

Database



Which account is designated as the owner of a relation? What privileges does the owner of a relation have? NAS: An "owner" account is given to those in control of specific relations. They have select, modification, and reference privileges on that given relation. 2) How is the view mechanism used as an authorization mechanism? NAS: A multiuser database system must selectively permit users to share data, while retaining the ability to restrict data access.

There must be a mechanism to provide retention and security, permitting information to be accessed only by properly authorized users. Further, when tables or restricted views of tables are created and destroyed dynamically, the granting, authentication, and revocation of authorization to use them must also be dynamic. Each of these issues and their solutions in the context of the relational database management system System R are discussed. 3) Discuss the types of privileges at the account level and those at the relation level.

NAS: The concept of an authorization identifier is used to refer, to a user account. The DB'S must provide selective access to each relation in the database based on specific accounts. There are two levels for assigning privileges to use the database system: 1. The account level: At this level, the DAB specifies the particular privileges that each account holds independently of the relations in the database. 2. The relation (or table level): At this level, the DAB can control the privilege to access each individual relation or view in the database.

The privileges at the account level apply to the capabilities provided to the account itself and can include the CREATE SCHEMA or CREATE TABLE privilege, to create a schema or base relation; the CREATE VIEW privilege; the ALTER privilege, to apply schema changes such as adding or removing attributes from relations; the DROP privilege, to delete relations or views; the MODIFY privilege, to insert, delete, or update tuples; and the SELECT privilege, to retrieve information from the database by using a SELECT query.

The second level of privileges applies to the relation level, whether they are base relations or virtual view relations. The granting and revoking of privileges generally follow an authorization model for discretionary privileges known as the access matrix model, where the rows of a matrix M represent subjects (users, accounts, programs) and the columns represent objects (relations, records, columns, views, operations). Each position $M(I,j)$ in the matrix represents the types of privileges (read, write, update) that subject I holds on object j .

To control the granting and revoking of relation privileges, each relation R in a database is assigned an owner account, which is typically the account that was used when the relation was created in the first place. The owner of a relation is given all privileges on that relation. The owner account holder can pass privileges on R to other users by granting privileges to their accounts.

4) What are the main reasons for and potential advantages of distributed databases?

NAS: Distributed Database ; A logically interrelated collection of shared data (and a description of this data), ; Software system that permits the management of the distributed database and makes the distribution transparent to users ; Decentralized processing, but (logically) integrated information resources Advantages ; Potential for parallel execution ; More resources available to process queries faster ; Potential for replicated data ; Processing closer to users' locations ; Reduced communications time ; Duplication in case of failures 5) What additional functions does a DB'S have over a centralized DB'S?

NAS: The DB'S have many advantages over DB'S. They are: Reflects organizational structure: We can distribute the data base over any organization offices which has distributed locations Improved share ability and local autonomy: Users can use the data of other sites, which mean the data can be near of the users who use it. Also by this way the data can be controlled by the user. Improved availability: Unlike centralized DB'S, the failure at one site or link of communication makes only some parts of system inaccessible, which means the entire system is still working. Improved reliability: The replication system make the data exist in many site.

So this insures the possibility of accessing to this data if there s any failure happened. Improved performance: We can improve the accessing speed to data base if we use remote centralized database. Also, there may not be same conflict for CPU and using the services, like DB'S. Economics: For making the organization systems more cost-effective to obtain separate computers, DB'S allows us to create systems of smaller computer, its power equal the power of one large computer. Modular growth: This one refers to

the flexibility of DB'S, where we can add a new site without any affects on the operation of other sites.