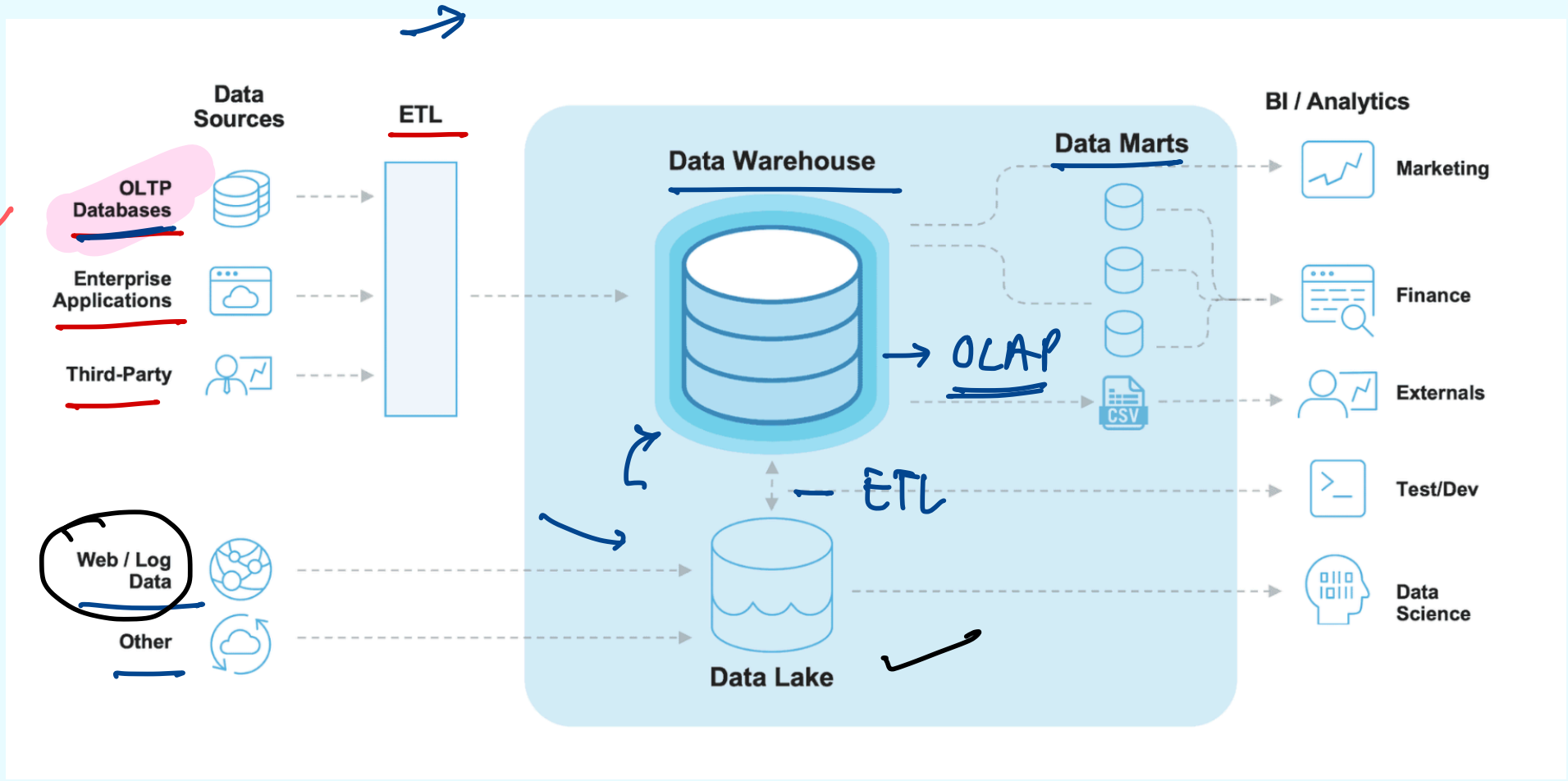
RDBMS Fundamentals & SQL Basics

Lecture Pre-requisite: MySQL Setup

Agenda

1. Recap
2. Understanding transactional data: OLTP
3. Storing Transactional Data
4. Relational vs Non-Relational Data
5. Keys
6. SQL Basics: CRUD Operation

Extract, Transform, Load



1. Understanding Transactional data (OLTP) :-

→ When does OLTP is generated ?

- → Sales (POS)
- → Payment
- → ATM
- → Return
- → shipment

deposit

search

0

Imp properties → OLTP data ?

ACID

- A
- C → Isolation
- I
- D → Durability

Atomicity

consistency

Atomicity → "All" or "Nothing"

→ Ayush —Rs 100→ Mayank

Rs 500 Rs 200

		Ayush	Mayank	deep
	Before	500	200	Initial Balance
→	1	400	200 ✓	Transfer
x →	2	400	300 ✓	credited
	final	400	300	current Balance

		Ayush	Mayank	
	Before	500	200 ✓	
→	1	400	200 ✓	Rs 100 deducted
error		Roll back	Roll back	
→	final	500	200 ✓	

2. Consistency :- Never Break the Rule

Inventory → qty >= 0

Inventory

Apple

qty

3 — 2

→ Add to cart qty → 5

↓

Processes → 3 - 5

Payment

✗ Rule check → fail

Apple — 3

3) Isolation → "Don't get in each other way"

Bus seat

	C1 Santosh	sudarshan	
– start	A	A	
– Santosh look	locked	wait	C1 Begin
→ S completes	sold	wait	Payment
→	Booked	sold	

D → durability → once saved, it stayed Saved

→

Account

Rs 100

Adds Rs 50 → 150

Balance 150 ← written to disk

ACID → (Database Management system)

(DBMS) ✓

CRUD →

- C → Create (Insert)
- R → Retrieve (Read | search)
- U → update
- D → Delete

DBMS

→ Relational → Now Relational

database database

Keys

✓ 1. uniquely identifying a single Row of data

2. creating Relationships between diff table

→ Integrity & Consistency

→ Primary keys