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Microsoft Exam AZ-800

Guide to Administering Windows
Server Hybrid Core Infrastructure

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Microsoft DP-800 Exam Syllabus Topics:

Topic	Details
Topic 1	<ul style="list-style-type: none">Implement AI capabilities in database solutions: This domain covers designing and managing external AI models and embeddings, implementing full-text, semantic vector, and hybrid search strategies, and building retrieval-augmented generation (RAG) solutions that connect database outputs with language models.
Topic 2	<ul style="list-style-type: none">Secure, optimize, and deploy database solutions: This domain focuses on implementing data security measures like encryption, masking, and row-level security, optimizing query performance, managing CICD pipelines using SQL Database Projects, and integrating SQL solutions with Azure services including Data API builder and monitoring tools.

Topic 3

- Design and develop database solutions: This domain covers designing and building database objects such as tables, views, functions, stored procedures, and triggers, along with writing advanced T-SQL code and leveraging AI-assisted tools like GitHub Copilot and MCP for SQL development.

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Right Q&A in Microsoft DP-800 Exam Questions

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Microsoft Developing AI-Enabled Database Solutions Sample Questions (Q44-Q49):

NEW QUESTION # 44

Case Study 2 - Fabrikam

Existing Environment

Azure Environment

Fabrikam has a single Azure subscription in the East US 2 Azure region. The subscription contains an Azure SQL database named DB1. DB1 contains the following tables:

- * Patients
- * Employees
- * Procedures
- * Transactions
- * UsefulPrompts
- * ProcedureDocuments

You store a column master key as a secret in Azure Key Vault.

You have an on-premises application named TransactionProcessing that uses a hard-coded username and password in a connection string to access DB1.

Problem Statements

Users report that after executing a long-running stored procedure named `sp_UpdateProcedureForPatient`, updates to the underlying data are sometimes inconsistent.

Requirements

Planned Changes

Fabrikam plans to manage all changes to Azure SQL Database objects by using source control in GitHub. Every pull request submitted to production will be validated before it can be merged.

Deployments must use the Release configuration.

Security Requirements

Fabrikam identifies the following security requirements:

- * The TransactionProcessing application must use a passwordless connection to DB1.
- * The Employees table contains two columns named TaxID and Salary that must be encrypted at rest.
- * Auditors must have a tamper-evident history of transactions with cryptographic proof of changes to the employee data.

Database Performance Requirements

Records accessed by using `sp_UpdateProcedureForPatient` must NOT be changed by other transactions while the stored procedure runs.

AI Search, Embeddings, and Vector Indexing

Fabrikam identifies the following AI-related requirements:

- * Queries to the ProcedureDocuments table must use Reciprocal Rank Fusion (RRF).
- * Users must be able to query the data in DB1 by using prompts in Copilot in Microsoft Fabric.
- * The UsefulPrompts table will store prompts that doctors can use to help diagnose patient illness by connecting to an Azure OpenAI endpoint.

Development Requirements

Fabrikam identifies the following development requirements:

- * Provide the functionality to retrieve all the transactions of a given patient between two dates, showing a running total.

* Expose a Data API builder (DAB) configuration file to enable Azure services to perform the following operations over a REST API:

- Read data from the procedures table without authentication.
- Read and insert data into the Transactions table once authenticated.
- Execute the sp_UpdateProcedurePatient stored procedure.

* Provide the functionality to retrieve a list of the names of patients who underwent medical procedures during the last 30 days.

* Information for each medical procedure will be stored in a table. The table will be used with a large language model (LLM) for user querying and will have the following structure.

```
CREATE TABLE dbo.ProcedureDocuments
(
    DocumentId INT IDENTITY PRIMARY KEY,
    SourceId NVARCHAR(200) NULL,
    Content NVARCHAR(MAX) NOT NULL,
    Embedding VECTOR(1536) NOT NULL,
    CreatedAt DATETIME2 NOT NULL DEFAULT SYSUTCDATETIME()
);
```

DAB

You create a DAB configuration file that meets the development requirements for DB1 and includes the following entities.

```

"Procedures": {
  "source": "dbo.Procedures",
  "rest": true,
  "graphql": true,
  "permissions": [
    {
      "role": "anonymous",
      "actions": [ "read" ]
    }
  ]
},
"Transactions": {
  "source": "dbo.Transactions",
  "rest": true,
  "graphql": true,
  "permissions": [
    {
      "role": "authenticated",
      "actions": [ "read", "create" ]
    }
  ]
}
]
}

"UpdateProcedurePatient": {
  "source": "dbo.sp_ UpdateProcedurePatient"
  "rest": {
    "enabled": true,
    "method": "post",
    "path": "/procedurepatient"
  },
  "graphql": false,
  "permissions": [
    {
      "role": "authenticated",
      "actions": [ "execute" ]
    }
  ]
}
}
}

```

You implement ProcedureDocuments to support the planned changes.

When users consume data through the Retrieval Augmented Generation (RAG) pattern, they experience data retrieval delays.

You need to improve the data retrieval performance and reduce the number of tokens per retrieval.

What should you implement?

- A. JSON content
- B. chunking
- C. a small language model (SLM)
- D. embeddings

Answer: D

Explanation:

Scenario: Fabrikam identifies the following AI-related requirements: Queries to the ProcedureDocuments table must use Reciprocal Rank Fusion (RRF).

To remedy data retrieval delays in a Retrieval Augmented Generation (RAG) pattern using Reciprocal Rank Fusion (RRF) on an Azure SQL Database table, you should use embeddings.

In a RAG architecture, retrieval delays often stem from inefficient or computationally heavy search processes. While RRF is excellent for merging results from multiple sources (like combining keyword and vector searches), the core of the speed problem typically lies in how the initial data is indexed and retrieved.

Role of Embeddings

Vector Search Acceleration: Embeddings convert text into high-dimensional vectors. Azure SQL Database can perform similarity searches on these vectors much faster than complex semantic text matching.

Hybrid Search Synergy: RRF is most effective when it fuses results from a keyword search (fast) and a vector search (powered by

embeddings). Using embeddings ensures that the "semantic" side of the retrieval is streamlined.

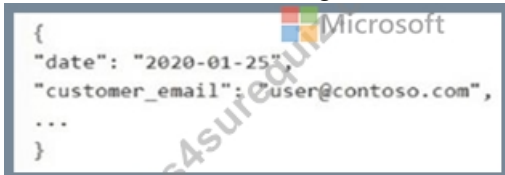
Pre-computation: Since embeddings are generated once during ingestion, the retrieval phase only requires a distance calculation (e.g., Cosine Similarity), which is significantly faster than real-time natural language parsing during each query.

Reference:

<https://pratikbarjatya.medium.com/unlocking-the-power-of-language-with-retrieval-augmented-generation-rag-14123cc275e6>

NEW QUESTION # 45

You have a SQL database in Microsoft Fabric that contains a column named Payload. Payload stores customer data in JSON documents that have the following format.



```
{
  "date": "2020-01-25",
  "customer_email": "user@contoso.com",
  ...
}
```

Data analysis shows that some customers have subaddressing in their email address, for example, user1+promo@contoso.com

You need to return a normalized email value that removes the subaddressing, for example, user1

+promo@contoso.com must be normalized to user1@contoso.com

Which Transact-SQL expression should you use?

- A. `REGEXP_REPLACE(JSON_VALUE(Payload, '$.customer_email'), '\+.*@', '@')`
- B. `REGEXP_SUBSTR(JSON_VALUE(Payload, '$.customer_email'), '`