DATABASE MANAGEMENT SYSTEM

A Database Management System (DBMS) is software that designed to help users make use of a database. It allows a user to store, manage, manipulate, and maintain data and databases (IEE, 2024).

The DBMS ensures data integrity, security, and efficient retrieval (IEE, 2024).

DBMS' provide the interface for users and applications to interact with.

DBMS are made up of multiple components

Database Engine - Core component responsible for managing and manipulating data
~MySQL, Oracle Database~

Query Processor - Interprets user queries, optimizing for performance
~Microsoft SQL Server Query Processor, SQLite Query Planner~

Data Definition Language Compiler - Translates DDL commands into instructions
~MySQL Workbench for MySQL~

Data Manipulation Language Compiler - Translates DML commands such as INSERT, UPDATE, DELETE into low-level instructions.
~PL/pgSQL for PostgreSQL, T-SQL for Microsoft SQL Server~

Transaction Manager - Ensures the integrity of data by managing transactions and enforcing ACID (Atomicity, Consistency, Isolation, Durability) properties.
~PostgreSQL Transaction Manager~
~Oracle Database Transaction Control ~

These components collectively form the backbone of a DBMS, enabling efficient management and manipulation of data in various applications and industries. (All information sourced from IEE's Module Manual