1.2.2 Quiz Database Basics PDF

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What is the primary language used for managing and manipulating relational databases?

- ◯ Python
- ◯ SQL
- ◯ Java
- ◯ HTML

Which of the following are types of databases?

- ☐ Relational databases
- ☐ Document databases
- ☐ Hierarchical databases
- ☐ Key-value stores

Explain the importance of normalization in database design. How does it contribute to data integrity and efficiency?

What is the primary purpose of creating an index in a database?

- ◯ To increase storage capacity
- ◯ To improve data retrieval speed
- ◯ To enhance data security
- ◯ To simplify data entry

Which of the following operations can be performed using SQL?

- [ ] SELECT
- [ ] INSERT
- [ ] DELETE
- [ ] COMPILE

Describe the role of a Database Management System (DBMS) and how it interacts with users and applications.

Which database management system is known for its open-source nature and wide use in web applications?

- ◯ Oracle
- ◯ MongoDB
- ◯ MySQL
- ◯ Microsoft SQL Server

Which of the following are considered ACID properties in database transactions?

- [ ] Atomicity
- [ ] Consistency
- [ ] Isolation
- [ ] Durability

Discuss the differences between relational and non-relational databases. Provide examples of scenarios where each type would be most appropriate.

Which of the following is a key feature of distributed databases?

- ◯ Centralized data storage
- ◯ Data redundancy across multiple locations
- ◯ Single-node processing
- ◯ Manual data backup

Which of the following are common types of NoSQL databases?

- ☐ Graph databases
- ☐ Column-family stores
- ☐ Flat-file databases
- ☐ Document databases

Explain the concept of transactions in databases and why the ACID properties are crucial for transaction management.

What is the main advantage of using a non-relational database over a relational database?

- ◯ Fixed schema
- ◯ Scalability and flexibility
- ◯ Easier data normalization
- ◯ Enhanced security features

Which of the following are components of a data model in databases?

- [ ] Data structures
- [ ] Relationships
- [ ] Constraints
- [ ] Algorithms

Describe the process of backup and recovery in databases. Why is it essential for maintaining data integrity?

Which SQL operation is used to add new records to a database table?

- ◯ SELECT
- ◯ INSERT
- ◯ UPDATE
- ◯ DELETE

Which of the following are examples of relational database management systems (RDBMS)?

- [ ] PostgreSQL
- [ ] MongoDB
- [ ] Oracle
- [ ] Microsoft SQL Server

Evaluate the challenges and benefits of using distributed databases in large-scale applications.

What is the main goal of data modeling in database design?

- ◯ To create a user interface
- ◯ To define data structures and relationships
- ◯ To enhance network security
- ◯ To develop software applications

Which of the following are considered when optimizing a database?

- ☐ Index creation
- ☐ Query optimization
- ☐ Data redundancy
- ☐ Schema design

Explain the impact of database security measures such as authentication, authorization, and encryption on data protection.

Which of the following is a characteristic of a document database?

- ◯ Stores data in tables
- ◯ Uses a fixed schema
- ◯ Stores data in JSON-like documents
- ◯ Requires complex joins

Which of the following are essential for ensuring database security?

- ☐ User authentication
- ☐ Data encryption
- ☐ Manual backups
- ☐ Firewall protection

Discuss how SQL can be used to perform complex queries and data analysis. Provide examples of SQL operations that facilitate this process.

What is the main purpose of normalization in database design?

- ◯ To increase data redundancy
- ◯ To minimize data redundancy
- ◯ To enhance data visualization
- ◯ To simplify user interfaces

Which of the following are benefits of using a DBMS?

- ☐ Data consistency
- ☐ Improved data sharing
- ☐ Increased data redundancy
- ☐ Enhanced data security

Critically analyze the role of indexes in database performance. How do they affect query execution times and storage requirements?