

TRANSACTIONS →

Whenever we perform any kind of operation on the database, then each of that operation is known as a Transaction in SQL. There are some properties which are associated with the transaction in SQL. These properties are called as ACID properties. We will understand them better with the help of a very simple example:

Let us consider that we have a film ticket booking database. Whenever we perform any transaction on this database, then it will follow some properties. They are given by the acronym ACID.

ATMOCITY (A) →

Now, lets say that a new movie is released and I want to book a ticket for that movie. There are 200 empty seats in the theatre and 50 booked seats. When I make a transaction in the database to book a seat then booked seats become 51 and vacant seats are 199. But if the error occurs during my transaction then, the number of seats is reverted back to the original number. This property of the database is called as ATMOCITY. It means that either the transaction takes place, or it does not take place at all.

completely

CONSISTENCY (C) →

Now, in the last transaction the numbers of vacant and booked seats in the theatre before the transaction were 200 and 50 resp. When the transaction takes place, the no of seats are 199 and 51. So, this property of the database is called as Consistency. It means that the data in the database is consistent before and after the transaction.

ISOLATION (I) →

Now, similar to my transaction, a lot of other people may be trying to book tickets for the movies as well. Whenever I will book a movie ticket, I will get a unique transaction Id, same is the case for anyone who is booking their tickets. So, each and every transaction does not interfere with each other. This property is called as the Isolation. It means that every transaction of a database is isolated and does not interfere with each other.

DURABILITY (D) →

It is very common for the system failure or database failure to occur. Let, say that 3 transactions were made and the number of booked seats are 53 and vacant seats are 197. But, due to very high traffic, the database crashes. After it is stable again, the changes made by the transactions are still present. This property is called as Durability. It means that the changes made by the transactions are persistent even after the database breakdown.