



Australian Government

Department of Education, Employment and Workplace Relations

ICAT4242B Perform unit test for a class

Release: 1

ICAT4242B Perform unit test for a class

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that the system is proved adequate, before handover to the client/user, by unit testing functionality and reliability of individual components. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for test	1.1.Determine test criteria 1.2.Prepare the test environment 1.3.Perform static tests using appropriate test tools to verify correct behaviour of modules 1.4.Use a test harness program to exercise module behaviour 1.5.Test objects containing lower level class instances separately 1.6.Prepare data to facilitate path testing 1.7.Prepare data to facilitate member function testing
2. Conduct test	2.1.Ensure clean test environment 2.2.Initialise test environment 2.3.Run test harness and document results in line with test and acceptance processes 2.4.Forward test results to appropriate person 2.5.Finalise test environment
3. Analyse and classify results	3.1.Review and classify test results to highlight areas of concern 3.2.Compare test results against requirements and design specifications in line with quality benchmarks 3.3.Review feedback 3.4.Ensure compliance with documentation and reporting standards

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when: memory leakage, global name space pollution, static variables are specifically addressed for each object)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when details/comments are logged and

REQUIRED SKILLS AND KNOWLEDGE

- signatures are gained)
- Object-oriented programming (e.g. when objects containing lower level class instances are tested separately, i.e. declaration of class within the class to be tested, and when presence of scripts to test dynamic binding on all relevant functions is ensured, if inheritance has been used to generate object)
 - Questioning and active listening skills (e.g. when details/comments are logged and signatures are gained)

Required knowledge

- Detailed knowledge of an object-oriented programming language
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas
- Detailed knowledge of underlying test data
- Detailed knowledge of input/output requirements

Evidence Guide

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	Evidence of the following is essential: - Assessment must confirm sufficient knowledge of object-oriented methodology to carry out test. Assessment must confirm the ability to meet client requirements by successfully validating the test object and documenting the results. To demonstrate competency in this unit the person will require access to: - Suitable test plan - Specific requirements - Design documents used in the analysis of the test - A suitable class to test Top-down testing may mean that user representatives should be present at a unit testing session if predicates and pathways are being tested.
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Assessment must ensure: Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

EVIDENCE GUIDE

	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others

EVIDENCE GUIDE

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| | <ul style="list-style-type: none"> • Maintain knowledge of industry products and services |
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Range Statement**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.

Test environment may include:

- data
- program libraries
- network/communications and other equipment
- operating system
- other support software

Appropriate person may include:

- supervisor
- project leader and/or programmer responsible for code

Quality benchmarks may include:

- organisational standards or those that may be based on products such as PSM or SPICE

Test criteria

Procedural language criteria may encompass:

- Procedures
- Parameters
- Return values
- Behaviour that affects the attributes of the program

Object-oriented language criteria may encompass procedural language criteria as well as:

- Inheritance between classes
- Proper instantiation of classes
- Interaction between methods of the classes

Unit Sector(s)

Unit sector	Test
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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