MAJOR PROJECT

ENZO BILLING MANAGEMENT SYSTEM

GUIDED BY:

PRAVIN SIRONMANI.B MCA, M.PHIL., SET, NET. ASSISTANT PROFESSOR OF COMPUTER SCIENCE

REPORTED BY:

MANIKANDAN V 23081276503911020 II.M.SC COMPUTER SCIENCE

ENZO BILLING MANAGEMENT SYSTEM



LIFE CHANGERS IND

Life Changers Ind is a software company that specializes in providing website creation, graphic designing, app development, etc.

SERVICES

MOBILE APP DEVELOPMENT: We ideate and design professional, reliable, secure, UI/UX friendly and feature-rich mobile applications for your business.

WEBSITE DEVELOPMENT: Build world class custom websites and web applications with us to grow your business faster and increase conversion.

DIGITAL MARKETING: Get unique digital marketing solutions for your business that is customer centric and load your inbox with enquiries.

GRAPHIC DESIGN: "software standards, make us unique in the industry."

We represent your business ideas and values in the simplest way possible to elevate your brand.

INDRODUCTION

- The **ENZO Supermarket Billing Management System** is a modern, automated solution designed to simplify the billing process in supermarkets.
- It enables efficient product management, real-time invoice generation, and seamless data synchronization.
- The system ensures accuracy in pricing, taxation (VAT), and inventory tracking, reducing manual errors and improving operational efficiency.

EXISTING SYSTEM

Manual Billing System

Many small supermarkets still rely on a **manual billing system**, where cashiers record product details, prices, and calculations on paper or a simple calculator. This method has several drawbacks:

- **Time-consuming** Checkout takes longer due to manual price entry and calculations.
- **Prone to Errors** Human errors in price calculations, VAT application, and total amounts.
- **Difficult Inventory Management** No real-time tracking of product availability or stock updates.
- Lack of Data Security Paper records can be lost or damaged, leading to data loss.

PROPSED SYSTEM

1. Automated Product Management

- Users can add, update, and delete products easily.
- Product details include name, price, quantity, VAT, and total cost.
- Product stock is updated automatically when sales occur.

2. Real-Time Invoice Generation

- The system **automatically generates invoices** when a product's quantity is greater than zero.
- VAT and total pricing are calculated dynamically, reducing human errors.
- The invoice table updates instantly when a product is added or removed.

3. Secure and Scalable Database Integration

- The system uses **MongoDB** Atlas for storing product and invoice details securely.
- The database ensures **reliable data management** and prevents data loss.
- Efficient CRUD (Create, Read, Update, Delete) operations through Express and Mongoose.

4. User-Friendly Interface

- Built with React and Material UI (MUI) for an intuitive and interactive experience.
- Responsive design for **desktop and mobile** usability.

TECHNOLOGIES USED

MERN STACK(MONGODB, EXPRESS.JS, REACT.JS, NODE.JS)

1.MONGODB

Mongodb does not require a fixed schema, making it ideal for applications that need to handle large volumes of unstructured or semi structured data. In a restaurant management system, mongodb can be used to store customer details, orders, menus, reservations, and payment transactions, allowing for real-time data retrieval and dynamic updates.

2.EXPRESS.JS

Express.js is a minimal and flexible web application framework for node.js that simplifies building server-side applications and apis

3.REACT.JS

React.js is a powerful and efficient javascript library used for building interactive and dynamic user interfaces, particularly in single-page applications. It follows a component-based architecture, allowing developers to create reusable ui elements that update efficiently using a virtual dom, which enhances performance.

4.NODE.JS

Node.js is a runtime environment that allows developers to run javascript on the server side. Handling customer orders and managing restaurant operations

WORKING MODULES

INVOICE PAGE

- The Invoice Management system in the Supermarket Billing Management software is responsible for generating, storing, and managing invoices for customer purchases.
- It ensures accurate billing, applies taxes (if applicable), and provides customers with a detailed breakdown of their purchases.

UPDATE PRODUCT PAGE

- The Product Update Feature in the Supermarket Billing Management System allows authorized users (such as admins or managers) to modify existing product details.
- This feature ensures that product information remains accurate, reflecting changes in price, stock availability, or other attributes.

Backend and Database Process

- The **Bill History** feature allows the system to store and retrieve invoice data efficiently. This is achieved using a **Node.js** + **Express** backend with **MongoDB Atlas** as the database.
- The backend handles CRUD operations (Create, Read, Update, Delete) while ensuring data integrity and real-time synchronization with the frontend.

1. Invoice Creation:

- The frontend sends a POST request with the bill details.
- The backend validates and stores the data in MongoDB.
- A success response is sent back to the frontend.

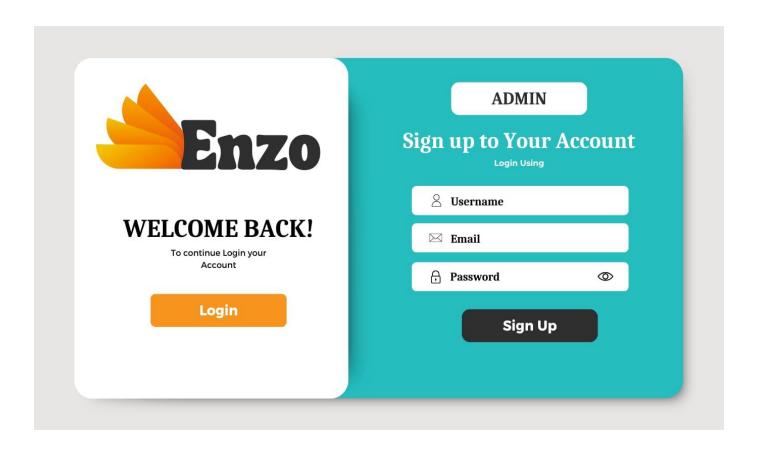
2. Fetching Bill History:

- The frontend requests all past invoices using a GET request.
- The backend queries MongoDB and returns the data.

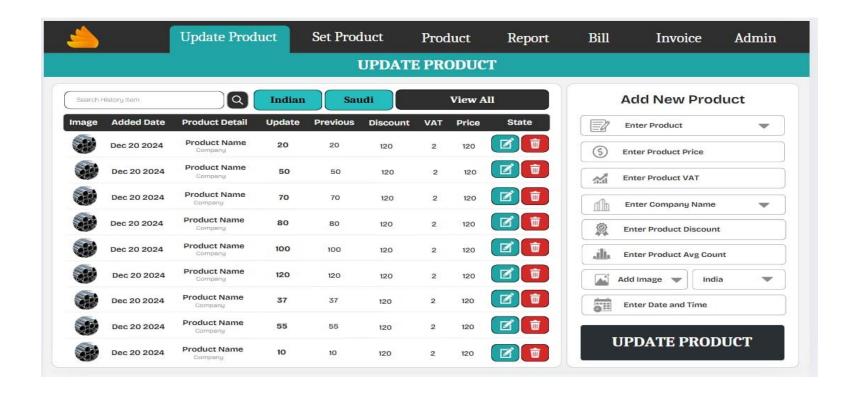
3.Applying Discounts:

- When a user applies loyalty points, a new discounted invoice is generated.
- The updated invoice is stored, and the frontend updates the display.

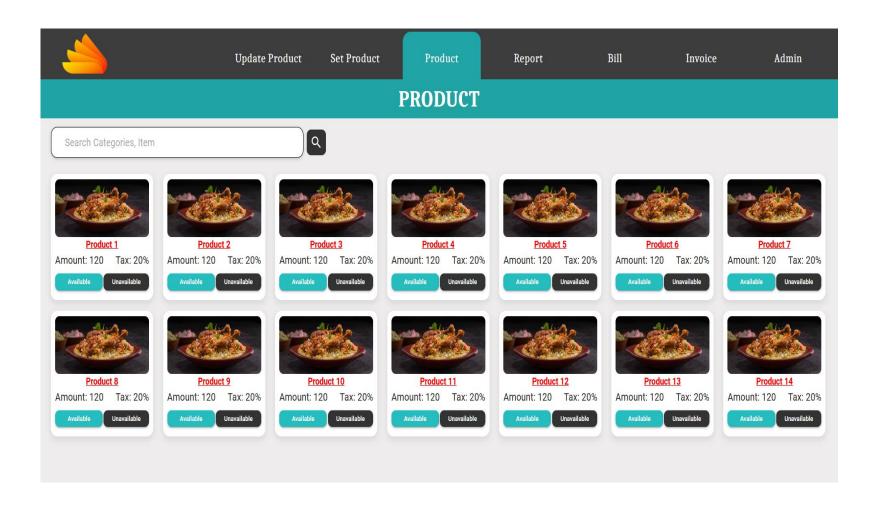
Welcome Page



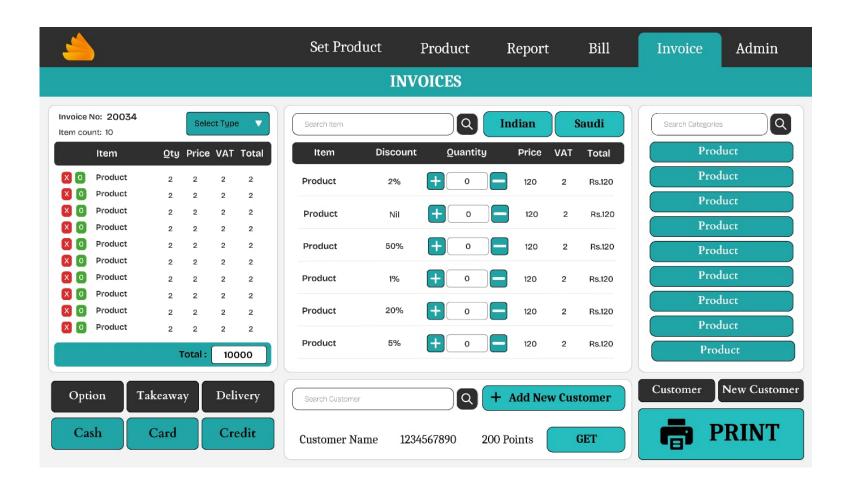
UPDATE PAGE



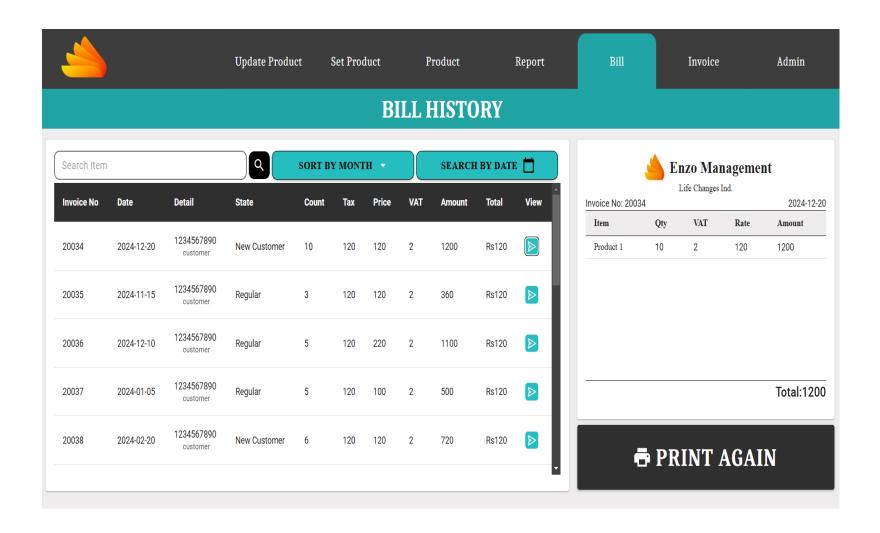
PRODUCT PAGE



INVOICE PAGE



BILL PAGE



CONCLUSION

- The implementation of the ENZO Billing Software Management System marks a significant step toward streamlining business operations related to product management, customer transactions, invoice generation, and discount applications.
- Designed with a robust MERN stack architecture, the system leverages MongoDB Atlas for scalable data storage,
 Express.js for backend API handling, React.js with Material UI for an intuitive frontend experience, and Node.js for server-side logic

FUTURE ENHANCEMENTS

1. Mobile Application for Android and iOS

- Develop a **mobile-friendly version** of the software for business owners and employees to manage invoices, track sales, and check inventory on the go.
- Implement **push notifications** for invoice updates, stock alerts, and payment reminders.

2. Multi-Language and Multi-Currency Support

- Introduce **language customization** to support global businesses and improve accessibility for non-English speakers.
- Enable **multi-currency transactions**, allowing businesses to set different currency options based on customer preferences.

3. Inventory and Stock Management System

- Develop an automated stock tracking system to update inventory levels when a product is sold.
- Implement low-stock alerts and automatic purchase order generation for suppliers.
- Enable barcode and QR code scanning for faster product management and sales processing.

