--------LECTURE- 15--------

🔷 What is SQLSTATE?

SQLSTATE is a **standard error code** used by SQL databases to **identify the type of error or warning** that occurred during SQL execution.

👉 Instead of just showing an error message, SQLSTATE gives a **structured 5-character code** that explains **what kind of error it is**.

🔷 SQLSTATE format

'XXXXX' ← always 5 characters

Structure:

- **First 2 characters** → Error **class** (category)
- **Last 3 characters** → Specific **condition**

Example:

'45000'

🔷 Most important SQLSTATE (very common)

✅ **45000 — User-defined exception**

Used when **you want to raise your own error**.

SIGNAL SQLSTATE '45000'

SET MESSAGE_TEXT = 'Invalid salary value';

✓ Mostly used in **triggers & stored procedures**

🔷 Why do we use SQLSTATE?

SQLSTATE is used to:

- Raise **custom validation errors**
- Stop execution when business rules fail
- Give **meaningful error messages**
- Handle errors consistently

🔷 Simple real-life analogy

Think of SQLSTATE like:

Error codes in ATM machines

"Code 101 → Insufficient balance"

Same way, SQLSTATE tells **what went wrong**.

🔷 Example: SQLSTATE in Trigger

Scenario

Prevent inserting negative salary.

```
DELIMITER //

CREATE TRIGGER salary_check
BEFORE INSERT ON employees
```

```
FOR EACH ROW
BEGIN
   IF NEW.salary < 0 THEN
      SIGNAL SQLSTATE '45000'
      SET MESSAGE_TEXT = 'Salary cannot be negative';
   END IF;
END//

DELIMITER ;
```

🤔 If salary < 0 → insert fails with custom error

◈ SQLSTATE vs Error Message

SQLSTATE	Message
Standard code	Human-readable
Machine-readable	User-friendly
Used for logic	Used for explanation

◈ Common SQLSTATE classes

Class	Meaning
00	Successful completion
01	Warning
02	No data found
23	Integrity constraint violation
45	User-defined exception

☆ one-liner

SQLSTATE is a 5-character standardized code used to identify and handle SQL errors and exceptions, especially in triggers and stored procedures.