

DBMS HAVE AN AWESOME
FEATURE THAT WE TAKE FOR
GRANTED.

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DATA STAYS CONSISTENT

NO MATTER WHAT.

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**MILLIONS OF PEOPLE READING AND
WRITING AT THE SAME TIME?**

NO PROBLEM

**DATA STAYS CONSISTENT
NO MATTER WHAT.**

**POWER OUTAGE TAKES DOWN A
NATIONWIDE ATM SYSTEM MIDWAY
THROUGH MILLIONS OF TRANSACTIONS?**

NO PROBLEM

DATA STAYS CONSISTENT
NO MATTER WHAT.

A DBMS ACCOMPLISHES THIS VIA
THE IDEA OF TRANSACTIONS

A TRANSACTION IS A UNIT

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**THE DBMS GROUPS ACTIONS - SQL
COMMANDS - INTO UNITS CALLED
TRANSACTIONS**

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THE DBMS GROUPS ACTIONS - SQL COMMANDS - INTO
UNITS CALLED TRANSACTIONS

THE DBMS MAKES SURE THAT EACH
TRANSACTION ALWAYS SATISFIES

THE ACID PROPERTIES

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A IS FOR **ATOMICITY**

A TRANSACTION IS ALL-OR-NOTHING.
IT CAN'T PARTIALLY BE EXECUTED

THE ACID PROPERTIES

C IS FOR **CONSISTENCY**

DATA STAYS CONSISTENT - CONSTRAINTS ARE
NOT VIOLATED, DATA IS NOT CORRUPTED OR
RANDOMLY LOST OR MODIFIED

THE ACID PROPERTIES

I IS FOR ISOLATION

EVERY TRANSACTION - DURING ITS LIFE - IS
ISOLATED FROM THE EFFECTS OF ALL OTHER
TRANSACTIONS

THE ACID PROPERTIES

D IS FOR DURABILITY

ONCE A TRANSACTION IS COMPLETE, ITS
EFFECTS ARE PERMANENTLY REFLECTED IN THE
DATABASE

THE ACID PROPERTIES

A IS FOR **ATOMICITY**

C IS FOR **CONSISTENCY**

I IS FOR **ISOLATION**

D IS FOR **DURABILITY**

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THE DBMS GROUPS ACTIONS - SQL COMMANDS - INTO
UNITS CALLED TRANSACTIONS

THE DBMS MAKES SURE THAT EACH
TRANSACTION ALWAYS SATISFIES

THE ACID PROPERTIES

HOW A DBMS DOES THIS IS COMPLICATED
- BUT ALL THE USER NEEDS TO KNOW ARE

A TRANSACTION IS A UNIT

**HOW A DBMS DOES THIS IS COMPLICATED - BUT ALL
THE USER NEEDS TO KNOW ARE**

THREE SIMPLE SQL COMMANDS

A TRANSACTION IS A UNIT

THREE SIMPLE SQL COMMANDS

START TRANSACTION;

**THIS SQL COMMAND KICKS OF A
NEW TRANSACTION.**

A TRANSACTION IS A UNIT

THREE SIMPLE SQL COMMANDS

COMMIT ;

THIS SQL COMMAND SIGNALS A TRANSACTION
SHOULD BE SAVED TO THE DBMS - WRITTEN IN
STONE

A TRANSACTION IS A UNIT
THREE SIMPLE SQL COMMANDS

ROLLBACK ;
THIS SQL COMMAND IS LIKE UNDO: IT SIGNALS
A TRANSACTION SHOULD BE UNDONE - LIKE IT
NEVER HAPPENED