Question 81

CertyIQ

A company maintains a relational database to record operational information. Example records from the tables are shown below:

Customer

ID	Full name	Email	Phone	City	Date of Birth
1234	Tony Stott	tony@noemail.com	55 55 555	New York	11/29/1983

Purchase

ID	Purchase Date	Customer ID	Product ID	Quantity	Payment Taken
5678	01/03/2022	1234	1000	1	True

Product

ID	Name	Type
1000	Racer	Push bike

Which two of the below are data attributes in the company's model? Each correct answer presents part of the solution.

A. Email

B. Product

C. Purchase

D. Purchase Date

Explanation:

Email is an attribute of the Customer entity. It is a column on the Customer data table. Attributes represent characteristics of a data entity, which models a real-world object. For tabular data, the table is the data entity and columns within the table are attributes.

Purchase Date is an attribute of the Purchase entity. It is a column on the Purchase data table.

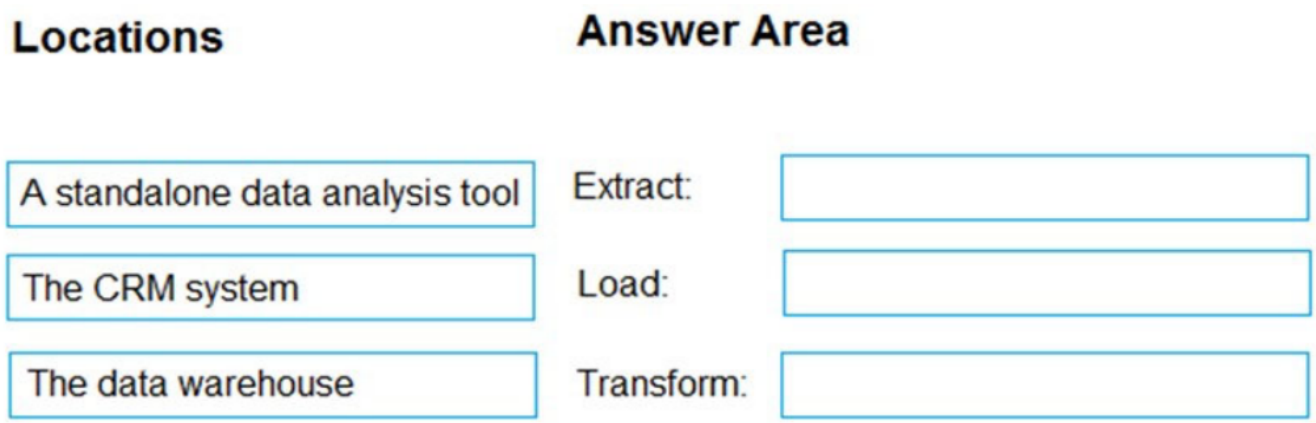
Purchase is a data table, analogous to an entity. Data entities model real-world objects and their characteristics are attributes. In structured, tabular data, data entities are often modeled as tables and the individual columns are their attributes (or characteristics). The individual columns on the Purchase data table (ID, Purchase Date, Customer ID, Product ID, Quantity and Payment Taken) are attributes of the Purchase entity.

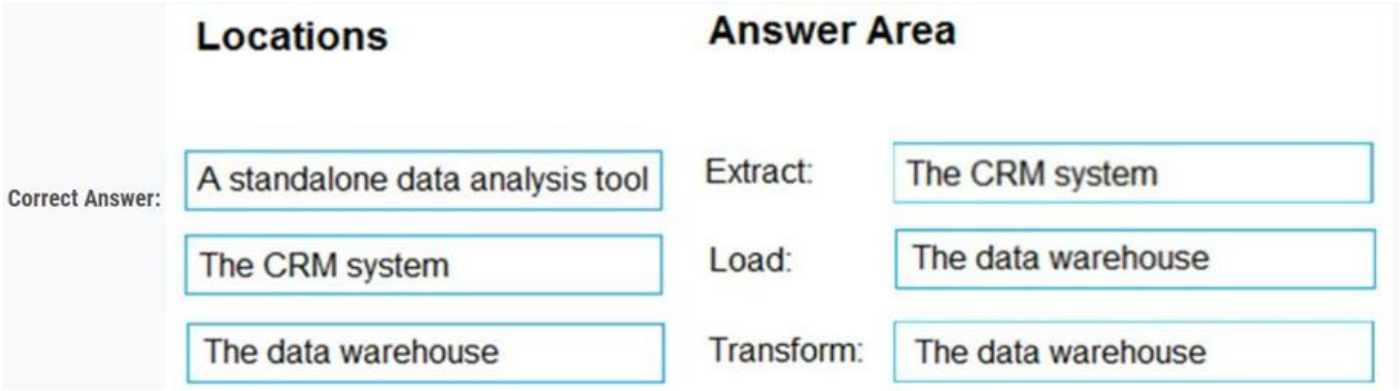
Product is also a data table. The individual columns on the Purchase data table (ID, Name and Type) are attributes of the Product entity.

Question 82

CertyIQ

DRAG DROP -
Your company plans to load data from a customer relationship management (CRM) system to a data warehouse by using an extract, load, and transform (ELT) process.
Where does data processing occur for each stage of the ELT process? To answer, drag the appropriate locations to the correct stages. Each location may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.
NOTE: Each correct selection is worth one point.
Select and Place:





Explanation:

Box 1: The CRM system -
Data is extracted from the CRM system.

Box 2: The data warehouse -
Data is loaded to the data warehouse.

Box 3: The data warehouse -
Load and transformation occurs in the Data Warehouse in ELT.

https://docs.microsoft.com/en-us/azure/architecture/data-guide/relational-data/etl#extract-load-and-transform-elt

Question 83

CertyIQ

Which of the below statements are correct regarding semi-structured data? Select Yes if the statement is true. Otherwise, select No.

Statements	Yes	No
It must adhere to a fixed schema.	○	○
It allows for variation between instances of data entities.	○	○
It allows for a hierarchical schema.	○	○
It requires all data entities to have the same attributes.	○	○

Correct Answer: -

Statements	Yes	No
It must adhere to a fixed schema.	○	●
It allows for variation between instances of data entities.	●	○
It allows for a hierarchical schema.	●	○
It requires all data entities to have the same attributes.	○	●

Explanation:

Semi-structured data does not need to adhere to a fixed schema. Semi-structured data allows for flexibility in the data being stored. Each instance of a data element (e.g. a customer) can have different attributes. which can be stored in a different order. Structured data requires a fixed schema; that is, each row of data must contain the same set of attributes in the same order.

Semi-structured data allows for variation between instances of data entities. Semi-structured data allows the storage of different sets of attributes per instance of a data entity. For example, one customer may have two email addresses and no mobile phone number, and a second customer might have three mobile phone numbers and one email address.

Semi-structured data allows for a hierarchical schema. Semi-structured data allows data entities to be set up in a hierarchical fashion; that is, some entities can be modelled in a parent/child relationship. For example, it can represent a complex manager and employee relationship, whereby an employee may report to many managers, or a manager may be responsible for many employees, potentially sharing responsibility for some employees with other managers.

Semi-structured data does not require all data entities to have the same attributes. This is true for structured data. Semi-structured data allows for variation between instances of data entities; different attributes and numbers of the same attribute may be recorded for each instance.

Question 84

CertyIQ

You are working with a relational database that stores structured data.

Which component of a table is used to store the unique identifier for instances of that data entity?

Choose the correct answer

A. Primary key

B. Row

C. Index

D. Foreign key

Explanation:

A primary key is the name given to a specific column in a database table that stores a unique identifier for each row, which is analogous to an instance of a data entity.

A foreign key is the name given to any column in a database table which references rows in another table by their own unique identifier. This allows the construction of relationships between two data entity instances. For example, the classroom table has a row with IDs 1 and 2. The teachers table has a row with ID 3. Both classroom rows can reference the teachers table row 3 to indicate that the same teacher is teaching in both classrooms.

Rows are instances of a data entity; a set of values for each column in the database table. Rows contain a primary key value, which acts as a unique identifier for that instance of the data entity.

An index is created from several columns to improve the speed of queries. They can (and usually do) include the primary key of the table.

Question 85

CertyIQ

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

Statements	Yes	No
Each document in a document database typically contains all data for a single entity.	○	○
Documents in a document database use the same data schema for all documents.	○	○
Documents in a document database support relationships enforced between documents.	○	○

Correct Answer: -

Statements	Yes	No
Each document in a document database typically contains all data for a single entity.	○	○
Documents in a document database use the same data schema for all documents.	○	○
Documents in a document database support relationships enforced between documents.	○	○

Explanation:

Each document in a document database typically contains all data for a single entity. The data contained in the document can vary between documents. Each document is identified by a unique key used to identify the document and each document is written or retrieved as a single block.

Documents in a document database do not use the same data schema for all documents. The schema is defined internally in the document, and each individual document can have a different schema. This allows for easy support of denormalized data and variations between entities.

Documents in a document database do not support relationships enforced between documents. Document databases do not provide a way to establish relationships between documents.

Question 86

CertyIQ

Your company is writing an application that will receive real-time events from multiple sources which may vary in schema. The application should be able to write the data to a data store as quickly as possible. It should also be able to lookup the value from the data store by using a unique key.

Which is the best type of data store you can use?

Choose the correct answer

A. Column-family

B. Graph

C. Table

D. Key/value

Explanation:

You should use a key/value data store. A key/value data store functions essentially as a large hash table and is optimized for fast data writes. Each data row is referenced by a single key value. The only operations supported are simple query, insert, and delete operations. Data updates require the application to rewrite the data for the entire value. Queries can be run by a key or a range of keys.

You should not use a column-family (columnar) data store. A column-family data store is similar to a relational data store in that data is organized as rows and columns, but the columns are divided into column families that can store multiple values in a single column. A row does not necessarily have a value in each column family. Columns within a column family are physically stored in the same file.

You should not use a table data store. A table data store uses a row and column data format with the data somewhat normalized but the same schema is not enforced across all rows. Each row can have a different number of columns. In Azure Table storage, data is organized based on a partition key and a row key. The partition key identifies the partition in which the data is stored, and the row uniquely identifies the row within the partition.

You should not use a graph data store. A graph data store is designed to support extensive, complex relationships between entities. This helps to make it easier to perform complex relation analysis.

Question 87

CertyIQ

You are designing a database for a new social media platform. The solution must support complex relationship analysis, including values such as age, location, pets, and musical preferences.

What type of data store should you use?

Choose the correct answer

A. Graph

B. Columnar

C. Object

D. Document

Explanation:

You should use a graph data store, which is made up of entities and relationships that are referred to as nodes and edges. You can have multiple relationships between entities, including hierarchical relationships. A graph data store is designed to support extensive, complex relationships between entities. This helps to make it easier to perform complex relation analysis.

You should not use a document store. A document store supports semi-structured documents. Each document is identified as a single key, and the data schema is defined internally in each document named fields and values. Therefore, the schema and content can vary between documents. Each document typically contains the data for a single entity. Relationships are not defined between documents.

You should not use a column-family (columnar) data store. A column-family data store is similar to a relational data store in that data is organized as rows and columns, but the columns are divided into column families that can store multiple values in a single column. A row does not necessarily have a value in each column family. Columns within a column family are physically stored in the same file. Data is denormalized and relationships are not defined between entities.

You should not use an object store. An object store is used to store unstructured data, such as audio or video files, and it does not provide for relationship analysis.

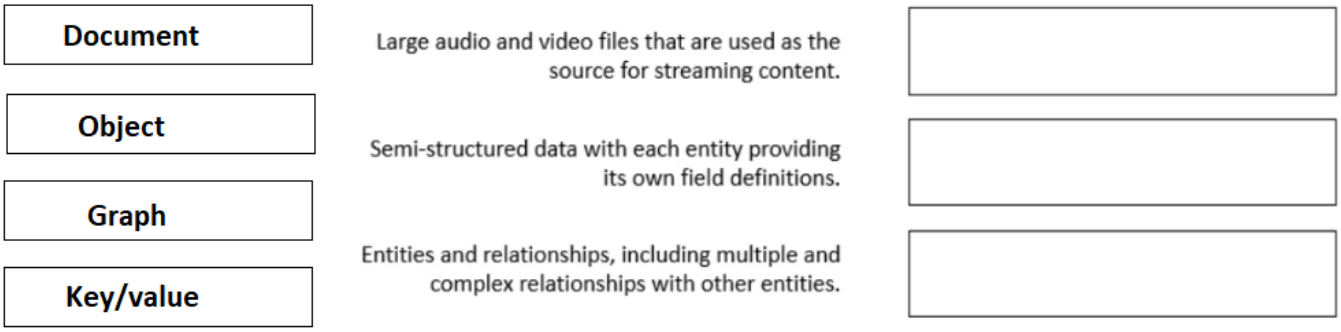
Question 88

CertyIQ

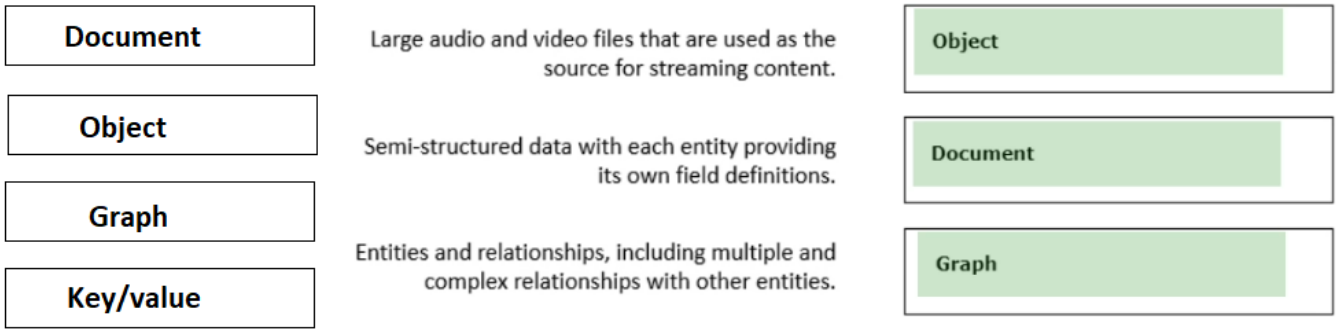
Match the non-relational data descriptions with the appropriate data store.

To answer, drag the data store to each description. A data store may be used once, more than once, or not at all.

Drag and drop the answers: -



Correct Answer: -



Explanation:

For large audio and video files that are used as the source for streaming content, you should choose an object data store. Files of this type are unstructured, non-relational data. The typical storage solution for this type of file is an object store, such as Azure Blob storage.

Semi-structured data with each entity providing its own field definitions is a description of document-type data, and therefore a document store is your best choice. Documents are written and retrieved as complete documents. The embedded field definitions make it possible to query documents in order to retrieve field values. You would typically use an Azure Cosmos DB storage solution.

For entities and relationships, including multiple and complex relationships with other entities, you should use a graph data store. A graph data store is made up of entities and relationships that are referred to as nodes and edges. You can have multiple relationships between entities, including hierarchical relationships. A graph data store is designed to support extensive, complex relationships between entities. This helps to make it easier to perform complex relation analysis.

None of the descriptions refer to data that should be stored in a key/value data store. A key/value store functions essentially as a large hash table and is optimized for fast data writes. Each data row is referenced by a single key value. The only operations supported are simple query, insert, and delete operations. Data updates require the application to rewrite the data for the entire value. Queries can be run by key or a range of keys.

Question 89

CertyIQ

You need to recommend a data store that is optimized to store and retrieve text files, videos, and images.

The data store must store metadata about the file, its contents, and a unique ID for each file.

Which type of data store should you recommend?

A. Document

B. Object

C. Graph

D. Key/value

Explanation:

You should recommend an object data store. Object data stores are optimized for storing and retrieving large binary objects or blobs such as text files, images, and videos. An example of service capable of storing this kind of information is Azure Blob Storage.

You should not recommend a document data store. A document data store is used to store semi-structured data in fields and values with a flexible structure. Documents are usually represented in JavaScript Object Notation (JSON) format and can have different fields to represent the same class of information.

You should not recommend a key/value data store. A key/value data store is used to store values associated with a unique key. This kind of data store is optimized for performing simple lookups using the value of the key.

You should not recommend a graph data store. A graph data store manages nodes and edges. Nodes represent entities, and edges specify the relationships between these entities.

Question 90

CertyIQ

You need to implement a non-relational data store for a new application. The application needs to store data in JSON format with a flexible schema. All the entity details should be stored together in the same structure.

Which type of non-relational data store should you use?

Choose the correct answer

A. Key/value

B. Document

C. Object

D. Graph

Explanation:

You should use a document data store. A document data store contains the entire data for an entity stored in single documents with a unique id. This document supports a flexible schema and the entity data is usually stored in JSON format.

You should not use a key/value data store. A key/value data store consists of a simple and quick data structure where you can store some information in a value that is identified by a key.

You should not use a graph data store. A graph data store consists of graphs containing edges and nodes and is used to store and query complex relationships among entities.

You should not use an object data store. An object data store is used to store large binary objects, such as images and media files.

Question 90

CertyIQ

You have an application that stores information in the format shown in the exhibit below:

Customer	Name
1	First name: John Last name: Williams
2	First name: Mary Middle name: Jane Last name: Watsson
3	First name: Dwight Last name: Schrute Pronouns: he/him/his

Customer	Contact Info
1	Phone: 912-349-4447
2	Email: mj@company1.com
3	Phone: 717-555-0177 Email: dschrute@company1.com

You need to recommend the most appropriate data store for this application.

Which type of data store should you use?

A. Choose the correct answer

B. Object

C. Column-family

D. Key/value

Explanation:

You should use a column-family data store. A column-family data store consists of row identifiers and a group of information stored in a column. Each group of information is stored in independent columns, just like the customers' identities are shown in the exhibit.

You should not use a relational data store. A relational data store consists of rows and columns defined in tables, and each table stores a specific set of data in a normalized format. In this scenario, the data is stored in a single column, in which each row contains denormalized data.

You should not use an object data store. An object data store consists of large binary objects, such as images, media files, and other types of files.

You should not use a key/value data store. A key/value data store consists of a simple and quick data structure where you can store some information in a value that is identified by a key.

Question 91

CertyIQ

To answer, select the appropriate options from the drop-down menus.

Select your answ

A key/value
A columnar
A graph
An object

data store consists of edges and nodes used to store and query complex relationships among entities. It stores all the entities as nodes and builds the relationship between those entities by using edges.

Correct Answer: -

Select your answ

- A key/value
- A columnar
- A graph
- An object

data store consists of edges and nodes used to store and query complex relationships among entities. It stores all the entities as nodes and builds the relationship between those entities by using edges.

Explanation:

A graph data store consists of edges and nodes used to store and query complex relationships among entities. It stores all the entities as nodes and builds the relationship between those entities by using edges.

A key/value data store consists of a simple and quick data structure where you can store some information in a value that is identified by a key.

A columnar data store consists of row identifiers and a group of information stored in a column. Each group of information is stored in independent columns.

An object data store consists of large binary objects, such as images, media files, and other types of files.

Question 92

CertyIQ

You work as a data engineer.

Which two data stores types are non-relational? Each correct answer presents a complete solution.

Choose the correct answers

A. a document database

B. a graph database

C. Azure Database for MariaDB

D. a SQL database

Explanation:

Document databases and graph databases are examples of non-relational data stores. Document databases store data in JSON or XML format and do not require all documents to have the same structure. Graph databases store information in the form of edges and nodes. They are used to represent complex relationships such as social interactivity.

The Azure Database for MariaDB and SQL databases are examples of relational databases. Relational databases store information in the form of tables, which you can connect through relationships. Relational databases are used for highly structured data.

Question 93

CertyIQ

Your company application requires you to store user profile data, like shipping addresses and user preferences. Each user can have multiple addresses and different preference fields. All the user data should be stored and retrieved from a single data structure.

You need to use the best non-relational data store for this type of data.

Which type of non-relational data store should you use?

Choose the correct answer

A. Column-family database

B. Key-value store

C. Document database

D. Graph database

Explanation:

You should use a document database. A document data store consists of entities that have their related data stored in a single document. This document supports a flexible schema and the entity data is usually stored in JSON format. They can be used for maintaining the user profile information, making it possible to store all information in a single block.

You should not use a key-value, non-relational data store. Key-value stores are highly optimized for simple data structures. A Key-value store associates each data value with a key that can be used to access the data.

You should not use a column-family database. Column-family databases store data in rows and columns, grouping related columns into columns-families that are used together. Instead of a document-based database, you can use a column-family database to retrieve only the required columns-families instead of all user data.

You should not use a graph database. Graph databases store information in the form of edges and nodes. They are used to represent complex relationships such as social interactivity.

Question 94

CertyIQ

Which file format is shown in the below exhibit?

```
<Pets>
    <Pet name="Spot" type="dog">
        <OwnerDetails>
            <Owner name="Sally" email="sally@noemail.com"/>
            <Owner name="Tom" email="tom@noemail.com"/>
        </OwnerDetails>
    </Pet>
    <Pet name="Pixel" type="cat">
        <OwnerDetails>
            <Owner name="Amy" email="amy@noemail.com"/>
        </OwnerDetails>
    </Pet>
</Pets>
```

Choose the correct answer

A. JSON

B. Parquet

C. XML

D. CSV

Explanation:

The file format shown in the exhibit is an extensible markup language (XML). XML uses tags (elements) for entities within angle brackets, much like HTML. Attributes are added inside tags in the following format, separated by spaces. XML is a traditional format for web applications, but many newer applications now use JSON instead. The following is an example of XML:

<attribute name="attribute value">

JavaScript object notation (JSON) encloses entities in parentheses, 0); collections in square brackets, []; attributes inside entities in the below format, separated by commas. JSON is a newer way of storing semi structured data than XML, and is commonly used by web applications.

("attribute name":"attribute value")

Parquet contains row groups, each of which stores chunks of data. It stores data in columns rather than rows. Parquet is a file format developed by Apache; it is useful for efficient querying of very complex data, such as that generated by social networking.

Comma-separated values (CSV) files are simple lists of attributes separated by a delimiter, which is often a comma. Sometimes, the names of the columns will be added in the first row. CSV is a very simple and ubiquitous structure that can be easily interpreted by older applications. CSV data would look like the example below.

attribute 1 name, attribute 2 name

attribute 1 value, attribute 2 value

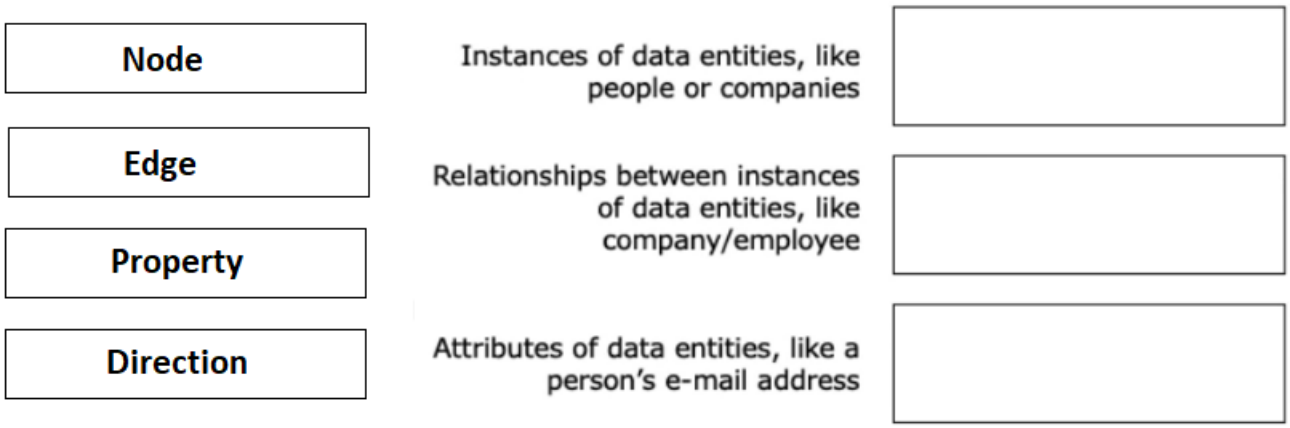
Question 95

CertyIQ

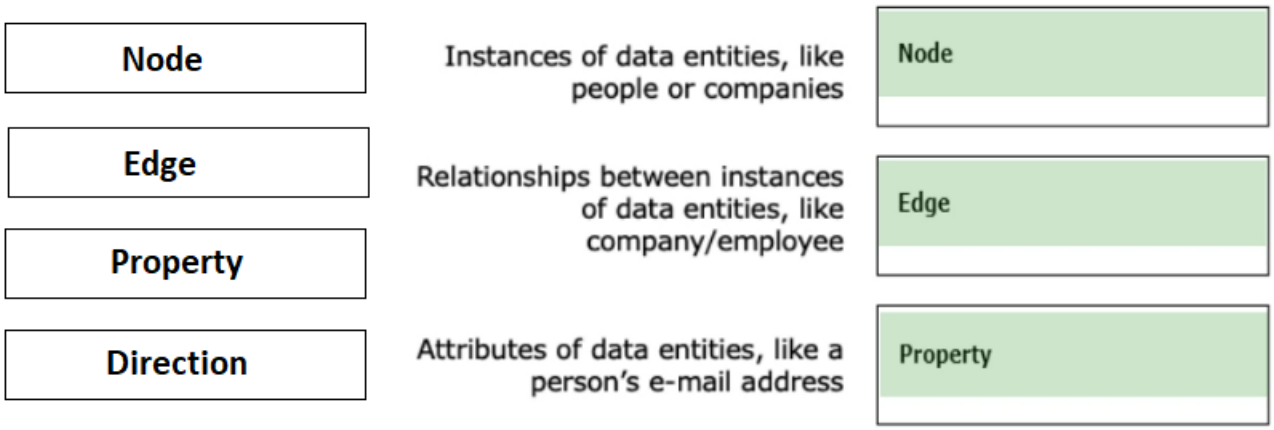
You need to identify the components of a graph database.

To answer, drag the appropriate component to each description. A component may be used once, more than once or not at all.

Drag and drop the answers



Correct Answer: -



Explanation:

Graph databases store semi-structured data.

Nodes represent instances of data entities, like individual people. Nodes are analogous to rows in a table within a relational database.

Edges represent the relationships between nodes; they are also called graphs or relationships. Edges can be directed or undirected, depending on the structure of the individual database.

Properties represent attributes of data against a node. For instance, a person might have an email address or phone number. Properties are analogous to columns on a table in a relational database. However, remember that NoSQL databases allow for flexibility on the attributes stored against a node. For example, a node may have many instances of a single attribute or it may be absent.

Directions are a property of an edge. Edges can be directed or undirected. Directed edges store two pieces of information relating to each of the nodes they connect. For instance, a parent/child directed edge would store which person node represents the parent and which the child. Undirected edges link nodes together, where the direction of the relationship does not matter; for example, a friendship between two people.

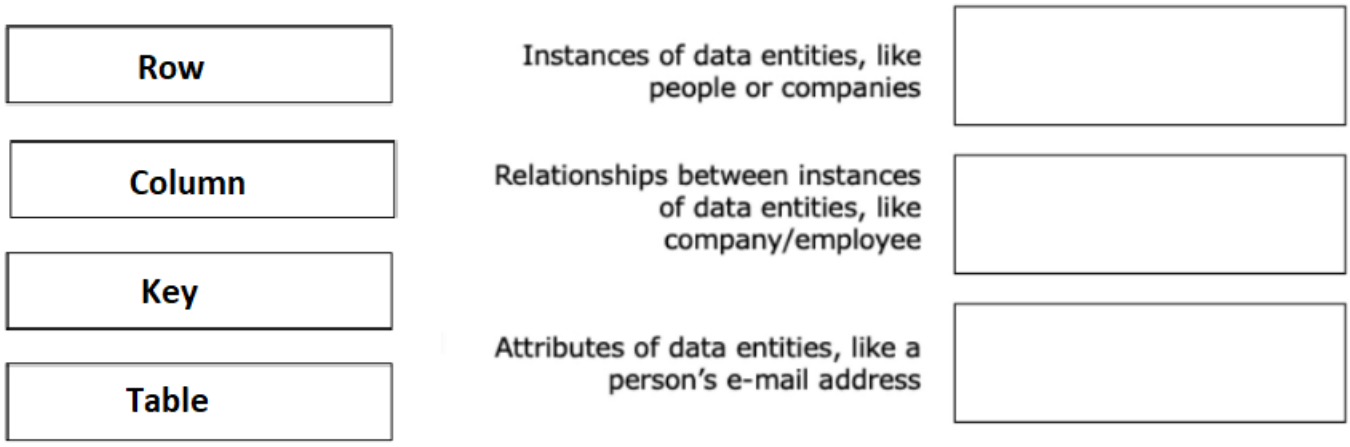
Question 96 CertyIQ

You are involved in creating a data model for your company.

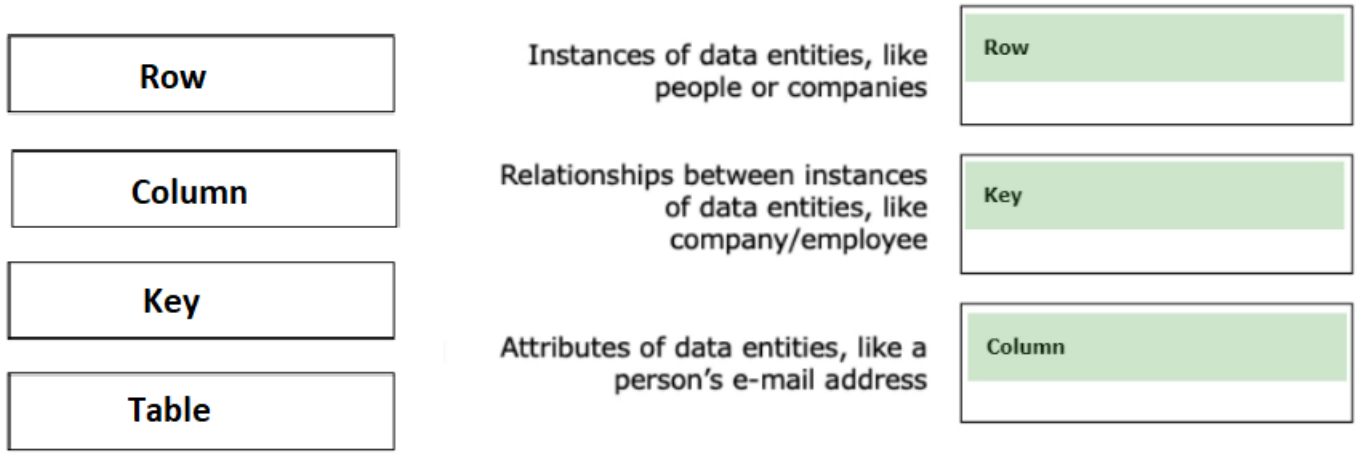
You need to identify the correct components of a relational database to assist you with your task.

Drag the components to the descriptions. Each component may be used once, more than once or not at all.

Drag and drop the answers: -



Correct Answers: -



Explanation:

Relational databases store structured data.

A row represents an instance of a data entity, like an individual person or company. You can think of a row like a line in a spreadsheet.

A key represents a relationship between two individual data entities. Each table has a primary key column, which gives each row a unique value (usually numerical) that acts as an identifier that can be referenced using a foreign key column on another table.

A column represents a data attribute on a table. An example might be an e-mail address column in the table Person. Each row (individual person record) may have an e-mail address value in that column.

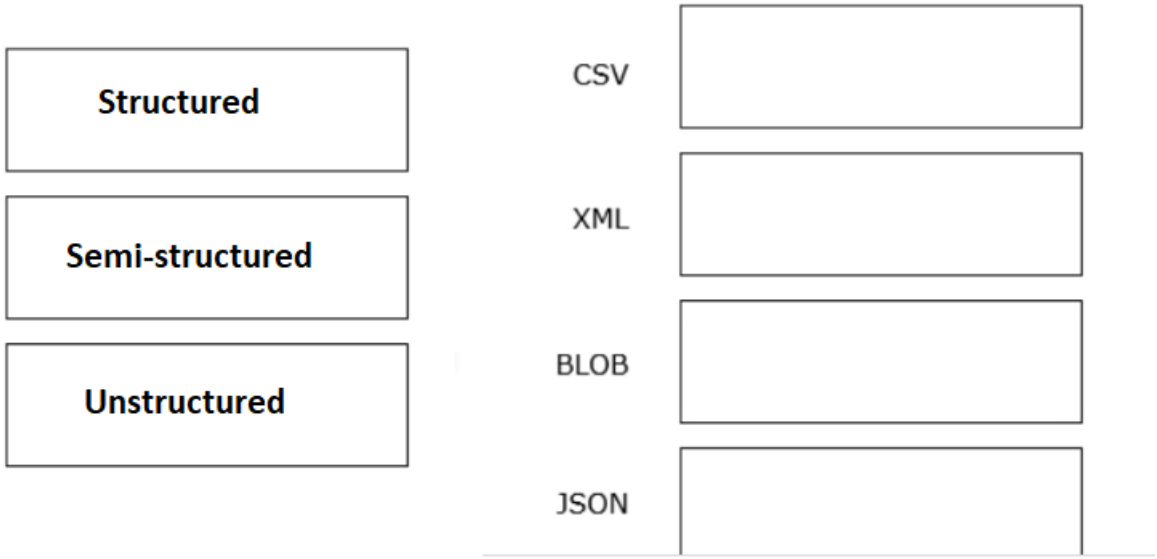
A table represents a data entity itself, like a person. A table has columns (attributes) and rows (instances of the entity).

Question 97 CertyIQ

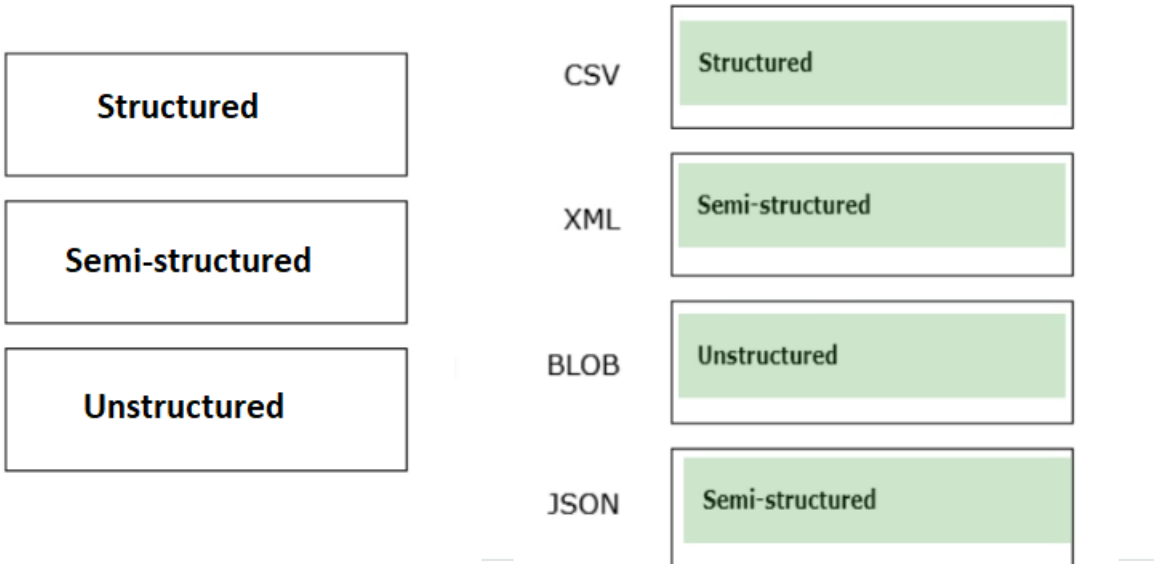
You need to determine the correct data classification for each file format.

To answer, drag each classification to the correct file format. Each classification may be used once, more than once or not at all.

Drag and drop the answers: -



Correct Answers: -



Explanation:

Comma-Separated Values (CSV) files are structured. They store plain text separated by field delimiters, often commas, creating a set schema. Each row of data must have the same set of attributes in the same order. You can save structured data files, like Excel spreadsheets, as .csv files to provide a flexible format, which many applications can use.

Extensible Markup Language (XML) files are semi-structured. They store elements and attributes in tags in a hierarchical schema, which look like HTML tags, e.g. <customer />, but they can be defined according to data storage requirements. XML is a good choice for storing semi-structured data, as elements and tags are flexible.

Binary Large Object (BLOB) files store raw binary data without a schema. BLOB files are used for unstructured data, such as audio and video.

JavaScript Object Notation (JSON) files store data entities in a hierarchical schema, much like XML. Each entity can have a different set or number of attributes, making it a good choice to store semi-structured data.

Question 98

CertyIQ

The Customer table of a relational database is shown in the below exhibit. This table references values in the City table.

ID	Name	Email	Phone	City ID
10001	Mary	mary@noemail.com	555 555 5555	304
10002	Tony	tony@noemail.com	555 445 5567	24
10003	Bob	bob@noemail.com	555 665 7563	5
10004	Sam	sam@noemail.com	444 556 3358	8
10005	Harry	harry@noemail.com	444 666 8844	78

Which feature of this table is highlighted?

Choose the correct answer

A. Non-clustered index

B. Instance of customer entity

C. Foreign key

D. Primary key

Explanation:

The primary key is highlighted. The primary key column contains values that are unique identifiers for a particular row. In this scenario, the ID column stores a unique number for each customer.

Foreign keys are not highlighted. Foreign key columns contain values referencing the Primary key of another table. The City ID column is a foreign key column; it references the primary key values of the Customer table, normalizing the data. Normalization is the process of removing duplicate data. Referencing a row in the City table means that we do not have to store additional columns in the Customer table for every row in the City table.

An instance of a customer entity is not highlighted. Each row of data shown in the exhibit represents a different customer, an instance of the customer data entity.

A non-clustered index is not highlighted. A non-clustered index is a structure of a database table that works as an index page in a textbook. It is used to speed up queries.

Question 99

CertyIQ

In reference to online transaction processing (OLTP), for each of the following statements, select Yes if the statement is true. Otherwise, select No.

Statements	Yes	No
Data is highly normalized with the schema strongly enforced on write.	○	○
Read and write workload requirements are balanced.	○	○
Changes made are rolled back automatically if a transaction is not completed.	○	○

Correct Answers: -

Statements	Yes	No
Data is highly normalized with the schema strongly enforced on write.	○	○
Read and write workload requirements are balanced.	○	○
Changes made are rolled back automatically if a transaction is not completed.	○	○

Explanation:

OLTP systems are used to record day-to-day business activities and interactions as they occur. This includes activities such as orders taken, services performed, and payments received or made.

In an OLTP system, data is highly normalized with the schema strongly enforced on write. OLTP systems are usually structured around a relational data store supporting transactional applications.

An OLTP workload has heavy write requirements with minimal (in comparison) read requirements.

In an OLTP environment, changes made are rolled back automatically if a transaction is not completed so that no transaction is left in a partially completed state. This is known as atomicity and is a requirement for OLTP.

Question 100

CertyIQ

For each application description, identify whether it describes an online transactional processing (OLTP) or an online analytic processing (OLAP) workload.

To answer, select OLTP or OLAP from the drop-down menus.

You want to perform data mining on historic data collected from multiple relational and non-relational sources.	Select your answer OLAP OLTP
You want to process hundreds of user purchases per minute, including updates to inventory on hand.	Select your answer OLAP OLTP
You want to support warehouse sales and shipping for physical warehouses and multiple international locations.	Select your answer OLAP OLTP
You want to provide loosely normalized data to support report generation.	Select your answer OLAP OLTP

Correct Answers: -

You want to perform data mining on historic data collected from multiple relational and non-relational sources.	Select your answer OLAP OLTP
You want to process hundreds of user purchases per minute, including updates to inventory on hand.	Select your answer OLAP OLTP
You want to support warehouse sales and shipping for physical warehouses and multiple international locations.	Select your answer OLAP OLTP
You want to provide loosely normalized data to support report generation.	Select your answer OLAP OLTP

Explanation:

An application to perform data mining on historic data collected from multiple relational and non-relational sources is an example of an OLAP workload. OLAP applications often manipulate data based on complex queries. Data mining queries are complex multidimensional queries that are designed to discover insights from the data that are not immediately apparent.

An application to process hundreds of user purchases per minute, including updates to inventory on hand, is an example of an OLTP workload. OLTP applications are optimized for write operations and entering and updating data across

multiple, related tables. Partial changes made to data are rolled back automatically if a transaction is not completed so that no transaction is left in a partially completed state.

An application to support warehouse sales and shipping for physical warehouses and multiple international locations is an example of an OLTP application. OLTP transactions can be distributed geographically and supported by one or more relational databases. This scenario requires a solution that supports consistent and reliable data writes.

An application to provide loosely normalized data to support report generation is an example of an OLAP workload. Companies will often maintain live data for transactional processing and a separate copy of historic data for analysis and report generation. This prevents analytic processing from interfering with the performance during transactional processing.

Question 101

CertyIQ

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

Statements	Yes	No
To generate complex ad-hoc reports using several aggregations	○	○
To perform e-commerce transactions	○	○
To perform big data analysis on a NoSQL database	○	○

Correct Answers: -

Statements	Yes	No
To generate complex ad-hoc reports using several aggregations	●	○
To perform e-commerce transactions	○	●
To perform big data analysis on a NoSQL database	●	○

Explanation:

Online analytical processing (OLAP) systems are designed to perform complex analyses and provide business intelligence. OLAP is used for analytical workloads, such as:

- Generating complex ad-hoc reports that include several aggregations
- Performing big data analysis on a NoSQL database

Online transaction processing (OLTP) systems are designed to perform business transactions as they occur.

OLTP is used for transactional workloads, such as:

- Performing e-commerce transactions
- Tracking inventory management systems

Question 102

CertyIQ

You need to support a reporting system that performs data mining in a large amount of data.

Which type of workload or processing should you use?

Choose the correct answer

A. Stream processing

B. Online transaction processing (OLTP)

C. Online analytical processing (OLAP)

D. Batch processing

Explanation:

You should use an OLAP workload. You can use OLAP workloads to organize large business databases and perform complex analytics, like data mining, without negatively affecting transactional systems.

You should not use an OLTP workload. You can use OLTP workloads with transactional systems used in the day-to-day operations of an organization, like accounting, financial, and other systems, that require strong consistency for transactions.

You should not use a stream processing workload. You can use streaming processing workloads to handle a continuous stream of data used by time-critical operations.

You should not use a batch processing workload. You can use batch processing workloads to collect a group of data with a scheduled time interval or when a certain amount of data has arrived that is not time sensitive.

Question 103

CertyIQ

Your company uses an accounting system to keep track of all types of financial transactions.

Which type of workload or processing is this an example of?

Choose the correct answer

A. Batch processing

B. Stream processing

C. Online analytical processing (OLAP)

D. Online transaction processing (OLTP)

Explanation:

This is an example of an OLTP workload. You can use OLTP workloads with transactional systems used in the day-to-day operations of an organization, like accounting, financial, and other systems, that require strong consistency for transactions.

OLAP workloads organize large business databases and perform complex analytics, like data mining. without negatively affecting transactional systems.

A stream processing handles a continuous stream of data used by time-critical operations.

Batch processing collects a group of data within a scheduled time interval or when a certain amount of non-time-sensitive data has arrived.

Question 104

CertyIQ

Your company uses an Azure SQL database to store information about your sales cycle, including customers, quotes, orders and invoices.

As part of a new disaster recovery procedure, you need to ensure that a backup of the database is taken and added to Azure Blob Storage every night.

Which role is the most appropriate to perform this task?

Choose the correct answer

A. A Database Administrator

B. A Data Analyst

C. A Data Scientist

D. A Data Engineer

Explanation:

A Database Administrator is the most appropriate role to perform this task. Database Administrators (DBAs) are responsible for maintaining and designing databases; they do the day-to-day work of keeping the company's data-related systems up and running. They will work with business stakeholders to perform tasks like updating the database structure to reflect new business requirements (where needed), ensuring an acceptable database performance and creating backups and copies of the database.

A Data Analyst is not the most appropriate role to perform this task. Data Analysts are responsible for interpreting the data generated by the business, using it to create visual reports or identify trends that can provide business insights. They do not deal with the mechanics of how the data is recorded; they only look at the data itself.

A Data Engineer is not the most appropriate role to perform this task. Data Engineers are responsible for manipulating data (performing cleansing or enrichment routines) and moving it where it needs to go (via pipelines or other integrations). Although they often have the same skillsets as Data Scientists, this is a more practical, hands-on job; they make day-to-day systems by connecting individual data sources together.

A Data Scientist is not the most appropriate role to perform this task. Data Scientists are responsible for working with data on a mathematical level. They design and implement processes like machine learning to gain insights from existing data. Their job is to ask questions about a data set and use theories and experiments to find out the answers.

Question 104

CertyIQ

Your company is hiring a new Data Analyst, and is putting together a job description for the role.

Which three statements relate to the tasks of a Data Analyst? Each correct answer presents a complete solution

Choose the correct answers

A. To identify trends and relationships in data

B. To create and maintain data models and datasets

C. To design and maintain a data warehouse

D. To design and implement disaster recovery plans

E. To create reports and dashboards

Explanation:

The new Data Analyst will need to create reports and dashboards. This will be the main focus of a Data Analyst's job. They use tools such as Power BI and Tableau to tell a story with data, creating visualizations that illustrate the trends and relationships they have uncovered for business users.

The Data Analyst will identify trends and relationships in data. It is part of a Data Analyst's job to use their skills to uncover insights in data that are useful to the business.

The Data Analyst will also create and maintain data models and datasets. When creating reports, Data Analysts will ingest raw data and then shape it into a different model, which will provide the correct basis and optimal performance for the particular report they are building. They will often create and maintain curated sets of data that are useful for people to report on, which can belong to models or be in a stand-alone format.

The Data Analyst will not need to design and implement disaster recovery plans. This task involves working with the data at source (for example, within an Azure SQL database), which is not part of a Data Analyst's job. This task is part of a Database Administrator's job.

The Data Analyst's job will not include designing and maintaining a data warehouse. A data warehouse is a central store of data, ingesting data from many sources and storing it in a way that meets the company's requirements for data transformation or analytics. This task would form part of the job of a Data Engineer.

Question 105

CertyIQ

Which of these tools would a Data Analyst use most of the time?

Choose the correct answer

A. Power BI

B. Azure Databricks

C. SQL Server Management Studio

D. Azure Data Studio

Explanation:

Power BI is a data analytics tool that allows users to build data models, reports and dashboards to visualize and interpret data. As such, it would typically be used by a Data Analyst.

SQL Server Management Studio is a tool that allows users to design and maintain SQL Server databases and related components. A Database Administrator would typically use it.

Azure Databricks is an analytics platform used by Data Engineers and Data Scientists to ingest and transform data and develop machine learning models.

Azure Data Studio is a cloud-based cross-platform database tool used by Database Administrators. Similar to SQL Server Management Studio, it allows them to build complex queries for raw data with intelligence to assist them, and create reports and dashboards to check the performance and status of databases they manage.

Question 106

CertyIQ

What are characteristics of relational databases?

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

Statements	Yes	No
Rows in the same table can have different numbers of columns.	○	○
A table can have any number of rows.	○	○
The primary key is used to enforce uniqueness on rows.	○	○
Normalization helps to minimize data duplication.	○	○

Correct Answers: -

Statements	Yes	No
Rows in the same table can have different numbers of columns.	○	●
A table can have any number of rows.	●	○
The primary key is used to enforce uniqueness on rows.	●	○
Normalization helps to minimize data duplication.	●	○

Explanation:

Relational data is stored in multiple tables. Each table is made up of rows and columns. Each row represents an instance of an entity for which you want to store information. The columns contain information about the entities, with a given column value for each entity.

The tabular structure of relational databases means that each of the rows in a table will have the same number of columns. Not all columns will necessarily contain a value. Data tables let you have any number of rows.

The primary key is a unique value assigned to a row. Even if all other columns' information is the same in two rows, you must have a column or a group of columns to store the primary key value that makes each row unique. When setting up relationships between tables through foreign keys, each foreign key value must have a corresponding value in a primary key.

Normalization is the process used to split an entity into multiple tables. This helps to minimize data duplication through the use of related tables. For example, an online order might need to include customer information and information about the items ordered. Rather than putting all of this information in order, you can have foreign keys pointing to the detailed customer and item information in other tables.

Question 107

CertyIQ

In a relational database, you can use [Select your answer] to eliminate data repetition and inconsistent dependencies by separating data into multiple tables and relating these tables by using a foreign key.

- a clustered index
- a primary key
- normalization

Correct Answers: -

In a relational database, you can use [Select your answer] to eliminate data repetition and inconsistent dependencies by separating data into multiple tables and relating these tables by using a foreign key.

- a clustered index
- a primary key
- normalization

Explanation:

In a relational database, you can use normalization to eliminate data repetition and inconsistent dependencies by separating data into multiple tables and relating these tables by using a foreign key.

A primary key is a constraint that is used to enforce data integrity in relational databases by indicating which column (or combination of columns) uniquely identifies each row in a table. It must have a unique value across a table. A primary key is also used to create relationships between different tables.

A clustered index is a data structure associated with a table that defines the order in which rows are stored on a disk.

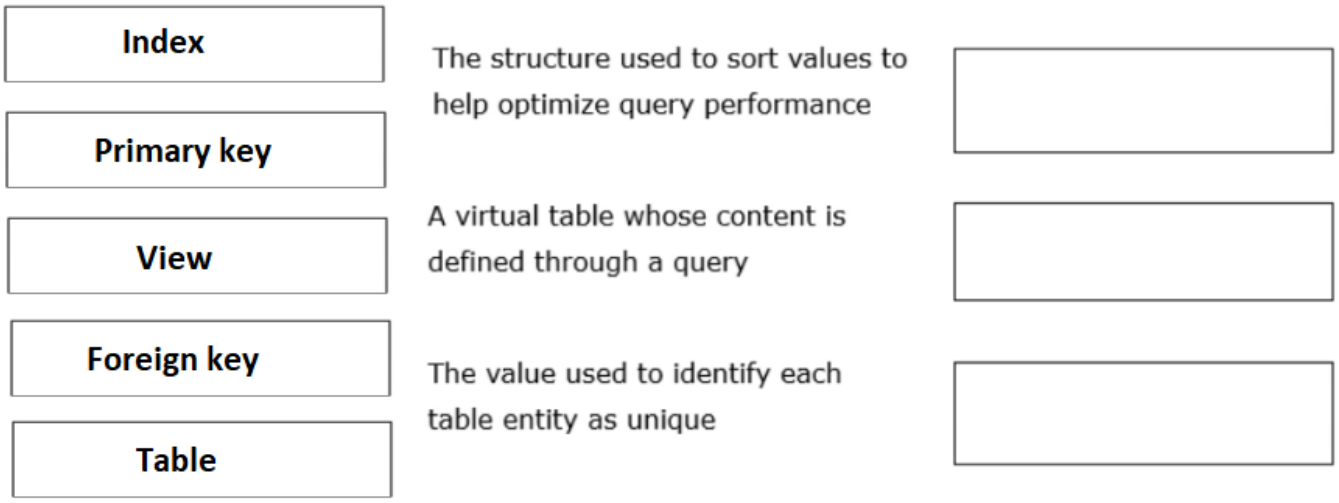
Question 108

CertyIQ

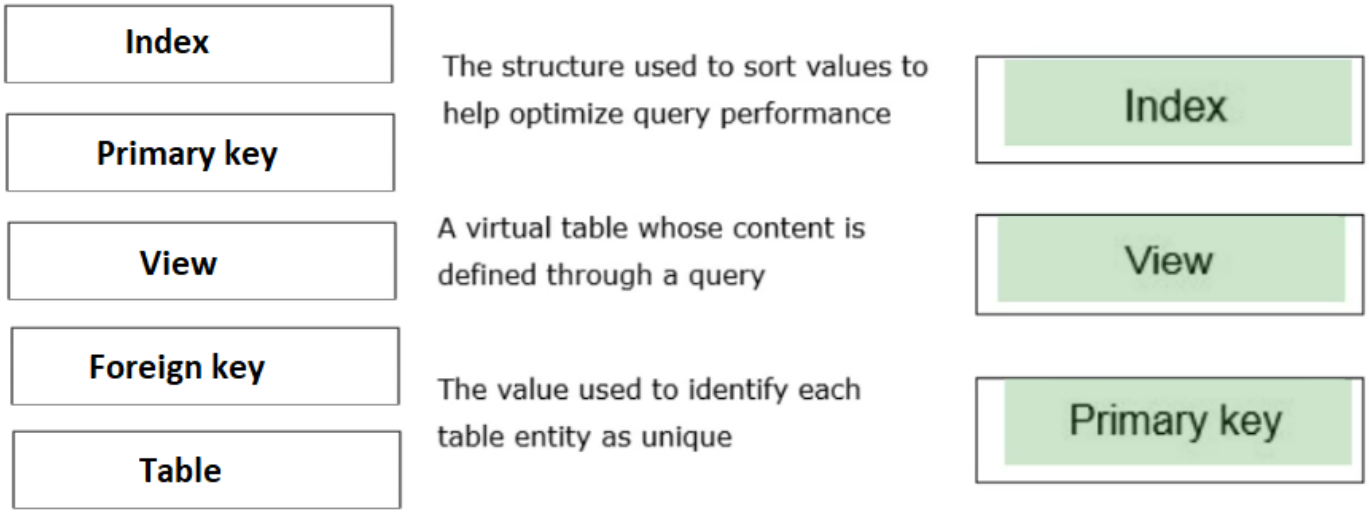
Match the relational database structure descriptions with the appropriate structure.

To answer, drag the appropriate structure to each description. A structure may be used once, more than once, or not at all.

Drag and drop the answers: -



Correct Answers: -



Explanation:

An index is the structure used to sort values to help optimize query performance. Most relational database management systems (RDMSs) support clustered and nonclustered indexes. The difference is that a table is physically sorted in clustered index order when it is used and a nonclustered index does not change the table order, but it contains pointers to the appropriate table rows.

A view is a virtual table whose contents are defined through a query. A simple view might look like the following:

CREATE VIEW CustLabels

AS

SELECT c.CustomerNumber, c.CustomerName

FROM Customers c

This would create a view that includes the CustomerNumber and CustomerNamecolumn values. Once created, a view can be used as a data source in other queries.

The primary key is the value used to identify each table entity as unique. The primary key value for each row will be unique.

None of the descriptions are for a table. A table is the basic storage structure for a relational database consisting of rows and columns.

None of the descriptions are for a foreign key. Foreign keys are used with primary keys to establish relationships between tables. The foreign key in one table is associated with the primary key in another table. A foreign key will be associated with only one primary key, but multiple foreign keys can be associated with the same primary key.

Question 109

CertyIQ

Which application is best supported through the use of a relational database?

Choose the correct answer

A. Data gathering for a customer resource management (CRM) application must support and retain values for entities with different numbers of values.

B. An application that must be able to rapidly load values from different Internet of Things (IoT) sensors that are coded by time into temporary storage with the data treated as transparent.

C. An order processing engine for an online sales application that needs to perform high-speed online transaction processing (OLTP) operations.

D. An application where users need fast, reliable access to streaming media files that vary in size between 20 GB and 5 MB.

Explanation:

The application best suited to a relational data store is an order processing engine for an online sales application that needs to perform high-speed online transaction processing (OLTP) operations. Characteristics of data in relational databases include:

Highly normalized with enforced schemas

Requires high integrity and strong consistency

Relationships are maintained between data tables

In addition to order management, relational databases are typically used to support inventory control and accounting applications.

For an application where users need fast, reliable access to streaming media files that vary in size between 20 GB and 5 MB, you should choose an object storage solution such as Azure Blob storage or Azure Data Lake Storage Gen2.

When gathering data for a customer resource management (CRM) application that must support and retain values for entities with different numbers of values, you would most likely use a document storage solution. Document data is

semi-structured with each document internally defining its own schema. Each document is written and retrieved as a single block. You would most likely use Azure Cosmos DB as your storage solution.

To support an application that must be able to rapidly load values from different IoT sensors that are coded by time into temporary storage with the data treated as transparent you would most likely use a key/value storage solution. You would most likely use the Azure Cosmos DB Table API or Azure Table storage as your data store.

Question 110

CertyIQ

You need the query to be readily available to users. You want to maintain the normalization of your database.

What should you create?

Choose the correct answer

A. Index

B. View

C. Key

D. Table

Explanation:

You should create a view. A view is a virtualized table that is recreated each time you execute the view query. The creation table for a simple view might look like the following:

CREATE VIEW CustLabels

AS

SELECT c.CustomerNumber, c.CustomerName

FROM Customers c

This would create a view that includes the CustomerNumber and CustomerName column values. Once created, a view can be used as a data source in other queries.

Because the view is a virtualized table, its content is not physically stored in the database but is instead repopulated each time it is required. This helps to keep your data normalized and prevents data duplication.

You should not create an index. An index is a relational database structure that is used to sort data to help optimize searches during queries.

You should not create a table. Creating a table would result in data duplication, and it would also require you to code a method to keep the table up-to-date when data is modified in the source table.

You should not create a key. Relational database management systems (RDMSS) typically use primary and foreign keys. Primary keys are used to enforce uniqueness on rows in a table. Foreign keys are used with primary keys to establish relationships between tables.

Question 111

CertyIQ

To complete the sentence, select the appropriate option from the drop-down menu.

Select your answer | Foreign key | Heap | Primary key — a constraint used to enforce data integrity in relational databases by indicating which column (or combination of columns) uniquely identifies each row in a table.

Correct Answers: -

Select your answer: Primary key — a constraint used to enforce data integrity in relational databases by indicating which column (or combination of columns) uniquely identifies each row in a table.

Explanation:

A primary key is a constraint used to enforce data integrity in relational databases by indicating which column (or combination of columns) uniquely identifies each row in a table. The primary key must have a unique value across a table and is also used to create relationships between different tables.

A foreign key is a constraint used to create relationships between tables by referencing a primary key from other tables.

A heap is a table that does not have a clustered index implemented. In a heap, data is stored in an unordered structure.

Question 112

CertyIQ

To complete the following sentence, select the appropriate option from the drop-down menu.

Select your answer | A heap | A table | A view | An index — is a database object where content is based on a query. You can use this to query data from one or more tables and display the data in a different structure, like filtering or joining data from different tables.

Correct Answers: -

Select your answer: A view — is a database object where content is based on a query. You can use this to query data from one or more tables and display the data in a different structure, like filtering or joining data from different tables.

Explanation:

A view is a database object where content is based on a query. You can use a view to query data from one or more tables and display the data in a different structure, like filtering or joining data from different tables.

A table is a database object that stores data in rows and columns. Tables are used to represent entities with each row representing a single entity. Each characteristic from this entity is represented as a column.

A heap is a table that does not have a clustered index implemented. A clustered index is a data structure associated with a table that defines the order that rows are stored in a disk. In a heap, data is stored in an unordered structure.

An index is a structure that improves the read performance to find specific data in a table.

Question 113

CertyIQ

In a relational database, what is the purpose of an index?

Choose the correct answer

A. To improve read performance by searching for specific data in a table.

B. To enforce data integrity by indicating which column uniquely identifies each row in a table.

C. To query data from one or more tables and display the data in a different format.

D. To create relationships between tables.

Explanation:

The purpose of an index in a relational database is to improve read performance by searching for specific data in a table. An index stores values and references to specific rows in a table and uses these values to locate the specific rows more quickly.

An index does not enforce data integrity by indicating which column uniquely identifies each row in a table. This is the purpose of a primary key.

An index does not create relationships between tables. This is the purpose of a foreign key.

An index does not query data from one or more tables and display the data in a different format. This is the purpose of a view.

Question 114

CertyIQ

You need to determine when to use a relational database.
Which is the best scenario to use a relational database?
Choose the correct answer

A. Dynamic and semi-structured data schema

B. Large images and videos

C. Data in columnar format

D. Guarantee strong consistency while processing transactions

Explanation:

You should use a relational database to guarantee strong consistency while processing transactions. A relational database can guarantee the consistency and availability of the data while processing transactions. A relational database must ensure Atomicity, Consistency, Isolation, Durability (ACID) for transactional workloads.

You should not use a relational database to store data in columnar format. A columnar data store consists of row identifiers and a group of information stored in a column. Each group of information is stored in a keyspace, composed of a single column. You should use a column family database like Apache Cassandra to store this kind of data instead.

You should not use a relational database for dynamic and semi-structured data schema. A relational database requires a data schema, defined as tables and columns. You should use a document database like MongoDB to store this kind of data instead.

You should not use a relational database for large images and videos. A relational database is not optimized to store binary data. You should use a binary large object (Blob) like Azure Blob storage instead.

Question 115

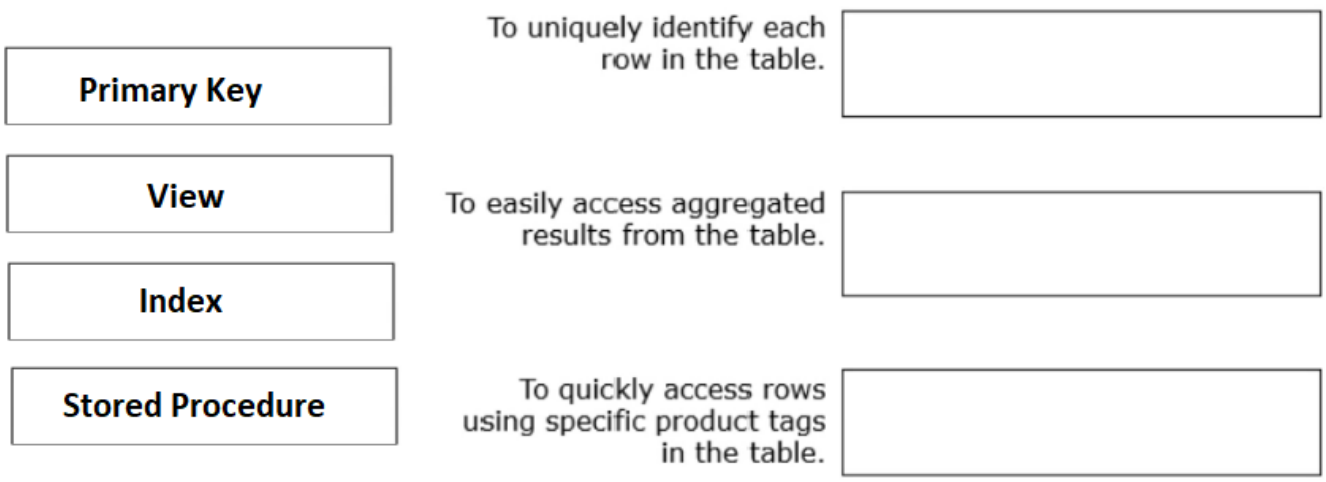
CertyIQ

You have a table named Sales.

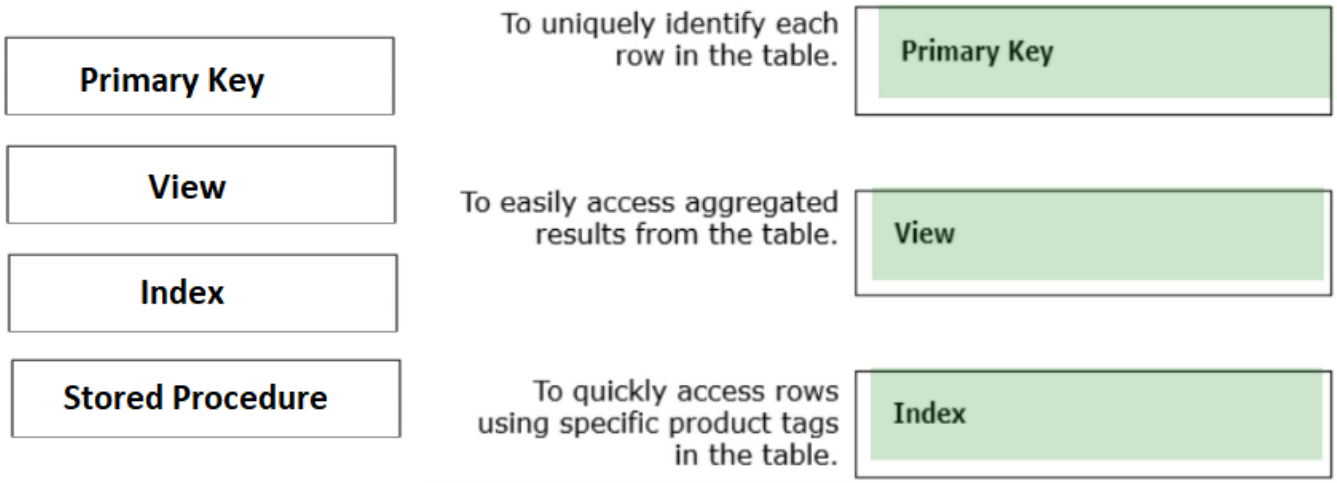
Which database object should you use to achieve the following requirements?

To answer, drag the appropriate object to the correct requirement. Each object may be used once, more than once, or not at all.

Drag and drop the answers: -



Correct Answers: -



Explanation:

You should use a primary key to uniquely identify each row in a table. A primary key enforces uniqueness automatically by creating a unique constraint on primary key columns.

You should use a view to easily access aggregated results from a table. Views are derived from a result of a table. You can also filter view data.

You should use an index to quickly access rows using specific product tags in a table. You can create an index in the product column in a table to quickly access rows using the product tag. Indexes help you to quickly find the desired rows based on your query.

You should not use a stored procedure. Stored procedures are used to execute a set of commands or SQL statements in a single batch. They are often used for more complex logic. They can return output from input parameters.

Question 116

CertyIQ

Which command is a Data Manipulation Language (DML) command?

Choose the correct answer

A. UPDATE

B. DROP

C. ALTER

D. CREATE

Explanation:

The UPDATE command is an example of a DML command. It is used to edit column values for rows in a table.

The SQL language has four basic types of commands. DML commands are used to manipulate rows in a table. They include:

• DELETE

• INSERT

• SELECT

• UPDATE

Data Definition Language (DDL) commands are used to create, modify, and delete database objects. They include:

• ALTER

. CREATE

• DROP

. RENAME

Data Control Language (DCL) commands are for access control and permission management. They include:

• DENY

. GRANT

• REVOKE

Question 117

CertyIQ

Which SQL command should you use to remove a database table and its content from a database?

Choose the correct answer

A. UPDATE

B. DELETE

C. DROP

D. ALTER

Explanation:

You should use the DROP command to remove a database table and its content. The DROP command is an example of a Data Definition Language (DDL) command. DDL commands are used to create, modify, and drop database objects.

You should not use the ALTER command. ALTER is also a DDL command, but it is used to modify a database object, such as adding a column to a table.

You should not use the DELETE or UPDATE commands. These are both Data Manipulation Language (DML) commands that are used to manipulate data, such as running queries to retrieve data. The DELETE command is used to delete rows from a table. The UPDATE command is used to edit column values.

Question 118

CertyIQ

You manage an Azure SQL Database in your Azure subscription.
You need to identify a Data Manipulation Language (DML) SQL statement.
Which statement is a DML statement?

Choose the correct answer

A. INSERT

B. ALTER

C. CREATE

D. DROP

Explanation:

INSERT is a DML statement type. DML statements are used to manipulate information stored in a relational database. Other DML statements include UPDATE, DELETE, and SELECT.

CREATE, ALTER, and DROP are not DML statements. These statements are classified as Data Definition Language (DDL) statements. DDL statements are used to define data structures in a relational database, like tables, views, and indexes.

Question 119

CertyIQ

You manage an Azure SQL Database in your Azure subscription.
You need to identify a Data Definition Language (DDL) SQL statement.
Which statement is a DDL statement?

Choose the correct answer

A. SELECT

B. DELETE

C. ALTER

D. INSERT

Explanation:

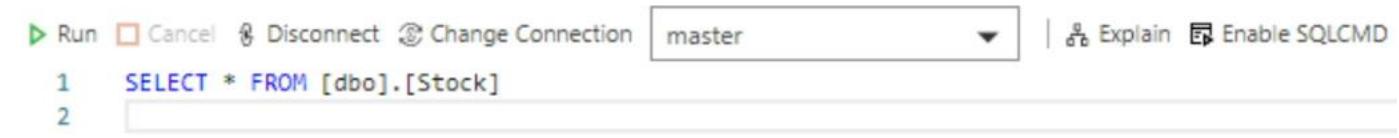
ALTER is a DDL statement type. DDL statements are used to define data structures in a relational database, like tables, views, and indexes. Other DDL statements are CREATE and DROP.

SELECT, INSERT, and DELETE are not DDL statements. These statements are classified as Data Manipulation Language (DML) statements. DML statements are used to manipulate information stored in a relational database.

Question 120

CertyIQ

You have a table named Products in an Azure SQL Database. The table contains the data as shown in the below exhibit.



Results Messages

	ProductId	StockQuantity
1	2343	20,00
2	1343	5,00
3	5323	300,00

You need to set the stock quantity of a product with ID 5323 to 250.

Which SQL statement should you use?

Choose the correct answer

A. INSERT

B. TRUNCATE

C. CREATE

D. UPDATE

Explanation:

You should use the UPDATE statement. The UPDATE statement can update data in the existing rows of a table. You can update the stock quantity to 250 for the product with id 5323 by using the following query:

UPDATE SET StockQuantity = 250 WHERE ProductId = 5323;

You should not use the TRUNCATE statement. The TRUNCATE statement removes all rows from a table without logging the individual row deletions.

You should not use the INSERT statement. The INSERT statement is used to add new rows in a table.

You should not use the CREATE statement. The CREATE statement is used to define database objects, like tables, views, indexes, and others.

End of Part 3

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