GANDHI SCHOOL OF
ENGINEERING,BHABANDHA,BERHAMPUR

TEACHING AND LEARNING MATERIAL

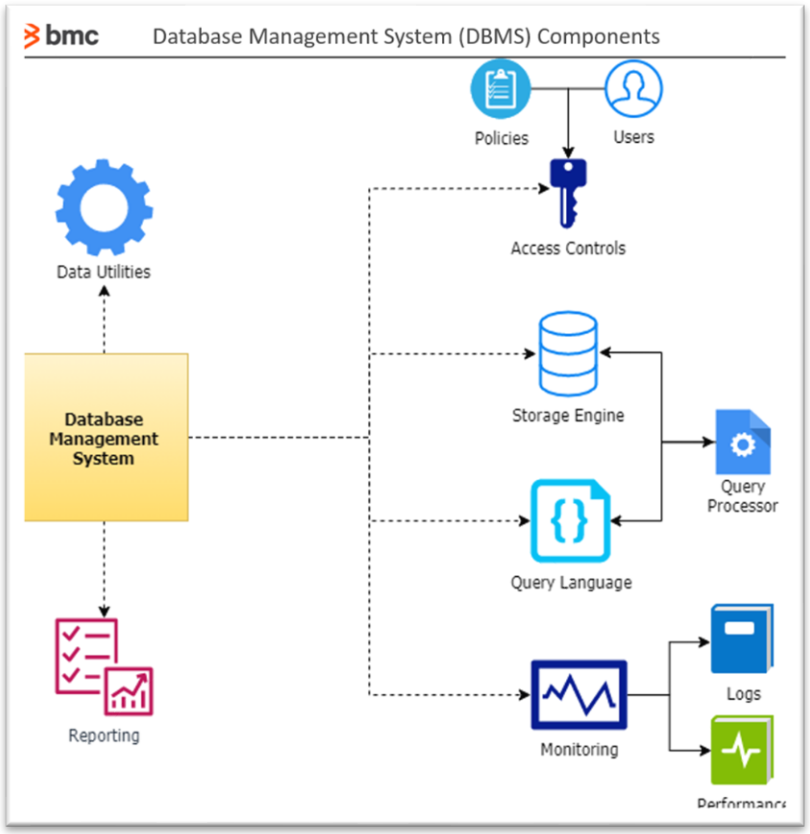
SUBJECT: DATABASE MANAGEMENT SYSTEM
SEMESTER: 4TH IT

SUBMITTED BY:-ER.DEVI PRASAD MISHRA

CHAPTER-1

WHAT IS DBMS?

A DBMS (Database Management System) is software that enables users to create, define, store, manage, and retrieve data in a structured database, acting as an interface between the user and the database itself.



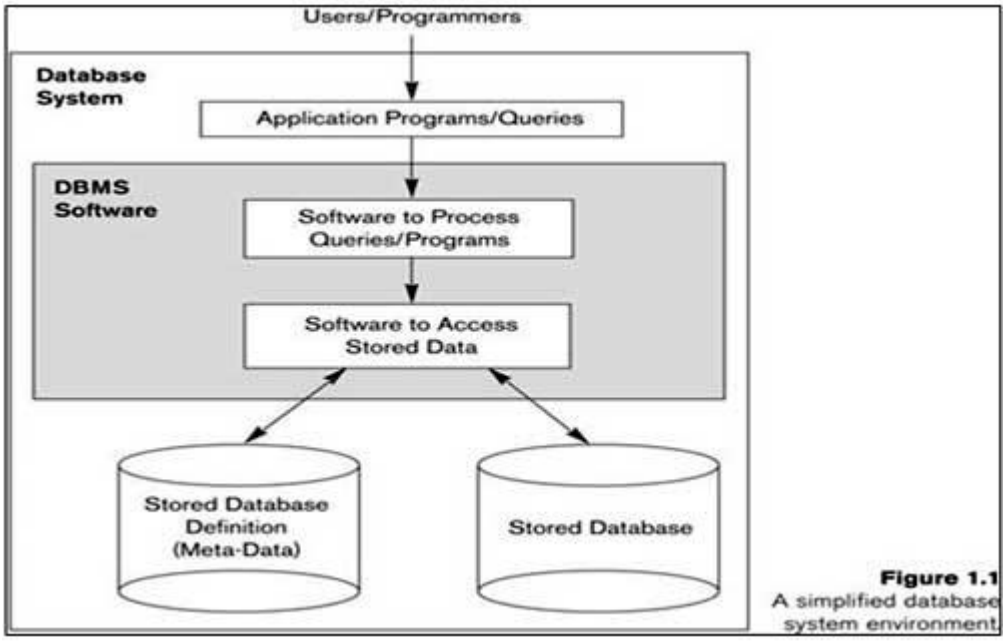
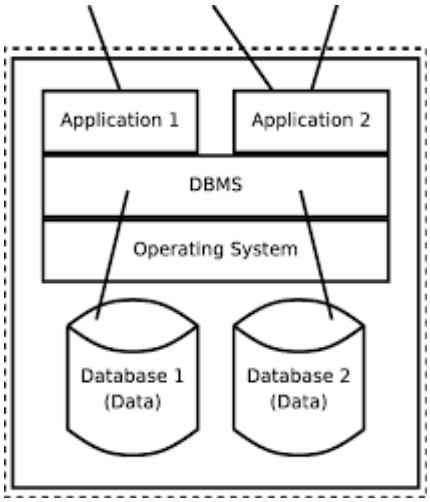
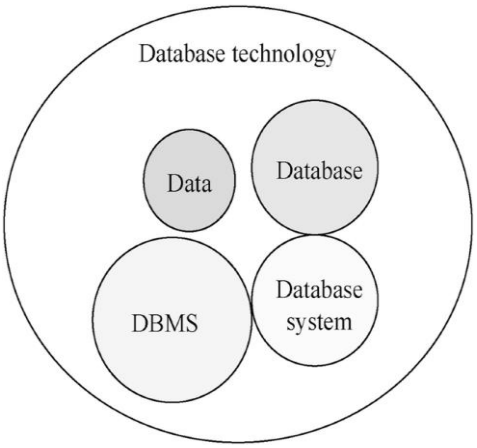


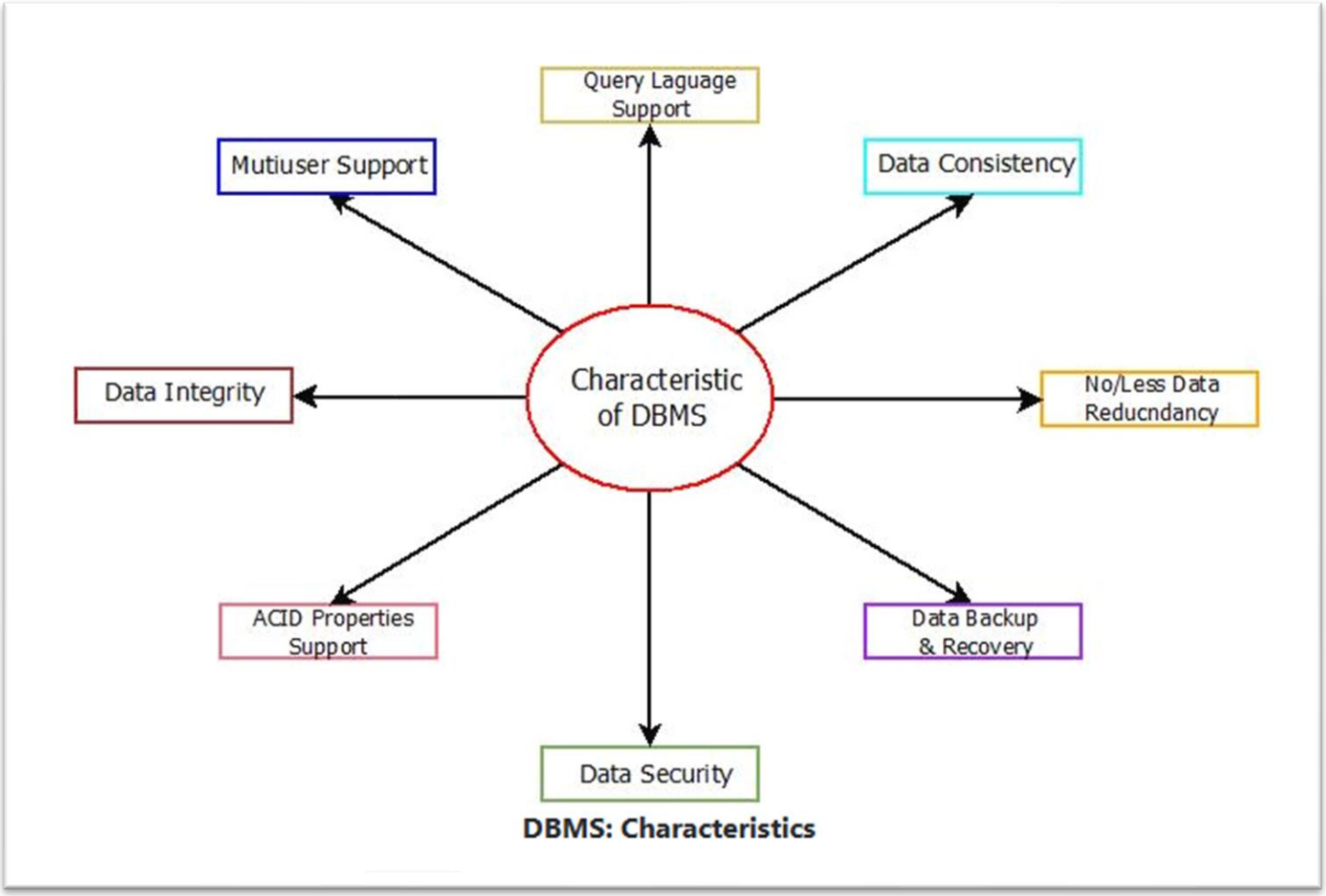
Figure 1.1
A simplified database system environment.





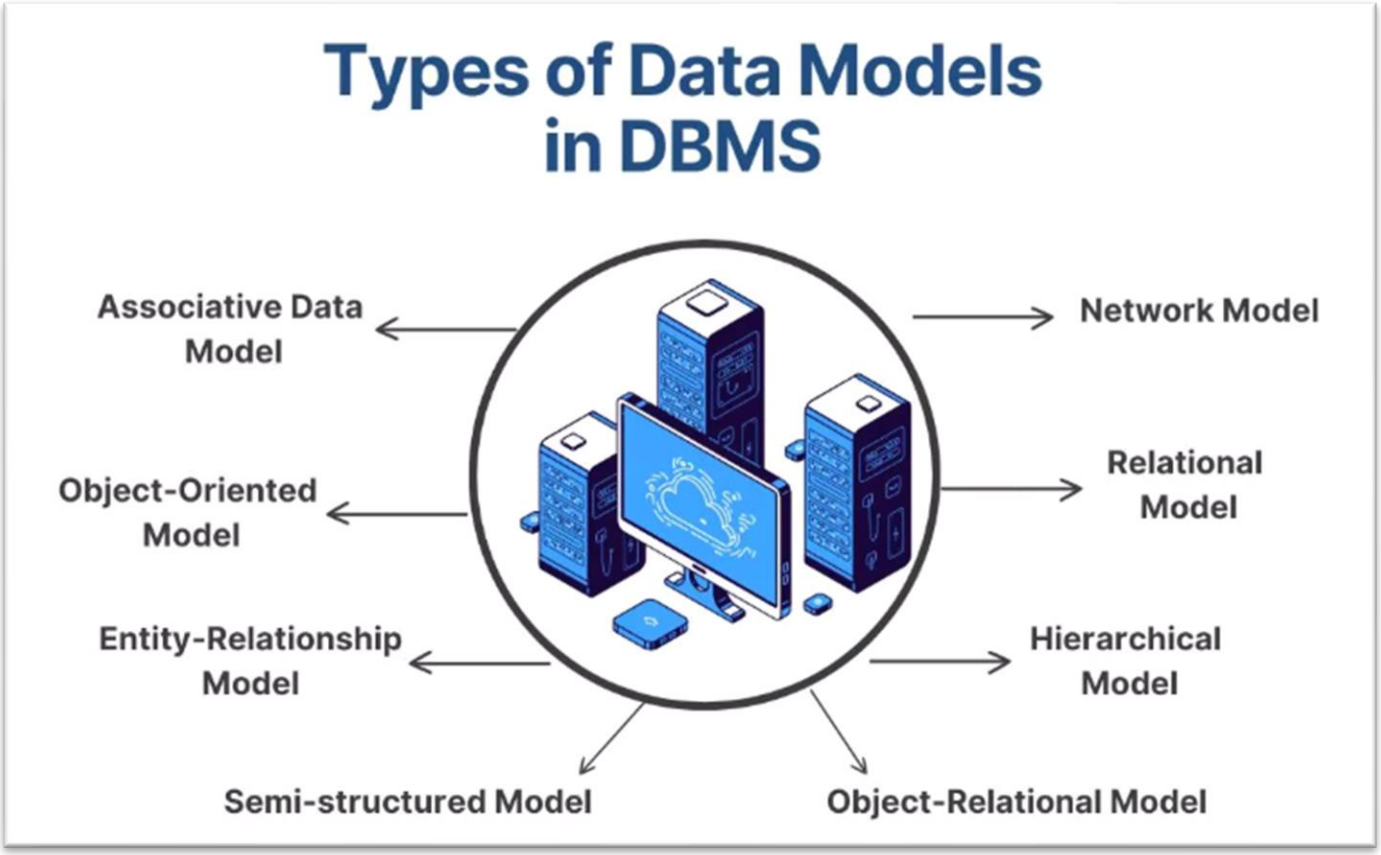
DBMS: Characteristics

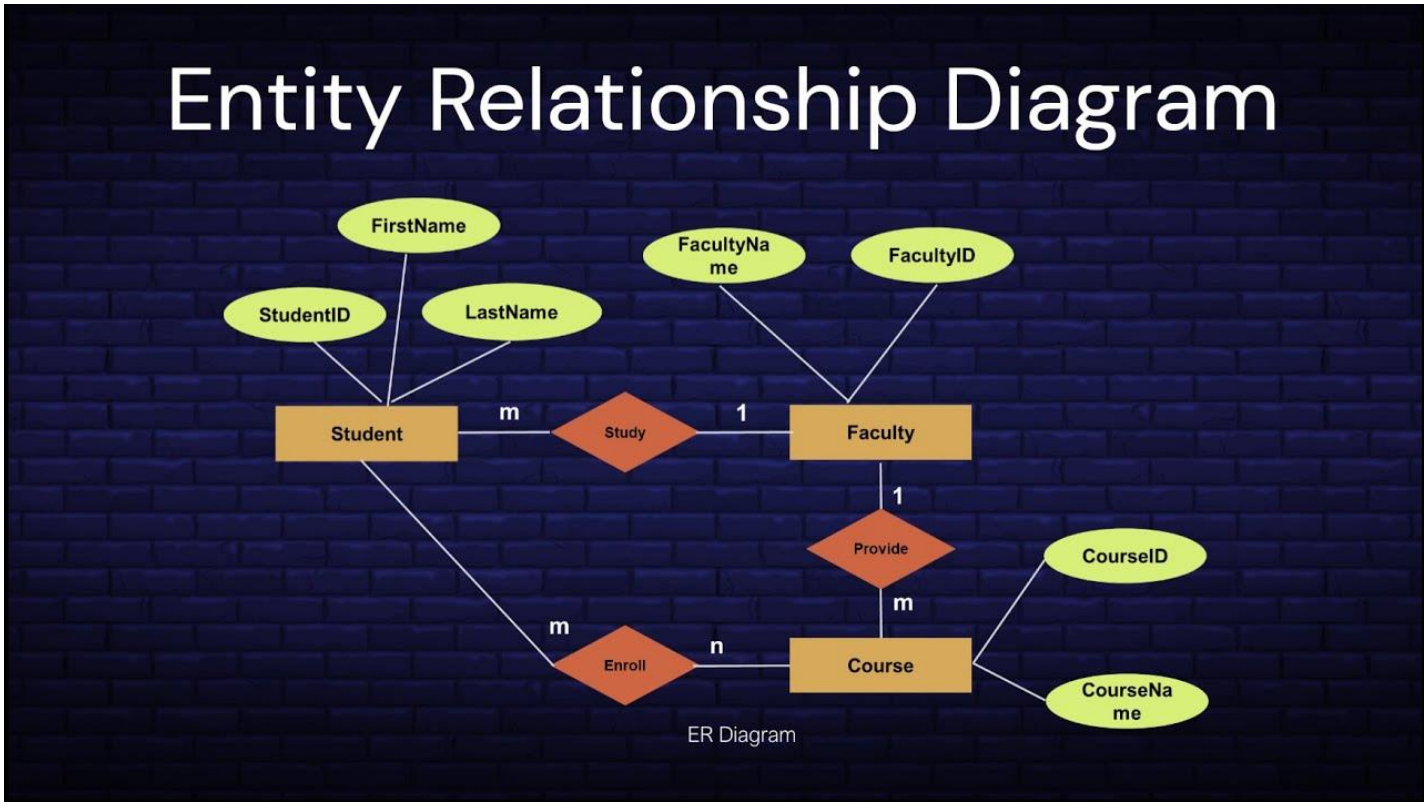
- **Database Management Systems possess certain characteristics and features because of which it was introduced and is preferred over traditional file systems. Some of the characteristics are:**

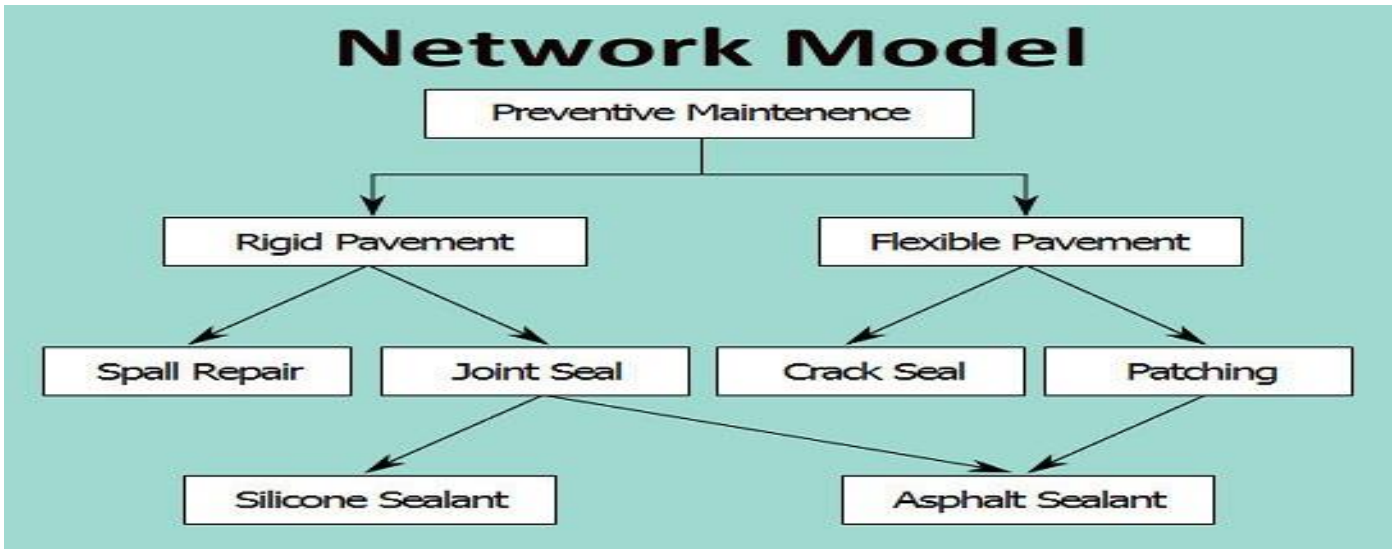


CHAPTER:-2

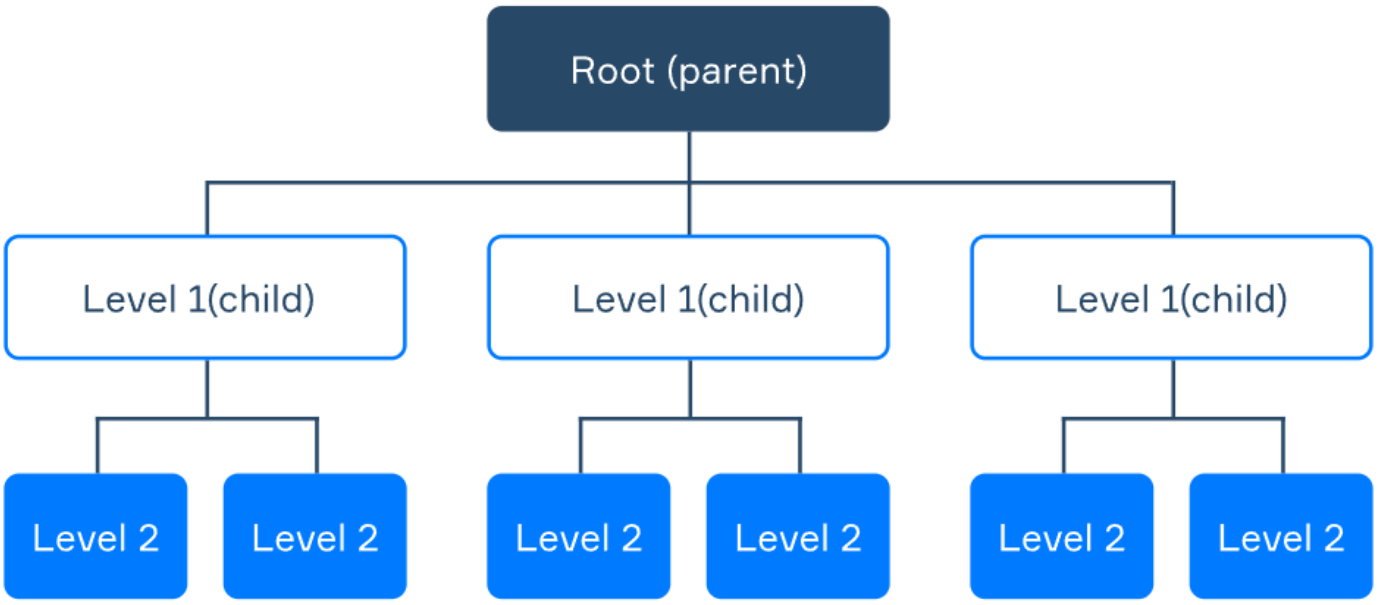
ENTITY RELATIONSHIP DATA MODEL





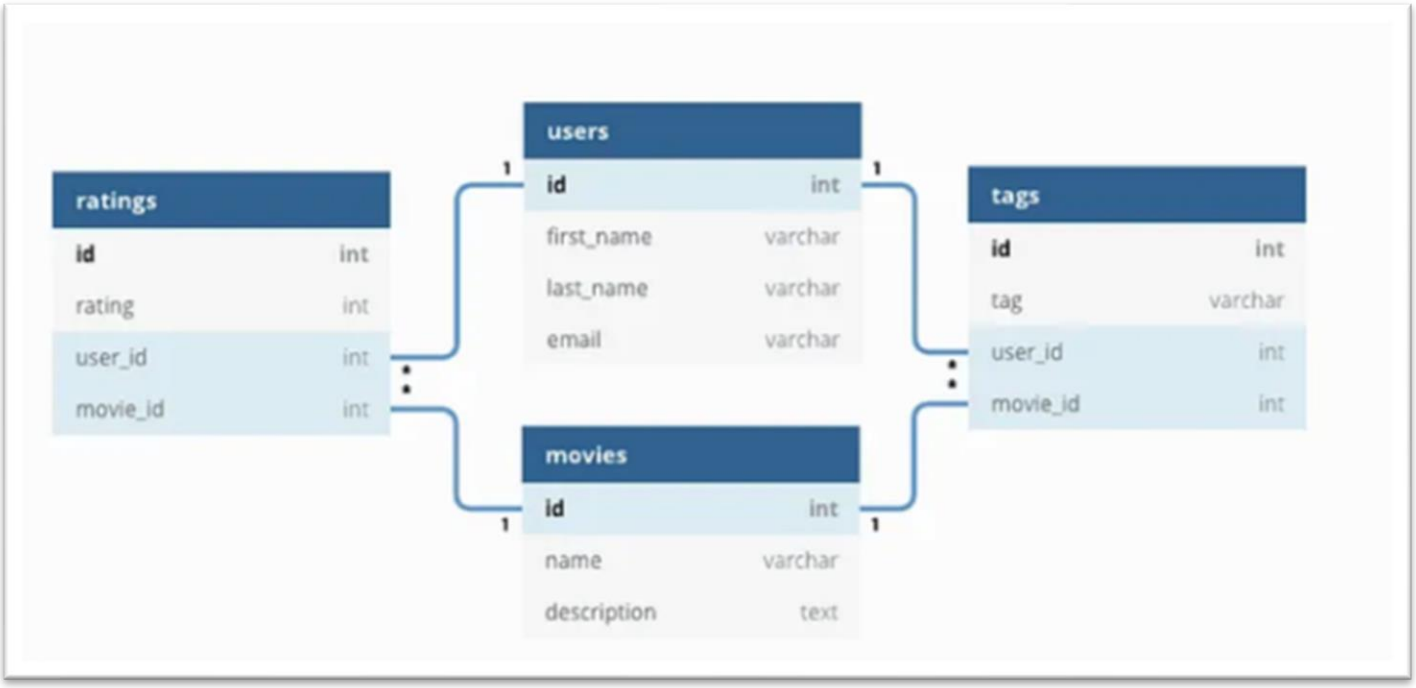


The Hierarchical Database Model



CHAPTER-3

RELATIONAL DATABASE



Difference between RDBMS and DBMS

RDBMS	DBMS
Data stored is in table format	Data stored is in the file format
Multiple data elements are accessible together	Individual access of data elements
Data in the form of a table are linked together	No connection between data
Normalisation is not achievable	There is normalisation
Support distributed database	No support for distributed database
Data is stored in a large amount	Data stored is a small quantity
Here, redundancy of data is reduced with the help of key and indexes in RDBMS	Data redundancy is common
RDBMS supports multiple users	DBMS supports a single user
It features multiple layers of security while handling data	There is only low security while handling data
The software and hardware requirements are higher	The software and hardware requirements are low
Oracle, SQL Server.	XML, Microsoft Access.

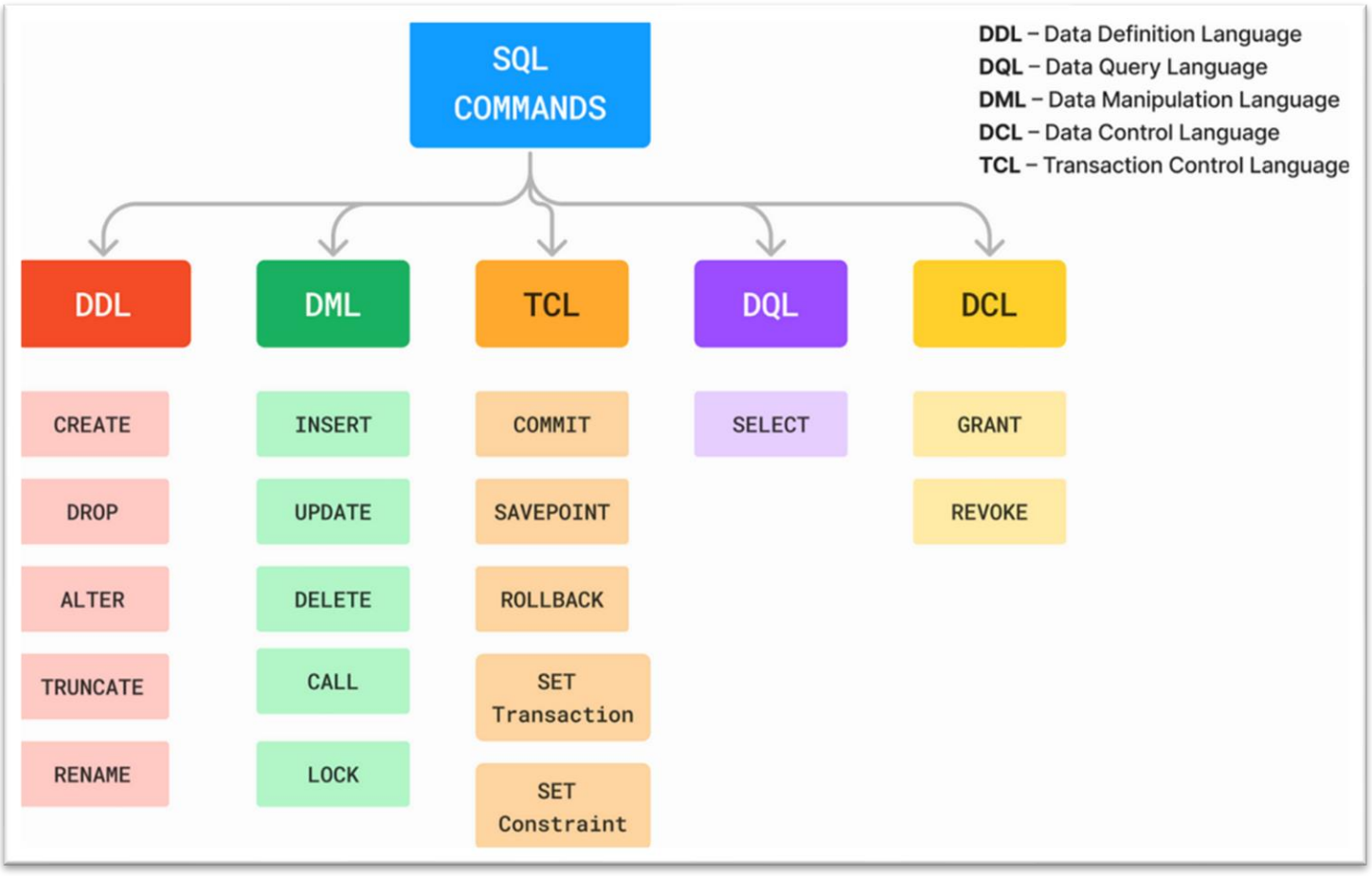
CHAPTER: - 4

STRUCTURED QUERY LANGUAGE

Structured Query Language (SQL) in the context of a Database Management System (DBMS) is a specialized programming language designed for managing and manipulating data stored in relational databases. It serves as the standard language for interacting with Relational Database Management Systems (RDBMS) like MySQL, Oracle, SQL Server, and PostgreSQL.

SQL's primary functions within a DBMS include:

- **Data Definition Language (DDL):**
  Used for defining and managing the database schema, including creating, altering, and dropping tables, indexes, and views.
- **Data Manipulation Language (DML):**
  Used for manipulating the data within the database, such as inserting new data, updating existing data, and deleting data from tables.
- **Data Query Language (DQL):**
  Used for retrieving data from the database based on specific criteria, typically using the `SELECT` statement.
- **Data Control Language (DCL):**
  Used for controlling access to the database and managing user permissions through commands like `GRANT` and `REVOKE`.



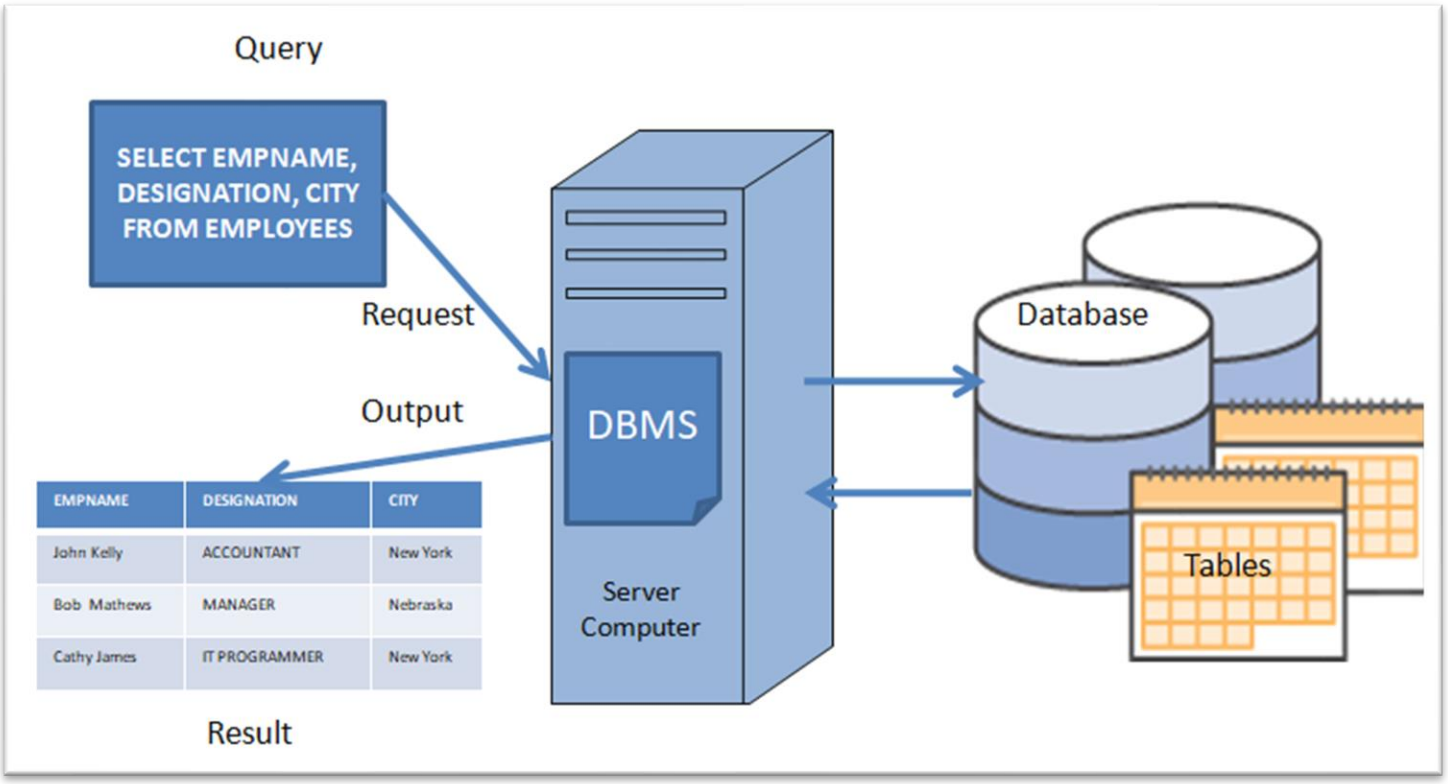

Query
SELECT EMPNAME, DESIGNATION, CITY FROM EMPLOYEES
Request
Output
DBMS
Server Computer
Database
Tables
EMPNAME
DESIGNATION
CITY
John Kelly
ACCOUNTANT
New York
Bob Mathews
MANAGER
Nebraska
Cathy James
IT PROGRAMMER
New York
Result


table
select
structured
query
SQL
system
database
language
management