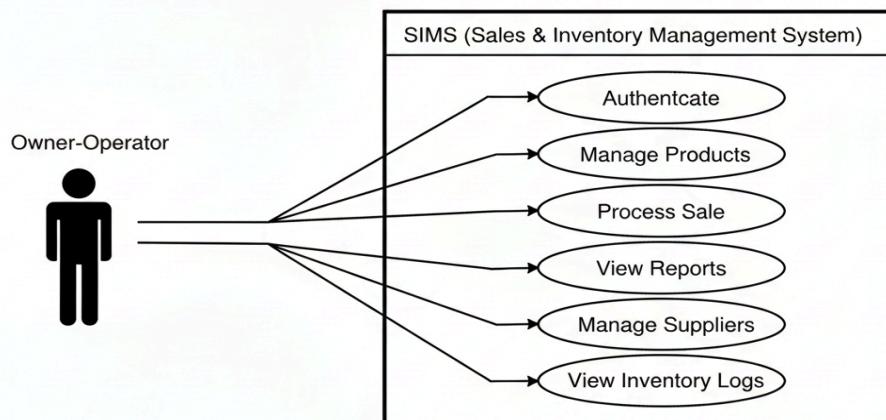


4.4. System Architecture & Design

- 4.4.1. Use Case Diagram:

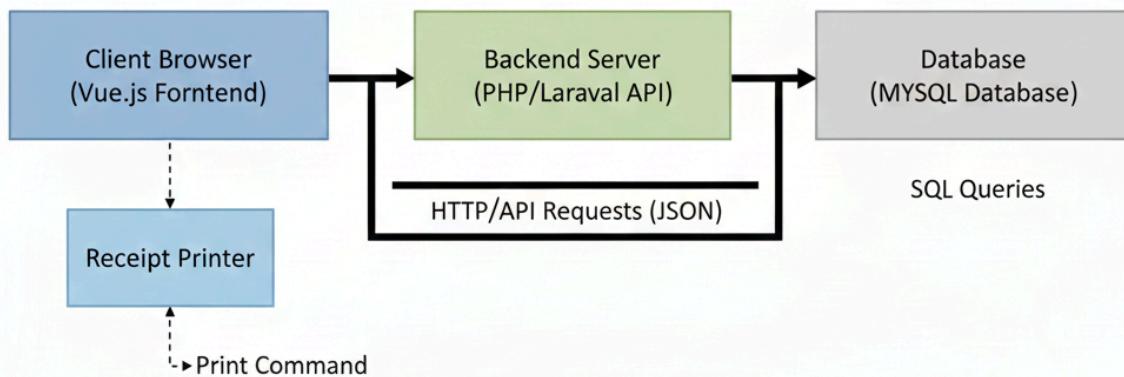
Figure 4.4.1. Use Case Diagram: SIMS



This diagram should show the Actor (Owner-Operator) interacting with key system use cases: Authenticate, Manage Products, Process Sale, View Reports, Manage Suppliers, View Inventory Logs.

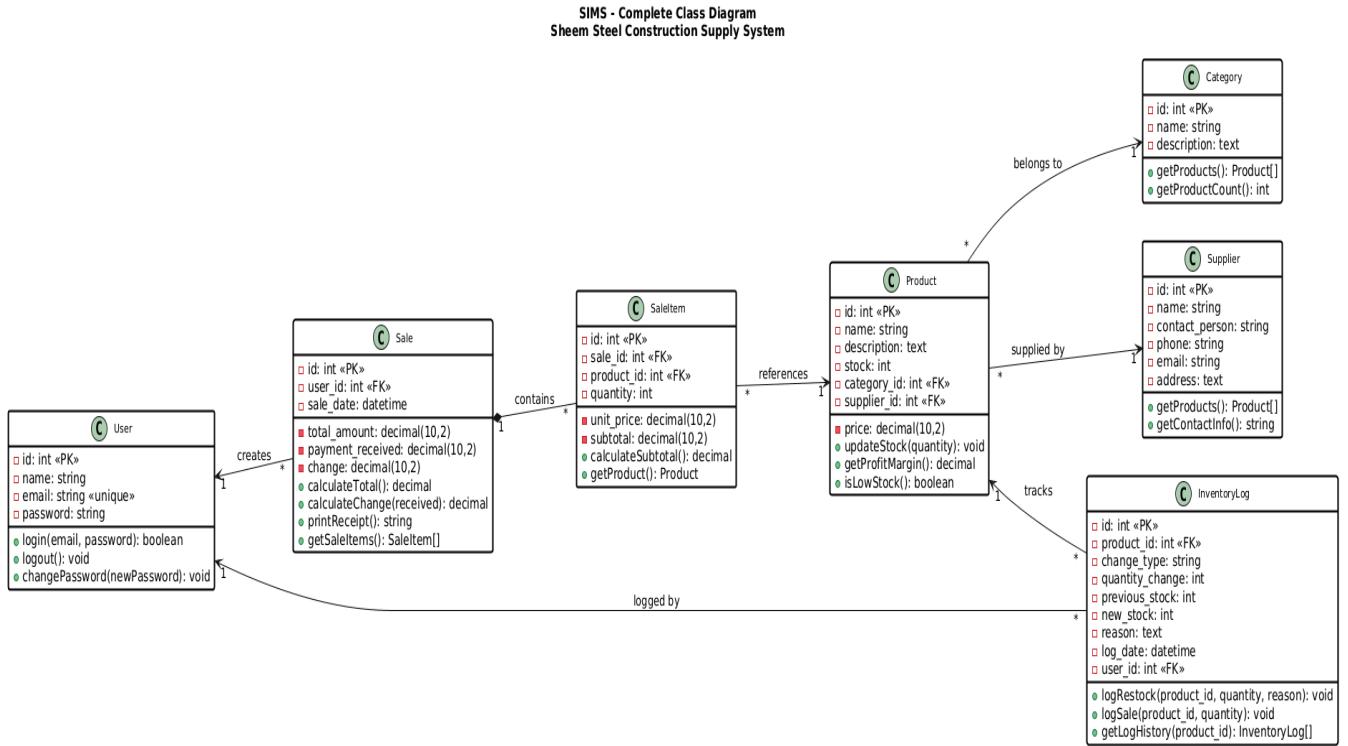
- 4.4.2. System Architecture Diagram:

Figure 4.4.2. System Architecture Diagram



A high-level overview showing the Client Browser (Vue.js Frontend) communicating via HTTP with a Backend Server (PHP/Laravel API), which in turn interacts with a MySQL Database. You can also note external components like a Receipt Printer.

- **4.4.3. Class Diagram:**



The Class Diagram depicts the seven main classes in the SIMS: Product (stores item details like name, price, and stock), Category (organizes products into groups like "Roof" or "Roof Gutter"), Sale (records sales transactions), SaleItem (represents individual items within a sale), Customer (stores buyer information), Supplier (manages vendor details), and InventoryLog (tracks stock changes). Key relationships include: a Sale contains multiple SaleItems, each SaleItem links to one Product, Products belong to Categories, and Products are supplied by Suppliers—this structure directly supports automated sales processing, inventory tracking, and reporting as required by Sheem Steel's business needs.