

ACID is an acronym that stands for Atomicity, Consistency, Isolation, and Durability. These properties ensure reliable processing of database transactions.

Atomicity: This property ensures that a transaction is treated as a single unit of work. Either all the operations within the transaction are completed successfully, or none of them are. This means that if any part of the transaction fails, the entire transaction is rolled back, leaving the database in its previous state.

Consistency: Consistency ensures that a transaction brings the database from one valid state to another valid state. It ensures that any data written to the database must be valid according to all defined rules, including constraints, cascades, and triggers.

Isolation: Isolation ensures that the operations within a transaction are isolated from other transactions. This means that the intermediate state of a transaction is invisible to other transactions until the transaction is complete. This helps in maintaining data consistency when multiple transactions are occurring concurrently.

Durability: Durability ensures that once a transaction has been committed, it will remain so, even in the event of a system failure. The changes made by the transaction are permanently recorded in the database.