



## **UNIVERSITY INSTITUTE** **OF COMPUTING**

### **MINI PROJECT ON Inventory Management System**

Program Name: BCA

Subject Name/Code: ADVANCED WEB  
DEVELOPMENT (23CAH-301)

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GIT: <https://github.com/shweta7-k/Inventory-Management-System.git>



# Objective

To document the design, implementation, and evaluation of a minimal inventory and sales application built with Laravel. This case study explains the problem addressed, the tools and concepts used, system design, key code modules, test output, and future improvements.

## **Problem Statement:**

The Describe the problem the project solves, the target users, and the measurable goals.

- Problem domain (inventory mismatch, duplicate sales inserts, lack of audit logs)
- Desired outcomes (accurate sales aggregation, per-user ownership, readable reports)
- Constraints (time, DB choice, hosting environment, security/privacy)

## **Tools and Concepts Used:**

List languages, frameworks, libraries, DB and tooling. Call out important concepts.

- PHP 8.x, Laravel 10
- Blade templates, Eloquent ORM
- MySQL / MariaDB (or PostgreSQL)
- Vite, Tailwind CSS, npm
- Key concepts: transactions, migrations, Eloquent relationships, request validation, authentication

## **System Design:**

- Operating System: Windows 10 / 11
- Local Server: XAMPP / WAMP
- Browser: Chrome, Firefox (latest versions)
- Languages Used: web server (PHP/Laravel), front-end (Vite/Tailwind), background jobs (optional), storage
- Database: MySQL (phpMyAdmin)
- Text Editor: VS Code / Sublime Text
- Data model: key tables and relationships (users, products, suppliers, sales)



## Code Snippet or Module Explanation

### **1. Authentication Module (Register & Login)**

Purpose:

This module manages secure user registration and login using Laravel's built-in authentication system.

Controller Example:

```
public function register(Request $request) {  
    $request->validate([  
        'name' => 'required|string|max:255',  
        'email' => 'required|email|unique:users',  
        'password' => 'required|confirmed|min:6'  
    ]);  
    User::create([  
        'name' => $request->name,  
        'email' => $request->email,  
        'password' => bcrypt($request->password),  
    ]);  
    return redirect('/login');  
}
```

### **2. Dashboard Module**

Purpose:

Displays system summary including product count, supplier count, and sales count.

Controller Example:

```
public function index() {  
    return view('dashboard', [  
        'productsCount' => Product::count(),  
        'suppliersCount' => Supplier::count(),  
        'salesCount' => Sale::count(),  
    ]);  
}
```

### **3. Product Management Module**

Purpose:

Allows the admin to manage product details including name, price, quantity, and supplier.



Controller Example:

```
public function store(Request $request) {  
    $request->validate([  
        'name' => 'required',  
        'supplier_id' => 'required',  
        'unit_price' => 'required|numeric',  
        'quantity_in_stock' => 'required|integer'  
    ]);  
    Product::create($request->all());  
    return redirect()->back()->with('success', 'Product added successfully!');  
}
```

## 4. Supplier Module

Purpose:

Manages supplier information and maintains links between suppliers and products.

Controller Example:

```
public function store(Request $request) {  
    $request->validate(['name' => 'required', 'phone' => 'required']);  
    Supplier::create($request->all());  
    return redirect()->back()->with('success', 'Supplier added successfully!');  
}
```

## 5. Sales Module

Purpose:

Handles all sales transactions and automatically reduces stock quantity after each sale.

Controller Example:

```
public function store(Request $request) {  
    $sale = Sale::create([  
        'customer_id' => $request->customer_id,  
        'total_amount' => $request->total_amount,  
        'sale_date' => now(),  
    ]);  
    foreach ($request->products as $item) {  
        SaleDetail::create([
```



```
'sale_id' => $sale->id,  
'product_id' => $item['product_id'],  
'quantity' => $item['quantity'],  
'unit_price' => $item['unit_price'],  
'subtotal' => $item['quantity'] * $item['unit_price'],  
]);  
Product::where('id', $item['product_id'])->decrement('quantity_in_stock',  
$item['quantity']);  
}  
}  
}
```

## 6. Sales Report Module

Purpose:

Generates daily, weekly, or monthly sales reports based on stored transaction data.

Controller Example:

```
$sales = Sale::whereBetween('sale_date', [$startDate, $endDate])->get();  
$totalRevenue = $sales->sum('total_amount');
```

- **SUMMARY:**

This project offers a complete solution for event registration with:

- Clean and modern UI with responsiveness and animation
- Dark mode functionality using JavaScript and local storage
- Form validation and modal-style feedback popup
- Backend integration using PHP to insert user input into MySQL
- Secure handling of form data using prepared statements
- Easy configuration using XAMPP/WAMP for local deployment

- **CONCLUSION:**

Summarize what was achieved vs the objective. Call out any metrics (bugs fixed, performance improvements, tests added).

- Fixed duplicate-sale insertion bug by adding transaction guard and server-side duplicate checks
- Dashboard now shows aggregated SUM(quantity) instead of row counts
- Improved timestamp handling with proper casting and formatting

- **Limitations and Future Scope:**

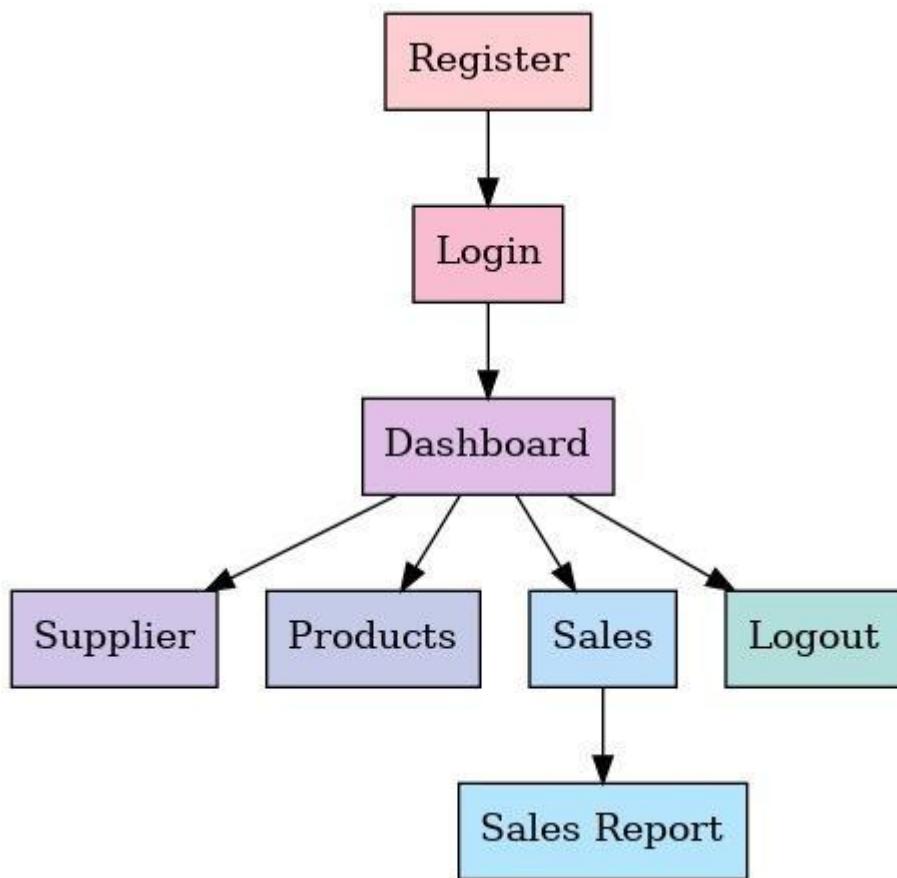
Note known limitations, assumptions and concrete next steps.

- No audit trail for edits to sales (add activity logs)
- Would benefit from worker queue for heavy report generation (Laravel queues)
- Add stricter client-side debounce or server-side idempotency tokens to avoid double submits

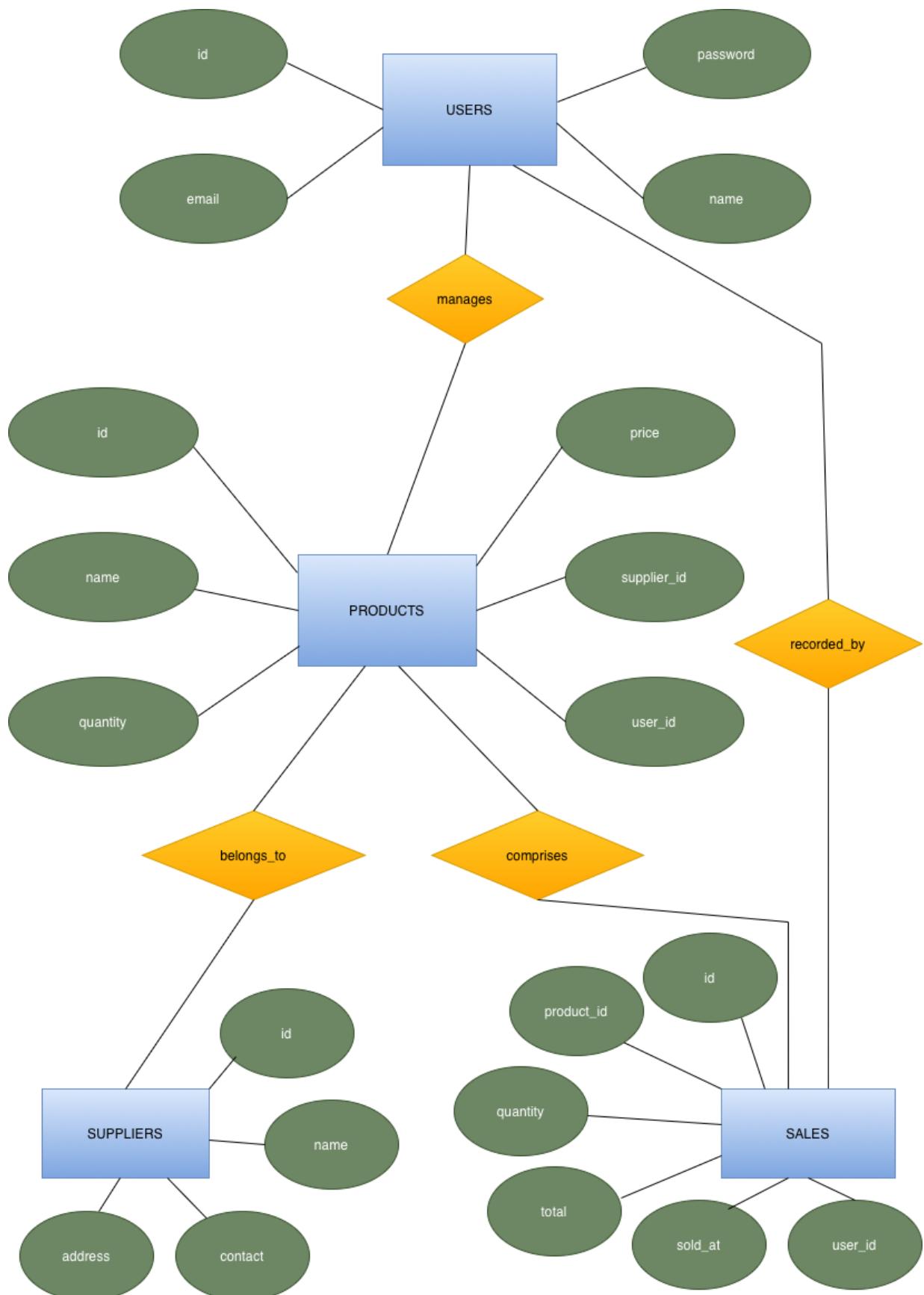
- **Commands:**

- cmd
- composer install
- php artisan migrate
- php artisan serve

### Flowchart or algorithm



- **DATA MODEL (ER Diagram):**





## Outputs:

A screenshot of a web browser showing the 'Register' page of an 'Inventory Management' system. The URL is 127.0.0.1:8000/register. The page has a blue header with the title 'Register'. It contains four input fields: 'Name', 'Email', 'Password', and 'Confirm Password'. Below the fields are two buttons: 'Login' and 'Register'.

A screenshot of a web browser showing the 'Login' page of an 'Inventory Management' system. The URL is 127.0.0.1:8000/login. The page has a blue header with the title 'Login'. It contains two input fields: 'Email' and 'Password'. Below the fields are two buttons: 'Register' and 'Login'.

A screenshot of a web browser showing the 'Dashboard' page of an 'Inventory Management' system. The URL is 127.0.0.1:8000. The page has a blue header with the title 'Dashboard'. It features three main statistics boxes: 'Products' (2 items, 'View Products' button), 'Suppliers' (2 items, 'View Suppliers' button), and 'Sales' (25 items, 'View Sales' button). A green banner at the bottom says 'Welcome, Shivam!'. The taskbar at the bottom shows various application icons and the date/time: 05-11-2025, 15:41, ENG IN.



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Laravel 127.0.0.1:8000/suppliers

Inventory Management Home Products Suppliers Sales Sales Reports Light Mode Logout

## Suppliers

ID	Name	Contact	Email	Address	Products	Actions
1	Anand	8541030170	kish868787@gmail.com	namaste	1	
2	Rajgir Traders	785545452	anandkumar780434@gmail.com	asdfg	1	

Laravel 127.0.0.1:8000/products

Inventory Management Home Products Suppliers Sales Sales Reports Light Mode Logout

## Products

#	Name	Supplier	Qty	Price	Image	Actions
1	sprite	Rajgir Traders	35	₹20.00		
2	coco cola	Anand	15	₹40.00		

Laravel 127.0.0.1:8000/sales

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## Sales Summary

Product	Number of Sales	Total Quantity	Total Amount	Last Sale
sprite	1	15	₹300.00	Nov 05, 2025 03:34:57 AM
coco cola	1	10	₹400.00	Nov 05, 2025 03:35:22 AM

## Recent Transactions

Product	Quantity	Amount	Sold At
coco cola	10	₹400.00	Nov 05, 2025 03:35:22 AM
sprite	15	₹300.00	Nov 05, 2025 03:34:57 AM

Laravel 127.0.0.1:8000/sales/report

Inventory Management Home Products Suppliers Sales Sales Reports Light Mode Logout

## Sales Report

November 05, 2025

Product	Number of Sales	Total Quantity	Total Amount
coco cola	1	10	₹400.00
sprite	1	15	₹300.00
<b>Total</b>	<b>2</b>	<b>25</b>	<b>₹700.00</b>