4. System Specification

4.1. User Personas & Stories

User Persona: The Owner-Manager

- **Role:** Business Owner, Sales Staff, Inventory Manager (Primary User)
- **Background:** Based on the survey respondent's input, this individual is the sole proprietor and primary operator of Sheem Steel Construction Supply. They are responsible for **all daily operations:** recording   every sale in a manual ledger, calculating profit daily with a calculator, and performing daily manual inventory counts. They have expressed a clear need to move away from these time-consuming and error-prone methods.
- **Goals & Motivations (from the survey):**
  - **Eliminate Manual Effort:** To stop using physical ledgers and calculators for core tasks.
  - **Gain Real-Time Insight:** To know sales and stock levels instantly, not after manual compilation.
  - **Prevent Stock Issues:** To get automatic warnings before items run out to avoid lost sales.
  - **Access Clear Reports:** To generate sales and profit reports with "one click" for better decision-making.
- **Frustrations & Pain Points (directly from survey responses):**
  - "It is very time-consuming" and "Prone to human error and miscalculations" in sales/profit tracking.
  - "Difficulty knowing when to reorder items" and "Hard to track items across different locations" in inventory management.
  - The burden of daily manual profit calculation and daily physical inventory counts.

User Stories (Derived from Survey Priorities & System Features):

- **US-1 (Security & Access):** As the Owner-Manager, I want to log in to the system with a secure password so that my business data is protected.
- **US-2 (Core Automation - Sales):** As the Owner-Manager, I want to record a sale in the system and have it immediately and automatically update the inventory levels so that my stock records are always accurate in real-time (Ranked #1 desired feature).
- **US-3 (Core Automation - Profit)**: As the Owner-Manager, I want the system to automatically calculate my daily, weekly, and monthly profit based on sales and costs so that I don't have to do it manually with a calculator (Ranked #2 desired feature).
- **US-4 (Proactive Management):** As the Owner-Manager, I want the system to alert me automatically when the stock of any item falls below a level I set so that I never run out of best-selling items unexpectedly (Ranked #3 desired feature).
- **US-5 (Reporting):** As the Owner-Manager, I want to generate a Daily Sales Report and a Profit and Loss Statement with one click so that I can quickly understand my business performance (Requested reports from survey).

- **US-6 (Inventory Overview):** As the Owner-Manager, I want to see the current stock level and value of all my items in one place without doing a manual count so that I can plan purchases efficiently.
- **US-7 (Supplier Management):** As the Owner-Manager, I want to maintain a digital list of my suppliers and their contact information so that I can reorder stock easily when alerts trigger.
- **US-8 (Transaction Integrity):** As the Owner-Manager, I want a secure log of all sales that requires my password to alter, so that my financial records are reliable and auditable.

4.2. Functional Requirements.

ID	Feature / Module	Description
FR-1	User Authentication	The system shall provide a secure login page. Authorized users (Owner/Admin) must enter valid credentials to access the system.
FR-2	Dashboard	Upon successful login, the system shall display a home page/dashboard containing graphical summaries (e.g., daily sales trends, low-stock alerts) for quick business overview..
FR-3	Product Management	The system shall provide a central inventory page listing all products. Users shall be able to Add new products, View details, Edit information, Delete products, and Restock existing items.
FR-4	Product Search & Filter	From the sales and inventory pages, users shall be able to search for products by name or code. Products shall also be filterable/viewable by Category on a dedicated category page.
FR-5	Point of Sale (POS)	The system shall provide a sales page where users can create a new transaction, add multiple products, specify quantities, and see a running total. A final "Process Payment" step shall be available.
FR-6	Payment Processing	When processing payment, the system shall prompt the user to enter the amount tendered and shall automatically calculate and display the change due.
FR-7	Receipt Generation	Upon completing a sale, the system shall generate a printable transaction receipt detailing items, totals, and payment information.
FR-8	Transaction Records	All completed sales shall be logged and viewable on a transaction history page. To delete any transaction record, the system shall require administrator password confirmation for security.
FR-9	Supplier Management	The system shall maintain a supplier page where users can Add, View, Edit, and Delete supplier contact and information.

ID	Feature / Module	Description
FR10	Reporting Module	The system shall have a reports page capable of generating and displaying a Sales Summary Report, an Inventory Summary Report, and a printable Sales Activity Log
FR-11	Inventory Logs	The system shall maintain and display a dedicated log page showing all recent stock activity, including sales deductions and restocks, for each product.
FR-12	Account Settings	Authenticated users shall have access to an account settings page where they can view and update their personal information and change their password for security.

4.3. Non-Functional Requirements (NFRs)

Category	Requirement
Performance	• The POS interface shall add a product to the current sale and update the total in under 2 seconds. • Generating a standard sales report for a single day shall complete within 10 seconds. • The system dashboard shall load fully within 5 seconds of login.
Usability	• The system shall be intuitive enough for a non-technical user (like the Owner-Operator persona) to perform a complete sales transaction with less than 30 minutes of training. • All critical action buttons (Add, Edit, Delete, Process Sale) shall be clearly labeled and distinct.
Reliability	• The core sales and inventory update functions shall have 99.5% operational uptime during business hours (8 AM - 6 PM). • In the event of an unexpected closure (browser/tab closed during a sale), the system shall not corrupt existing transaction data.
Security	• All user passwords shall be hashed and salted before storage in the database. • User sessions shall expire after 30 minutes of inactivity. • Deletion of financial records (transactions) shall require re-authentication (admin password).