

Exam

DP-900

Microsoft Azure Data Fundamentals

Free demo	40 sample questions
Full exam	336 questions with answers and explanations
Contents	Questions with answers and explanations
Generated	26 October 2026

Exam domains

Domain	Exam weight	Questions
D1 Describe core data concepts	25–30%	8
D2 Identify considerations for relational data on Azure	20–25%	11
D3 Describe considerations for working with non-relational data on Azure	15–20%	7
D4 Describe an analytics workload	25–30%	13

This is a free demo from Dumpsgate: 40 of the exam's 336 questions. [Get the full DP-900 exam](#) with every question, answer and explanation.

Question 1

Yes / No · Domain: D1 Describe core data concepts › Describe common data workloads

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Statement	Yes	No
Online transaction processing (OLTP) relies on a database system where data storage is optimized for both read and write operations.	☐	☐
Online analytical processing (OLAP) relies on a database system where data storage is optimized for both read and write operations.	☐	☐
Data warehouses are optimized for read operations.	☐	☐

Answer

- Online transaction processing (OLTP) relies on a database system where data storage is optimized for both read and write operations. **No**
- Online analytical processing (OLAP) relies on a database system where data storage is optimized for both read and write operations. **No**
- Data warehouses are optimized for read operations. **Yes**

Explanation

OLTP systems handle frequent transactions, so their storage is designed to support efficient writes as well as reads; they are not characterized as optimized for both equally. OLAP workloads and data warehouses primarily support analysis and querying, so storage is optimized for reading rather than for both reads and writes. Therefore, the statements are No, No, and Yes, respectively.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/relational-data/online-transaction-processing/>
<https://learn.microsoft.com/en-us/azure/architecture/data-guide/relational-data/online-analytical-processing/>
<https://learn.microsoft.com/en-us/fabric/data-warehouse/guidelines-warehouse-performance>

✗ Statement 1 Online transaction processing (OLTP) relies on a database system where data storage is optimized for both read and write operations.

No. OLTP databases support transactional workloads that involve frequent inserts, updates, and deletes as well as reads, but the statement specifically claims storage is optimized for both read and write operations. OLTP is principally optimized for transaction processing and writes, unlike analytical storage optimized for large-scale reads.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/relational-data/online-transaction-processing/>
<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✗ Statement 2 Online analytical processing (OLAP) relies on a database system where data storage is optimized for both read and write operations.

No. OLAP workloads primarily run analytical queries over large datasets, so the storage is optimized for reading and querying rather than for both read and write operations. This makes the statement false.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/relational-data/online-analytical-processing/>
<https://learn.microsoft.com/en-us/fabric/data-warehouse/guidelines-warehouse-performance>

✓ Statement 3 Data warehouses are optimized for read operations.

Yes. Data warehouses serve analytical workloads that query and aggregate stored data, making read and query performance a central optimization goal. This matches the statement.

<https://learn.microsoft.com/en-us/fabric/data-warehouse/guidelines-warehouse-performance>
<https://learn.microsoft.com/en-us/azure/architecture/data-guide/relational-data/online-analytical-processing/>

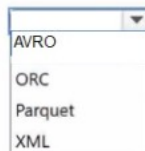
Question 2

Hotspot (dropdowns) · Domain: D1 Describe core data concepts › Identify options for data storage

Select the answer that correctly completes the sentence.

[Dropdown] is a row-based file format where each record contains a JSON header and binary data.

Answer Area



is a row-based file format where each record contains a JSON header and binary data.

is a row-based file format where each record contains a JSON header and binary data.: AVRO | ORC | Parquet | XML

Answer

- is a row-based file format where each record contains a JSON header and binary data.:
AVRO

Explanation

AVRO is the correct choice because it is a row-based file format whose records can contain a JSON-encoded schema header and binary-encoded data. This matches the sentence's description; ORC and Parquet are column-oriented formats, while XML is a text markup format.

<https://learn.microsoft.com/en-us/azure/databricks/query/formats/avro>

✓ **Box 1: AVRO** AVRO

Avro stores data as records and uses a schema in its file header, with the record data encoded in binary. It therefore matches the description of a row-based format with a JSON header and binary data.

<https://learn.microsoft.com/en-us/azure/databricks/query/formats/avro>

✗ **Box 1: ORC** ORC

ORC is a columnar file format, not the row-based format described in the sentence. It does not match the stated JSON-header-and-binary-record description.

<https://learn.microsoft.com/en-us/azure/data-factory/format-orc>

✗ **Box 1: Parquet** Parquet

Parquet is a column-oriented file format, rather than a row-based format with each record containing a JSON header and binary data. It therefore does not fit the sentence.

<https://learn.microsoft.com/en-us/azure/data-factory/format-parquet>

✗ **Box 1: XML** XML

XML is a text-based markup format that represents structured data with tags. It is not the described row-based format with a JSON header and binary data.

Question 3

Drag and drop · Domain: D1 Describe core data concepts › Identify options for data storage

Match the data storage options to the appropriate types of data.

To answer, drag the appropriate data storage option from the column on the left to its data type on the right.

Each data storage option may be used once, more than once, or not at all.

NOTE: Each correct match is worth one point.

Data storage options:

- Azure Blob Storage
- Azure Cosmos DB for NoSQL
- Azure Data Factory
- Azure SQL Database

Data types:

- Audio files
- JSON documents
- Tabular datasets

Data storage options

- Azure Blob Storage
- Azure Cosmos DB for NoSQL
- Azure Data Factory
- Azure SQL Database

Answer Area

- Audio files
- JSON documents
- Tabular datasets

Items:

- A. Azure Blob Storage
- B. Azure Cosmos DB for NoSQL
- C. Azure Data Factory
- D. Azure SQL Database

Place them on:

1. Audio files
2. JSON documents
3. Tabular datasets

Answer

- Audio files → **A. Azure Blob Storage**
- JSON documents → **B. Azure Cosmos DB for NoSQL**
- Tabular datasets → **D. Azure SQL Database**

Explanation

Azure Blob Storage is the appropriate choice for audio files because it stores unstructured objects such as media files. Azure Cosmos DB for NoSQL is suited to JSON documents, while Azure SQL Database stores structured, tabular data in a relational model. Azure Data Factory is used to orchestrate and move data, so it is not the storage option for any of these data types.

<https://learn.microsoft.com/en-us/azure/data-factory/frequently-asked-questions>

<https://learn.microsoft.com/en-us/azure/cosmos-db/fag>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/pipeline-orchestration-data-movement>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

<https://learn.microsoft.com/en-us/azure/azure-sql/database/design-first-database-tutorial?view=azuresql-db&viewFallbackFrom=azuresq>

✓ **Audio files: Azure Blob Storage** Azure Blob Storage

Audio files are unstructured media files, which are appropriate to store as objects in Blob Storage. This matches the Audio files target.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✓ **JSON documents: Azure Cosmos DB for NoSQL** Azure Cosmos DB for NoSQL

Cosmos DB for NoSQL stores and queries document data, including JSON documents. This makes it the correct match for the JSON documents target.

<https://learn.microsoft.com/en-us/azure/cosmos-db/fag>

<https://learn.microsoft.com/en-us/rest/api/cosmos-db/documents>

✗ **Azure Data Factory** Azure Data Factory

Azure Data Factory is a data integration and orchestration service used to move and transform data, rather than a storage destination for audio files, JSON documents, or tabular datasets. It is therefore not used for any target in this question.

<https://learn.microsoft.com/en-us/azure/data-factory/frequently-asked-questions>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/pipeline-orchestration-data-movement>

✓ **Tabular datasets: Azure SQL Database** Azure SQL Database

Azure SQL Database is a relational database service suited to structured data organized into tables. It is the correct match for tabular datasets.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

<https://learn.microsoft.com/en-us/azure/azure-sql/database/design-first-database-tutorial?view=azuresql-db&viewFallbackFrom=azuresq>

Question 4

Drag and drop · Domain: D1 Describe core data concepts › Describe common data workloads

Match the data terms to the appropriate descriptions.

To answer, drag the term from the column on the left to its description on the right. Each term may be used once, more than once, or not at all.

NOTE: Each correct match is worth one point.

Data terms

- Analytical processing
- Data pipelines
- Transactional processing
- XML files

Answer Area

- Data storage optimized for read operations.
- Data storage optimized for both read and write operations.
- Purpose-built systems for storing vast volumes of historical data.

Items:

- A. Analytical processing
- B. Data pipelines
- C. Transactional processing
- D. Data warehouse

Place them on:

1. Data storage optimized for read operations.
2. Data storage optimized for both read and write operations.
3. Purpose-built systems for storing vast volumes of historical data.

Answer

- Data storage optimized for read operations. → **A. Analytical processing**
- Data storage optimized for both read and write operations. → **C. Transactional processing**
- Purpose-built systems for storing vast volumes of historical data. → **D. Data warehouse**

Explanation

Microsoft describes OLAP/analytical systems as read-heavy and optimized for analytical querying, while transactional systems handle day-to-day transactions and CRUD operations. Data warehouses and analytical stores are designed to support large-scale historical analysis. XML is a data representation/file format, not a purpose-built historical analytical data store.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/relational-data/online-analytical-processing>
<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/data-store-overview>

Question 5

Single choice · Domain: D1 Describe core data concepts › Identify options for data storage

You have data saved in the following format.

```
FirstName,LastName,Age,LeisureHobby,SportsHobby
John,Smith,23,Reading,Basketball
Ben,Smith,21,Guitar,Curling
```

Which format was used?

- A. HTML
- B. CSV
- C. JSON
- D. YAML

Answer: B. CSV

Explanation

The data is arranged in rows, with each field separated by commas. The first row contains column names, and the following rows contain corresponding values, which is the CSV format. Reference 1 describes comma-separated value files.

<https://learn.microsoft.com/en-us/power-bi/connect-data/service-comma-separated-value-files>

✗ A HTML

HTML uses markup tags to structure content, such as tables or headings. The displayed data has no HTML tags and instead separates fields with commas.

<https://learn.microsoft.com/en-us/previous-versions/windows/desktop/htmlhelp/to-create-a-new-html-file>

<https://learn.microsoft.com/en-us/previous-versions/windows/desktop/htmlhelp/create-html-topic-files>

✓ B CSV

Each row is a line of text, and commas separate the fields, including the column names in the first line. This is the characteristic layout of CSV data.

<https://learn.microsoft.com/en-us/power-bi/connect-data/service-comma-separated-value-files>

✗ C JSON

JSON represents data using structures such as objects with braces and key-value pairs. The shown rows contain comma-separated fields without that JSON structure.

https://learn.microsoft.com/en-us/azure/data-factory/format-json?trk=article-ssr-frontend-pulse_little-text-block

✗ D YAML

YAML commonly expresses structured data with indentation and key-value syntax rather than rows of comma-separated fields. The displayed format is comma-delimited.

Question 6

Drag and drop · Domain: D1 Describe core data concepts › Identify options for data storage

Match The Types of data stores to The appropriate scenarios.

To answer, drag the appropriate data store type from the column on the left to its scenario on the right. Each data store type may be used once, more than once, or not at all.

NOTE: Each correct match is worth one point

A list of application user names and, for each, the default language.

A collection of medical images and their associated metadata.

Employee data that shows the relationships between employees.

Data Store Types	Answer Area
<div>Graph</div>	<div></div> A list of application user names and, for each, the default language.
<div>Key/value</div>	<div></div> A collection of medical images and their associated metadata.
<div>Object</div>	<div></div> Employee data that shows the relationships between employees.

Items:

- A. Graph
- B. Key/value
- C. Object

Place them on:

1. A list of application user names and, for each, the default language.
2. A collection of medical images and their associated metadata.
3. Employee data that shows the relationships between employees.

Answer

- A list of application user names and, for each, the default language. → **B. Key/value**
- A collection of medical images and their associated metadata. → **C. Object**
- Employee data that shows the relationships between employees. → **A. Graph**

Explanation

Use a key/value store for the user-name-to-default-language association: each username can serve as a key for its language value. Medical images are unstructured data with associated metadata, which fits an object store. Employee data focused on relationships between employees fits a graph store, which represents entities and their connections.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/data-store-overview>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✓ **A list of application user names and, for each, the default language.** Key/value

Each username can be the key, with that user's default language as the associated value. This suits a simple lookup of a value using its key.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/data-store-overview>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✓ A collection of medical images and their associated metadata. Object

Medical images are files or other unstructured data, and an object store can hold that content together with associated metadata. This makes Object the appropriate match for the image collection.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/data-store-overview>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blobs-introduction?WT.mc_id=AZ-MVP-5001375

✓ Employee data that shows the relationships between employees. Graph

The scenario emphasizes connections between employees. A graph store represents entities and the relationships between them, making it suitable for this data.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/data-store-overview>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

Question 7

Single choice · Domain: D1 Describe core data concepts › Describe ways to represent data

You have data in a tabular format as shown in the following table.

ID	First name	Last name	Email
1000	Ben	Smith	bensmith@contoso.com
1001	Carlos	Grilo	carlosgrilo@contoso.com

Of which type of data is this an example?

- A. unstructured data
- B. semi-structured data
- C. document
- D. structured data

Answer: D. structured data

Explanation

The table has a consistent set of named columns—ID, First name, Last name, and Email—and records arranged in rows. Because the data follows a defined schema, it is structured data. [5]

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✗ A unstructured data

This is not unstructured data: the values are organized into rows and clearly labeled columns rather than appearing without a predefined organization.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✗ B semi-structured data

Semi-structured data has some organizational markers but does not follow the fixed tabular schema shown here. Each row in this example uses the same named fields and column layout.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✗ C document

The example is a table of records with fixed fields, not a document as a data type. Its defining feature is the consistent row-and-column structure.

✓ **D** structured data

The table has a defined schema: every record has an ID, first name, last name, and email value in the corresponding column. This consistent tabular organization makes it structured data.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

Question 8

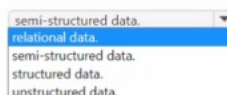
Hotspot (dropdowns) · Domain: D1 Describe core data concepts › Describe ways to represent data

Select the answer that correctly completes the sentence.

Varying fields for each entity in a JSON document is an example of

Answer Area

Varying fields for each entity in a JSON document is an example of



Varying fields for each entity in a JSON document is an example of: relational data. | semi-structured data. | structured data. | unstructured data.

Answer

- Varying fields for each entity in a JSON document is an example of: **semi-structured data.**

Explanation

JSON uses a recognizable format, but entities can have different fields rather than following one fixed schema. That makes the data semi-structured: it has organization and labels, while allowing variation in its structure. Therefore, the sentence is completed by "semi-structured data."

<https://learn.microsoft.com/en-us/azure/databricks/semi-structured/>

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

✗ **Box 1: relational data.** relational data.

Relational data is organized into tables with defined columns and a consistent schema. Varying fields for each JSON entity do not fit that fixed tabular structure.

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

<https://learn.microsoft.com/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✓ **Box 1: semi-structured data.** semi-structured data.

Semi-structured data has organization, such as JSON's named fields, without requiring every entity to have the same fields. That matches the variation described in the question.

<https://learn.microsoft.com/en-us/azure/databricks/semi-structured/>

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

✗ **Box 1: structured data.** structured data.

Structured data typically follows a predefined, consistent schema. The entities described can have varying fields, so this choice does not fit as well as semi-structured data.

<https://learn.microsoft.com/en-us/azure/databricks/semi-structured/>

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

✗ **Box 1: unstructured data.** unstructured data.

Unstructured data lacks the organized field structure that JSON provides. Although JSON entities may have varying fields, those fields still give the data structure, making it semi-structured rather than unstructured.

<https://learn.microsoft.com/en-us/azure/databricks/semi-structured/>

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

Question 9

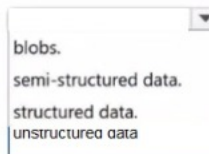
Hotspot (dropdowns) · Domain: D2 Identify considerations for relational data on Azure › Describe relational concepts

Select the answer that correctly completes the sentence.

Relational databases are commonly used to store and query [Blank 1].

Answer Area

Relational databases are commonly used to store and query



blobs.
semi-structured data.
structured data.
unstructured data

Relational databases are commonly used to store and query: blobs. | semi-structured data. | structured data. | unstructured data

Answer

- Relational databases are commonly used to store and query: **structured data.**

Explanation

Relational databases organize information in tables with defined rows, columns, and relationships, making them commonly suited to storing and querying structured data. The other choices describe data types more commonly handled by other storage approaches, although a relational database may still be able to contain some of them. [1][6]

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✗ **Box 1: blobs.** blobs.

Blobs are binary large objects, such as images or other binary files, rather than the structured tabular data relational databases are commonly used to query. A relational database can store blob values, but that is not the best completion of this sentence. [3][8]

<https://learn.microsoft.com/en-us/sql/relational-databases/blob/compare-options-for-storing-blobs-sql-server?redirectedfrom=MSDN&view=sql-server-ver15>

<https://learn.microsoft.com/en-us/sql/relational-databases/blob/binary-large-object-blob-data-sql-server?view=sql-server-ver16>

✗ **Box 1: semi-structured data.** semi-structured data.

Semi-structured data, such as JSON, does not follow a fixed relational table schema as strictly as structured data does. Relational databases can support some semi-structured formats, but structured data is the common fit asked for here. [1][5]

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

<https://learn.microsoft.com/en-us/azure/databricks/semi-structured/>

✓ **Box 1: structured data.** structured data.

Relational databases store data in tables with defined schemas and relationships, which makes structured data their common use for storage and querying. This directly completes the sentence. [1][6]

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✗ **Box 1: unstructured data** unstructured data

Unstructured data, such as free-form documents or media, does not fit naturally into relational tables with predefined columns and relationships. Relational databases may store references to such content or particular values, but they are not commonly used primarily to query unstructured data. [1][6]

<https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

Question 10

Yes / No · Domain: D2 Identify considerations for relational data on Azure › Describe relational Azure data services

For each of the following statements, select Yes if the statement is true. Otherwise, select No. NOTE: Each correct selection is worth one point.

Statement	Yes	No
Azure SQL Database has all the same features as SQL Server on Azure Virtual Machines.	☐	☐
In a platform as a service (PaaS) model, before you deploy a relational database, you must create a virtual machine and a virtual network.	☐	☐
In an infrastructure as a service (IaaS) model, before you deploy a relational database, you must create a virtual machine and a virtual network.	☐	☐

Answer

- Azure SQL Database has all the same features as SQL Server on Azure Virtual Machines. **No**
- In a platform as a service (PaaS) model, before you deploy a relational database, you must create a virtual machine and a virtual network. **No**
- In an infrastructure as a service (IaaS) model, before you deploy a relational database, you must create a virtual machine and a virtual network. **Yes**

Explanation

Azure SQL Database is a managed PaaS service and does not provide every feature available when you run SQL Server on an Azure virtual machine. PaaS removes the requirement to provision the underlying virtual machine and virtual network before deploying a relational database. With the IaaS approach described here, you deploy SQL Server on a virtual machine, so you must create the VM and its virtual network.

[https://learn.microsoft.com/en-us/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview?](https://learn.microsoft.com/en-us/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview?view=azuresql&wt.mc_id=AZ-MVP-4032167)

[view=azuresql&wt.mc_id=AZ-MVP-4032167](https://learn.microsoft.com/en-us/azure/azure-sql/virtual-machines/windows/create-sql-vm-portal?view=azuresql)

<https://learn.microsoft.com/en-us/azure/azure-sql/virtual-machines/windows/create-sql-vm-portal?view=azuresql>

<https://learn.microsoft.com/en-us/training/modules/deploy-iaas-solutions-with-azure-sql/>

✗ **Statement 1** Azure SQL Database has all the same features as SQL Server on Azure Virtual Machines.

Azure SQL Database is a managed platform service, so it does not expose every SQL Server feature or level of operating-system control available when SQL Server runs on an Azure VM. The claim that it has all the same features is therefore false.

https://learn.microsoft.com/en-us/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview?view=azuresql&wt.mc_id=AZ-MVP-4032167

<https://learn.microsoft.com/th-th/Azure/Azure-sql/database/features-comparison?view=azuresql-mi>

✗ **Statement 2** In a platform as a service (PaaS) model, before you deploy a relational database, you must create a virtual machine and a virtual network.

In the PaaS model, the provider manages the underlying infrastructure for the database. You can deploy Azure SQL Database without first creating a VM and virtual network.

https://learn.microsoft.com/en-us/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview?view=azuresql&wt.mc_id=AZ-MVP-4032167

<https://learn.microsoft.com/en-us/dotnet/azure/migration/sql>

✓ **Statement 3** In an infrastructure as a service (IaaS) model, before you deploy a relational database, you must create a virtual machine and a virtual network.

With the IaaS SQL Server-on-VM approach, you provision the virtual machine that will host SQL Server and the network it uses. Therefore, the stated prerequisites are required for this deployment model.

<https://learn.microsoft.com/en-us/azure/azure-sql/virtual-machines/windows/create-sql-vm-portal?view=azuresql>

<https://learn.microsoft.com/en-us/training/modules/deploy-iaas-solutions-with-azure-sql/>

<https://learn.microsoft.com/en-us/azure/azure-sql/virtual-machines/linux/sql-vm-create-portal-quickstart?view=azuresql>

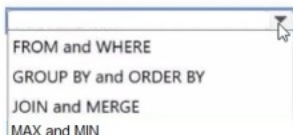
[view=azuresql](https://learn.microsoft.com/en-us/azure/azure-sql/virtual-machines/linux/sql-vm-create-portal-quickstart?view=azuresql)

Question 11

Hotspot (dropdowns) · Domain: D2 Identify considerations for relational data on Azure › Describe relational concepts

Select the answer that correctly completes the sentence. In a SQL statement, [dropdown] are examples of aggregate functions.

Answer Area

In a SQL statement,  are examples of aggregate functions.

FROM and WHERE
GROUP BY and ORDER BY
JOIN and MERGE
MAX and MIN

In a SQL statement,: FROM and WHERE | GROUP BY and ORDER BY | JOIN and MERGE | MAX and MIN

Answer

- In a SQL statement,: **MAX and MIN**

Explanation

MAX and MIN are aggregate functions in SQL: they return the highest and lowest values, respectively, from a set of values. The sentence asks for examples of aggregate functions, so this pair correctly completes it.

<https://learn.microsoft.com/en-us/SQL/T-SQL/functions/aggregate-functions-transact-sql?view=sql-server-linux-ver17>

<https://learn.microsoft.com/en-us/sql/t-sql/functions/min-transact-sql?view=sql-server-ver17>

<https://learn.microsoft.com/en-us/sql/t-sql/functions/max-transact-sql?view=sql-server-ver17>

✗ **Box 1: FROM and WHERE** FROM and WHERE

FROM identifies the source of rows, and WHERE filters rows based on a condition. They are SQL clauses, not aggregate functions.

✗ **Box 1: GROUP BY and ORDER BY** GROUP BY and ORDER BY

GROUP BY organizes rows into groups, while ORDER BY sorts the result set. Neither is an aggregate function; aggregates can be used with grouped queries.

https://learn.microsoft.com/en-us/sql/t-sql/queries/select-group-by-transact-sql?WT.mc_id=DP-MVP-5440

✗ **Box 1: JOIN and MERGE** JOIN and MERGE

JOIN combines rows from related sources, and MERGE is a statement used to synchronize data. They are not aggregate functions.

✓ **Box 1: MAX and MIN** MAX and MIN

MAX returns the maximum value and MIN returns the minimum value from a set of values. Both are SQL aggregate functions, so this pair completes the sentence correctly.

<https://learn.microsoft.com/en-us/SQL/T-SQL/functions/aggregate-functions-transact-sql?view=sql-server-linux-ver17>

<https://learn.microsoft.com/en-us/sql/t-sql/functions/min-transact-sql?view=sql-server-ver17>

<https://learn.microsoft.com/en-us/sql/t-sql/functions/max-transact-sql?view=sql-server-ver17>

Question 12

Single choice · Domain: D2 Identify considerations for relational data on Azure › Describe relational concepts

A bank needs to ensure that after an account transfer transaction completes, the revised account balances persists even if the database system hosting the transaction becomes temporarily unavailable.

Of which ACID semantic is this an example?

- A. atomicity
- B. isolation
- C. consistency
- D. durability

Answer: D. durability

Explanation

The revised balances must remain committed even if the database becomes temporarily unavailable. This is durability: a committed transaction's changes persist despite a system failure or interruption. [1]

<https://learn.microsoft.com/en-us/windows/win32/cosstdk/acid-properties>

✗ **A** atomicity

Atomicity means the transfer is treated as an all-or-nothing unit: both balance changes occur, or neither does. The scenario instead focuses on preserving the completed transaction after the database becomes unavailable.

<https://learn.microsoft.com/en-us/windows/win32/cosstdk/acid-properties>

✗ **B** isolation

Isolation concerns how concurrent transactions interact, preventing one transaction from improperly interfering with another. The scenario is about retaining committed changes during an outage, not

concurrent access.

<https://learn.microsoft.com/en-us/windows/win32/cosstdk/acid-properties>

✗ **C** consistency

Consistency means a transaction preserves the database's rules and constraints, such as keeping account data valid. The stated requirement is that completed balance changes persist when the system is temporarily unavailable.

<https://learn.microsoft.com/en-us/windows/win32/cosstdk/acid-properties>

✓ **D** durability

Durability ensures that once the transfer transaction completes, its revised balances remain saved even if the database system later becomes temporarily unavailable. That persistence after completion is the requirement described.

<https://learn.microsoft.com/en-us/windows/win32/cosstdk/acid-properties>

Question 13

Multiple choice · Domain: D2 Identify considerations for relational data on Azure › Describe relational concepts

You have an Azure SQL database that contains tables for customers and orders. You need to create a query that will return the orders placed by each customer.

Which two Transact-SQL statements should you include in the query? Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.

- A. JOIN
- B. ORDERBY
- C. INDEX
- D. SLLCT
- E. EXISTS

Answer

- A. JOIN
- D. SLLCT

Explanation

To return orders associated with each customer, the query must retrieve rows with a SELECT statement and combine the customer and order tables using a JOIN on their relationship. ORDER BY only sorts results, while an index is not a query statement and EXISTS tests whether matching rows exist rather than returning the order rows.

<https://learn.microsoft.com/en-us/sql/t-sql/queries/from-transact-sql?view=fabric>

<https://learn.microsoft.com/en-us/sql/t-sql/queries/select-transact-sql/>

<https://learn.microsoft.com/en-us/training/modules/query-multiple-tables-with-joins/>

✓ **A** JOIN

A JOIN combines rows from the customers and orders tables using their related values, so the query can return each customer's orders.

<https://learn.microsoft.com/en-us/sql/t-sql/queries/from-transact-sql?view=fabric>

<https://learn.microsoft.com/en-us/training/modules/query-multiple-tables-with-joins/>

✗ **B** ORDERBY

ORDER BY sorts rows that a query has already selected; it does not combine the customer and order tables. Also, the T-SQL clause is written as two words: ORDER BY.

<https://learn.microsoft.com/en-us/sql/t-sql/queries/select-order-by-clause-transact-sql?view=sql-server-ver17>

✗ C INDEX

An index is a database structure, not the statement needed to retrieve orders for each customer. It does not replace selecting rows or joining the two tables.

✓ D SLLCT

This choice evidently represents SELECT, the statement used to retrieve the customer and order rows. SELECT together with JOIN provides the parts needed for the query; as printed, "SLLCT" is not the T-SQL keyword's correct spelling.

<https://learn.microsoft.com/en-us/sql/t-sql/queries/select-transact-sql/>

<https://learn.microsoft.com/en-us/sql/t-sql/queries/select-transact-sql?view=azuresqldb-mi-current>

✗ E EXISTS

EXISTS tests whether a subquery returns any rows; by itself, it does not return the orders placed by each customer. A SELECT with a JOIN is the appropriate approach for returning those rows.

<https://learn.microsoft.com/en-us/sql/t-sql/language-elements/exists-transact-sql>

Question 14

Yes / No · Domain: D2 Identify considerations for relational data on Azure › Describe relational Azure data services

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Statement	Yes	No
Each Azure SQL managed instance supports multiple databases that can be accessed by using cross-database queries.	☐	☐
Elastic pools are used to share resources across multiple instances of SQL Server on Azure Virtual Machines.	☐	☐
Azure SQL Database is fully compatible with both on-premises physical instances and virtualized instances of Microsoft SQL Server.	☐	☐

Answer

- Each Azure SQL managed instance supports multiple databases that can be accessed by using cross-database queries. **Yes**
- Elastic pools are used to share resources across multiple instances of SQL Server on Azure Virtual Machines. **No**
- Azure SQL Database is fully compatible with both on-premises physical instances and virtualized instances of Microsoft SQL Server. **No**

Explanation

The correct selections are Yes, No, and No. Azure SQL Managed Instance supports multiple databases and cross-database queries. Elastic pools share resources among databases in Azure SQL Database, not among SQL Server instances running on Azure virtual machines, and Azure SQL Database is not fully compatible with every SQL Server feature or deployment configuration.

<https://learn.microsoft.com/en-us/azure/azure-sql/managed-instance/sql-managed-instance-paas-overview?view=azuresql>
<https://learn.microsoft.com/en-us/azure/azure-sql/database/elastic-pool-resource-management?view=azuresql>
<https://learn.microsoft.com/en-us/azure/sql-database/sql-database-transact-sql-information>
<https://learn.microsoft.com/th-th/Azure/azure-sql/database/features-comparison?view=azuresql>

✓ **Statement 1** Each Azure SQL managed instance supports multiple databases that can be accessed by using cross-database queries.

Yes. A managed instance can host multiple databases, and its SQL Server-compatible environment supports cross-database queries between them. This matches the statement's description of databases on the same managed instance.

<https://learn.microsoft.com/en-us/azure/azure-sql/managed-instance/sql-managed-instance-paas-overview?view=azuresql>

✗ **Statement 2** Elastic pools are used to share resources across multiple instances of SQL Server on Azure Virtual Machines.

No. Azure SQL elastic pools share resources among databases in the Azure SQL Database service; they do not pool resources across SQL Server instances hosted on Azure virtual machines. The statement names the wrong resource-sharing target.

<https://learn.microsoft.com/en-us/azure/azure-sql/database/elastic-pool-resource-management?view=azuresql>

✗ **Statement 3** Azure SQL Database is fully compatible with both on-premises physical instances and virtualized instances of Microsoft SQL Server.

No. Azure SQL Database is a managed platform service, not a deployment of SQL Server that is fully compatible with every on-premises or virtualized SQL Server feature. The compatibility information describes differences and limitations, so "fully compatible" is too broad.

<https://learn.microsoft.com/en-us/azure/sql-database/sql-database-transact-sql-information>
<https://learn.microsoft.com/th-th/Azure/azure-sql/database/features-comparison?view=azuresql>

Question 15

Single choice · Domain: D2 Identify considerations for relational data on Azure › Describe relational concepts

SELECT, INSERT, and UPDATE are examples of which type of SQL statement?

- A. Data Definition Language (DDL)
- B. Data Control Language (DCL)
- C. Data Manipulation Language (DML)

Answer: C. Data Manipulation Language (DML)

Explanation

SELECT, INSERT, and UPDATE are DML statements because they retrieve or modify data in tables. The question asks for the category that includes all three, so Data Manipulation Language (DML) is correct.

<https://learn.microsoft.com/en-us/sql/t-sql/statements/statements?view=sql-server-ver16>
<https://learn.microsoft.com/en-us/sql/t-sql/queries>

✗ **A** Data Definition Language (DDL)

DDL statements define or change database structures, such as creating or altering tables. SELECT, INSERT, and UPDATE operate on data rather than defining database objects.

<https://learn.microsoft.com/en-us/sql/t-sql/statements/statements?view=sql-server-ver16>

✗ **B** Data Control Language (DCL)

DCL concerns controlling access and permissions in a database. SELECT, INSERT, and UPDATE retrieve or change table data, so they are not DCL statements.

<https://learn.microsoft.com/en-us/sql/t-sql/statements/statements?view=sql-server-ver16>

✓ **C** Data Manipulation Language (DML)

DML is used to retrieve and manipulate data. SELECT retrieves rows, while INSERT and UPDATE add or change rows, respectively.

<https://learn.microsoft.com/en-us/sql/t-sql/statements/statements?view=sql-server-ver16>

<https://learn.microsoft.com/en-us/sql/t-sql/queries>

Question 16

Drag and drop · Domain: D2 Identify considerations for relational data on Azure › Describe relational concepts

Match the ACID terms to the Appropriate descriptions.

To answer, drag the appropriate term from the column on the left to its description on the right. Each term may be used once, more than once, or not at all.

NOTE: Each correct match is worth one point.

Terms	Answer Area
Atomicity	<input type="text"/> Concurrent transactions cannot interfere with one another and must result in a consistent database state.
Consistency	<input type="text"/> Each transaction is treated as a single unit that succeeds completely or fails completely.
Isolation	<input type="text"/> Transactions can only take the data in a database from one valid state to another.
Durability	<input type="text"/> When a transaction is committed, it will remain committed.

Items:

- A. Atomicity
- B. Consistency
- C. Isolation
- D. Durability

Place them on:

1. Concurrent transactions cannot interfere with one another and must result in a consistent database state.
2. Each transaction is treated as a single unit that succeeds completely or fails completely.
3. Transactions can only take the data in a database from one valid state to another.
4. When a transaction is committed, it will remain committed.

Answer

- Concurrent transactions cannot interfere with one another and must result in a consistent database state. → **C. Isolation**
- Each transaction is treated as a single unit that succeeds completely or fails completely. → **A. Atomicity**
- Transactions can only take the data in a database from one valid state to another. → **B. Consistency**
- When a transaction is committed, it will remain committed. → **D. Durability**

Question 17

Single choice · Domain: D2 Identify considerations for relational data on Azure › Describe relational Azure data services

Which Azure service provides the highest compatibility for databases migrated from Microsoft SQL Server 2019 Enterprise edition?

- A. an Azure SQL Database elastic pool
- B. Azure SQL Managed Instance
- C. Azure Database for MySQL
- D. Azure SQL Database

Answer: B. Azure SQL Managed Instance

Explanation

Azure SQL Managed Instance is the best fit when migrating from SQL Server 2019 Enterprise and prioritizing compatibility. It provides a managed instance-level environment with broad compatibility for SQL Server workloads, reducing the changes typically needed compared with Azure SQL Database. An elastic pool is a way to share resources among Azure SQL databases, not a closer SQL Server instance replacement.

<https://learn.microsoft.com/en-us/data-migration/sql-server/managed-instance/overview>
<https://learn.microsoft.com/th-th/Azure/Azure-sql/database/features-comparison?view=azuresql-mi>

<https://learn.microsoft.com/azure/azure-sql/migration-guides/managed-instance/sql-server-to-managed-instance-overview?view=azuresql>

✗ **A** an Azure SQL Database elastic pool

An elastic pool lets multiple Azure SQL databases share compute resources; it does not provide the instance-level compatibility needed for a SQL Server migration. Managed Instance is the better match for preserving compatibility with SQL Server workloads.

<https://learn.microsoft.com/th-th/Azure/Azure-sql/database/features-comparison?view=azuresql-mi>

✓ **B** Azure SQL Managed Instance

Managed Instance offers broad compatibility with SQL Server and an instance-level deployment model, making it the highest-compatibility choice among these options for SQL Server 2019 Enterprise. It is specifically a common migration target for SQL Server workloads.

<https://learn.microsoft.com/en-us/data-migration/sql-server/managed-instance/overview>

<https://learn.microsoft.com/azure/azure-sql/migration-guides/managed-instance/sql-server-to-managed-instance-overview?view=azuresql>

✗ **C** Azure Database for MySQL

Azure Database for MySQL runs the MySQL database engine, not Microsoft SQL Server. Migrating a SQL Server database to it would require significant conversion rather than providing high SQL Server compatibility.

✗ **D** Azure SQL Database

Azure SQL Database is a managed database service, but it does not offer as much SQL Server instance-level compatibility as Managed Instance. It can suit workloads that fit its database-level model, but is not the highest-compatibility option here.

<https://learn.microsoft.com/th-th/Azure/Azure-sql/database/features-comparison?view=azuresql-mi>

Question 18

Hotspot (dropdowns) · Domain: D2 Identify considerations for relational data on Azure › Describe relational Azure data services

Select the answer that correctly completes the sentence.

[Dropdown] can be used as part of a lift-and-shift solution for migrating ...

Answer Area

An instance of SQL Server on Azure Virtual Machines
An Azure SQL Database elastic pool
An instance of SQL Server on Azure Virtual Machines
A single database in Azure SQL Database

can be used as part of a lift-and-shift solution for migrating ...
changes.

can be used as part of a lift-and-shift solution for migrating: An Azure SQL Database elastic pool
| An instance of SQL Server on Azure Virtual Machines | A single database in Azure SQL Database

Answer

- can be used as part of a lift-and-shift solution for migrating: **An instance of SQL Server on Azure Virtual Machines**

Explanation

An instance of SQL Server on Azure Virtual Machines is the appropriate choice for a lift-and-shift

migration because it lets you move a SQL Server instance to Azure while continuing to use SQL Server on a virtual machine. Azure SQL Database and its elastic pools are platform-as-a-service destinations, rather than a lift-and-shift target for an entire SQL Server instance. [1][10]

<https://learn.microsoft.com/en-us/azure/azure-sql/migration-guides/virtual-machines/sql-server-to-sql-on-azure-vm-migration-overview?view=azuresql>

<https://learn.microsoft.com/data-migration/sql-server/virtual-machines/guide>

✗ **An Azure SQL Database elastic pool** An Azure SQL Database elastic pool

An elastic pool is a platform-as-a-service option for hosting multiple Azure SQL databases, not a destination for lifting and shifting an entire SQL Server instance. [8]

<https://learn.microsoft.com/en-us/azure/azure-sql/migration-guides/modernization?view=azuresql>

✓ **An instance of SQL Server on Azure Virtual Machines** An instance of SQL Server on Azure Virtual Machines

This option preserves the SQL Server instance model while moving it to an Azure virtual machine, which fits a lift-and-shift migration. [1][10]

<https://learn.microsoft.com/en-us/azure/azure-sql/migration-guides/virtual-machines/sql-server-to-sql-on-azure-vm-migration-overview?view=azuresql>

<https://learn.microsoft.com/data-migration/sql-server/virtual-machines/guide>

✗ **A single database in Azure SQL Database** A single database in Azure SQL Database

A single Azure SQL Database is a platform-as-a-service database target, not a lift-and-shift destination for a complete SQL Server instance. [2][8]

<https://learn.microsoft.com/en-us/ssms/migrate/migrate-sql-server-azure-sql?tabs=sql-standard>

<https://learn.microsoft.com/en-us/azure/azure-sql/migration-guides/modernization?view=azuresql>

Question 19

Hotspot (dropdowns) · Domain: D2 Identify considerations for relational data on Azure › Describe relational Azure data services

Select the answer that correctly completes the sentence. The [dropdown] service is optimized for IoT solutions.

Answer Area

The service is optimized for IoT solutions.

Azure SQL Edge

Azure SQL Database

Azure SQL Edge

Azure SQL Managed Instance

SQL Server on Azure Virtual Machines

The [dropdown] service is optimized for IoT solutions.: Azure SQL Database | Azure SQL Edge | Azure SQL Managed Instance | SQL Server on Azure Virtual Machines

Answer

- The [dropdown] service is optimized for IoT solutions.: **Azure SQL Edge**

Explanation

Azure SQL Edge is the service optimized for IoT solutions. It is designed for data processing and analytics at the edge, including IoT workloads, which distinguishes it from the other SQL Server offerings listed.

<https://learn.microsoft.com/en-us/openspecs/interopevents/interopevents/media/index/pdfs/>

[devdays%20asia%202020 azure%20sql%20edge.pdf](https://devdays%20asia%202020.azure%20sql%20edge.pdf)

<https://learn.microsoft.com/en-us/shows/data-exposed/what-is-azure-sql-edge>

✗ **Box 1: Azure SQL Database** Azure SQL Database

Azure SQL Database is a managed relational database service, but it is not the offering identified as optimized for IoT solutions. Azure SQL Edge is the option designed for IoT and edge workloads.

<https://learn.microsoft.com/en-ca/azure/azure-sql/database/sql-database-paas-overview?view=azuresql>

✓ **Box 1: Azure SQL Edge** Azure SQL Edge

Azure SQL Edge is designed for edge computing and IoT scenarios, including local data processing and analytics. It therefore correctly completes the sentence.

<https://learn.microsoft.com/en-us/openspecs/interopevents/interopevents/media/index/pdfs/>

[devdays%20asia%202020 azure%20sql%20edge.pdf](https://devdays%20asia%202020.azure%20sql%20edge.pdf)

<https://learn.microsoft.com/en-us/shows/data-exposed/what-is-azure-sql-edge>

✗ **Box 1: Azure SQL Managed Instance** Azure SQL Managed Instance

Azure SQL Managed Instance is a managed service intended to provide broad SQL Server compatibility for applications moving to the cloud. It is not the SQL service optimized for IoT solutions.

<https://learn.microsoft.com/azure/azure-sql/managed-instance/?view=azuresql>

<https://learn.microsoft.com/en-in/azure/azure-sql/managed-instance/sql-managed-instance-paas-overview?view=azuresql>

✗ **Box 1: SQL Server on Azure Virtual Machines** SQL Server on Azure Virtual Machines

SQL Server on Azure Virtual Machines provides SQL Server hosted on Azure infrastructure, giving users control over the virtual machine. It is not specifically optimized for IoT solutions like Azure SQL Edge.

<https://learn.microsoft.com/ga-ie/azure/azure-sql/virtual-machines/?view=azuresql>

Question 20

Drag and drop · Domain: D3 Describe considerations for working with non-relational data on Azure › Describe the capabilities of Azure storage

Match the storage solutions to the appropriate descriptions.

To answer, drag the storage solution from the column on the left to its description on the right. Each solution may be used once, more than once, or not at all.

NOTE: Each correct match is worth one point.

Storage solutions		Answer Area
Azure Blob storage		<input type="text"/> Stores a large amount of unstructured data.
Azure Files		<input type="text"/> A cloud-based network share.
Azure SQL Database		<input type="text"/> A NoSQL storage solution that stores key/value data items.
Azure Table storage		

Items:

- A. Azure Blob storage
- B. Azure Files
- C. Azure SQL Database
- D. Azure Table storage

Place them on:

1. Stores a large amount of unstructured data.
2. A cloud-based network share.
3. A NoSQL storage solution that stores key/value data items.

Answer

- Stores a large amount of unstructured data. → **A. Azure Blob storage**
- A cloud-based network share. → **B. Azure Files**
- A NoSQL storage solution that stores key/value data items. → **D. Azure Table storage**

Explanation

Azure Blob storage is designed for large amounts of unstructured data, so it matches the first description. Azure Files provides cloud-hosted file shares that can be accessed like network shares. Azure Table storage is a NoSQL service for key/value-style data, while Azure SQL Database is not needed for any of the three descriptions.

https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blobs-introduction?WT.mc_id=AZ-MVP-5001375

<https://learn.microsoft.com/en-us/azure/storage/files/storage-files-networking-overview>

<https://learn.microsoft.com/en-us/azure/storage/tables/table-storage-overview>

✓ **Azure Blob storage** Stores a large amount of unstructured data.

Blob storage is intended for storing large amounts of unstructured data, such as text and binary data. It therefore matches the first description.

https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blobs-introduction?WT.mc_id=AZ-MVP-5001375

<https://learn.microsoft.com/azure/storage/blobs>

✓ **Azure Files** A cloud-based network share.

Azure Files provides cloud-based file shares that can be accessed using standard file-sharing protocols. That makes it the appropriate match for a cloud-based network share.

<https://learn.microsoft.com/en-us/azure/storage/files/storage-files-networking-overview>

<https://learn.microsoft.com/en-us/azure/storage/files/storage-files-planning>

✗ **Azure SQL Database** Not used.

Azure SQL Database is a relational database service, not the unstructured-data, cloud network-share, or NoSQL key/value storage solution described here. None of the three targets calls for it.

✓ **Azure Table storage** A NoSQL storage solution that stores key/value data items.

Azure Table storage is a NoSQL service that stores structured, non-relational data as entities identified by keys. It matches the key/value data description.

<https://learn.microsoft.com/en-us/azure/storage/tables/table-storage-overview>

Question 21

Hotspot (dropdowns) · Domain: D3 Describe considerations for working with non-relational data on Azure › Describe the capabilities and features of Azure Cosmos DB

Select the answer that correctly completes the sentence.

You can query a graph database in Azure Cosmos DB [Blank 1].

Answer Area

You can query a graph database in Azure Cosmos DB

as a partitioned row store by using Cassandra Query Language (CQL).
as a partitioned row store by using Language-integrated Query (LINQ)
as nodes and edges by using the Gremlin language.

You can query a graph database in Azure Cosmos DB: as a partitioned row store by using Cassandra Query Language (CQL). | as a partitioned row store by using Language-integrated Query (LINQ) | as nodes and edges by using the Gremlin language.

Answer

- You can query a graph database in Azure Cosmos DB: **as nodes and edges by using the Gremlin language.**

Explanation

Azure Cosmos DB graph databases represent data as vertices (nodes) and edges, and are queried with the Gremlin language. Cassandra Query Language is for the Cassandra API, while LINQ-to-SQL applies to querying the SQL API, not the graph API. Therefore, the graph-specific completion is "as nodes and edges by using the Gremlin language."

<https://learn.microsoft.com/en-us/azure/cosmos-db/gremlin/>

<https://learn.microsoft.com/en-us/azure/cosmos-db/gremlin/how-to-write-queries>

<https://learn.microsoft.com/en-us/azure/cosmos-db/graph/tutorial-query-graph>

<https://learn.microsoft.com/en-us/azure/cosmos-db/cassandra/faq>

<https://learn.microsoft.com/en-us/cosmos-db/query/linq-to-sql>

✗ **Box 1: as a partitioned row store by using Cassandra Query Language (CQL).** as a partitioned row store by using Cassandra Query Language (CQL).

This describes the Cassandra API's data model and query language, not querying a graph database. The

graph API represents data as vertices and edges and uses Gremlin instead.

<https://learn.microsoft.com/en-us/azure/cosmos-db/cassandra/faq>

<https://learn.microsoft.com/en-us/azure/cosmos-db/cassandra/partitioning>

<https://learn.microsoft.com/en-us/azure/cosmos-db/gremlin/>

✗ **Box 1: as a partitioned row store by using Language-integrated Query (LINQ)** as a partitioned row store by using Language-integrated Query (LINQ)

LINQ-to-SQL is associated with querying data through the SQL API; it does not make a graph database a partitioned row store. For Cosmos DB graph data, the relevant query language is Gremlin.

<https://learn.microsoft.com/en-us/cosmos-db/query/>

<https://learn.microsoft.com/en-us/cosmos-db/query/linq-to-sql>

<https://learn.microsoft.com/en-us/azure/cosmos-db/gremlin/>

✓ **Box 1: as nodes and edges by using the Gremlin language.** as nodes and edges by using the Gremlin language.

A graph database models relationships through nodes (vertices) and edges. Azure Cosmos DB's graph API supports querying that graph with Gremlin, so this option correctly completes the sentence.

<https://learn.microsoft.com/en-us/azure/cosmos-db/gremlin/>

<https://learn.microsoft.com/en-us/azure/cosmos-db/gremlin/how-to-write-queries>

<https://learn.microsoft.com/en-us/azure/cosmos-db/graph/tutorial-query-graph>

Question 22

Single choice · Domain: D3 Describe considerations for working with non-relational data on Azure › Describe the capabilities and features of Azure Cosmos DB

Which Azure Cosmos DB API stores data in the BSON format and uses MQL to query the data?

- A. MongoDB
- B. PostgreSQL
- C. Apache Gremlin
- D. Table

Answer: A. MongoDB

Explanation

Azure Cosmos DB for MongoDB works with MongoDB's document model: documents are stored in BSON, and queries use MongoDB Query Language (MQL). Therefore, MongoDB is the API that matches both requirements.

<https://learn.microsoft.com/en-us/azure/cosmos-db/mongodb/faq>

<https://learn.microsoft.com/mt-mt/azure/cosmos-db/mongodb/choose-model>

✓ **A MongoDB**

The MongoDB API uses BSON-formatted documents and supports querying with MongoDB Query Language (MQL), matching both requirements in the question.

<https://learn.microsoft.com/en-us/azure/cosmos-db/mongodb/faq>

<https://learn.microsoft.com/mt-mt/azure/cosmos-db/mongodb/choose-model>

✗ **B PostgreSQL**

Azure Cosmos DB for PostgreSQL is a relational database offering PostgreSQL compatibility; it is not the API identified by BSON documents and MQL.

<https://learn.microsoft.com/azure/cosmos-db/postgresql/>

✗ C Apache Gremlin

The Gremlin API is for graph data and queries it using Gremlin traversal language, rather than storing BSON documents queried with MQL.

<https://learn.microsoft.com/en-us/azure/cosmos-db/gremlin/>

✗ D Table

The Table API is intended for key-value table data, not BSON documents queried with MongoDB Query Language.

<https://learn.microsoft.com/en-us/azure/cosmos-db/fag>

Question 23

Single choice · Domain: D3 Describe considerations for working with non-relational data on Azure › Describe the capabilities of Azure storage

What is the typical latency for read operations against media files stored in the Cool access tier of Azure Blob Storage?

- A. a few milliseconds
- B. a few seconds
- C. a few minutes
- D. a few hours

Answer: A. a few milliseconds

Explanation

The Cool access tier is an online tier for data that is accessed less often, not an offline archive tier. Reads are typically available with latency of a few milliseconds, so option A fits; seconds, minutes, or hours are not the typical read latency for Cool-tier blobs. [1]

<https://learn.microsoft.com/en-us/azure/storage/blobs/access-tiers-overview/>

✓ **A a few milliseconds**

Cool-tier blobs remain online and can be read without an archive rehydration delay. Their typical read latency is a few milliseconds. [1]

<https://learn.microsoft.com/en-us/azure/storage/blobs/access-tiers-overview/>

✗ **B a few seconds**

A few seconds is not the typical latency for reading an online Cool-tier blob; the expected latency is a few milliseconds. [1]

<https://learn.microsoft.com/en-us/azure/storage/blobs/access-tiers-overview/>

✗ **C a few minutes**

Minutes-long waits are not typical for reads from the online Cool tier. Cool-tier data is available for reads without waiting minutes for retrieval. [1]

<https://learn.microsoft.com/en-us/azure/storage/blobs/access-tiers-overview/>

✗ **D a few hours**

Hours-long retrieval delays are not typical of the Cool tier. This tier is online; it is not an archive tier that requires a lengthy rehydration process for reads. [1]

<https://learn.microsoft.com/en-us/azure/storage/blobs/access-tiers-overview/>

Question 24

Multiple choice · Domain: D3 Describe considerations for working with non-relational data on Azure › Describe the capabilities of Azure storage

In Azure Table storage, each row in a table must be uniquely identified by which two components?
Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.

- A. a timestamp
- B. a range
- C. a row key
- D. a partition key

Answer

- C. a row key
- D. a partition key

Explanation

Each Azure Table storage entity is uniquely identified by the combination of its PartitionKey and RowKey. The partition key identifies the partition, and the row key identifies the entity within that partition; together they form the entity's key.

<https://learn.microsoft.com/en-us/rest/api/storageservices/understanding-the-table-service-data-model>

<https://learn.microsoft.com/en-us/azure/storage/tables/table-storage-overview>

✗ A a timestamp

A timestamp is metadata associated with an entity and can indicate when it was last modified, but it is not one of the two components that uniquely identify a row.

<https://learn.microsoft.com/en-us/rest/api/storageservices/understanding-the-table-service-data-model>

✗ B a range

A range is not a key component in the Azure Table storage data model. A row is identified by its partition key and row key, not by a range.

<https://learn.microsoft.com/en-us/rest/api/storageservices/understanding-the-table-service-data-model>

<https://learn.microsoft.com/en-us/azure/storage/tables/table-storage-overview>

✓ C a row key

The RowKey identifies an entity within its partition and is one part of the unique key. It must be combined with the PartitionKey to identify the row across the table.

<https://learn.microsoft.com/en-us/rest/api/storageservices/understanding-the-table-service-data-model>

<https://learn.microsoft.com/en-us/dotnet/api/azure.data.tables.itableentity.rowkey?view=azure-dotnet>

✓ D a partition key

The PartitionKey identifies the partition containing the entity. Combined with the RowKey, it uniquely identifies the row in the table.

<https://learn.microsoft.com/en-us/rest/api/storageservices/understanding-the-table-service-data-model>

<https://learn.microsoft.com/en-us/azure/storage/tables/table-storage-overview>

Question 25

Single choice · Domain: D3 Describe considerations for working with non-relational data on Azure › Describe the capabilities of Azure storage

Blob rehydration occurs in Azure Blob storage when a blob moves between which access tiers?

- A. Archive to Cool
- B. Hot to Cool
- C. Cool to Archive
- D. Hot to Archive

Answer: A. Archive to Cool

Explanation

Rehydration is the process of restoring a blob from the offline Archive tier to an online tier. Archive to Cool is such a transition, so A is the provided correct answer. Note that Azure also supports rehydrating an archived blob to Hot, which makes D technically a valid transition as well; the question is not unique as written.

<https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blob-rehydration>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-to-online-tier>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-overview>

✓ **A** Archive to Cool

Cool is an online access tier, so moving a blob from Archive to Cool requires rehydrating it. This matches the provided correct answer.

<https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blob-rehydration>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-to-online-tier>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-overview>

✗ **B** Hot to Cool

Both Hot and Cool are online tiers, so this change does not involve restoring a blob from the offline Archive tier. It is not the rehydration transition asked for.

<https://learn.microsoft.com/en-us/azure/storage/blobs/access-tiers-overview>
<https://learn.microsoft.com/en-us/azure/storage/blobs/access-tiers-online-manage>

✗ **C** Cool to Archive

This moves a blob from an online tier into the offline Archive tier; it is archiving, not rehydration. Rehydration moves a blob out of Archive to an online tier.

<https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blob-rehydration>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-to-online-tier>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-overview>

✗ **D** Hot to Archive

This direction moves a blob into Archive, so it is not rehydration. However, the wording is ambiguous: rehydrating an archived blob to Hot is also supported by Azure, so Archive to Hot would be another valid rehydration transition.

<https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blob-rehydration>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-to-online-tier>
<https://learn.microsoft.com/en-us/azure/storage/blobs/archive-rehydrate-overview>

Question 26

Single choice · Domain: D3 Describe considerations for working with non-relational data on Azure › Describe the capabilities of Azure storage

Which Azure Storage service implements the key/value model?

- A. Azure Files
- B. Azure Table
- C. Azure Blob
- D. Azure Queue

Answer: B. Azure Table

Explanation

Azure Table is the service that uses a NoSQL key/value-style data model: it stores entities as collections of properties and identifies them with keys. This matches the question's requirement for a key/value model, unlike Azure Files, Blob, and Queue, which serve file-share, object-storage, and message-queue purposes.

<https://learn.microsoft.com/en-us/azure/storage/tables/>

<https://learn.microsoft.com/en-us/azure/storage/tables/table-storage-overview>

✗ A Azure Files

Azure Files provides managed file shares that can be accessed using file-sharing protocols. It is not the Azure Storage service for storing data in a key/value model.

<https://learn.microsoft.com/en-us/azure/architecture/storage/storage-get-started>

<https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction>

<https://learn.microsoft.com/en-us/azure/storage/files/files-management-concepts>

✓ B Azure Table

Azure Table stores nonrelational data as entities with properties and key fields, providing the key/value-style model asked for. It is therefore the correct choice.

<https://learn.microsoft.com/en-us/azure/storage/tables/>

<https://learn.microsoft.com/en-us/azure/storage/tables/table-storage-overview>

✗ C Azure Blob

Azure Blob Storage is designed for storing unstructured object data, such as documents and media files. That is different from the key/value-style entity model provided by Azure Table.

<https://learn.microsoft.com/en-us/azure/architecture/storage/storage-get-started>

<https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction>

✗ D Azure Queue

Azure Queue Storage stores messages for asynchronous communication between application components. Its purpose is message queuing, not storing data in the key/value model described in the question.

<https://learn.microsoft.com/en-us/azure/architecture/storage/storage-get-started>

<https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction>

Question 27

Multiple choice · Domain: D4 Describe an analytics workload › Describe data visualization in Microsoft Power BI

Your organization is implementing a business intelligence solution. Different stakeholder groups need different views of the same underlying data: sales managers need to see revenue by region and product, executives need high-level KPIs, and the finance team needs detailed transaction-level audit trails. You are designing the data model in Power BI. Which of the following represents the best approach?

- A. Create a single flat table containing all columns from all source systems to ensure all stakeholders can access all data
- B. Create separate data models for each stakeholder group with their own tables and relationships to optimize performance and security
- C. Import all data into Power BI and let each user group create their own ad-hoc reports without a shared data model
- D. Use Azure Cosmos DB as the single source of truth and connect all Power BI reports directly to it without intermediate modeling
- E. Create a single dimensional model (fact and dimension tables) with role-based row-level security (RLS) to restrict data access by stakeholder group

Answer: E. Create a single dimensional model (fact and dimension tables) with role-based row-level security (RLS) to restrict data access by stakeholder group

Explanation

A shared dimensional model with fact and dimension tables supports consistent analysis of the same underlying data at different levels of detail. Sales managers can analyze revenue by region and product, executives can use aggregated KPIs, and finance can examine transaction-level facts. Role-based row-level security can restrict which rows users see according to their access requirements, avoiding separate, inconsistent models for each group.

<https://learn.microsoft.com/power-bi/guidance/star-schema>

<https://learn.microsoft.com/power-bi/service-admin-rls>

<https://learn.microsoft.com/en-us/power-bi/guidance/rls-guidance>

<https://learn.microsoft.com/power-bi/create-reports/desktop-dimensional-model-report>

✗ A Create a single flat table containing all columns from all source systems to ensure all stakeholders can access all data

A single flat table combines unrelated data and can create duplication and unwieldy reporting rather than providing a well-structured model. It also does not address access restrictions for stakeholders who should not see all data.

<https://learn.microsoft.com/power-bi/guidance/star-schema>

<https://learn.microsoft.com/power-bi/create-reports/desktop-dimensional-model-report>

✗ B Create separate data models for each stakeholder group with their own tables and relationships to optimize performance and security

Separate models would duplicate modeling work and risk inconsistent definitions of shared measures such as revenue and KPIs. A shared model with appropriate security can serve the groups' different analytical needs without fragmenting the source of truth.

<https://learn.microsoft.com/en-us/power-bi/connect-data/desktop-report-lifecycle-datasets>

<https://learn.microsoft.com/en-us/power-bi/connect-data/service-datasets-understand>

<https://learn.microsoft.com/en-us/power-bi/connect-data/service-datasets-across-workspaces>

✗ C Import all data into Power BI and let each user group create their own ad-hoc reports without a

shared data model

Without a shared semantic model, groups may define measures and relationships differently, producing inconsistent results. A governed dimensional model provides reusable, consistent data for their reports.

<https://learn.microsoft.com/power-bi/guidance/star-schema>

<https://learn.microsoft.com/en-us/power-bi/connect-data/desktop-report-lifecycle-datasets>

<https://learn.microsoft.com/en-us/power-bi/connect-data/service-datasets-understand>

✗ **D** Use Azure Cosmos DB as the single source of truth and connect all Power BI reports directly to it without intermediate modeling

The scenario does not establish Cosmos DB as the appropriate source, and connecting reports directly without modeling does not provide the dimensional structure needed for varied analysis. Fact and dimension tables help organize data for reporting and analysis.

<https://learn.microsoft.com/power-bi/guidance/star-schema>

<https://learn.microsoft.com/power-bi/create-reports/desktop-dimensional-model-report>

✓ **E** Create a single dimensional model (fact and dimension tables) with role-based row-level security (RLS) to restrict data access by stakeholder group

Fact and dimension tables provide a shared structure for analyzing revenue by region and product, summarizing executive KPIs, and inspecting detailed transactions. RLS can restrict which rows users access, while the shared model keeps definitions consistent across stakeholder groups.

<https://learn.microsoft.com/power-bi/guidance/star-schema>

<https://learn.microsoft.com/power-bi/service-admin-rls>

<https://learn.microsoft.com/en-us/power-bi/guidance/rls-guidance>

<https://learn.microsoft.com/power-bi/create-reports/desktop-dimensional-model-report>

<https://learn.microsoft.com/en-us/power-bi/desktop-rls>

Question 28

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload › Describe data visualization in Microsoft Power BI

Select the answer that correctly completes the sentence. [Dropdown] are suitable for comparing categorized values as proportions of a total.

Answer Area

are suitable for comparing categorized values as proportions of a total.

Line charts

Pie charts

Ribbon charts

Scatter plots

are suitable for comparing categorized values as proportions of a total.: Line charts | Pie charts | Ribbon charts | Scatter plots

Answer

- are suitable for comparing categorized values as proportions of a total.: **Pie charts**

Explanation

Pie charts are suitable when the goal is to compare categories as shares of a whole. Each slice represents a category's proportion of the total, matching the sentence's requirement.

https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualizations-overview?trk=article-ssr-frontend-pulse_little-text-block

<https://learn.microsoft.com/en-us/sql/reporting-services/report-design/pie-charts-report-builder-and-ssrs?view=sql-server-ver17>

✗ **Box 1: Line charts** Line charts

Line charts are generally used to show trends or changes across a continuous sequence, such as time. They are not the best fit for comparing categorized values as proportions of a total.

<https://learn.microsoft.com/power-bi/visuals/power-bi-line-chart>

✓ **Box 1: Pie charts** Pie charts

Pie charts show how categories contribute to a whole, with each slice representing a proportion of the total. This directly matches the sentence.

https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualizations-overview?trk=article-ssr-frontend-pulse_little-text-block

<https://learn.microsoft.com/en-us/sql/reporting-services/report-design/pie-charts-report-builder-and-ssrs?view=sql-server-ver17>

✗ **Box 1: Ribbon charts** Ribbon charts

Ribbon charts are used to show changes in the rank of categories across a series, rather than their proportions of a total.

https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualizations-overview?trk=article-ssr-frontend-pulse_little-text-block

✗ **Box 1: Scatter plots** Scatter plots

Scatter plots show the relationship between two numeric variables. They do not primarily compare categories as proportions of a total.

<https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-scatter>

Question 29

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload › Describe considerations for real-time data analytics

Apache Spark Structured Streaming is built on a [dropdown] that is used to encapsulate a single table of data.

Answer Area

Apache Spark Structured Streaming is built on a

dataframe
delta lake
data lake
data warehouse

that is used to encapsulate a single table of data.

Apache Spark Structured Streaming is built on a [dropdown] that is used to encapsulate a single table of data.: dataframe | delta lake | data lake | data warehouse

Answer

- Apache Spark Structured Streaming is built on a [dropdown] that is used to encapsulate a single table of data.: **dataframe**

Question 30

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload › Describe considerations for real-time data analytics

Select the answer that correctly completes the sentence.

Answer Area

Batch workloads

always process data in memory, row-by-row.

collect and process data at most once a day.

Process data as new data is received in near real-time.

collect data and then process the data when a condition is met.

Batch workloads: always process data in memory, row-by-row. | collect and process data at most once a day. | Process data as new data is received in near real-time. | collect data and then process the data when a condition is met.

Answer

- Batch workloads: **collect data and then process the data when a condition is met.**

Explanation

Batch workloads collect data and process it later as a group, typically when a specified condition or trigger is met. This distinguishes them from streaming workloads, which process incoming data continuously or near real time. Therefore, the sentence is correctly completed by saying batch workloads collect data and then process it when a condition is met.

<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>

<https://learn.microsoft.com/en-us/power-platform/well-architected/reliability/background-jobs>

✗ **Box 1: always process data in memory, row-by-row.** always process data in memory, row-by-row.

This is not the defining behavior of a batch workload. Batch processing groups accumulated data for later processing, while row-by-row processing as data arrives describes a streaming-style approach.

<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>

✗ **Box 1: collect and process data at most once a day.** collect and process data at most once a day.

Batch processing can run at different intervals or in response to a trigger; it is not inherently limited to once per day. The defining feature here is processing collected data as a batch when a condition is met.

<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>

<https://learn.microsoft.com/en-us/power-platform/well-architected/reliability/background-jobs>

✗ **Box 1: Process data as new data is received in near real-time.** Process data as new data is received in near real-time.

This describes stream processing, which handles incoming events continuously or with low latency. Batch workloads instead collect data and process it later as a group.

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>

<https://learn.microsoft.com/en-us/fabric/data-engineering/structured-streaming-overview>

<https://learn.microsoft.com/en-us/training/modules/explore-fundamentals-stream-processing/>

✓ **Box 1: collect data and then process the data when a condition is met.** collect data and then process the data when a condition is met.

Batch workloads accumulate data and process it together later, often when a schedule or other condition triggers the job. This matches the distinction between batch processing and processing new data in near real time.

<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>

<https://learn.microsoft.com/en-us/power-platform/well-architected/reliability/background-jobs>

Question 31

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload · Describe data visualization in Microsoft Power BI

Select the answer that correctly completes the sentence.

After you create Microsoft Power BI data models and reports with Power BI desktop, you can publish them to

Answer Area

After you create Microsoft Power BI data models and reports with Power BI desktop, you can publish them to



After you create Microsoft Power BI data models and reports with Power BI desktop, you can publish them to: Power BI Desktop. | Power Query. | the Power BI phone app. | the power BI service

Answer

- After you create Microsoft Power BI data models and reports with Power BI desktop, you can publish them to: **the power BI service**

Explanation

Power BI Desktop is used to create data models and reports, and you can publish those files to the Power BI service. The service lets you access and share the published content online; it is the destination asked for here. [1][2]

<https://learn.microsoft.com/power-bi/create-reports/desktop-upload-desktop-files>

<https://learn.microsoft.com/en-us/power-bi/create-reports/tutorial-end-to-end-power-bi>

✗ Box 1: Power BI Desktop. Power BI Desktop.

Power BI Desktop is the application used to create the data models and reports in the sentence. It is not the destination where you publish them. [5]

<https://learn.microsoft.com/en-us/power-bi/fundamentals/desktop-getting-started>

✗ Box 1: Power Query. Power Query.

Power Query is used to connect to and transform data, rather than to host reports published from Power BI Desktop. The sentence asks where the completed models and reports can be published. [8]

https://learn.microsoft.com/en-us/power-query/power-query-what-is-power-query/?wt.mc_id=MVP_369005

✗ Box 1: the Power BI phone app. the Power BI phone app.

The Power BI phone app is for viewing and interacting with reports on a mobile device, not the publishing destination for reports created in Power BI Desktop. [4]

<https://learn.microsoft.com/en-us/power-bi/consumer/mobile/mobile-reports-in-the-mobile-apps>

✓ Box 1: the power BI service the power BI service

You can publish reports and data models created in Power BI Desktop to the Power BI service. The service provides an online place to access and share that content. [1][2]

<https://learn.microsoft.com/power-bi/create-reports/desktop-upload-desktop-files>

<https://learn.microsoft.com/en-us/power-bi/create-reports/tutorial-end-to-end-power-bi>

Question 32

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload › Describe data visualization in Microsoft Power BI

Select the answer that correctly completes the sentence.

[Dropdown] are used to compare two numeric measures and identify a relationship or correlation between them.

Answer Area



are used to compare two numeric measures and identify a relationship or correlation between them.

Sentence completion: Bar charts | Pie charts | Scatter charts | Tables

Answer

- Sentence completion: **Scatter charts**

Explanation

Scatter charts are used to plot two numeric measures against each other, making it possible to see whether they have a relationship or correlation. This directly matches the sentence's requirement to compare two numeric measures and identify a relationship between them. [1]

<https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-scatter>

✗ **Box 1: Bar charts** Bar charts

Bar charts compare values across categories, such as sales by product. They are not the best choice for showing a relationship or correlation between two numeric measures.

https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualizations-overview?trk=article-ssr-frontend-pulse_little-text-block

✗ **Box 1: Pie charts** Pie charts

Pie charts show how categories contribute to a whole. They do not plot two numeric measures to reveal their correlation.

https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualizations-overview?trk=article-ssr-frontend-pulse_little-text-block

✓ **Box 1: Scatter charts** Scatter charts

Scatter charts plot numeric values along two axes, allowing the relationship or correlation between the two measures to be examined. This is exactly what the sentence describes.

<https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-scatter>

✗ **Box 1: Tables** Tables

Tables display values in rows and columns for lookup or comparison, but they do not visually show the relationship or correlation between two numeric measures as a scatter chart does.

<https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-tables>

Question 33

Multiple choice · Domain: D4 Describe an analytics workload › Describe considerations for real-time data analytics

You have an online store that is hosted in Azure. The store generates millions of transaction records daily.

You need to build a data analytics solution that detects fraudulent transactions in real time and enables analysts to run large-scale queries for deeper insights.

Which two services should you include in the solution? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Azure Data Explorer
- B. Azure Analysis Services
- C. Azure HDInsight
- D. Real-Time Intelligence
- E. Azure Synapse Analytics

Answer

- A. **Azure Data Explorer**
- E. **Azure Synapse Analytics**

Explanation

Azure Data Explorer supports fast ingestion and analysis of streaming transaction data, making it suitable for detecting fraud as transactions arrive. Azure Synapse Analytics provides large-scale analytics capabilities so analysts can query extensive transaction data for deeper insights. Together, they address the real-time detection and large-scale query requirements.

<https://learn.microsoft.com/en-us/azure/data-explorer/data-explorer-overview>

<https://learn.microsoft.com/azure/data-explorer/ingest-data-streaming?tabs=azure-portal%2Ccsharp>

https://learn.microsoft.com/en-us/azure/synapse-analytics/overview-what-is?trk=article-ssr-frontend-pulse_little-text-block

✓ A Azure Data Explorer

Azure Data Explorer is designed for analyzing large volumes of data, including streaming data, so it can support near-real-time transaction analysis for fraud detection. Its streaming ingestion capabilities fit the store's continuously generated transaction records.

<https://learn.microsoft.com/en-us/azure/data-explorer/data-explorer-overview>

<https://learn.microsoft.com/azure/data-explorer/ingest-data-streaming?tabs=azure-portal%2Ccsharp>

✗ B Azure Analysis Services

Azure Analysis Services is an analytics and semantic-modeling service, not the best fit for ingesting and detecting fraud in a continuous stream of transaction records. It does not provide the large-scale data-lake and warehouse analytics role sought here as directly as Synapse Analytics.

<https://learn.microsoft.com/mt-mt/analysis-services/analysis-services-overview?view=asallproducts-allversions>

✗ C Azure HDInsight

HDInsight can be used for distributed data processing and streaming workloads, but it is not the selected service for this solution. Azure Data Explorer directly supports streaming ingestion and interactive analytics for transaction data, while Synapse addresses large-scale analytical queries.

<https://learn.microsoft.com/en-us/azure/hdinsight/hdinsight-streaming-at-scale-overview>

<https://learn.microsoft.com/en-us/azure/hdinsight/hdinsight-overview?source=recommendations>

✗ D Real-Time Intelligence

Real-Time Intelligence is not the Azure service choice indicated for this solution. The specified combination uses Azure Data Explorer for real-time transaction analysis and Azure Synapse Analytics for large-scale queries.

✓ **E Azure Synapse Analytics**

Azure Synapse Analytics provides analytics capabilities for querying and analyzing large datasets, making it appropriate for analysts performing large-scale queries on transaction history. It complements Azure Data Explorer's focus on streaming and real-time analysis.

https://learn.microsoft.com/en-us/azure/synapse-analytics/overview-what-is?trk=article-ssr-frontend-pulse_little-text-block

Question 34

Single choice · Domain: D4 Describe an analytics workload › Describe common elements of large-scale analytics

Which service can be used to build extract, transform, and load (ETL) pipelines?

- A. Azure SQL Database
- B. Azure Pipelines
- C. Azure Databricks
- D. Azure Cosmos DB
- E. Azure Data Factory

Answer: E. Azure Data Factory

Explanation

Azure Data Factory is the service designed to create and orchestrate data-integration pipelines, including workflows that extract data from sources, transform it, and load it into destinations. That makes it the best match for the question's request for an ETL pipeline service. Azure Databricks can also support ETL workloads, but Data Factory is the direct pipeline orchestration choice here.

<https://learn.microsoft.com/azure/architecture/data-guide/relational-data/etl>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/pipeline-orchestration-data-movement>

<https://learn.microsoft.com/en-us/azure/data-factory/frequently-asked-questions>

✗ **A Azure SQL Database**

Azure SQL Database is a relational database service for storing and querying data, not the service primarily used to orchestrate ETL pipelines. It could be a source or destination in an ETL workflow.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

✗ **B Azure Pipelines**

Azure Pipelines is used to build and deploy software through CI/CD workflows; it is not the Azure data-integration service intended for ETL pipelines. Data Factory is designed for orchestrating data movement and transformation workflows.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/pipeline-orchestration-data-movement>

✗ **C Azure Databricks**

Azure Databricks can be used to develop and run ETL workloads, including data transformations. However, for the question's direct request for a service to build and orchestrate ETL pipelines, Azure Data Factory is the intended choice.

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/choose-etl-approach>

<https://learn.microsoft.com/en-us/azure/databricks/getting-started/etl-quick-start>

✗ D Azure Cosmos DB

Azure Cosmos DB is a NoSQL database service for storing and querying data, rather than a service for building ETL pipelines. It may serve as a data source or destination in a pipeline.

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/understand-data-store-models>

<https://learn.microsoft.com/azure/architecture/databases/idea/combine-relational-nosql>

✓ E Azure Data Factory

Azure Data Factory is designed to create and orchestrate data pipelines for data movement and transformation, which supports ETL workflows. It is therefore the best match for building ETL pipelines.

<https://learn.microsoft.com/azure/architecture/data-guide/relational-data/etl>

<https://learn.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/pipeline-orchestration-data-movement>

<https://learn.microsoft.com/en-us/azure/data-factory/frequently-asked-questions>

Question 35

Multiple choice · Domain: D4 Describe an analytics workload › Describe common elements of large-scale analytics

You need to analyze data by using Azure Databricks.

Which are two ways to achieve the goal? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Create a Microsoft Power BI report.
- B. Create an Azure Data Factory pipeline.
- C. Use an Apache Spark job to process data stored in an Azure Cosmos DB database.
- D. Create a data flow in Azure Data Factory.
- E. Create an Apache Spark job that will run in a Spark cluster.

Answer

- C. Use an Apache Spark job to process data stored in an Azure Cosmos DB database.
- E. Create an Apache Spark job that will run in a Spark cluster.

Explanation

Azure Databricks supports analyzing data with Apache Spark, including data accessed from Azure Cosmos DB and Spark jobs run on a Spark cluster. Therefore, both using a Spark job to process Cosmos DB data and creating a Spark job to run in a Spark cluster meet the requirement. A Power BI report, an Azure Data Factory pipeline, or an ADF data flow is not by itself an Azure Databricks Spark analysis solution.

<https://learn.microsoft.com/en-us/azure/databricks/>

<https://learn.microsoft.com/azure/cosmos-db/spark-connector>

<https://learn.microsoft.com/en-us/azure/databricks/connect/spark-data-sources>

<https://learn.microsoft.com/en-us/azure/databricks/reference/spark>

https://learn.microsoft.com/en-us/azure/databricks/jobs/?trk=article-ssr-frontend-pulse_little-text-block

✗ A Create a Microsoft Power BI report.

A Power BI report is used to visualize and present data, but it does not itself perform analysis by using Azure Databricks. The option does not specify connecting the report to Databricks.

✗ **B** Create an Azure Data Factory pipeline.

An Azure Data Factory pipeline orchestrates data movement and processing activities, but creating a pipeline alone does not analyze data by using Azure Databricks. The option does not specify a Databricks activity or Spark processing.

<https://learn.microsoft.com/en-us/azure/data-factory/concepts-pipelines-activities>

✓ **C** Use an Apache Spark job to process data stored in an Azure Cosmos DB database.

Azure Databricks runs Apache Spark workloads and can connect to data sources, including Cosmos DB, so a Spark job can analyze that stored data. This directly uses Databricks-compatible Spark processing for the stated goal.

<https://learn.microsoft.com/en-us/azure/databricks/>

<https://learn.microsoft.com/azure/cosmos-db/spark-connector>

<https://learn.microsoft.com/en-us/azure/databricks/connect/spark-data-sources>

<https://learn.microsoft.com/en-us/azure/databricks/reference/spark>

✗ **D** Create a data flow in Azure Data Factory.

An Azure Data Factory data flow is an ADF data transformation capability; creating one does not, by itself, analyze data by using Azure Databricks. The option specifies no Databricks or Spark execution.

<https://learn.microsoft.com/en-us/azure/data-factory/frequently-asked-questions>

✓ **E** Create an Apache Spark job that will run in a Spark cluster.

Apache Spark jobs run on Spark clusters, and Azure Databricks provides Spark clusters and supports running jobs on them. This is a direct way to use Databricks to process and analyze data.

<https://learn.microsoft.com/en-us/azure/databricks/>

<https://learn.microsoft.com/en-us/azure/databricks/reference/spark>

https://learn.microsoft.com/en-us/azure/databricks/jobs/?trk=article-ssr-frontend-pulse_little-text-block

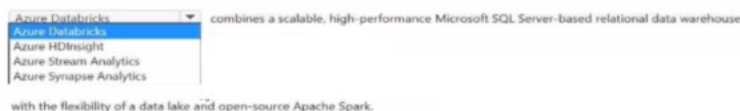
Question 36

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload › Describe common elements of large-scale analytics

Select the answer that correctly completes the sentence.

[Dropdown] combines a scalable, high-performance Microsoft SQL Server-based relational data warehouse with the flexibility of a data lake and open-source Apache Spark.

Answer Area



[Dropdown] combines a scalable, high-performance Microsoft SQL Server-based relational data warehouse: Azure Databricks | Azure HDInsight | Azure Stream Analytics | Azure Synapse Analytics

Answer

- [Dropdown] combines a scalable, high-performance Microsoft SQL Server-based relational data warehouse: **Azure Synapse Analytics**

Explanation

Azure Synapse Analytics is the service that combines a scalable, high-performance SQL data warehouse with data-lake capabilities and Apache Spark. Those combined capabilities match every part of the sentence.

<https://learn.microsoft.com/en-us/azure/synapse-analytics/overview-what-is>
<https://learn.microsoft.com/en-us/azure/synapse-analytics/overview-terminology>

✗ **Box 1: Azure Databricks** Azure Databricks

Azure Databricks is an analytics platform built around Apache Spark, but it is not the service described here as combining a SQL Server-based relational data warehouse with a data lake. Synapse Analytics is the match for that combined warehouse-and-lake description.

<https://learn.microsoft.com/en-us/azure/databricks/>
<https://learn.microsoft.com/en-us/azure/databricks/introduction/>

✗ **Box 1: Azure HDInsight** Azure HDInsight

HDInsight provides managed open-source analytics frameworks, including Apache Spark. That makes it relevant to Spark workloads, but it is not the service identified by this sentence's combination of a SQL Server-based data warehouse and data-lake flexibility.

<https://learn.microsoft.com/en-us/azure/hdinsight/spark/apache-spark-overview>
<https://learn.microsoft.com/en-us/azure/hdinsight/hdinsight-overview?source=recommendations>

✗ **Box 1: Azure Stream Analytics** Azure Stream Analytics

Azure Stream Analytics is intended for real-time stream processing, not for combining a relational data warehouse with a data lake and Apache Spark. The sentence describes Azure Synapse Analytics instead.

<https://learn.microsoft.com/da-dk/azure/stream-analytics/>

✓ **Box 1: Azure Synapse Analytics** Azure Synapse Analytics

Synapse Analytics brings together SQL data warehousing and analytics over data lakes, and includes Apache Spark capabilities. That fits the sentence's specified warehouse, data lake, and Spark requirements.

<https://learn.microsoft.com/en-us/azure/synapse-analytics/overview-what-is>
<https://learn.microsoft.com/en-us/azure/synapse-analytics/overview-terminology>

Question 37

Single choice · Domain: D4 Describe an analytics workload › Describe considerations for real-time data analytics

Which statement accurately describes data processing?

- A. Batch processing requires that data be processed immediately upon arrival.
- B. Stream processing is typically used for time-critical operations that require an instant response.
- C. Stream processing is typically used for analyzing larger datasets in less time.
- D. Batch processing is typically used for scenarios that require continuous, real-time insights from rapidly arriving data.

Answer: B. Stream processing is typically used for time-critical operations that require an instant response.

Explanation

B is correct because stream processing handles data as it arrives, making it suitable for time-critical operations that need a rapid response. Batch processing instead collects data and processes it together later, so it is not the typical choice for continuous, real-time insights.

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>
<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>
<https://learn.microsoft.com/en-us/training/modules/explore-fundamentals-stream-processing/>

X A Batch processing requires that data be processed immediately upon arrival. Batch processing groups incoming data and processes it at scheduled times or after a batch has accumulated. Processing each item immediately upon arrival describes stream processing, not batch processing.

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>
<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>
<https://learn.microsoft.com/mt-mt/azure/architecture/data-guide/technology-choices/batch-processing?view=azurermps-4.1.0>

✓ B Stream processing is typically used for time-critical operations that require an instant response. Stream processing works on data continuously as it arrives, so results can be produced with low latency. That makes it appropriate for time-critical operations that need a prompt response.

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>
<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>
<https://learn.microsoft.com/en-us/training/modules/explore-fundamentals-stream-processing/>

X C Stream processing is typically used for analyzing larger datasets in less time. This describes a common reason to use batch processing, which can process large volumes of accumulated data together. Stream processing is generally chosen when data must be handled continuously and quickly as it arrives.

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>
<https://learn.microsoft.com/en-us/azure/architecture/databases/guide/big-data-architectures>
<https://learn.microsoft.com/mt-mt/azure/architecture/data-guide/technology-choices/batch-processing?view=azurermps-4.1.0>

X D Batch processing is typically used for scenarios that require continuous, real-time insights from rapidly arriving data. Continuous, real-time insights from rapidly arriving data are characteristic uses of stream processing. Batch processing accumulates data for later processing and therefore is not the typical choice for this requirement.

<https://learn.microsoft.com/en-us/azure/databricks/data-engineering/batch-vs-streaming>
<https://learn.microsoft.com/en-us/industry/well-architected/cross-industry/data-integration-patterns>
<https://learn.microsoft.com/en-us/training/modules/explore-fundamentals-stream-processing/>

Question 38

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload › Describe considerations for real-time data analytics

Select the answer that correctly completes the sentence.

Azure Data Explorer uses [dropdown] to explore, filter, and aggregate data quickly.

Answer Area

Azure Data Explorer uses to explore, filter, and aggregate data quickly.

KQL
Python
Scala
SQL

Azure Data Explorer uses [dropdown] to explore, filter, and aggregate data quickly.: KQL | Python | Scala | SQL

Answer

- Azure Data Explorer uses [dropdown] to explore, filter, and aggregate data quickly.: **KQL**

Explanation

Azure Data Explorer uses Kusto Query Language (KQL) to query data, including exploring, filtering, and aggregating it. Therefore, KQL correctly completes the sentence.

<https://learn.microsoft.com/en-us/kusto/query/index?view=azure-data-explorer>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-query-overview>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-kql>

<https://learn.microsoft.com/en-us/azure/data-explorer/kql-quick-reference/>

<https://learn.microsoft.com/en-us/azure/data-explorer/write-queries>

✓ **Box 1: KQL** KQL

KQL is the query language used with Azure Data Explorer to explore and manipulate data. Its query operators support filtering and aggregation, matching the sentence.

<https://learn.microsoft.com/en-us/kusto/query/index?view=azure-data-explorer>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-query-overview>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-kql>

<https://learn.microsoft.com/en-us/azure/data-explorer/kql-quick-reference/>

✗ **Box 1: Python** Python

Python is not the query language identified for Azure Data Explorer's interactive data exploration and filtering. The expected language for those tasks is KQL.

<https://learn.microsoft.com/en-us/kusto/query/index?view=azure-data-explorer>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-query-overview>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-kql>

✗ **Box 1: Scala** Scala

Scala is not the language Azure Data Explorer uses for its queries to explore, filter, and aggregate data. KQL is the appropriate query language.

<https://learn.microsoft.com/en-us/kusto/query/index?view=azure-data-explorer>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-query-overview>

✗ **Box 1: SQL** SQL

SQL is not the query language used by Azure Data Explorer for the tasks described. Azure Data Explorer queries use KQL instead.

<https://learn.microsoft.com/en-us/kusto/query/index?view=azure-data-explorer>

<https://learn.microsoft.com/en-us/azure/data-explorer/web-ui-query-overview>

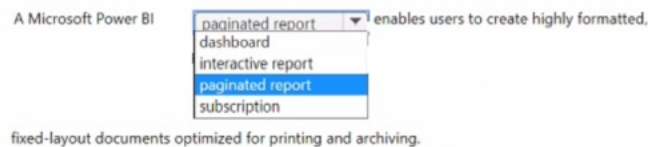
<https://learn.microsoft.com/en-us/azure/data-explorer/kql-quick-reference/>

Question 39

Hotspot (dropdowns) · Domain: D4 Describe an analytics workload · Describe data visualization in Microsoft Power BI

A Microsoft Power BI [dropdown] enables users to create highly formatted, fixed-layout documents optimized for printing and archiving.

Answer Area



A Microsoft Power BI ... enables users to create highly formatted, fixed-layout documents optimized for printing and archiving.: dashboard | interactive report | paginated report | subscription

Answer

- A Microsoft Power BI ... enables users to create highly formatted, fixed-layout documents optimized for printing and archiving.: **paginated report**

Explanation

A paginated report is designed to present data in a highly formatted, fixed-layout format, with pages that are suitable for printing and archiving. That matches the requirements in the sentence, so “paginated report” is the correct choice.

<https://learn.microsoft.com/power-bi/guidance/report-paginated-or-power-bi>

<https://learn.microsoft.com/en-us/power-bi/paginated-reports/paginated-reports-faq>

<https://learn.microsoft.com/en-us/power-bi/paginated-reports/report-design/page-layout-rendering-report-builder-service>

✗ **Box 1: dashboard** dashboard

A dashboard is a Power BI canvas for displaying tiles and visual summaries, not a fixed-layout document designed for printing and archiving. It does not fit the sentence's document-formatting requirements.

<https://learn.microsoft.com/en-us/power-bi/create-reports/service-dashboards>

<https://learn.microsoft.com/en-us/power-bi/fundamentals/service-basic-concepts?ad=US&rs=en-001&ui=en-US>

✗ **Box 1: interactive report** interactive report

An interactive report is intended for exploring data through visuals and interactions. The sentence instead describes a highly formatted, fixed-layout document optimized for printing and archiving, which is the role of a paginated report.

<https://learn.microsoft.com/power-bi/guidance/report-paginated-or-power-bi>

<https://learn.microsoft.com/en-us/power-bi/create-reports>

✓ **Box 1: paginated report** paginated report

Paginated reports are designed for precise page layout and highly formatted output, making them suitable for printing and archiving. This directly matches the sentence's description.

<https://learn.microsoft.com/power-bi/guidance/report-paginated-or-power-bi>

<https://learn.microsoft.com/en-us/power-bi/paginated-reports/paginated-reports-faq>

<https://learn.microsoft.com/en-us/power-bi/paginated-reports/report-design/page-layout-rendering-report-builder-service>

✗ **Box 1: subscription** subscription

A subscription delivers report content or notifications to users on a schedule; it is not the report format

that provides a fixed page layout. Therefore, it does not complete the sentence correctly.

<https://learn.microsoft.com/en-us/power-bi/collaborate-share/end-user-subscribe>

Question 40

Single choice

When can you use an Azure Resource Manager template?

- A. to automate the creation of an interdependent group of Azure resources in a repeatable way
- B. to automate the creation of an interdependent and develop can deploy from the Azure portal
- C. To provision Azure subscriptions and apply policies for multi-tenant deployments
- D. To set complex permissions automatically on existing objects in an Azure subscription

Answer: A. to automate the creation of an interdependent group of Azure resources in a repeatable way

Explanation

Azure Resource Manager (ARM) templates let you define Azure resources and their dependencies as code, then deploy them repeatably. That makes them suitable for creating an interdependent group of resources consistently, as option A describes. [3][5][6]

<https://learn.microsoft.com/en-us/azure/azure-resource-manager/template-deployment-overview>

<https://learn.microsoft.com/azure/azure-resource-manager/templates/resource-dependency>

<https://learn.microsoft.com/en-us/azure/azure-resource-manager/templates/template-tutorial-create-templates-with-dependent-resources>

✓ **A** to automate the creation of an interdependent group of Azure resources in a repeatable way

This describes a core use of ARM templates: defining resources and their dependencies so they can be deployed together and repeatedly. [3][5][6]

<https://learn.microsoft.com/en-us/azure/azure-resource-manager/template-deployment-overview>

<https://learn.microsoft.com/azure/azure-resource-manager/templates/resource-dependency>

<https://learn.microsoft.com/en-us/azure/azure-resource-manager/templates/template-tutorial-create-templates-with-dependent-resources>

✗ **B** to automate the creation of an interdependent and develop can deploy from the Azure portal

As written, this option is incomplete or garbled and does not state a clear use case. ARM templates can be deployed through the Azure portal, but the portal is a way to initiate deployment; it does not make this a better answer than automating a repeatable deployment of interdependent resources. [1][2]

<https://learn.microsoft.com/en-us/azure/azure-resource-manager/templates/quickstart-create-templates-use-the-portal>

<https://learn.microsoft.com/en-us/azure/azure-resource-manager/templates/deploy-portal>

✗ **C** To provision Azure subscriptions and apply policies for multi-tenant deployments

ARM templates deploy and manage Azure resources; they are not used to provision Azure subscriptions themselves. Although templates can be deployed at different scopes, this option does not describe the general purpose asked about. [3]

<https://learn.microsoft.com/en-us/azure/azure-resource-manager/template-deployment-overview>

✗ **D** To set complex permissions automatically on existing objects in an Azure subscription

ARM templates can define role assignments in supported scenarios, but this option describes setting complex permissions on existing objects rather than the main use of templates. The stated purpose of automating repeatable deployments of interdependent resources is the better match. [4][9]

<https://learn.microsoft.com/azure/role-based-access-control/role-assignments-template>

<https://learn.microsoft.com/en-us/azure/role-based-access-control/quickstart-role-assignments-template>

Dumpsgate