DBMS 3-tier Archite

⇒ It's divide the complete system into 3 inter-related but independendent modules.

```
┌─────────────────────────┐
│    External level       │
└─────────────────────────┘
     ↕        ↕         Logical Data Indenpe
┌─────────────────────────┐
│    Conceptual level     │
└─────────────────────────┘
     ↕        ↕         Physical Data Indepn
┌─────────────────────────┐              ┌──────┐
│    Physical level       │ ←──────────→ │ Data │
└─────────────────────────┘              │ Store│
                                         └──────┘
```
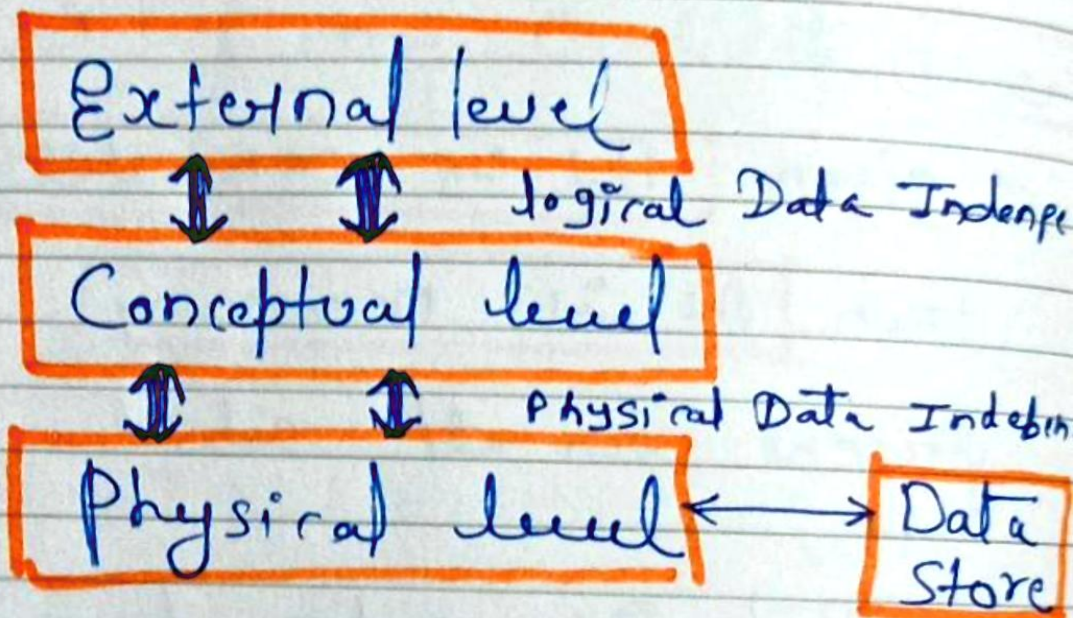
Data Independence:

Remarks: means a change of data at one level should not affect another level.

Physical data Independence:

→ Any change in the physical location of table and indexes should not affect the conceptual level or external view of data.

Conceptual data Independence:

⇒ Data at conceptual level schema and external level schema must be independent.

⇒ change in conceptual schema does not affect external schema.

Two tier Architecture

Two tier simply means
↓↓

two layer.

Client layer

Database Server

means it is a machine that has interface which help to fetch data from database Server.

⇒ Client has application
programme (fetch a particular data) come on database Server then we execute it.

⇒) Two-tier also known as

Client - Server Architecture

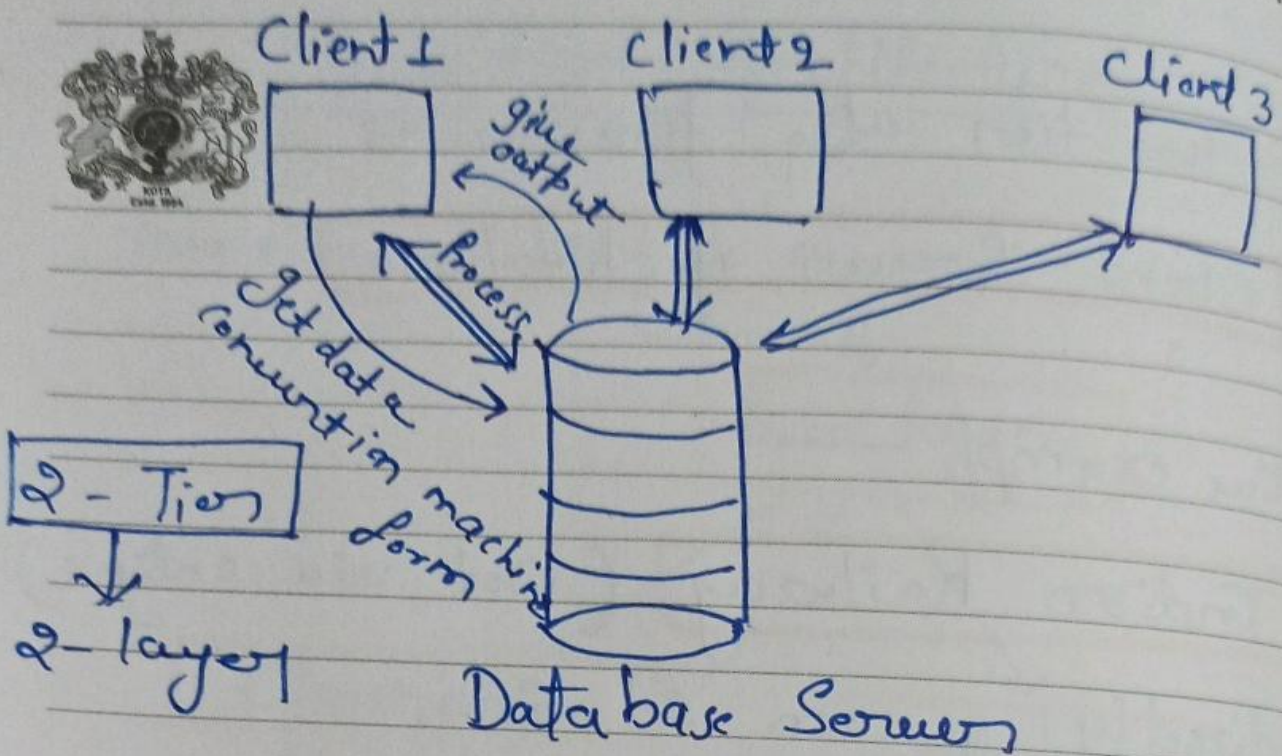like example ——

Indian Railway (not via online)
directly go on station.

⇒) form a fill and book own
ticket then the member
of ticket window fetch own
data manually (that is client
machine)

⇒) After filling data they
process through database server
then they print the ticket on

Client 1   Client 2   Client 3

give output

Process

Get date

consumption machine form

2 - Tier

↓

2 - layer

Database Server

Advantage

- two layer so `maintainance` easy
- `limited client` limited database

Disadvantage

- Problem of `Scalability` (when no. of user more)

So at that time 2-tier fail.

• Security ⟶ here client direct interact with database so if causes vulnerability

Three tier architecture

This architecture contain three layers —

① Client layer

② Business layer

③ Data layer

⟹ Client layer : used to refers to local interfaces used to author, third-party clients.

⟹ Business layer : the query send by clients is send to business layer.

⇒ Data layer:

At this tier, data layer contain database resides along with its query processing language.

⇒ this layer has multiple views of database can be provided by application.

⇒ When you enter information in an interface it give direct output becoz all query verification work done by business layer.
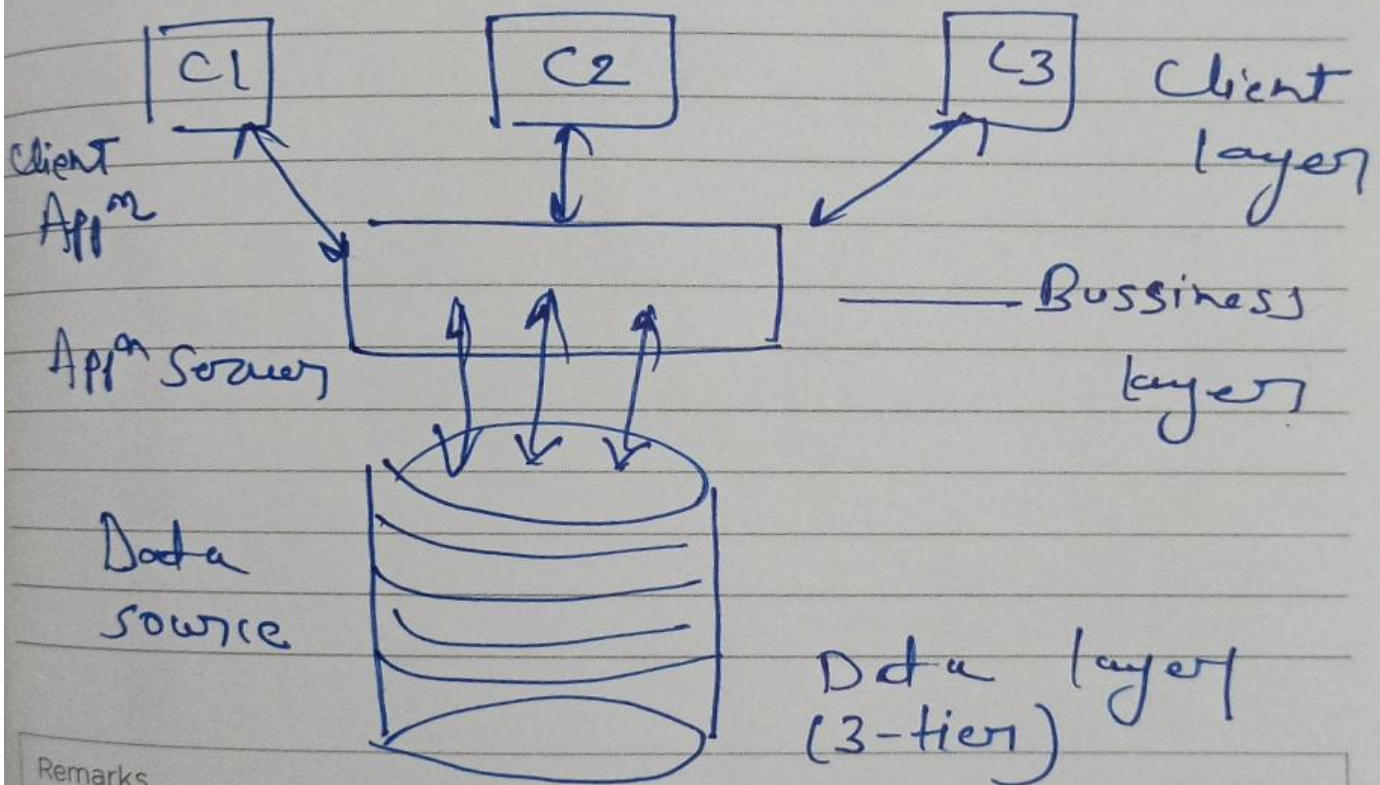
⇒ So load of database server is less.

Advantage: 1. Scalability.

2. Security

↓

(user did not direct connect with database)

α! like gmail, ICRTC web etc.

C1   C2   C3 Client layer

Client App^m

App^n Server

Bussiness layer

Data source

Data layer (3-tier)

Disadvantay: low maintenance.