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ICTPRG554 Manage data persistence using noSQL data stores

Release: 1

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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 implement a data store and manage data persistence using non structured query language (NoSQL) to provide automatic scaling as well as high performance and availability over semi-structured data.

The unit applies to those working as senior software developers, senior back end developers or full stack developers, and responsible for managing information and communications technology (ICT) in small-to-large enterprises (SMEs).

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

Unit Sector

Programming

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Review and select noSQL options	1.1 Confirm use and application for noSQL according to business requirements and needs
	1.2 Research and compare horizontal and vertical scaling and confirm relevance and benefit of horizontal scaling according to business requirements
	1.3 Research and compare noSQL technologies and traditional relational data models
	1.4 Research, review and select noSQL vendor technologies according to business requirements
2. Determine and create storage of data types	2.1 Design and determine data storage requirements from noSQL data store according to selected vendor technology and business

ELEMENT	PERFORMANCE CRITERIA
	requirements
	2.2 Review and select required types of noSQL data store according to business requirements
	2.3 Create partition key and determine storage place of data items
	2.4 Review and determine required partition key and ensure effective distribution of storage across partition
3. Build and configure indexes	3.1 Determine and select required sort key according to business requirements
	3.2 Calculate, determine and configure read and write through-puts according to business requirements
	3.3 Determine, configure and create indexes for optimising data retrieval queries
	3.4 Determine and create additional indexes
	3.5 Optimise data queries and retrievals for indexes according to business requirements
	3.6 Determine and configure time-to-live (TTL) on data objects according to business requirements
4. Use queries and retrieve objects	4.1 Research and select required API client for interacting with noSQL data store according to business requirements
	4.2 Substantiate and connect API client to noSQL data store instance
	4.3 Insert single data object into noSQL datastore using selected client application
	4.4 Insert multiple items in single operation
	4.5 Use query and select single object
	4.6 Use query and retrieve multiple objects in batch
	4.7 Perform query against index
	4.8 Perform query to select required attributes and project results
5. Confirm interaction of objects	5.1 Delete single and multiple objects according to business requirements
	5.2 Update single and multiple objects according to business requirements
	5.3 Persist objects with different data types
	5.4 Configure and confirm change event triggers and notifications according to business needs
	5.5 Test, fix and ensure responses and trigger notifications work according to business requirements
	5.6 Review and confirm data is encrypted and authorisation and authentications are active according to user and client access requirements

ELEMENT	PERFORMANCE CRITERIA
	5.7 Test and fix data persistence process according to business requirements
	5.8 Document and finalise work according to business requirements

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
Reading	• Critically analyses documentation, instructions and data from a variety of sources and records, and consolidates information in order to determine requirements and steps forwards • Identifies and interprets technical material to determine and confirm job, business and systems requirements
Writing	• Demonstrates sophisticated writing skills using specialised language, technical language and scripts and required conventions to document work
Planning and organising	• Researches, plans and sequences complex tasks, efficiently and effectively
Problem solving	• Applies systematic and analytical decision- making processes for complex and non-routine situations and bug code • Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focusing attention and remedying problems as they arise
Self-management	• Monitors progress of plans and schedules, and reviews and changes them, to meet new demands and priorities • Investigates new and innovative ideas, as a means by which to continuously improve, work practices and processes through consultation, formal and analytical thinking
Technology	• Uses complex scripts and tools required within complex systems, applications, operation systems, the internet and required software and hardware components • Uses cyber security procedures and techniques to maintain data security, and systems and application integrity

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guide is found on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2