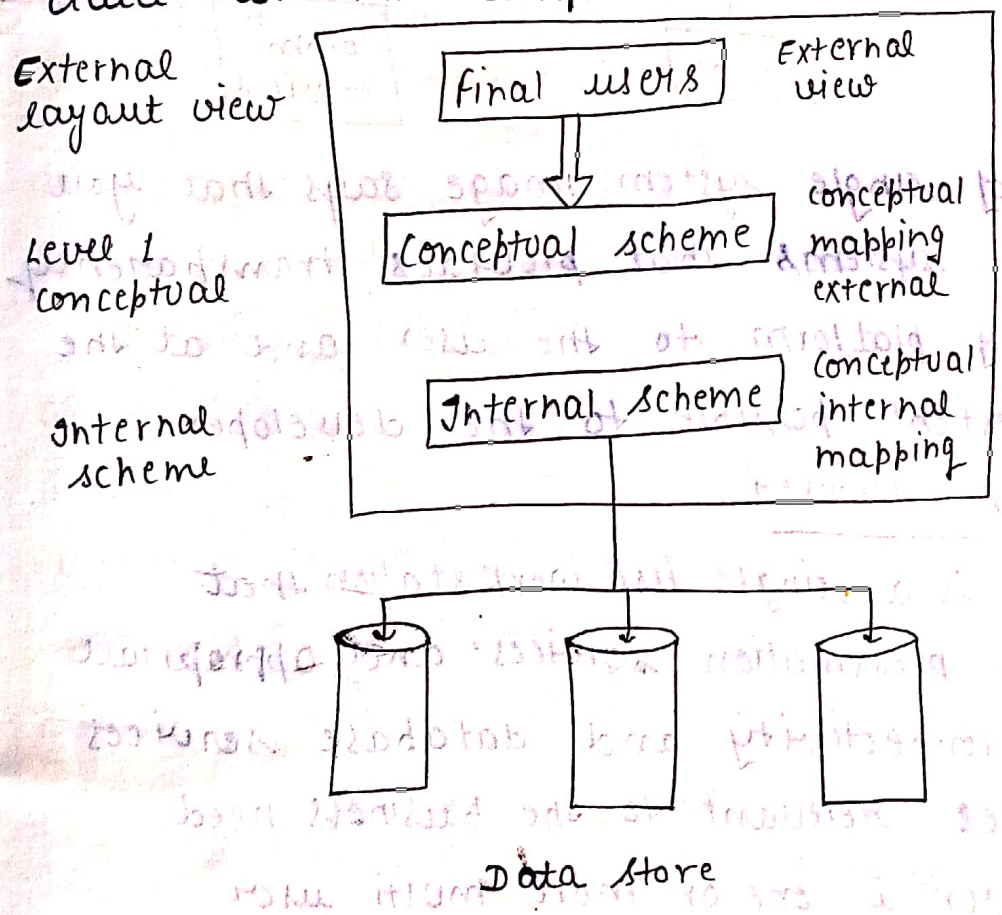
DBMS Concept and Architecture → Unit → 1

Data modelling → Data model is use to describe the structure logic and physics of a database. structure or levels are devided into 2 types - High level and Low level.

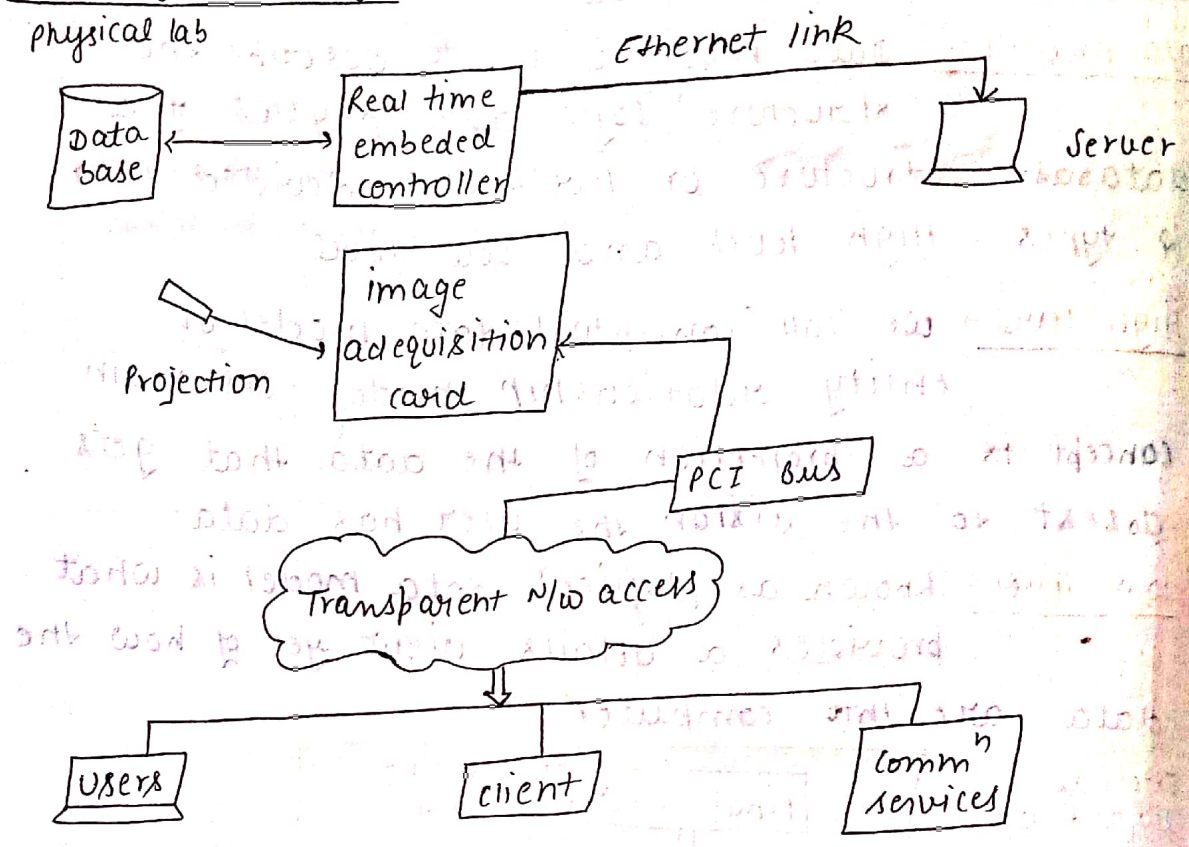
High level → we call conceptual data model or entity relationship model. Its main concept is a projection of the data that gets closest to the vision the user has data.

Low level → Known as physical data model is what provides a details view yet of how the data are into computer.



Architecture of DBMS layers

Single System Image:



The concept of single system image says that you can build systems that provides transparency of technology platform to the user and at the largest extent possible to the developer.

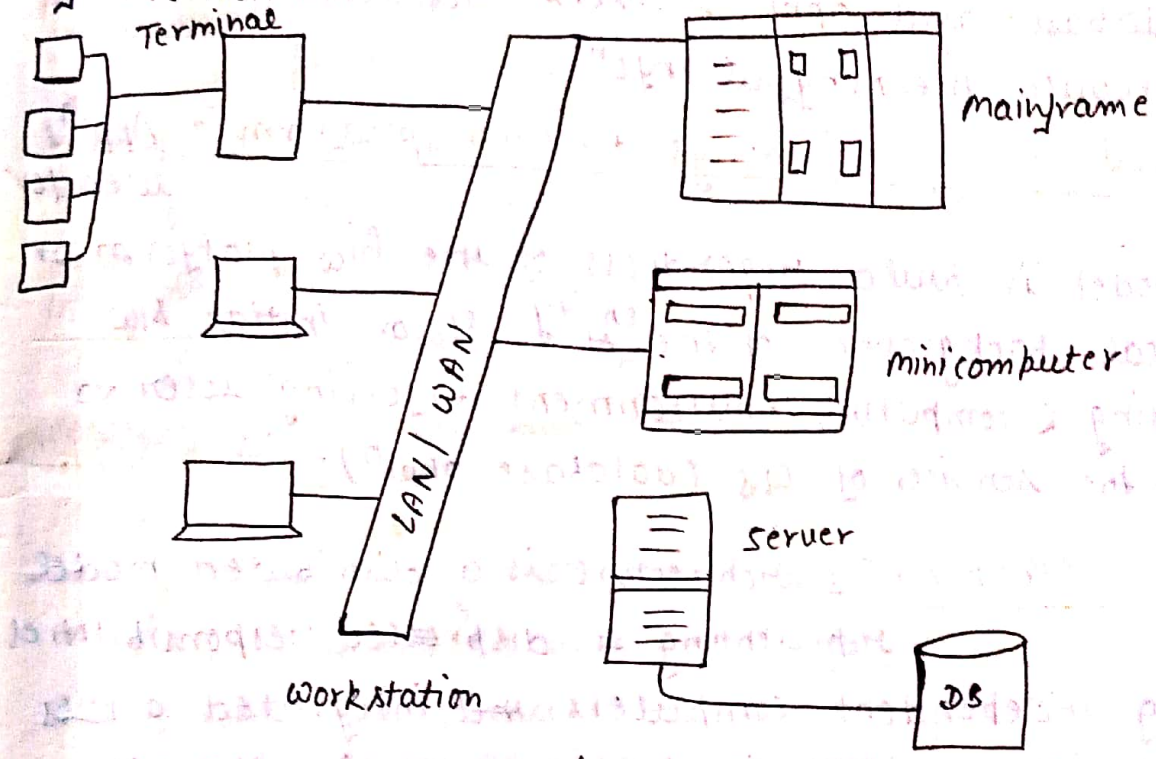
Client Server Architecture:

Client: A client is a single use workstation that provides presentation services, and appropriate computing, connectivity and database services and interfaces relevant to the business need.

Server: A server is one or more multi user processor with shared memory providing computing, connectivity and data base services and interfaces relevant to the business need.

client server computing is an environment that satisfy the business need by appropriately allocating the appl^n processing b/w the client and

the server processors. The client request services from the server. The server process the request and return the result to the client. The comm^n mechanism is a msg passing interprocess comm^n (IPC). That enables distributed placement of the client and server process.



A modern client / server Architecture

Client server computing will be fundamentally platform independent change in platform and underline technology should be transparent to the users.

Advantage of C/S Architecture:

(1) Improve data sharing:- Data is retained by usual business process and maniulated on a server is available for designated users (clients) over an authorized access. The use of a structure query language (SQL) from all client aspect allows transparency in N/w services. The similar data is being shared among users.

(2) Integration of services → Every client given the opportunity to access corporate infⁿ via desktop interface eliminating the necessity to long into terminal mode to another processor. ~~don't~~ desktop tool like spreadsheet, powerpoint etc can be use to deal with corporate data with the help of database and applⁿ servers resident on the n/w to produce meaningful infⁿ.

(3) Shared resources amongst different platforms → Applⁿ's used for c/s model is build regardless of the h/w platform or technical background of the entity s/w or initial s/w. Providing a computing environment enforcing user to obtain the services of c/s (database applⁿ).

(4) Easy maintenance → c/s architecture is a distributed model representing # dispersed responsibilities among independent computers ~~and~~ integrated across the n/w this is easy to replace, repair, upgrade & relocate while clients remain unaffected.

(5) Security → Servers have better control access and resources to ensure that only authorized client can access or maniculated data and server updates are administrative effectively.

Disadvantages →

(1) Overloaded server → when there are frequent simontaineus client request server servely get overloaded forming traffic.

Mainframe centric c/s computing → The mainframe centric model uses the presentation capabilities of the work station to front end existing ~~info~~ appl^n's ~~but~~ the character mode interface is remapped by products. A same data is displayed or entered through the use or pull down list. Srollable field, check box and buttons and info^n is presented more clearly. In this mainframe centric ~~appl~~ model mainframe appl^n continue to ~~be~~ unmodify because the existing terminal data stream is processed by the work station based comm^n API.

Downsizing and c/s computing → A host based appl^n is downsizing ~~and~~ when it is reengineered in a smaller and LAN based environment.

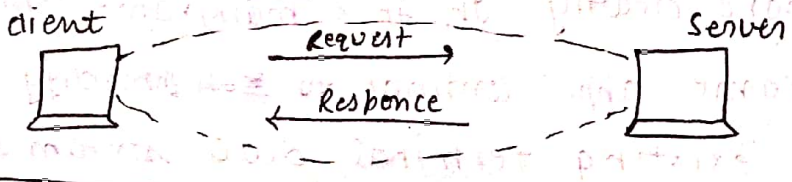
It involves ~~to~~ ~~appl^n's~~ porting appl^n's from mainframe and mid range computers to a smaller platforms. It is an open computing system ~~often~~ openness means the c/s must be able to work well with different s/w and h/w. It is crucial issue in mainframe. The appl^n of mainframe can rarely be downsized without modification. The modification can be ~~measured~~ major where appl^n's ~~are~~ ~~a~~ are rewritten in using completely new tools or they can be major where tool are used to port rehost ~~existing~~ ~~to~~ existing mainframes source code.

Division for processing s/w c/s program → With a single purpose PC program one program is responsible for keyboard retrieving seleting data from the disk and display the data.

A c/s program →

In a c/s environment processing is divided b/w client ~~and the~~ system and the server. Each appl'n involves 2 program - one program is a client and other is a server. These programs are link by the N/w.

The N/w traffic is reduced to ~~queries~~ queries to and respond from the database the server. The entire database like back and ~~both~~ fourth.



- manage display
- Interact with user
- Perform data validation
- operate on retrieved data
- Generate data request

- Process user data
- sent retrieved data
- Provide concurrency control
- maintain data integrity
- manage Transaction
- Provide security, storage

The division of services peyormed by database server and client computer follow a natural division of labour taking into consideration the strength of each resource.

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