**ACID Properties**

**Atomicity:**

A transaction is treated as a single unit. If any part fails, the entire transaction is rolled back.

Example: Transferring ₹100 from Account A to B:

* ₹100 is deducted from A.
* ₹100 is added to B.
* If step 2 fails, step 1 is undone.

**Consistency:**

A transaction brings the database from one **valid state** to another. It must maintain all **rules, constraints, and relationships** defined in the database.

**Example**:

* Rule: No account balance can be negative.
* If a transaction tries to withdraw more money than available, it will fail to maintain consistency.

**Isolation**

Transactions are executed as if they are the **only** ones running, even when multiple are processed at the same time.

**Example**:

* Two people transfer money at the same time.
* Isolation ensures one completes **fully** before the other **sees** the result, preventing mix-ups or dirty reads.

**Durability**

After a transaction is committed, it is permanently stored, even if there's a power failure or crash.

Example:

* If money is transferred and the system crashes right after, the change is still saved in the database.