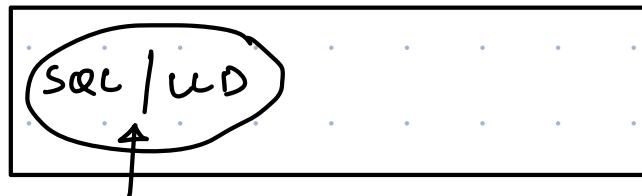


first 20 mins

Non-DSA

DSA  
6 months

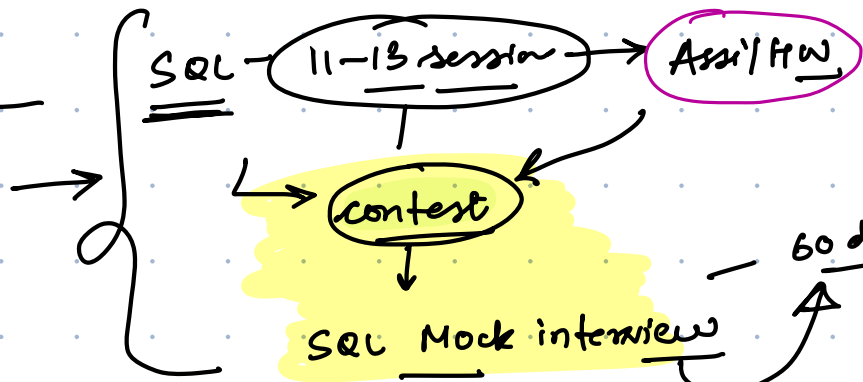


theoretical

{ whatsapp →

mwf: 9:00pm

↓  
9:05pm



60 days

doubts →

SQL

NOSQL

HLD

HLD { partitioning  
sharding

- Intro
- Keys
- CRUD
- Joins
- Indexing
- agg f<sup>n</sup>
- subqueries
- Transactions
- Schema design

15% failures → SQL

Datatypes  
Procedure  
Normalisation  
Query tuning

↓  
recording

↓  
SQL is completed

# every syntax → SQL

What is a Database?

store the data?

files / sheets

Data is king!

Students.csv

id, name, psp, batch, email  
:  
:  
:  
:

avg psp for every student  
corresp to the batches

1) Not efficient → where are your files stored?

slow ← disk

2) Data integrity

↓  
inaccuracy

3) concurrency → inconsistency

if multiple update the data at same time  
conflicts

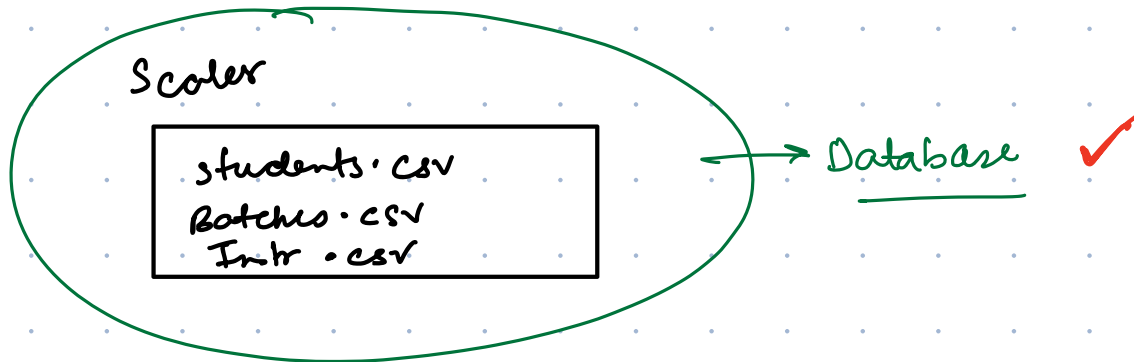
What if I don't allow  
multiple people  
to access at same time

slow  
↑  
Sequential read

#### 4) security

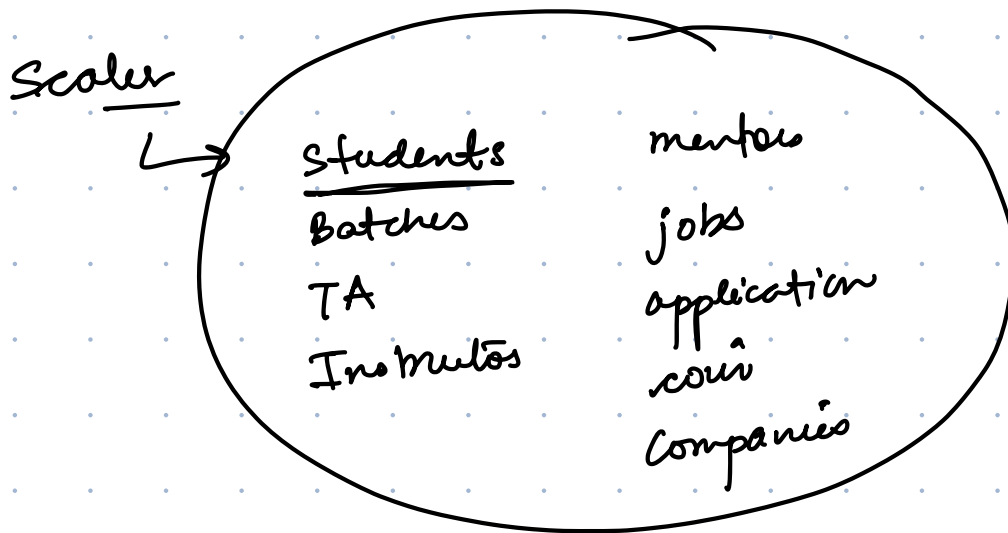
files ← password  
    ↓  
    No encryption

No access control



Data Base  
↓  
collection of  
related data

Air Base →  
Military Base



DBMS ? → Database Management system

software system that allows to  
manage a database efficiently

CRUD {  
create  
Read  
update  
Delete

DBMS  
↓  
oracle  
mysql  
postgres  
MongoDB  
⋮

## Type of Databases

## Demos

MySQL

relational

allows you to represent data in related

tables

rows

record

column

field

Non-relational

Tables X

documents  
key-value pairs  
graph  
...

HLD

SQL vs NoSQL

1	Amor	5	50	
2	Mohit	4	67	mo12
id	Name	bid	psp	email

Students

Break?

10:30pm

# Properties of RDBMS :-

①

collection of tables → store data about

something

entity

relationship

Batches

student-batches

Students

id	name	email	cti

id	name	stdate

sid	bid

②

Students

prp of Mohit

↓ multiple mohit's ?

row - record entity

Every row is unique

No 2 rows can have same values for all columns

③ All the values present in a particular column → some datatype

④ values in a cell → atomic  
↓  
indivisible

{ schema design } ← { multiple phoneno }  
xxxx, xxxx, xxxx...

⑤

id	name	batch	email	phone no.
----	------	-------	-------	-----------

The column sequence is not guaranteed

⑥ row sequence is also not guaranteed

MYSQL → row sequence is given in order of Primary key

Order by

⑦

None of the columns have to  
be unique



# Keys in Relational Database

- Super Key
- candidate Key
- primary key
- Foreign Key
- composite

Every row should be unique

students

<u>name</u>	email	phone	batch	psp
Mohit			1	
Sumit			1	
<u>Mohit</u>			1	

X "Name" column can't uniquely represent a row

X "Batch" ?

email ✓

phone no ✓

(email, phone no) ✓

(name, batch) X

(email, name) ✓

(email, name, batch) ✓

(name, email, ph, batch, psp) ✓

column or set of column which  
can uniquely identify every row

Super key

can we say every table will have  
atleast 1 super key?

every row → unique ← Ticket

name      seat num      hall name      shows

1      2

14      2

## Quiz 1

Student table  $\rightarrow$  super key

- SID, CID
- FN, LN ✗
- Age, CN ✗
- LN, CID ✗

## Quiz 2

SID, CName

FN, Age ✗

LN, Age ✗

CID, CName ✗

Student Table

## Q3

↑  
SID, FN ✓

SID, Age ✓

SID, LN ✓

SID ✓

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