



**Australian Government**

# **ICTPRG432 Develop data-driven applications**

**Release: 1**

# ICTPRG432 Develop data-driven applications

## 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 create data-driven applications that access data from a range of sources, including databases, object data sources and extensible mark-up language (XML).

It applies to those who work as programmers or database application developers and who are responsible for data-access coding.

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

## Unit Sector

Programming and software development

## 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. Establish task requirements and select data-access layer (DAL) | 1.1 Identify data and application requirements according to organisational procedures<br>1.2 Review function of required DAL in multi-layer application model<br>1.3 Determine data-access application programming interface (API) according to task requirements |
| 2. Establish connection with data source                          | 2.1 Create and manage connection strings according to task requirements<br>2.2 Connect data source using different data providers according to organisational procedures<br>2.3 Handle connection exceptions using code                                           |
| 3. Execute commands and return                                    | 3.1 Query data from data source according to task                                                                                                                                                                                                                 |

|                                          |                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| results from data source                 | requirements<br>3.2 Retrieve and manage results sets from data source<br>3.3 Manage exceptions when retrieving data                                                                                                                                                                                                                                                                     |
| 4. Modify and manage data in data source | 4.1 Insert, update and delete data according to task requirements<br>4.2 Confirm data integrity<br>4.3 Manage exceptions when modifying data<br>4.4 Research disconnected data management strategy<br>4.5 Confirm application can manage disconnected data according to organisational procedures<br>4.6 Document code and database connectivity according to organisational procedures |

## 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                   | <ul style="list-style-type: none"> <li>Interprets complex technical documents and confirms outcomes are met</li> </ul>                                      |
| Writing                   | <ul style="list-style-type: none"> <li>Prepares documentation outlining changes according to organisational requirements</li> </ul>                         |
| Initiative and enterprise | <ul style="list-style-type: none"> <li>Identifies opportunities to investigate potential new techniques and accesses data from various resources</li> </ul> |
| Problem solving           | <ul style="list-style-type: none"> <li>Identifies technical and conceptual issues and applies analytical processes in resolving issues</li> </ul>           |
| Technology                | <ul style="list-style-type: none"> <li>Designs and creates complex models and codes using digitally based technologies and systems</li> </ul>               |

## Unit Mapping Information

Supersedes and is equivalent to ICTPRG403 Develop data-driven applications.

## 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 ICTPRG432 Develop data-driven applications

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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:

- create at least one data access driven application.

In the course of the above, the candidate must:

- select and code data-access layer of multi-layer applications
- retrieve and update data from at least one data source
- document all changes including code and database connectivity.

## 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:

- features of object-oriented design and multi-layer applications
- relational database management systems, functions and tools
- data-access-layer (DAL) and its functions
- a range of application programming interfaces (API)
- different data providers and vendors
- object-oriented programming expressions and formulas at an intermediate level
- principles of Structured Query Language (SQL)
- organisational guidelines and procedures applicable in assisting the development of data-driven applications.

## 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:

- integrated development environment (IDE)
- data access application program interfaces (APIs)
- required data-access layer (DAL)
- database management system software and files
- coding standards
- specific tools and licences, as required for particular data-access API
- different types of data-access methods including data retrieval and storage, back-end coding and disconnected data management.

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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