

ACID TRANSACTION MODEL

ACID PROPERTY DEFINITION	DEFINITION
Atomicity	A transaction is all or nothing (if one part fails, the entire transaction is rolled back).
Consistency	Data remains valid and follows integrity rules before and after a transaction.
Isolation	Transactions don't interfere with each other.
Durability	Once a transaction is committed, it remains saved even if the system crashes.



BASE TRANSACTION MODEL

BASE PROPERTY DEFINITION	DEFINITION
Basically Available	The database's concurrent accessibility by users at all times. One user doesn't need to wait for others to finish the transaction before updating the record.
Soft State	Data can have transient or temporary states that may change over time, even without external triggers or inputs. It describes the record's transitional state when several applications update it simultaneously. The record's value is eventually finalized only after all transactions complete.
Eventually Consistent	The record will achieve consistency when all the concurrent updates have been completed. At this point, applications querying the record will see the same value.



COMPARING THE MODELS

Making your decision

ACID

Ideal for enterprise applications that require data consistency, reliability, and predictability.

eg: banks use an ACID database to store customer transactions because data integrity is the top priority.

Ideal for online analytical processing of less structured, high-volume data.

eg ecommerce websites updating product prices, which change frequently. Pricing accuracy is less vital than allowing all customers real-time access to the product price.

BASE