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IIE MSA RUIMSIG

Portfolio Of Evidence – Part 2

CLDV6211

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# POE Part 2: Enhancing Functionality and Integrating Cloud Storage

## Integrate Azure Storage

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## Azure Deployment Updates

## Database Design, Cognitive Search

Questions:

1. Explain how Azure’s Cognitive Search differs from traditional search engines and discuss potential use cases where Cognitive Search would offer a clear advantage. What limitations does it have, and how can they be mitigated?
2. Why is database normalisation important in cloud-based database design? Discuss the impact of both normalised and denormalised structures on performance and scalability in a cloud environment like Azure.

Answers:

Azure Cognitive Search offers extensive customisation and AI integration, setting it apart from conventional search engines. Cognitive Search enables the indexing of a range of private data sources, including papers, databases, and cloud storage, whereas conventional search engines like Google concentrate on public web material. Additionally, it offers sophisticated features like sentiment analysis, image recognition, and text analysis driven by AI, which enable more insightful and pertinent search results catered to particular business requirements.

Use cases like enterprise document search, e-commerce product search, healthcare data retrieval, and chatbots for customer support are where the service is particularly useful. Large volumes of data may be indexed and searched by organisations using it, providing AI-enriched insights that are not possible with conventional search engines. For instance, it can match related products in an e-commerce catalogue or extract important terms from papers, enhancing user experience and business productivity.

Nevertheless, there are certain drawbacks to Cognitive Search, such as difficulties managing huge datasets, delays in real-time indexing, and possible errors in AI-enriched results. Businesses can use techniques like batch processing, AI model optimisation, and usage-based cost monitoring to lessen these. Organisations can maximise Cognitive Search's benefits and minimise its downsides by being aware of these restrictions and utilising Azure's other capabilities.

Because it increases integrity, streamlines data management, and eliminates data redundancy, database normalisation is crucial to cloud-based design. Normalisation reduces anomalies and guarantees consistency by arranging data into separate tables. Although normalisation may necessitate more intricate queries and joins, which could affect performance and raise costs, it promotes scalability and performance in cloud environments such as Azure by generating effective, flexible data models.

By eliminating the requirement for joins, denormalised structures can improve query performance and speed up data retrieval, particularly in applications that rely heavily on reading. Denormalization adds redundancy, though, which can make updates more difficult and cause problems with data integrity. This redundancy may also affect maintainability and result in increased storage expenses in cloud environments like as Azure as the database grows.

In conclusion, choosing between normalised and denormalised structures for cloud databases requires striking a balance between data integrity and performance. While denormalization enhances performance but adds redundancy, normalisation guarantees consistency and efficiency. Choosing the best strategy for cloud environments like Azure requires an understanding of workload requirements.