



Australian Government

ICTGAM553 Integrate database with online games

Release: 1

ICTGAM553 Integrate database with online games

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 integrate a database with an online game, where the relationship between the game server and the database server is also considered a client-server relationship on a local area network.

The unit applies to those with high-level technical and problem-solving skills working as programmers, analyst programmers and game programmers responsible for the development of code to connect a computer game to a database.

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

Unit Sector

Game 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. Install application programming interfaces	1.1 Research application programming interfaces (APIs) according to client requirements 1.2 Identify specific APIs required for game architecture and data source provider 1.3 Install nominated APIs on game development computers according to technical specifications
2. Define and use connection to data source	2.1 Define required game data source connection parameters 2.2 Store connection parameters in required external text-based configuration file 2.3 Open and close connection to game data source

ELEMENT	PERFORMANCE CRITERIA
3. Configure and use connection pooling	3.1 Configure connection pooling in the database management system 3.2 Define connection pool parameters for minimum connections, maximum connections, and idle connections 3.3 Minimise use of database resources through connection pooling 3.4 Test and verify use of connection pooling according to organisational requirements
4. Pass embedded non/structured query language (SQL) to a database	4.1 Define database connection property 4.2 Compose structured query language (SQL) or non-SQL statement to be passed to database 4.3 Test, debug and execute the statement according to organisational requirements
5. Execute stored procedures	5.1 Call stored procedure on database and use command callable statement 5.2 Define and pass parameters to stored procedure 5.3 Test, debug and execute database stored procedure according to organisational requirements
6. Modify database data	6.1 Retrieve result sets from the database into game application domain 6.2 Insert new records into database 6.3 Update existing database records 6.4 Integrate data from forward-only and read-only cursor into game application domain 6.5 Incorporate data from updateable cursor into game application domain
7. Test and debug database integration code	7.1 Test database integration code and document results according to organisational requirements 7.2 Determine errors and exceptions and document solutions 7.3 Debug all errors and exceptions 7.4 Assess data modifications, identify and fix errors 7.5 Submit all documentation to required personnel and seek and respond to feedback

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
Oral communication	• Articulates requirements and responsibilities distinctively using industry standard technical language intended for audience and environment
Reading	• Identifies and evaluates documents containing complex technical terminology to identify which APIs are suited to the game application domain and the game architecture
Writing	• Uses programming code, syntax and conventions to update, test and de-bug the database integration code • Documents test results and technical solutions, using applicable industry terminology
Planning and organising	• Plans, organises and completes work according to project brief and schedules, sequencing tasks to achieve efficient outcome
Problem solving	• Sources and analyses reference materials related to database integration • Uses creativity and initiative in database assessment and design • Uses systematic, analytical processes in complex, routine and non-routine situations, gathering information, evaluating options, and identifying solutions to coding problems
Technology	• Uses key features, of specific digital systems and software effectively to complete defined tasks

Unit Mapping Information

Supersedes and is equivalent to ICTGAM527 Integrate database with online game.

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 ICTGAM553 Integrate database with online games

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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:

- integrate, test and modify two sets of database data provided by game-play input and document all errors and solutions on at least two occasions.

In the course of the above, the candidate must:

- determine and install application programming interfaces (API) for games development
- define and add database functionality to an online game.

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:

- relational database methodologies, including;
 - creating and testing stored procedures
 - ‘embedded’ structured query language (SQL) and assigning parameters in code for filtering
 - implementing relationships between tables
 - retrieving data from multiple tables using SQL
 - how inserts to tables in parent/child relationships can be implemented using artificial (auto-generated) primary key values
 - implementing cascading updates and deletes
- principles of game development applicable to integrating databases with online games
- principles of integrated development environments, including:
 - data access APIs and associated classes, required for the integration of a database with an online game
 - online help and documentation required for research and debugging code

- user authentication and authorisation management
- methodologies and techniques required for effective and well-factored object-oriented program (OOP) code, including:
 - class implementation
 - control of logic flow
 - use of collections and lists
 - use of OOP concepts, including inheritance, encapsulation and overloading
- implications of web development on games integration.

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:

- the game design specification and requirements documentation
- a game server
- a database server
- integrated development environment software and hardware
- browsers for game engine for console-based games.

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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