# DS0-001 Q&As

CompTIA DataSys+

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**QUESTION 1**

Which of the following is a characteristic of all non-relational databases?

A. Columns with the same data type

B. Unstructured data

C. Logical record groupings

D. Tabular schema

Correct Answer: B

The characteristic of all non-relational databases is unstructured data. Unstructured data is data that does not have a predefined or fixed format, schema, or structure. Unstructured data can include various types of data, such as text, images, audio, video, etc. Non-relational databases, also known as NoSQL databases, are databases that store and manage unstructured data using different models, such as key-value, document, graph, columnar, etc. Non-relational databases are suitable for handling large volumes, variety, and velocity of data that do not fit well in the relational model. The other options are either characteristics of relational databases or not related to database types at all. For example, columns with the same data type, logical record groupings, and tabular schema are characteristics of relational databases, which are databases that store and manage structured data using tables, rows, columns, and constraints. References: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.1 Given a scenario, identify common database types.

**QUESTION 2**

Which of the following transactions is allowed in a shared lock?

A. Read

B. Update

C. Delete

D. Insert

Correct Answer: A

**QUESTION 3**

A database administrator would like for users to be able to access resources remotely from home. Which of the following best describes how the administrator can enable this access without compromising the security of the stored data?

A. Implement a virtual private network.

B. Implement strong passwords polices.

C. Configure and deploy a firewall.

D. Implement a parameter network for internet-facing database applications.

Correct Answer: A

**QUESTION 4**

Which of the following is an attack in which an attacker hopes to profit from locking the database software?

A. Spear phishing

B. Ransomware

C. SQL injection

D. On-path

Correct Answer: B

The attack in which an attacker hopes to profit from locking the database software is ransomware. Ransomware is a type of malware that encrypts the data or files on a system or network and demands a ransom from the victim to restore them. Ransomware can target database software and lock its access or functionality until the victim pays the ransom, usually in cryptocurrency. Ransomware can cause serious damage and loss to the victim, as well as expose them to further risks or threats. Ransomware can be delivered through various methods, such as phishing emails, malicious attachments, compromised websites, etc. The other options are either different types of attacks or not related to locking database software at all. For example, spear phishing is a type of phishing attack that targets a specific individual or organization with personalized or customized emails; SQL injection is a type of attack that inserts malicious SQL statements into an input field or parameter of a web application to manipulate or compromise the underlying database; on-path is a type of attack that intercepts and modifies the data in transit between two parties on a network. References: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.4 Given a scenario, identify common types of attacks against databases

**QUESTION 5**

A database\\'s daily backup failed. Previous backups were completed successfully. Which of the following should the database administrator examinefirstto troubleshoot the issue?

A. CPU usage

B. Disk space

C. Event log

D. OS performance

Correct Answer: C

The first thing that the database administrator should examine to troubleshoot the issue is the event log. The event log is a file that records the events and activities that occur on a system, such as database backups, errors, warnings, or failures. By examining the event log, the administrator can identify the cause and time of the backup failure, and also

check for any other issues or anomalies that may affect the backup process or the backup quality. The other options are either not relevant or not the first priority for this task. For example, CPU usage, disk space, and OS performance may affect the performance or availability of the system, but not necessarily cause the backup failure; moreover, these factors can be checked after reviewing the event log for more information. References: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.2 Given a scenario, implement backup and restoration of database management systems.

**QUESTION 6**

A DBA is reviewing the following logs to determine the current data backup plan for a primary data server:

| Timestamp | Activity | Size | Duration |
|---|---|---|---|
| 2023-Jan-23 23:59:00 | Back up to disk | 7.35GB | 03:14:55 |
| 2023-Jan-24 23:59:00 | Back up to disk | 0.12GB | 00:14:22 |
| 2023-Jan-25 23:59:00 | Back up to disk | 1.11GB | 01:11:55 |
| 2023-Jan-26 23:59:00 | Back up to disk | 1.23GB | 01:22:12 |
| 2023-Jan-27 23:59:00 | Back up to disk | 1.22GB | 01:19:56 |
| 2023-Jan-28 23:59:00 | Back up to disk | 1.21GB | 01:17:19 |
| 2023-Jan-29 23:59:00 | Back up to disk | 0.94GB | 01:01:29 |
| 2023-Jan-30 23:59:00 | Back up to disk | 8.1GB | 03:45:66 |

Which of the followingbestdescribes this backup plan?

A. Monthly full, daily differential

B. Daily differential

C. Daily full

D. Weekly full, daily incremental

Correct Answer: D

The backup plan that best describes the logs is weekly full, daily incremental. This means that a full backup of the entire database is performed once a week, and then only the changes made since the last backup are backed up every day. This can be inferred from the logs by looking at the size and duration of the backups. The full backups are larger and take longer than the incremental backups, and they occur every seven days. The other backup plans do not match the pattern of the logs. References: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.2 Given a scenario, implement backup and restoration of database management systems.

**QUESTION 7**

A new retail store employee needs to be able to authenticate to a database. Which of the following commands should a database administrator use for this task?

A. INSERT USER

B. ALLOW USER

C. CREATE USER

D. ALTER USER

Correct Answer: C

The command that the database administrator should use for this task is CREATE USER. The CREATE USER command is a SQL statement that creates a new user account in a database and assigns it a username and a password. The CREATE USER command also allows the database administrator to specify other options or attributes for the user account, such as default tablespace, quota, profile, role, etc. The CREATE USER command is the first step to enable a user to authenticate to a database. The other options are either invalid or not suitable for this task. For example, INSERT USER is not a valid SQL command; ALLOW USER is not a SQL command, but a keyword used in some database systems to grant permissions to users; ALTER USER is a SQL command that modifies an existing user account, but does not create a new one. References: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

**QUESTION 8**

Which of the following commands is part of DDL?

A. UPDATE

B. GRANT

C. CREATE

D. INSERT

Correct Answer: C

The command that is part of DDL is CREATE. CREATE is a SQL command that belongs to the category of DDL, or Data Definition Language. DDL is a subset of SQL commands that are used to define or modify the structure or schema of a

database, such as tables, columns, constraints, indexes, views, etc. CREATE is a DDL command that is used to create a new object in a database, such as a table, column, constraint, index, view, etc. For example, the following statement

uses the CREATE command to create a new table called employee with four columns:

CREATE TABLE employee (

emp_id INT PRIMARY KEY,

emp_name VARCHAR(50) NOT NULL,

emp_dept VARCHAR(20),

emp_salary DECIMAL(10,2)

);

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The other options are either part of different categories of SQL commands or not SQL commands at all. For example, UPDATE is a SQL command that belongs to the category of DML, or Data Manipulation Language. DML is a subset of SQL

commands that are used to manipulate or modify the data or content of a database, such as inserting, updating, deleting, or selecting data. GRANT is a SQL command that belongs to the category of DCL, or Data Control Language. DCL is a

subset of SQL commands that are used to control or manage the access or permissions of users or roles on a database, such as granting or revoking privileges or roles. INSERT is a SQL command that belongs to the category of DML, or

Data Manipulation Language. INSERT is a DML command that is used to insert new data into a table. References: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database

tasks using scripting and programming languages.

**QUESTION 9**

Which of the following is used to hide data in a database so the data can only be read by a user who has a key?

A. Data security

B. Data masking

C. Data protection

D. Data encryption

Correct Answer: D

The option that is used to hide data in a database so the data can only be read by a user who has a key is data encryption. Data encryption is a process that transforms data into an unreadable or scrambled form using an algorithm and a key. Data encryption helps protect data from unauthorized access or modification by third parties, such as hackers, eavesdroppers, or interceptors. Data encryption also helps verify the identity and authenticity of the source and destination of the data using digital signatures or certificates. Data encryption can be applied to data at rest (stored in a database) or data in transit (transmitted over a network). To read encrypted data, a user needs to have the corresponding key to decrypt or restore the data to its original form. The other options are either different concepts or

not related to hiding data at all. For example, data security is a broad term that encompasses various methods and techniques to protect data from threats or risks; data masking is a technique that replaces sensitive data with fictitious but realistic data to protect its confidentiality or compliance; data protection is a term that refers to the legal or ethical obligations to safeguard personal or sensitive data from misuse or harm. References: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.2 Given a scenario, implement security controls for databases.

**QUESTION 10**

Following a security breach, a database administrator needs to ensure users cannot change data unless a request is approved by the management team. Which of the following principles addresses this issue?

A. Open access

B. Least resistance

C. Elevated privilege

D. Least privilege

Correct Answer: D

The principle that addresses this issue is least privilege. Least privilege is a security principle that states that users should only have the minimum level of access or permissions required to perform their tasks or roles. By applying this principle, the administrator can ensure that users cannot change data unless they have been authorized by the management team through a request approval process. This prevents unauthorized or accidental modifications of data that may compromise its integrity or security. The other options are either opposite or unrelated to this principle. For example, open access means that users have unrestricted access to data; least resistance means that users have the easiest or most convenient access to data; elevated privilege means that users have higher or more permissions than they need. References: CompTIA DataSys+ Course Outline, Domain 4.0 Data and Database Security, Objective 4.1 Given a scenario, apply security principles and best practices for databases.

**QUESTION 11**

A database administrator is migrating the information in a legacy table to a newer table. Both tables contain the same columns, and some of the data may overlap. Which of the following SQL commands should the administrator use to ensure that records from the two tables are not duplicated?

A. UNION

B. JOIN

C. IINTERSECT

D. CROSS JOIN

Correct Answer: A

The SQL command that the administrator should use to ensure that records from the two tables are not duplicated is option A. This command uses the UNION clause to combine the records from the legacy table and the newer table into a

single result set. The UNION clause also eliminates any duplicate records that may exist in both tables, and sorts the

result by default. The other options either do not produce the desired result or have syntax errors. For example, option B

would join the records from the two tables based on a common column, but not remove any duplicates; option C would return only the records that are common to both tables, but not the ones that are unique to each table; option D would

produce a Cartesian product of the records from the two tables, which would increase the number of duplicates. References: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute

database tasks using scripting and programming languages.

**QUESTION 12**

Which of the following is an advantage of creating indexes?

A. To help with space allocation

B. To provide quick and efficient access to data

C. To reduce memory

D. To update the query plan

Correct Answer: B

The advantage of creating indexes is to provide quick and efficient access to data. An index is a data structure that stores the values of one or more columns of a table in a sorted order, along with pointers to the corresponding rows in the table. An index helps to speed up queries thatsearch, filter, sort, or join data based on the indexed columns, as it reduces the number of disk accesses or scans required to locate the desired data. An index also helps to enforce uniqueness or referential integrity constraints on the indexed columns. The other options are either not true or not relevant for this purpose. For example, an index does not help with space allocation, as it consumes additional space in the database; an index does not reduce memory, as it may use memory for caching or buffering purposes; an index does not update the query plan, as it is an input or a factor for the query optimizer to generate the query plan. References: CompTIA DataSys+ Course Outline, Domain 1.0 Database Fundamentals, Objective 1.2 Given a scenario, execute database tasks using scripting and programming languages.

**QUESTION 13**

A company wants to deploy a new application that will distribute the workload to five different database instances. The database administrator needs to ensure that, for each copy of the database, users are able to read and write data that will be synchronized across all of the instances.

Which of the following should the administrator use to achieve this objective?

A. [Peer-to-peer replication

B. Failover clustering

C. Log shipping

D. Availability groups

Correct Answer: A

The administrator should use peer-to-peer replication to achieve this objective. Peer-to-peer replication is a type of replication that allows data to be distributed across multiple database instances that are equal partners, or peers. Each peer can read and write data that will be synchronized across all peers. This provides high availability, scalability, and load balancing for the application. The other options are either not suitable for this scenario or do not support bidirectional data synchronization. For example, failover clustering provides high availability but does not distribute the workload across multiple instances; log shipping provides disaster recovery but does not allow writing data to secondary instances; availability groups provide high availability and read-only access to secondary replicas but do not support peer-to-peer replication. References: CompTIA DataSys+ Course Outline, Domain 5.0 Business Continuity, Objective 5.3 Given a scenario, implement replication of database management systems.

**QUESTION 14**

A database administrator wants to create a database that does not have a predefined schema. Which of the following tools should the administrator use to create this type of database? (Choose two.)

A. PostgreSQL

B. MariaDB

C. MySQL

D. SQL Server

E. MongoDB

F. Cosmos

Correct Answer: EF

**QUESTION 15**

A database is configured to use undo management with temporary undo enabled.

AnUPDATEis run on the table.

Which of the following describes where the undo is stored?

A. In the system global area

B. In the undo

C. In the SYSAUX

D. In the temporary

Correct Answer: D

The correct answer is D. When undo management with temporary undo is enabled, the undo data is stored in the temporary tablespace instead of the undo tablespace. The temporary tablespace is a tablespace that stores temporary

data such as sort results or intermediate query results. The undo data is the data that records the changes made by transactions on the database. Undo data is used to roll back transactions in case of errors or failures, or to provide read consistency for concurrent queries. By storing undo data in the temporary tablespace, the database can reduce the space consumption and contention in the undo tablespace, and improve performance and scalability. The other options are either incorrect or irrelevant for this question. For example, the system global area is a memory area that stores information shared by all sessions connected to an instance; the undo tablespace is a tablespace that stores undodata by default; the SYSAUX tablespace is a tablespace that stores auxiliary information for various database features. References: CompTIA DataSys+ Course Outline, Domain 3.0 Database Management and Maintenance, Objective 3.1 Given a scenario, perform common database maintenance tasks.