Australian Government

Department of Education, Employment and Workplace Relations

ICAPRG409A Develop mobile applications

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

ICAPRG409A Develop mobile applications

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop, debug, test and deploy applications for hand-held devices, such as mobile phones, pocket PCs, personal digital assistants (PDAs) and enterprise digital assistants (EDAs).

Application of the Unit

This unit is relevant to those who work as mobile device application developers. They may be programmers, game developers, designers, or testers who are working in the area of mobile applications development.

The context of the unit applies to all development platform environments which provide tools to build and deploy applications into the target platform environment, such as Android, Symbian, Java ME, .NET compact platform, iPhone, Google phone and BlackBerry.

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
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.*

Elements and Performance Criteria

1. Define a platform	1.1 Determine target **platform** for the hand-held device
	1.2 Choose and evaluate a **development environment** based on the target platform, hardware and mobile phone manufacturer on which the application will run
	1.3 Prepare and configure the application development environment
2. Design user interface for a mobile application	2.1 Create views for different screen orientations and resolutions
	2.2 Integrate appropriate **navigation** techniques
	2.3 Design page **layout and content**
	2.4 Integrate appropriate **user input** techniques
3. Permit the personalisation of parameters	3.1 Write code to allow users to configure application settings
	3.2 Write code to allow users to configure application output, such as text size, brightness and sound effects
4. Build user interface for a mobile application	4.1 Itemise the required functionality
	4.2 Build user interface in the determined development environment to fulfil this functionality
5. Connect to data sources	5.1 Bind controls to data sources
	5.2 Persist data using eXtensible markup language (XML) serialisation
	5.3 Access remote data using XML web services
6. Test and debug a mobile device application	6.1 Test application for overall functionality according to requirements
	6.2 Iterate application design or build until test results meet requirements
7. Deploy a mobile device application	7.1 Create application packaging for deployment
	7.2 Deploy an application to target devices

Required Skills and Knowledge

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

Required skills

- analytical skills to:
    - design for small devices
    - evaluate appropriate mobile development environment
- communication skills to provide advice and guidance to others
- literacy skills to read and interpret technical and non-technical information
- numeracy skills to make basic calculations for specifying the layout of the mobile user interface design
- problem-solving skills to:
    - address common problems in building and deploying mobile applications
    - perform basic programming debugging skills
- research skills to find and evaluate relevant technologies in mobile applications development
- technical skills to:
    - create XML documents
    - design user interface
    - develop software applications
    - test and debug applications
    - use an integrated development environment (IDE).

Required knowledge

- basic knowledge of:
    - hardware and networking
    - object-oriented programming
    - user-interface design
    - web design: HTML, JavaScript, cascading style sheet (CSS), and AJAX
- detailed knowledge of XML programming and web services.

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 ability to: • design, build, test and deploy applications for small devices: • mobile phones • pocket PCs • personal digital assistants (PDAs) • enterprise digital assistants (EDAs).
Context of and specific resources for assessment	Assessment must ensure access to: • hand-held devices or stimulators • integrated development environment (IDE) • internet and web services • server system with sufficient privileges to deploy applications • specific tools and licences, depending on particular platform • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following example is appropriate for this unit: • verbal or written questioning to assess knowledge of mobile development environment.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

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.

Platform may include:	• Android • BlackBerry • Google iPhone • Java ME • .NET compact platform • Symbian.

Development environment may include:	• cross-platform deployment
	 • emulator availability
	 • frameworks:
	   • Flash
	   • Java Platform, Micro Edition and Java Platform Standard Edition
	   • .NET compact platform
	   • Qtopia for embedded Linux-based mobile devices
	   • Sprout Core (open-source JavaScript framework)
	   • wireless application protocol (WAP)
	 • integrated development environment:
	   • BlackBerry
	   • Eclipse
	   • NetBeans
	   • Visual Studio
	   • XCode
	 • languages:
	   • C#
	   • C/C++
	   • Java
	   • JavaScript
	   • Objective-C
	   • Perl hypertext pre-processor (PHP)
	   • Python
	   • Ruby
	   • Visual Basic (VB) or VBScript
	   • wireless markup language (WML)

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	• server and client tools libraries and tools.
Navigation may include:	• access keys • image maps • navigation bar • navigation links.

Layout and content may include:	• content:
	  • bandwidth
	  • limited screen area
	  • load time and cost
	  • use clear language
	• layout:
	  • font and colour
	  • images
	  • page size
	  • positioning controls
	  • scrolling to display content.

User input may include:	• multi-press • multi-touch • on-screen keyboard • phone keypad.

Unit Sector(s)

Programming and software development