

**Specification of Competency Standards**  
**for the Information & Communications Technology Industry**  
**Unit of Competency**

Functional Area - Operations Management

Title	Perform game database design
Code	107920L5
Description	This unit of competency applies to all Digital Media Technology (DMT) practitioners who are involved with data management tasks for game applications. A database is the core of a game, without it the game has no means to store its components and details and becomes nothing. This UoC is concerned with database design issues for proper storage and handling of all relevant information for a game application, which will have profound influences to its subsequent performance, reliability and stability.
Level	5
Credit	6
Competency	<p>Performance Requirements</p> <p>1. Knowledge for game database design</p> <ul style="list-style-type: none"> <li>• Realize the organisation's requirements and guidelines towards game applications and their development methodology</li> <li>• Possess in-depth understanding about the functional and technical specifications of the game in concern</li> <li>• Possess the ability to estimate with good accuracy the resources requirements for smooth operation and running of the game application</li> <li>• Possess proficient knowledge in database concept and facilities, and popular database management systems (DBMS) software</li> <li>• Possess the capability to design and build a suitable database for the game application in concern</li> </ul> <p>2. Perform database design for games</p> <ul style="list-style-type: none"> <li>• Fully explore the facilities offered by popular DBMSs for game applications development, for examples: <ul style="list-style-type: none"> <li>○ MS-SQL</li> <li>○ MYSQL</li> <li>○ Oracle</li> <li>○ Other database management software</li> </ul> </li> <li>• Plan for the potential and proper usage of DBMS facilities, such as: <ul style="list-style-type: none"> <li>○ Table structures for mass data storage and retrieval</li> <li>○ Primary and foreign key definitions to identify game players and relationships with their inventories, scores and various objects in the game</li> <li>○ Index structures for random and quick information access</li> <li>○ Security features to authenticate players and characters</li> <li>○ Integrity features to ensure consistency of information viewed by players</li> <li>○ Recovery features to preserve and restore data after failure situations, etc.</li> </ul> </li> <li>• Propose database structures to satisfy game specific requirements, such as: <ul style="list-style-type: none"> <li>○ Determine the method and schema for storage of information related to: <ul style="list-style-type: none"> <li>▪ Game characters</li> <li>▪ Character details</li> <li>▪ Skills</li> <li>▪ Inventory</li> <li>▪ Scores, etc.</li> </ul> </li> <li>○ Determine the method and schema for the game billing system, including details about: <ul style="list-style-type: none"> <li>▪ Player accounts</li> </ul> </li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>▪ Point cards processing (if used)</li> <li>▪ Interface with the publisher's billing system</li> <li>▪ Interface with the billing details of other game systems</li> <li>○ Determine the indexing structures for rapid information retrieval, such as: <ul style="list-style-type: none"> <li>▪ Standard B-Tree index</li> <li>▪ Bitmap index</li> <li>▪ Hash key index</li> <li>▪ Multi-columns (compound) index, etc.</li> </ul> </li> <li>○ Setup database procedure calls to interface with the game application, for functions such as report generation</li> <li>○ Make use of DBMS facilities to satisfy miscellaneous game related requirements such as: <ul style="list-style-type: none"> <li>▪ Transaction logging</li> <li>▪ Concurrent player handling</li> <li>▪ Voluminous data or players handling, etc.</li> </ul> </li> <li>• Consolidate and properly document the aforementioned game database design elements and choices</li> <li>• Present the design document to the game development team (or management) for comments and approval for implementation</li> </ul> <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> <li>• Always committed to fully devoted to all activities related to game database design</li> <li>• Always perform the game database design in an objective, open-minded and fair manner, without illegal copying or adoption of ideals</li> </ul>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> <li>• Complete the game database design that can satisfy all requirements of the game application in concern; and</li> <li>• Complete the game database design effectively and efficiently by fully exploiting the features and facilities of the DBMS software used</li> </ul>
Remark	