Day 1

Database System

- Database
- DBMS

Database

It is the collection of related data

1. Structured (RDBMS)

   IRCTC,University

2. Unstructured

   web pages

DBMS

Is the operation on database

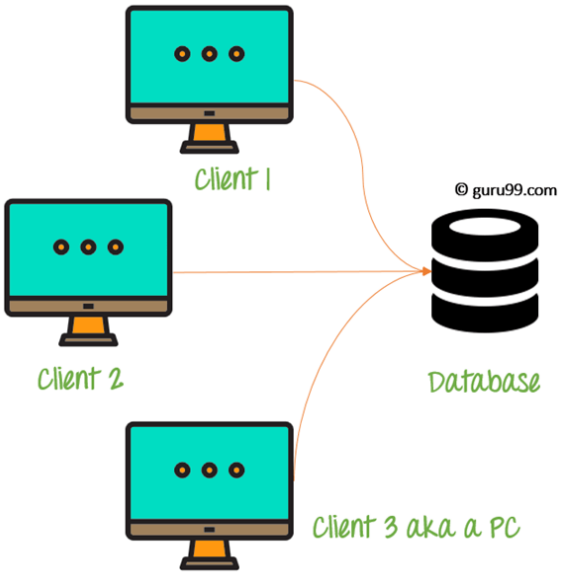
- Sql server
- oracle 9i,11,12c
- Mysql
- DB2
- Mariadb

“File System” vs “DBMS”

- Files maintainability problem , backup problem , Data loss , and many other problems
- Access control problem in fie system
- Concurrency that means many user access
- Security

- Redundancy

2 - Tier Architecture



- This is also known as the client server achitecture

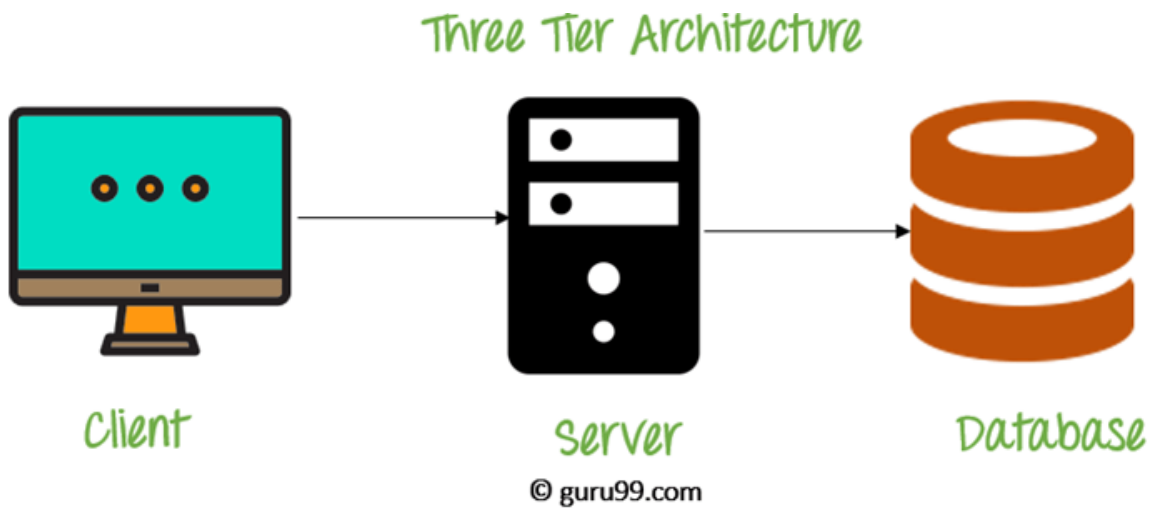
Advantages

1. Maintainability

Disadvantages

1. Scalability
2. Security

3 - Tier Architecture



A **3 Tier Architecture** in DBMS is the most popular client server architecture in DBMS in which the development and maintenance of functional processes, logic, data access, data storage, and user interface is done independently as separate modules. Three Tier architecture contains a presentation layer, an application layer, and a database server.

3-Tier database Architecture design is an extension of the 2-tier client-server architecture. A 3-tier architecture has the following layers:

1. Presentation layer (your PC, Tablet, Mobile, etc.)
2. Application layer (server)
3. Database Server

Schema in Database

A database schema **defines how data is organized within a relational database** ; this is inclusive of logical constraints such as, table names, fields, data types, and the relationships between these entities.

This representation is known as **Logical Representation**

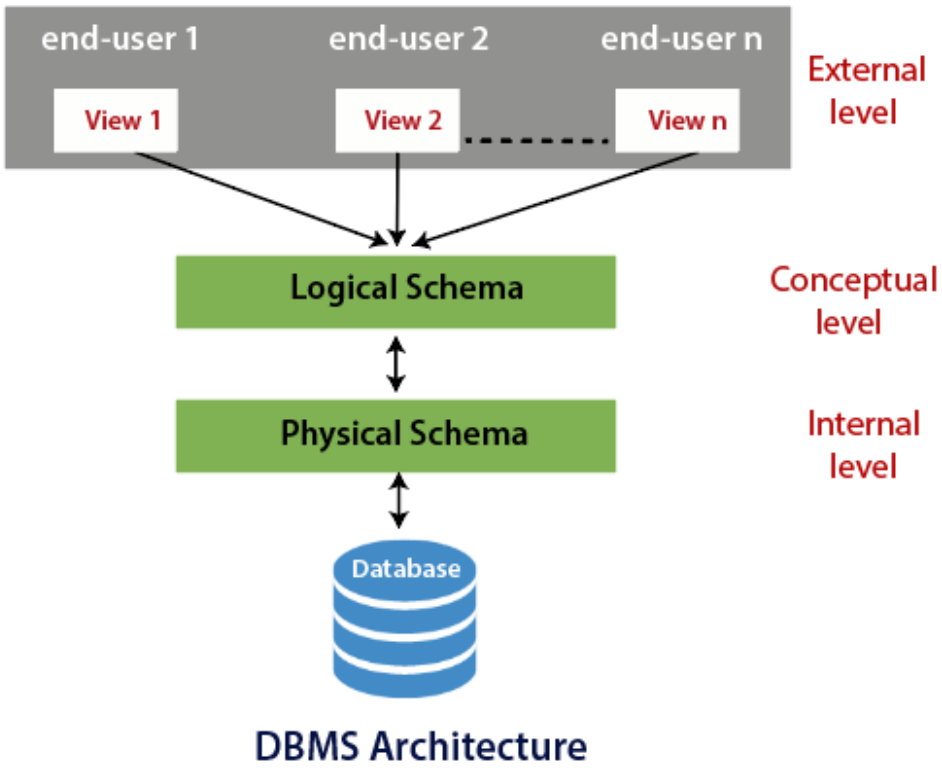
Types of Database schemas

While the term schema is broadly used, it is commonly referring to three different schema types—a conceptual database schema, a logical database schema, and a

physical database schema.

- Conceptual schemas offer a big-picture view of what the system will contain, how it will be organized, and which business rules are involved. Conceptual models are usually created as part of the process of gathering initial project requirements.
- Logical database schemas are less abstract, compared to conceptual schemas. They clearly define schema objects with information, such as table names, field names, entity relationships, and integrity constraints—i.e. any rules that govern the database. However, they do not typically include any technical requirements.
- Physical database schemas provide the technical information that the logical database schema type lacks in addition to the contextual information, such as table names, field names, entity relationships, et cetera. That is, it also includes the syntax that will be used to create these data structures within disk storage.

Three Schema Architecture



Externnal or view level

- Here we see the UI
- Here we have the Clients they do the operation

Conceptual or Logical level

- Here we see that how the data is stored in which format or sturcture
- Like E-R models
- Data Base designers comes into picture.

Physical or Internal Level

- Here we can see all the physical information of the data like hoe much size of data,At what location etc.,
- Here the Database Administrator comes into the picture