SOFTWARE REQUIREMENT SPECIFICATION

ON

STORE INVENTORY MANAGEMENT SYSTEM

Prepared By -

Pradip Tharu – 21SOECE11643 - 6CE-D

Harishankar Yadav - 21SOECE11646 - 6CE-D

Ankur Datta – 21SOECE11608 – 6CE-D

SCHOOL OF ENGINEERING

RAJKOT – 360020, GUJARAT, INDIA

Table of Contents: -

1. Introduction of the Document: -

The Store Inventory Management System (SIMS) is a comprehensive software solution designed to optimize and streamline the process of managing inventory for retail stores. With the increasing complexity of modern retail operations and the growing demand for efficient inventory management practices, it offers a robust platform to track stock levels, manage orders, and generate insightful reports.

In the dynamic landscape of retail operations, effective inventory management stands as a cornerstone for sustainable business success. The Store Inventory Management System (SIMS) emerges as a pivotal solution tailored to meet the evolving needs of modern retailers. SIMS represents a robust software platform engineered to optimize the intricate process of inventory control within retail environments.

2. Purpose of the System: -

The primary purpose of Store Inventory Management System (SIMS) is to provide retail businesses with a powerful tool to effectively manage their inventory, thereby improving operational efficiency, reducing costs, and enhancing customer satisfaction. By automating key inventory management tasks and providing real-time visibility into stock levels, SIMS empowers store managers and inventory controllers to make informed decisions and maintain optimal inventory levels.

It is engineered to streamline and automate core inventory management tasks, minimizing manual intervention and streamlining processes. By providing intuitive interfaces and intelligent workflows, SIMS empowers store managers and inventory controllers to execute tasks with precision and efficiency, freeing up valuable time and resources for strategic decision-making.

A key facet of SIMS's purpose is to offer real-time visibility into stock levels, movement, and trends. By centralizing inventory data and providing up-to-the-minute insights, SIMS enables stakeholders to make informed decisions on stock replenishment, pricing strategies, and product assortment. This real-time visibility enhances agility and responsiveness, allowing retailers to adapt swiftly to changing market dynamics and customer demands.

3. Scope of the System: -

The scope of the Store Inventory Management System (SIMS) encompasses a comprehensive array of functionalities and features designed to address the myriad challenges associated with inventory management within retail environments. From the initial cataloguing of products to the meticulous tracking of stock levels, order processing, and analytical reporting, SIMS offers a holistic solution that caters to the diverse needs of retail businesses.

SIMS facilitates the efficient cataloguing and management of products within the inventory. This includes the creation, editing, and deletion of product listings, as well as the assignment of attributes such as SKU (Stock Keeping Unit), description, category, and pricing information. Additionally, SIMS allows for the categorization and organization of products into logical groupings to facilitate easy navigation and searchability.

A core component of SIMS is its ability to track and manage inventory levels in real-time. This includes monitoring stock levels, tracking inventory movement (e.g., incoming shipments, sales), and generating alerts for low-stock or overstock situations. SIMS also facilitates the management of stock replenishment activities, including the processing of restocking orders from suppliers and the optimization of reorder points and quantities.

4. Software Hardware Requirements: -

In order to make the website attractive and run smoothly, we require the different hardware and software. Running the websites using browsers like Chrome, Firefox, Edge, Internet Explorer and many others. There should must be stable internet connection while developing such sites. The device that can be used for the development includes Laptop, Keyboard, Mouse and many others. Some of the Hardware and Software that are used in Frontend, Backend and for Database connection are described below: -

- ### Frontend Requirements: -

  The frontend of the Store Inventory Management System (SIMS) is developed using React JS, a popular JavaScript library for building user interfaces. The user interface (UI) of SIMS should be intuitive, visually appealing, and easy to navigate. Consistent design patterns, including colour schemes, typography, and layout, should be employed throughout the application to enhance usability and maintain brand consistency. The UI design should prioritize user experience, with clear and intuitive navigation menus, buttons, and controls.

  SIMS should be designed with responsiveness in mind, ensuring that the application adapts seamlessly to various screen sizes and devices, including desktops, tablets, and mobile phones. Responsive design techniques such as fluid layouts, flexible grids, and media queries should be utilized to optimize the user experience across different devices and resolutions.

- ### Backend Requirements: -

  The backend of the Store Inventory Management System (SIMS) serves as the foundation that supports the application's functionality, data storage, and business logic. Developed using Express JS and MongoDB, the backend requirements outlined below are crucial for ensuring the stability, scalability, and security of SIMS.

  The backend should be deployed on a reliable server environment, configured to support the execution of Express JS applications. Proper server-side configurations, including network settings, security protocols, and resource allocation, should be established to ensure optimal performance and reliability.

SIMS should expose a set of RESTful APIs to facilitate communication between the frontend and backend components of the application. APIs should adhere to REST principles, using standard HTTP methods (GET, POST, PUT, DELETE) and URL structures to represent resources and actions. API endpoints should be well-documented, providing clear descriptions of their functionality, input parameters, and response formats.

- **Database Requirements: -**

The database serves as the foundation for storing, organizing, and managing data critical to the operation of the Store Inventory Management System (SIMS). Developed using MongoDB, a NoSQL database known for its flexibility and scalability, the database requirements outlined below are essential for ensuring efficient data management and optimal system performance.

The database should be designed using MongoDB, a document-oriented NoSQL database that offers flexibility in schema design and scalability for handling large volumes of data. MongoDB collections should be organized logically to represent different types of data entities within SIMS, such as products, orders, users, and transactions. The database schema should be designed to accurately model the data requirements of SIMS, taking into consideration factors such as data relationships, cardinality, and performance considerations. Entity-Relationship Diagrams (ERDs) or similar modelling techniques can be utilized to visualize and define the relationships between different data entities.

The database should store comprehensive product information, including attributes such as product name, SKU (Stock Keeping Unit), description, category, price, and quantity. Product data should be organized in a structured format to facilitate efficient retrieval and manipulation, with appropriate indexes applied to optimize query performance.

5. Assumptions: -

The “Assumptions” section outlines the fundamental conditions and expectations that are considered to be true for the successful development and deployment of the Store Inventory Management System (SIMS). These assumptions provide context and set the groundwork for the project’s planning and execution. They are important in guiding the decision-making, estimating risks, and defining the project’s boundaries.

- **Internet Connectivity: -**

  It is assumed that users will have reliable internet connectivity to access SIMS from any location. The system relies on internet connectivity for real-time data synchronization, communication with external services, and software updates.

- **Hardware Compatibility: -**

  SIMS is assumed to be compatible with standard computing hardware and devices commonly used in retail environments, including desktop computers, laptops, tablets, and smartphones. It is expected that users will have access to compatible devices with modern web browsers to access the system.

- **User Training: -**

  It is assumed that users of SIMS will receive adequate training and support to effectively utilize the system. Training materials, user manuals, and online tutorials may be provided to familiarize users with SIMS's features, functionalities, and best practices for inventory management.

- **Data Integrity: -**

  SIMS assumes that data entered into the system is accurate, complete, and up-to-date. Users are responsible for maintaining data integrity by ensuring accurate product information, inventory counts, and order details.

- **Security Measures: -**

  The assumption is that appropriate security measures, including encryption and secure data transmission protocols (such as HTTPS), are in place to protect sensitive user data during transmission and storage. It is assumed that users will adhere to best practises for password security.

- **System Reliability: -**

  SIMS assumes a level of system reliability and uptime to support continuous access and operation. Measures may be implemented to minimize downtime, such as regular maintenance, backup procedures, and failover mechanisms.

- **Regulatory Compliance: -**

  It is assumed that SIMS complies with relevant regulatory requirements and industry standards for data privacy, security, and financial transactions. This includes compliance with regulations such as GDPR, PCI DSS, and other applicable laws and regulations governing retail operations.

- **Scalability: -**

  SIMS assumes the ability to scale its infrastructure and resources to accommodate growth in data volume, user traffic, and system usage. Scalability measures may include cloud-based hosting, load balancing, and resource provisioning to ensure optimal performance under varying workloads.

6. Functional Requirements: -

6.1 User Authentication and Authorization: -

- The system shall provide user authentication functionality to verify the identity of users accessing SIMS.
- Users shall be required to log in with valid credentials (username/email and password) to access system functionalities.
- Role-based access control (RBAC) shall be implemented to assign specific permissions and privileges to different user roles (e.g., administrators, inventory managers, sales associates).

6.2 Product Management: -

- The system shall allow users to add new products to the inventory, specifying details such as product name, SKU (Stock Keeping Unit), description, category, price, and quantity.
- Users shall be able to edit existing product information and delete products from the inventory when necessary.
- Product data entry shall include validation checks to ensure accuracy and completeness of information entered.

6.3 Inventory Management: -

- The system shall track inventory levels for each product, updating quantities in real-time based on sales, restocking orders, and inventory adjustments.
- Users shall receive alerts for low-stock items and overstock situations, allowing for timely stock replenishment and order management.
- Inventory counts shall be reconciled regularly with physical stock to maintain data accuracy.

6.4 Order Management: -

- The system shall facilitate order processing, allowing users to create, view, and manage customer orders.
- Users shall be able to update order status, track order fulfilment progress, and generate invoices for completed orders.
- Orders shall be associated with customer information, including shipping addresses, payment details, and order history.

6.5 User Management: -

- The system shall allow administrators to manage user accounts, including creating new accounts, updating user information, and deactivating accounts as needed.
- Users shall be able to reset their passwords or recover account access through secure authentication mechanisms.
- User roles and permissions shall be configurable, allowing administrators to assign specific access rights to different user roles.

6.6 Integration with External Systems: -

- The system shall support integration with external systems such as point-of-sale (POS) systems, accounting software, and e-commerce platforms.
- APIs (Application Programming Interfaces) shall be provided to facilitate data exchange and interoperability between SIMS and external systems.
- Data synchronization mechanisms shall be implemented to ensure consistency and accuracy of data across integrated systems.

6.7 Data Validation and Error Handling: -

- The system shall enforce data validation rules and constraints to prevent data entry errors and maintain data integrity.

- Error handling mechanisms shall be implemented to gracefully handle exceptions and unexpected errors, providing informative error messages and logging error details for troubleshooting.

6.8 System Administration: -

- The system shall provide administrative functionalities for system configuration, maintenance, and monitoring.
- Administrators shall be able to configure system settings, perform database backups, and monitor system performance and usage statistics.
- System logs shall be maintained to track user activities, system events, and security-related incidents for audit and compliance purposes.

7. Non-Functional Requirements: -

- **Usability: -**

  The system must offer an intuitive interface with clear navigation and logical workflow, ensuring ease of use for all users. User satisfaction should be maximized through consistent design and minimized learning curves.

- **Performance: -**

  The website is designed in such a way that it can work on any devices responsively, requiring quick page loads and search results. It should handle users effectively.

- **Security: -**

  User authentication and authorization protocols should prevent unauthorized access. The system provides best security as strong password creation is done.

- **Reliability: -**

  The system should be highly reliable, minimizing downtime and disruptions. Regular backups of data should be conducted to prevent data loss in case of unforeseen events.

- **Data Privacy: -**

  Compliance with data protection regulation is essential. This includes providing clear documentation, user guides, and help resources. A responsive customer support channel, such as email or chat, should be available to address user inquiries and issues promptly.

- **Compatibility: -**

  The system shall be compatible with modern web browsers, including Google Chrome, Mozilla Firefox, Safari, and Microsoft Edge. Mobile responsiveness shall be ensured to provide a consistent user experience across different devices and screen sizes.

- **Accessibility: -**

  The system shall comply with accessibility standards such as WCAG (Web Content Accessibility Guidelines) 2.0 to ensure accessibility for users with disabilities. Keyboard navigation and screen reader support shall be implemented to enable users with disabilities to access and interact with the system.

- **Maintainability: -**

  The system architecture shall be modular and well-documented to facilitate future enhancements, modifications, and maintenance tasks. Code versioning and source code management practices shall be followed to track changes and facilitate collaboration among development teams.

8. Modules: -

- **User Management Module: -**

  This module handles user authentication, authorization, and management functionalities. Features include user registration, login, password management, and role-based access control.

- **Product Management Module: -**

  Responsible for managing product-related operations such as adding, editing, and deleting products. Allows users to define product attributes, categories, pricing, and inventory details.

- **Inventory Management Module: -**

  Tracks and manages inventory levels, stock movements, and replenishment activities. Provides real-time visibility into stock levels, generates alerts for low-stock items, and facilitates stock adjustments.

- **Order Management Module: -**

  Facilitates the processing and management of customer orders. Allows users to create, view, update, and fulfil orders, generate invoices, and manage order status.

- **Supplier Management Module: -**

  Manages supplier information and relationships. Allows users to add, edit, and delete supplier details, track supplier performance, and manage purchase orders.

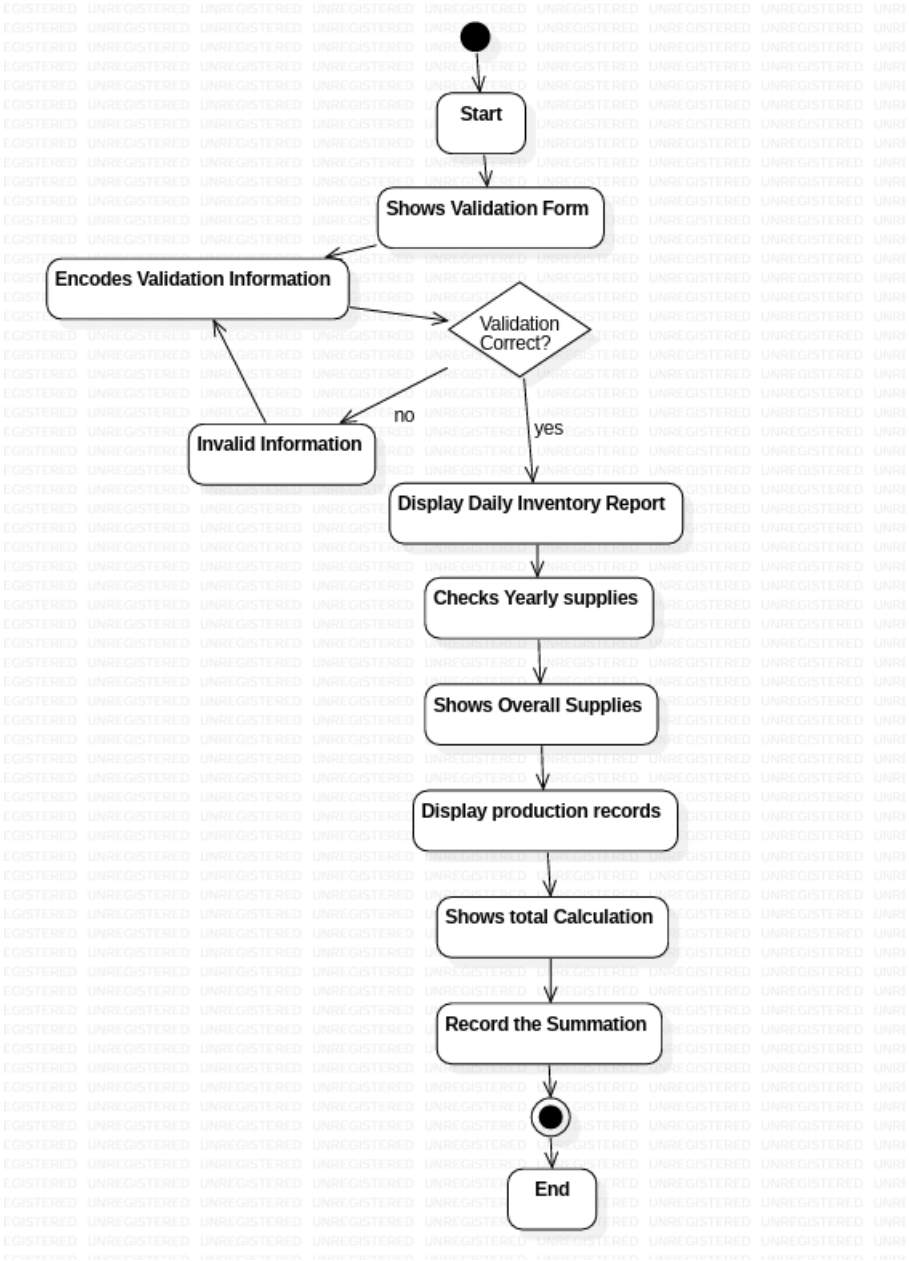
- **Warehouse Management Module: -**

  Manages warehouse operations and stock locations. Allows users to define warehouse layouts, track stock movements between warehouses, and manage stock transfers.

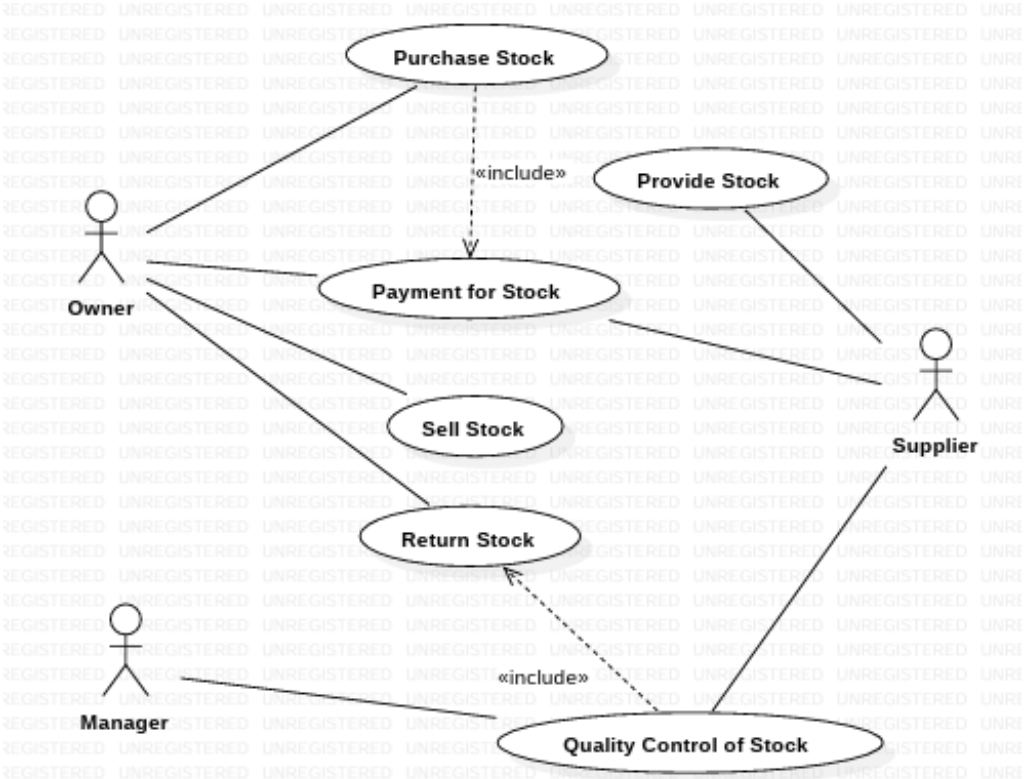
- **Help and Support Module: -**

  Provides user support resources, documentation, and help desk functionalities. Offers user guides, FAQs, tutorials, and contact options for accessing technical support.

9. Activity Diagram:

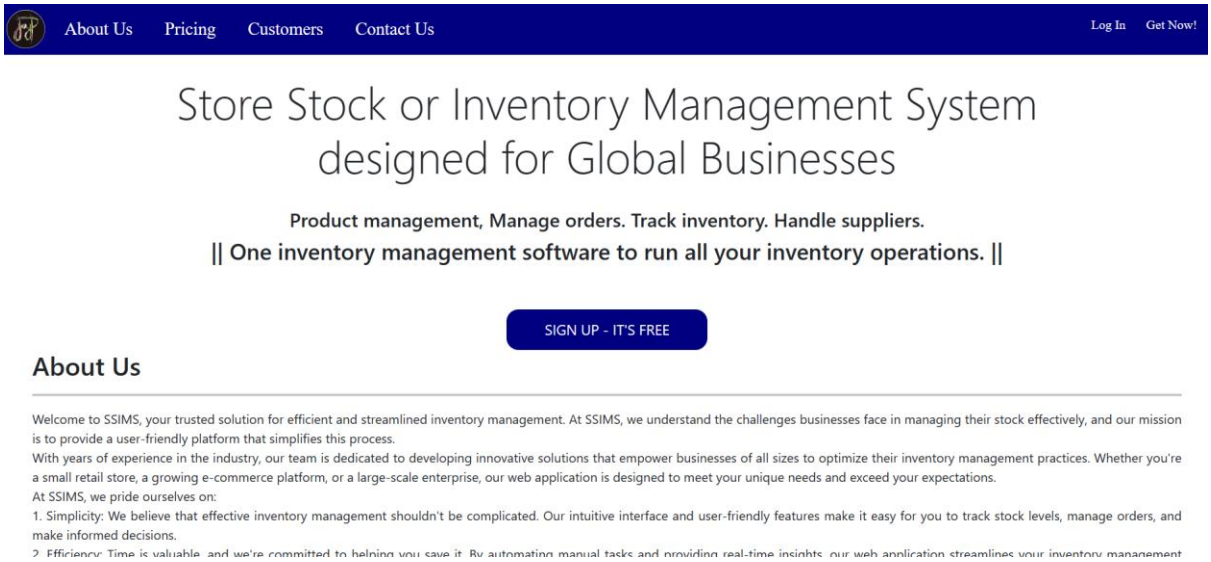


13. Use Case Diagram:

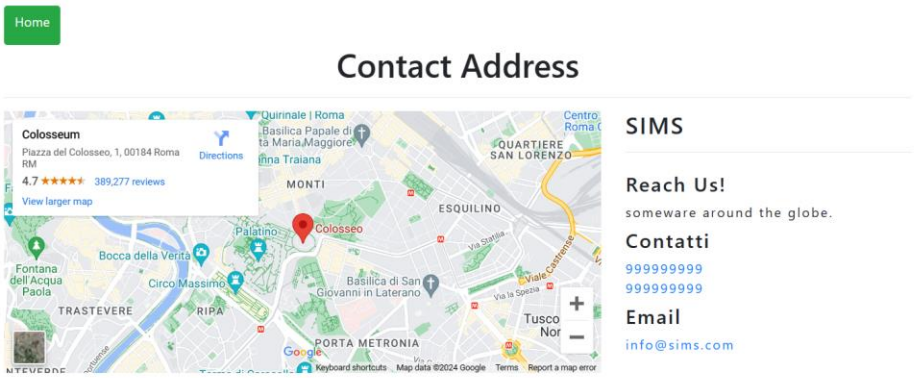


14. User Interface: -

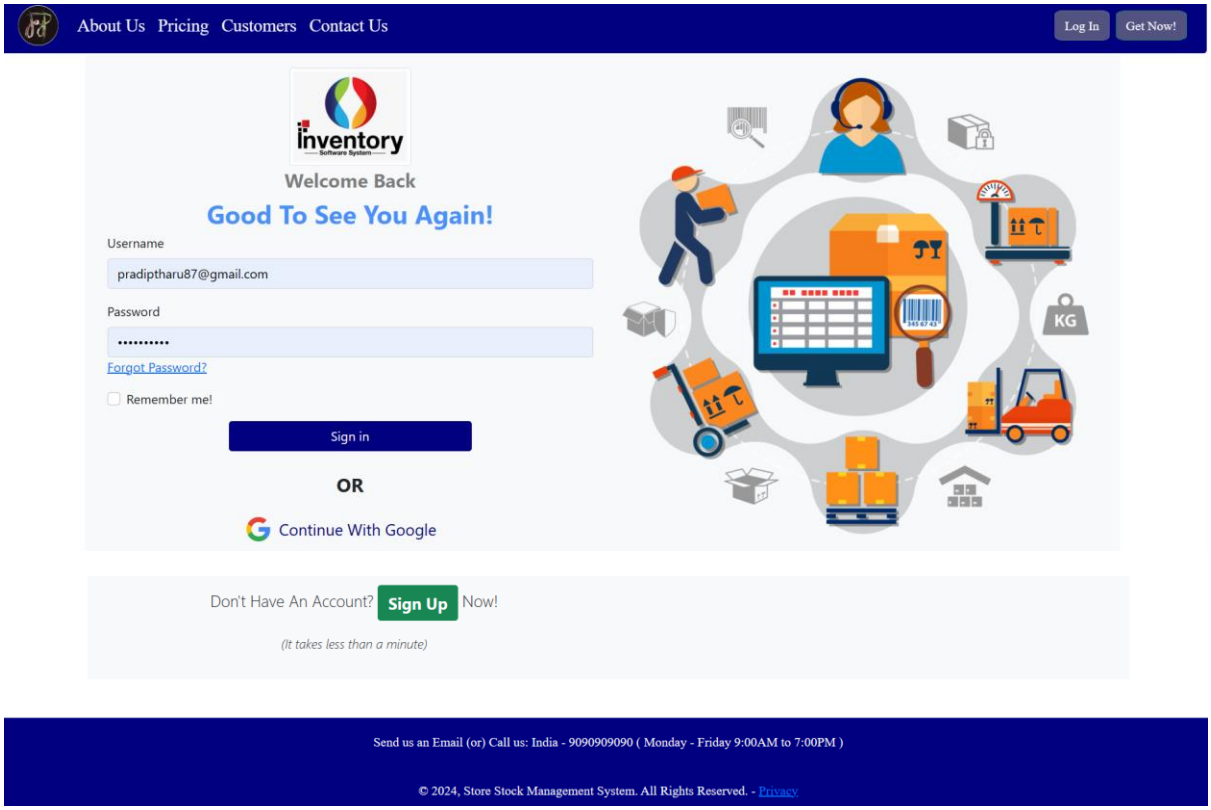
Homepage:



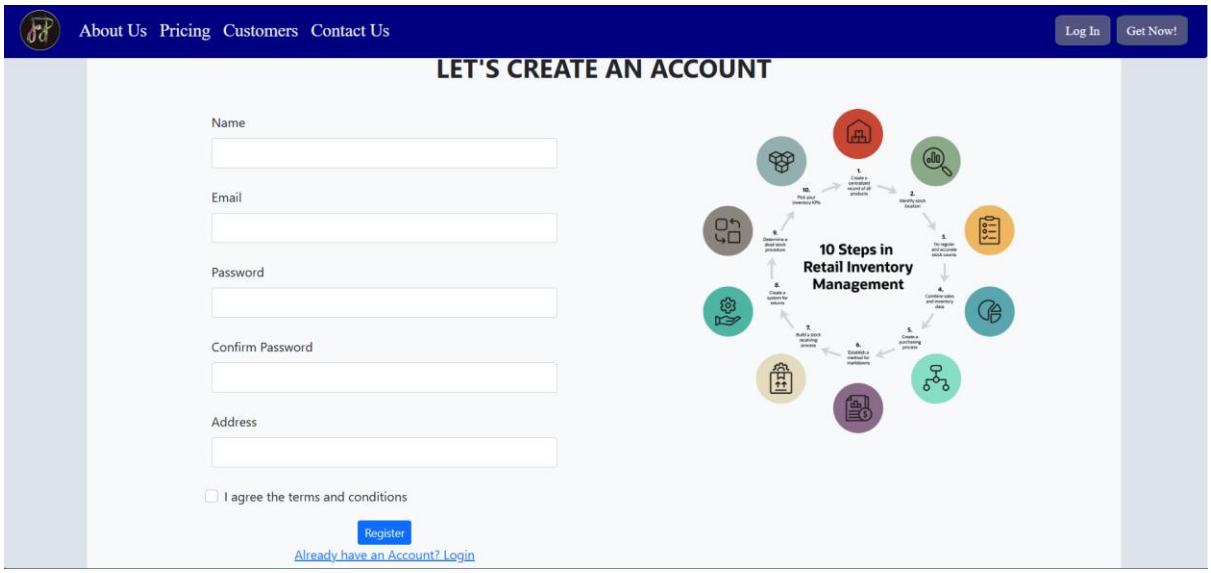
Contact us:



Login:

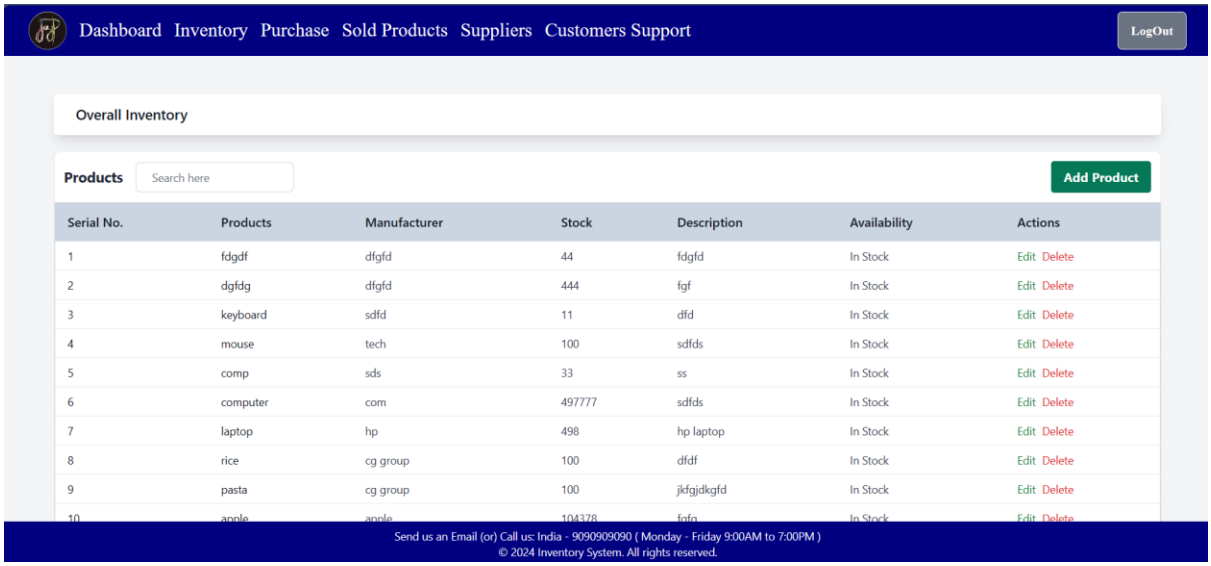


Register:



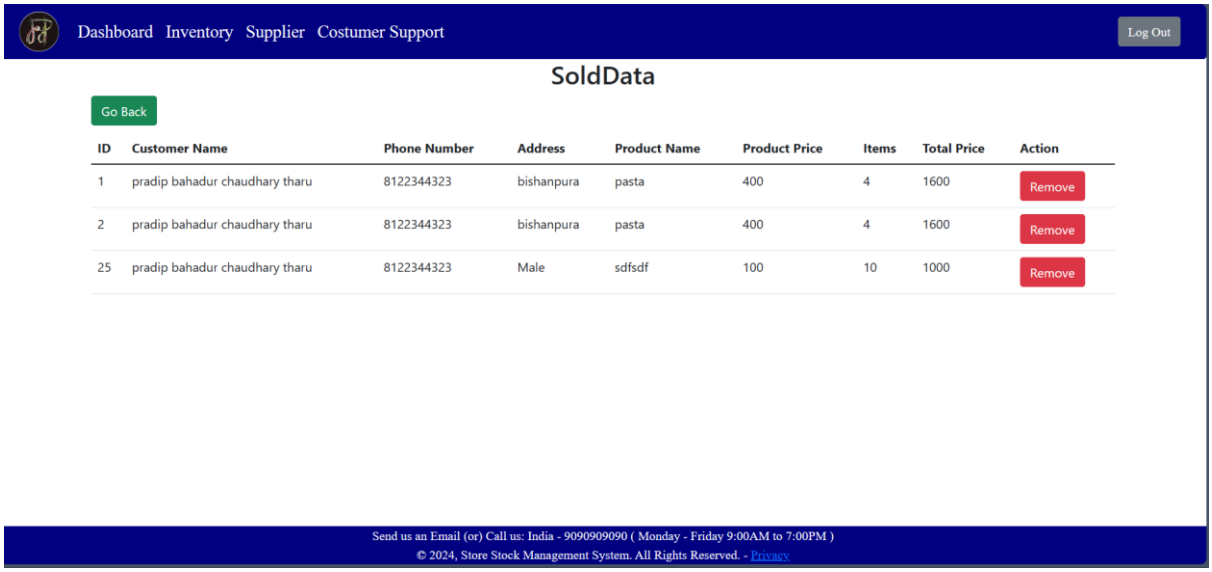
Dashboard:

Inventory:

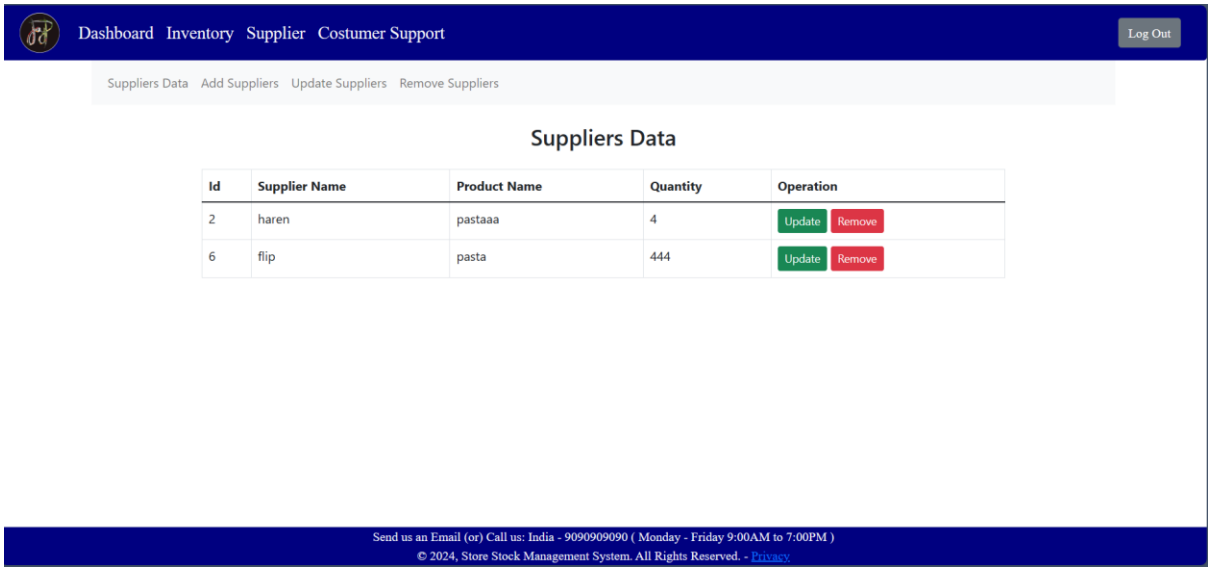


Purchase Product:

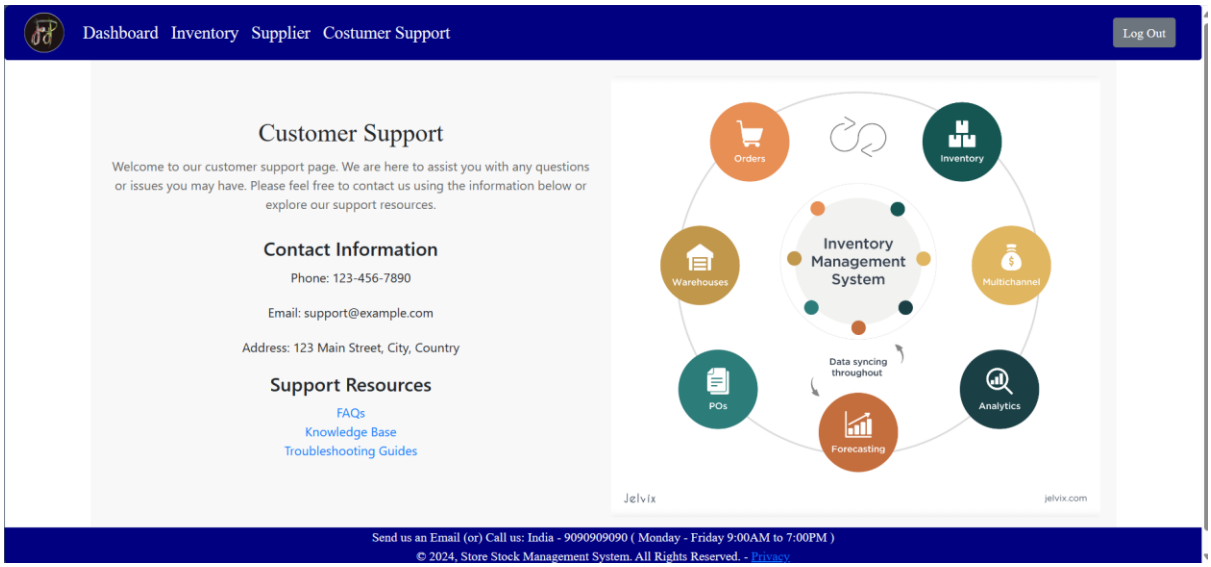
Sold Product:



Suppliers:



Customer Support:



15. Conclusion: -

The Store Inventory Management System (SIMS) represents a comprehensive and robust solution designed to address the intricate challenges of inventory management within retail environments. Throughout this document, we have outlined the key objectives, functionalities, and technical specifications of SIMS, highlighting its role as a strategic enabler for retail businesses seeking to optimize their inventory operations and drive business growth.

SIMS offers a suite of powerful features and modules that empower retailers to streamline their inventory management processes, enhance operational efficiency, and deliver exceptional customer experiences. From product cataloguing and inventory

tracking to order processing, reporting, and analytics, SIMS provides a holistic solution that caters to the diverse needs and requirements of retail businesses of all sizes.

In conclusion, SIMS represents a paradigm shift in the way retail businesses manage their inventory, offering unprecedented visibility, control, and efficiency. With SIMS as their trusted partner, retailers can unlock new opportunities for growth, innovation, and excellence in inventory management, paving the way for a brighter future in the ever-changing landscape of retail.