Case Study: Simple Bookstore API (MongoDB + Node.js)

Create a **Bookstore** where you can:

1. Add books (title, author, price)
2. List all books
3. Find a book by title
4. Update book price

This teaches:

- Mongoose schemas
- CRUD operations (Create, Read, Update)
- Async/await usage

Step 1: Setup Project

```
mkdir bookstore
cd bookstore
npm init -y
npm i mongoose
```

Create `bookstore.js` file.

Step 2: Connect to MongoDB

Step 3: Define Schema and Model

Step 4: Insert a Book

Step 5: Fetch All Books

Step 6: Find a Book by Title

Concepts Learned

1. Connecting Node.js to MongoDB with **Mongoose**
2. Defining **Schema** and **Model**
3. Performing CRUD:
    - Create → `.save()`

    - Read → `.find()`, `.findOne()`
    - Update → `.findOneAndUpdate()`
4. Using **async/await** to handle asynchronous database calls
5. Auto-generated `_id` and timestamps

Case Study: Simple Employee Management System

Build a Node.js app with MySQL to manage employees.
Features:

1. Add new employees (name, email, department).
2. List all employees.
3. Update employee information.
4. Delete an employee.

This teaches:

- Connecting Node.js to MySQL
- CRUD operations (Create, Read, Update, Delete)
- Using parameterized queries to avoid SQL injection

Step 1: Setup MySQL Database

1. Open MySQL Workbench or CLI.
2. Create a new database:

```
CREATE DATABASE employeeDB;
USE employeeDB;
```

3. Create a table `employees`:

```
CREATE TABLE employees (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) NOT NULL UNIQUE,
    department VARCHAR(50),
    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);
```

Step 2: Project Setup

```
mkdir employee-management
cd employee-management
npm init -y
npm i mysql2
```

Step 3: Connect Node.js to MySQL

Step 4: Insert Employee

Step 5: Fetch All Employees

Step 6: Update Employee Info

Step 7: Delete Employee

Step 8: Close Connection

Step 9: Full Workflow

1. Connect to MySQL
2. Insert employees
3. Fetch all employees
4. Update an employee
5. Delete an employee
6. Close connection