

Data redundancy and other database management issue



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Is a condition created within a database or data storage technology in which the same piece of data is held in two separate places. Or in the case of a flat file database, there are records with partly duplicated data. For example Jones, 48, Male, Teacher Jones, 48, 3 Advent Drive Jones, employee number 22345 As you can see in the records above, the name is repeated three times and the age is duplicated twice. Whenever data is repeated, this basically constitutes data redundancy.

This can occur by accident, but is also done deliberately for backup and recovery purposes. What is Data Inconsistency Data Inconsistency is when different and conflicting versions of the same data appear in different places in a database. This causes unreliable information, because it is difficult to determine which version of the information is correct. It's difficult to make correct and timely decisions if those decisions are made based on conflicting information. Consistency talks about ensuring that any transaction will bring the database from one valid state to another.

Any data written to the database must be valid according to all defined rules. Data inconsistency is likely to occur when there is data redundancy. That's why one major goal of good database design is to eliminate data redundancy. For example, in a banking transaction that debits a savings account and credits a checking account, a failure must not cause the database to credit only one account, which would lead to inconsistent data. Atomicity of update Atomicity is a feature of databases systems dictating where a transaction must be all- or-nothing.

When an update occurs to a database, either all or none of the update becomes available to anyone beyond the user or application performing the update. This update to the database is called a transaction and it either commits or aborts. This means that only a fragment of the update cannot be placed into the database. The transaction must either fully happen, or not happen at all. It must not complete partially. If one part of the transaction fails, the entire transaction fails. For example, if a transaction starts updating 100 rows, but the system fails after 20 updates, then the database rolls back the changes to these 20 rows.

Concurrent access to Data Data concurrency means that many users can access data at the same time. It is the ability to gain admittance to a system, component or data by more than one user or process. Multiple users who access a resource at the same time are said to be accessing the resource concurrently. For example, concurrent access to a computer means multiple users are interacting with the system simultaneously. Concurrent access to a hardware component, such as a memory chip or memory bank.