



Australian Government

Department of Education, Employment and Workplace Relations

ICAPRG402A Apply query language

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICAI1 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to retrieve and manipulate information stored in information systems using a query language.

Application of the Unit

This unit applies to individuals in a range of work environments who are required to extract information from a source, such as database, text file, and eXtensible markup language (XML), by creating and running queries.

These individuals may support the job functions of managers and developers. They may work as application support, database support, junior IT administrator, database programmer and data programmer.

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.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

Elements and Performance Criteria

1. Determine the requirements of developing queries	1.1 Recognise various query-related <i>terminologies</i> 1.2 Identify the type of <i>data source</i> for a chosen <i>query language</i> 1.3 Identify and use necessary <i>tools</i> and environment in building queries
2. Write queries to retrieve and sort values	2.1 Use an <i>expression</i> to retrieve values from a single <i>unit</i> 2.2 Use an expression to combine values from more than one unit 2.3 Use an expression to sort values into certain order
3. Write queries to selectively retrieve values	3.1 Use an expression to filter a sequence based on a predicate or condition 3.2 Use an expression to filter a subset of sequence based on a predicate or condition 3.3 Use an expression to extract a specific value by position
4. Perform calculation in queries	4.1 Use expression to perform calculation on numeric values 4.2 Use expression to perform operation on text values 4.3 Use expression to perform operation on date and time values

Required Skills and Knowledge

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

Required skills

- analytical skills to:
 - analyse and comprehend interdependencies between data fields
 - examine and define system requirements for data
 - review requirements and determine the availability of information
- communication skills to:
 - interact with developer to determine data requirement
 - interact with end user personnel to determine data requirement
 - liaise with management on report and result matters
- literacy skills to:
 - produce basic ad hoc report
 - read and interpret specifications developed by business and technical experts
- numeracy skills to:
 - make basic calculations involving basic arithmetic operations
 - make estimates and comparisons involving date and time data
- problem-solving skills to:
 - address common problems in operating a computer system
 - perform basic debugging, such as defining simple problems, locating source of the problems, and providing solutions to problems
- technical skills to:
 - perform basic data-management operations, such as insert, update and delete operations
 - perform basic operations of a computer system.

Required knowledge

- broad knowledge of:
 - information gathering methods
 - data analysis
 - data mining
- characteristics of data source
- features of information system
- typical systems and procedures.

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	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> • select and use tools in developing, storing and executing queries to extract the appropriate data required for ad hoc reports or to support developers • incorporate calculations using: <ul style="list-style-type: none"> • control statements • operators • functions.
Context of and specific resources for assessment	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none"> • tools in: <ul style="list-style-type: none"> • accessing a data source • developing queries using the chosen query language • specific requirements, including client and functionality • policy and naming standard • resources to aid calculation • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> • evaluation of candidate's ability to: <ul style="list-style-type: none"> • integrate query into larger systems to support application development team • implement programmability objects (such as stored procedures) containing queries stored in an information system to support operational functions • direct observation of candidate using query language to retrieve or manipulate data • verbal or written questioning to assess candidate's knowledge of the features of the query language.
Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate.</p> <p>Assessment processes and techniques must be culturally</p>

	<p>appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed.</p> <p>Indigenous people and other people from a non-English speaking background may need additional support.</p> <p>In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.</p>
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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.

<i>Terminologies</i> may include:	<ul style="list-style-type: none"> • attribute • command • data item • expressions • item type • statement.
<i>Data source</i> may include:	<ul style="list-style-type: none"> • arrays • databases • entities • enumerable classes • objects • text files • eXtensible markup language (XML).
<i>Query language</i> may include:	<ul style="list-style-type: none"> • abstract object query language (AOQL) • XML • Google base query language (GBQL) • Java persistence query language (JPQL) • language integrated query (LINQ) • structured query language (SQL) • xQuery.
<i>Tools</i> may include:	<ul style="list-style-type: none"> • application programming interface (API) • class libraries • database engine • integrated development environment (IDE) • programming language.
<i>Expression</i> may include:	<ul style="list-style-type: none"> • function • operator • statement.
<i>Unit</i> may include:	<ul style="list-style-type: none"> • node • object • result set • table.

Unit Sector(s)

Programming and software development