 Determine information required from database 1.2 Identify tables holding this information 1.3 Identify primary keys in these tables 1.4 Identify relationships between these tables including foreign keys
2. Build and implement SQL in relational databases	2.1 Identify and build SQL statements according to task requirements 2.2 Create tables in a database using SQL statements 2.3 Create primary and foreign keys required in database table

ELEMENT	PERFORMANCE CRITERIA
	2.4 Manipulate data in a database using SQL statements 2.5 Query database using SQL statements 2.6 Retrieve information from database using written SQL statements
3. Test and verify SQL results	3.1 Construct test data and test SQL statements according to organisational procedures 3.2 Determine expected results of SQL statements 3.3 Verify result of constructed SQL statements against expected results and document findings 3.4 Confirm task requirements are met and obtain sign-off from required personnel

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Analyses and consolidates information and data from a range of sources, against defined criteria and requirements
Writing	- Uses clear and specialised technical syntax when creating codes and interrogating databases - Prepares and produces, diagrammatic models and associated documents and conveys complex relationships between data
Self-management	Takes responsibility for planning, sequencing and prioritising tasks and own workload
Problem-solving	- Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations - Addresses less predictable problems and initiates standard procedures in response to these problems, applying problem-solving processes in determining a solution
Technology	Uses familiar digital technologies and systems to access information, search and enter, data and code, present information and communicate with others, cognisant of data security and safety

Unit Mapping Information

Supersedes and is equivalent to ICTPRG425 Use structured query language and ICTWEB425 Apply structured query language to extract and manipulate data.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTWEB451 Apply structured query language in relational databases

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- apply structured query language (SQL) to a relational database and gather required information according to task requirements.

In the course of the above, the candidate must:

- generate queries for one or more tables and provide required data
- add, modify, retrieve and delete records from database tables as required test and verify SQL statements.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- organisational policies and procedures relating to SQL application including:
 - identifying SQL requirements from job specifications
 - testing and verifying SQL results
- features and application of primary and foreign keys in database tables, aggregate functions and clause functions required in SQL application
- principles of “combining and/or condition” in SQL statements and Boolean operators
 - IN and BETWEEN conditional operators
 - mathematical operators
 - table joins (relationships)
- documentation techniques relevant to applying structured query language in relational databases
- SQL statement testing methodologies.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- task specification documentation
- structured query language (SQL)
- industry standard software packages
- an integrated development environment (IDE)
- a database server
- required hardware, software and its component.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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