ACID Property: A set of properties of database transactions (a transaction represents any change in the database) intended to guarantee the validity of a database even in the event of power failures or program errors.

**Atomicity** is when an update occurs to a database, either all or none of the update becomes available to anyone beyond the user or application performing the update. If an issue occurs with the hardware or software involved, the database will not be updated partially.

**Consistency** ensures that any programming error will not result in violation of predefined rules of the database. No transaction should have any adverse effect on the data residing on the database.

**Isolation** property is required when there are concurrent transactions on a database. Concurrent transactions are ones that occur at the same time, such as shared multiple users accessing shared data sources.

**Durability** property ensures that once the transaction has been committed, it will remain so, even in the event of power loss, crash, or programming error.

**Transcation All or Nothing**

**Written Data will not be lost**

**Only Vaid data is Saved**

**Transcations do not affect each other**

**Isolation**

**Durability**

**Consistency**

**Atomicity**

Components in Database

DATA

DATA ACCESS LANGUAGE

PROCEDURES

USER

HARDWARE

SOFTWARE

DATA

Data is that resource, for which DBMS was designed. The motive behind the creation of DBMS was to store and utilise data.

In a typical Database, the user saved Data is present and **meta data** is stored.

**Metadata** is data about the data. This is information stored by the DBMS to better understand the data stored in it.

HARDWARE

When we say Hardware, we mean computer, hard disks, I/O channels for data, and any other physical component involved before any data is successfully stored into the memory.

SOFTWARE

This is the main component, as this is the program which controls everything. The DBMS software is more like a wrapper around the physical database, which provides us with an easy-to-use interface to store, access and update data.

USER

 The one who manages the complete database management system. Users who can store, retrieve, update and delete data.The ones who can developing and desiging the parts of DBMS. Eg, DBA, Application Programmer or Software Developer, End User.

PROCEDURES

Procedures refer to general instructions to use a database management system. This includes procedures to setup and install a DBMS, To login and logout of DBMS software, to manage databases, to take backups, generating reports etc.

DATA ACCESS LANGUAGE

User can create new databases, tables, insert data, fetch stored data, update data and delete the data using the access language.

TRIGGER

A database trigger is special stored procedure that is run when specific actions occur within a database.  Most triggers are defined to run when changes are made to a table’s data.

The triggers can occur AFTER or INSTEAD OF a DML action.  Triggers are associated with the database DML actions INSERT, UPDATE, and DELETE.  Triggers are defined to run when these actions are executed on a specific table.