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DATA BASES AND THEIR DEVELOPMENT MODELS

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Abstract:

Information bases are _ information in order putting , keeping , managing and get enable giver of information systematic storage . Databases begins with an overview of the concept of databases and their basic principles. It usually covers different types of databases such as relational, object oriented, graph and document oriented. The article describes various database operations such as adding, modifying, and deleting data, as well as searching and sorting operations. Information bases with like SQL (Structured Query Language) in performance requests of languages role discussion does _ Database architecture, including the data model, physical organization of data on disk, and data access methods are reviewed. Discusses the role of database managers (DBMS) in managing databases and ensuring their security and integrity.

Keywords: physical, Information bases, systematic, Databases, SQL ensuring, security, integrity

INTRODUCTION. A database (MB) is a specially organized data structure designed to store, manage and process data. Databases are generally used to store large amounts of structured data such as text, numbers, images, and other types of data.

There are several types of databases, including relational databases (eg, Oracle, MySQL, Microsoft SQL Server), hierarchical databases (eg, IBM's Information Management System), network databases (e.g. Integrated Data Store) and document-oriented databases (e.g. , MongoDB).

A database allows users to perform various operations such as adding, deleting, modifying, and querying data. They also provide the ability to organize data, including creating tables, linking tables using keys, and creating indexes to improve query performance.

Databases play an important role in business, science, healthcare and many other fields. They are later on use and analysis to do for information in order put and to keep help will give .

Database (MB) is a collection of data that reflects the status of objects in the field under consideration and their relationships.

The information in the database is stored in an orderly manner. Thus, in the notebook, all entries are arranged alphabetically, and in the library catalog, they are arranged alphabetically (alphabetical catalog) or according to the field (subject catalog).

creating a database, updating the information stored in it , viewing and searching, and creating convenient access to it is called a database management system. (MBBT).

The following basic requirements are imposed on modern databases and, consequently, (MBBT):

1. High mobility (short answer to the question time).

Response time is the time interval from the moment a request is sent to the database until the data is received. Another similar term is *'Access Time'* . Access time is the time interval between issuing a command and receiving data. Access means the operation of retrieving, reading or writing data. Data write, delete, and change operations are often referred to as update operations.

2. Ease of updating data.
3. Data independence.
4. Information exchange between many users.
5. Data security - protection of information confidentiality from intentional or unintentional violation, destruction.
6. Standardization of construction and operation of databases (MBBT).
7. Adequacy of presentation of information in relevant subject area.

Databases are structured collections of data that are stored and processed using certain rules. They play a key role in ensuring efficient storage, use and processing of data in modern information systems.

Database development models usually include several steps:

1. Requirements analysis: At this stage, the structure and characteristics of the data required for a particular system are determined. It is important to understand what data is stored, how it is related to each other, and how it is used in the application.

2. Database design: In this phase, the database schema is developed, which defines the structure and organization of the data. This includes creating tables, defining relationships between them, defining integrity constraints, and setting other table properties.

3. Application development: After creating the database schema, you can start developing applications that use the database. This can be the development of web applications, mobile applications or other software solutions that provide access to data and allow them to be processed.

4. Testing and Optimization: After developing the application, the database should be tested to identify errors and eliminate problems. You can also optimize your database to improve its performance and efficiency.

5. Deployment and Maintenance: After successful testing, the database and application can be deployed for use. The database must then be maintained and maintained to ensure its functionality and security throughout its lifetime.

These are the general steps that can be followed when developing databases. Different methodologies, such as the waterfall model, the spiral model or the agile development model, can offer their own approaches to database development.

Database management systems (DBMS) are software that allow you to create, update, and manage databases. DBMSs allow you to store and organize structured data, provide access to data, support queries and ensure data security.

There are many different types of databases, including relational databases (e.g., Oracle, MySQL, Microsoft SQL Server), hierarchical databases (e.g., IBM IMS), network databases (such as Integrated Data Warehouse) and object-oriented databases (such as MongoDB).).

Various types of database management including DBMS database creation and deletion, table and index creation, data insertion and deletion, query execution, transaction management, and data security provides functions.

They also offer various query optimization capabilities such as indexing, caching, data

partitioning, and using query optimizers to perform operations efficiently.

In general, database database plays an important role in data storage, management and access, and they are widely used in various fields such as business, science, telecommunications, internet, etc.

In addition to those listed above, there are also the following types of databases:

1. Database columns (for example, Vertica) - data is stored and processed in columns, which makes aggregate operations more efficient.

2. Graphic DBMS (for example, Neo4j) - data is presented in a graphical form, where nodes and edges are used to describe objects and their relationships. This type of DBMS works effectively with data that requires modeling complex connection networks.

3. Temporal DBMS (for example, Oracle TimesTen) - designed to store and process temporary data such as sensor data, event logs, and other time series.

4. Cloud DBMSs (such as Amazon Aurora) are DBMSs that are hosted and run on cloud infrastructure, providing flexibility and scalability.

5. Internet of Things (IoT) DBMS (eg InfluxDB) is a DBMS designed to process and store data collected from Internet of Things devices such as sensors and smart devices.

Each type of database has its own characteristics and is suitable for different types of data and tasks. Choosing a particular type of database depends on the project's requirements and its goals.

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