9521279429

Today's Agenda :-

1) What is a database ✓
2) Importance
3) Types of Databases
4) Relational Databases
5) Intro to Keys
6) Super Keys

Student → { Name, email, phNo,
PSP, attendance, batch ... }

Batches → { Name
Students
curriculum
module

Instructors
Mentors
TA's

File

Create 1 file per item
one line per detail

CSV

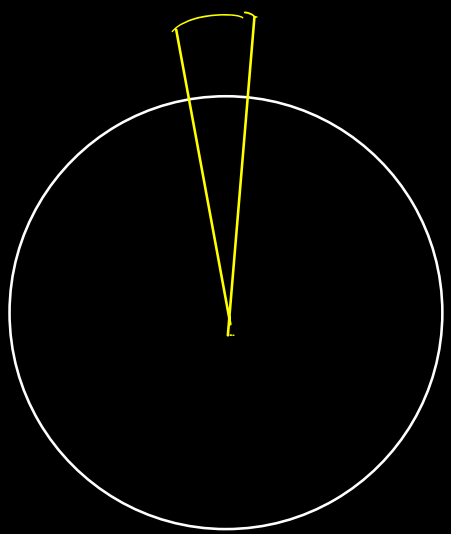
Students.txt (csv)

Name , email , batch , attend. , ...
Sridhar ~~@..~~ ~~24~~ Alisha ~~1~~ 25 . . . .
Aaryan .@.. 2 ~~45~~ Umang . . . .
~~Alisha~~, Alisha, @.. 3 40 = ...
~~24~~

Batches.txt

Batch_id , Batch Name , St_time . . .
1 May Beg 24 24/01/24 . . .
. . .
. . .
. . .
. . .

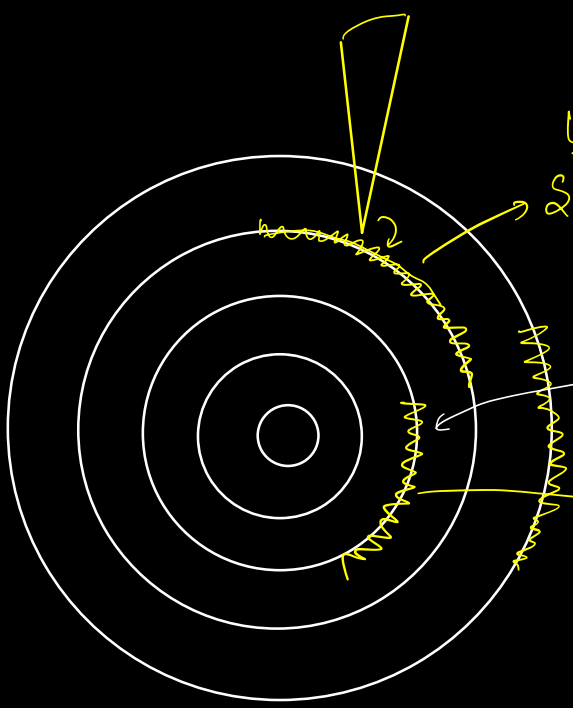
Files are stored in the disk



Gramophone

Student

psp = 50



Hard disk

You have to read the file sequentially.

go line by line

read each line

split

check your condition.

1) Inefficient :- Reading data is slow.

2) Data Integrity :- i) Wrong data types

2) formatting issues

3) Security :- No access control

4) Concurrency

What's a database ?

Airbase :- Plane Parking

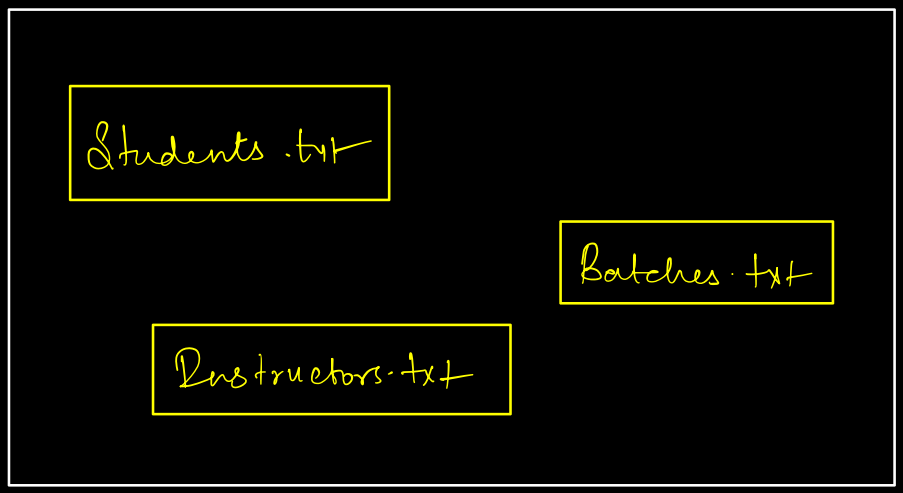
Military Base :- Army stays

Database → data stays

Database :- Collection of related data.

Data about items related to each other based on business use case.

Scaler's DB



What is DBMS ?

↳ Software that allows efficient ways of storing & retrieving data along with other necessary features :-

1) Data Integrity
2) Concurrency
3) Security

} ✓

DBMS will use advanced data structures to store data.

B+ trees.

Allow us to write queries to retrieve data.

1) How db works ?

2) SQL Queries & Schema Design

& 13 live classes followed by a contest

Upcoming Lectures :-

Keys	Aggregate Queries	Schema Des-1
CRUD - 1	Subqueries	— -2
CRUD - 2	Indexing	
Joins - 1	Transactions - 1	
Joins - 2	" - 2	

Types of Database :-

Relation = Table

DBMS

Tabular Database

Relational Databases

SQL Databases

Collections of related data in tables.

Students

Name	age	psp	...

Batches

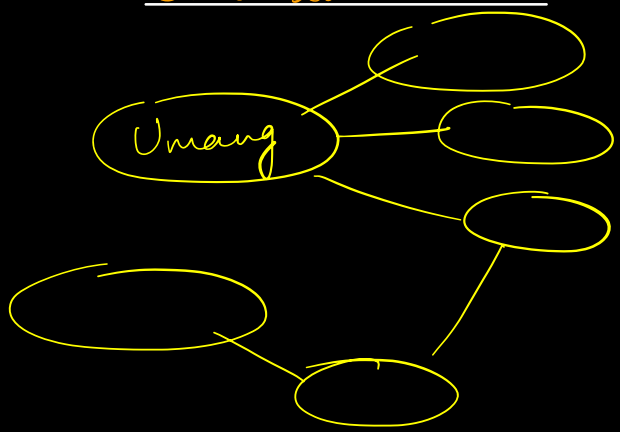
Name	...

Non Tabular

Non Relational Databases

No SQL Databases

collection of related data in any form other than table



Graph

Columnar

Documents

Key-value pair

Ex → MySQL

Postgre SQL

Ex → Mongo DB

Properties of Relational Databases :-

SQL Standard 1970

1) Relational DB represents data as collection of tables with each table storing data about something.

   Student, batch, etc.

2) Every row is unique. In any table, no 2 rows should have the same value for every column.

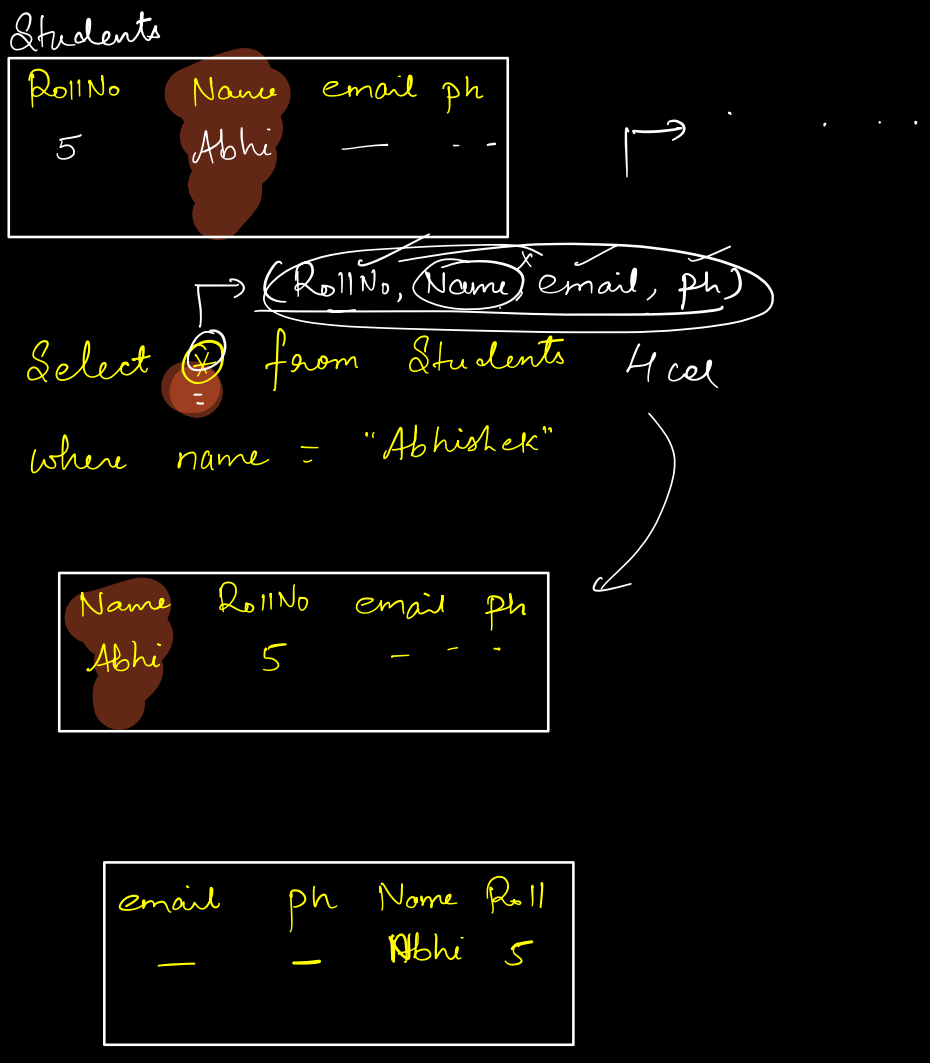
Name	age	phNo
Umang	24	9- -
Abhi	28	— —
Umang	24	9- -

✗ Not be able to identify uniquely

3) All values present in column should be of same data type.

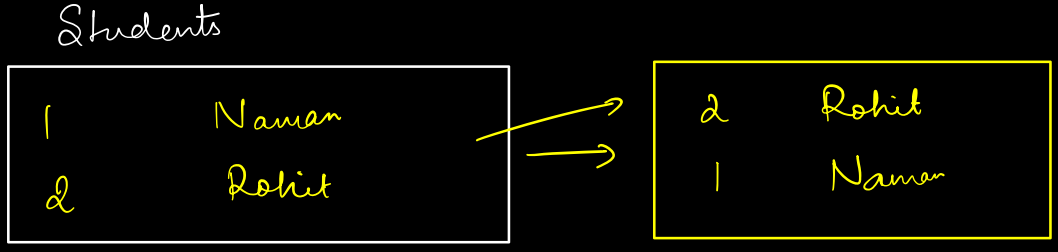
4) Values in cells are atomic.
↳ indivisible

5) The column seq in queries is not guaranteed.



Many SQL DB return the col in the order in which they are present in the table.

6) The order of rows is also not guaranteed



If you want rows in a particular order, use ORDER_BY. ASC DESC

7) The name of every col should be unique.

Keys :-

Every row is unique.

Roll No	Name	year birth	02/01	03/01	04/01 . . . .
1	Abhi	2000	P	A	
2	Abhi	2000			
.					
.					
.					
.					
.					

Key : A column or set of columns of a table whose values are guaranteed to identify a row uniquely.

Super Keys :-

A column or set of columns of a table whose values are guaranteed to identify a row uniquely.

Students

Name	psp	email	batch	phNo
Umang	90	—	1	—
Abhi	100	—	2	—
Sridhar	90	—	-	-
Umang		—		—

Name ✗

phNo ✓

email ✓

(phNo, email) ✓

(Name, phNo) ✓

Super Keys

(Name, email, psp)

(email, psp)

Student

St_id	course_id	firstName	lastName	age	courseName