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Topic – SQL Assignment : 03

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Assignment 3: Explain the ACID properties of a transaction in your own words. Write SQL statements to simulate a transaction that includes locking and demonstrate different isolation levels to show concurrency control.

Solution : ACID Properties -

1. **Atomicity** - A transaction must either complete fully or not happen at all. If any step fails, everything is rolled back.

example - When we go to Atm for cash withdrawal while transaction if electricity is gone then the whole process will be rolled back.

2. **Consistency** - A transaction takes the database from one valid state to another valid state. Constraints (PK, FK, CHECK) are never broken.

example - Account balance should never become negative.

3. **Isolation** - Multiple transactions running at the same time should not see each other's incomplete work.

example -

4. **Durability** - Once a transaction is committed, data is saved forever, even if the system crashes.

example - After COMMIT, power failure should not lose data.