MAJOR PROJECT

ENZO BILLING MANAGEMENT SYSTEM

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ENZO BILLING MANAGEMENT SYSTEM

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

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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

	Update Product	Set Product	Product	Report	Bill	Invoice	Admin

UPDATE PRODUCT

	Indian	Saudi		View All

Image	Added Date	Product Detail	Update	Previous	Discount	VAT	Price	State
	Dec 20 2024	Product Name Company	20	20	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	50	50	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	70	70	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	80	80	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	100	100	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	120	120	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	37	37	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	55	55	120	2	120	✎ 🗑
	Dec 20 2024	Product Name Company	10	10	120	2	120	✎ 🗑

Add New Product

- Enter Product
- Enter Product Price
- Enter Product VAT
- Enter Company Name
- Enter Product Discount
- Enter Product Avg Count
- Add Image / India
- Enter Date and Time

UPDATE PRODUCT

Search History Item

PRODUCT PAGE

Update Product   Set Product   **Product**   Report   Bill   Invoice   Admin

PRODUCT

Search Categories, Item

Product 1
Amount: 120   Tax: 20%
Available   Unavailable

Product 2
Amount: 120   Tax: 20%
Available   Unavailable

Product 3
Amount: 120   Tax: 20%
Available   Unavailable

Product 4
Amount: 120   Tax: 20%
Available   Unavailable

Product 5
Amount: 120   Tax: 20%
Available   Unavailable

Product 6
Amount: 120   Tax: 20%
Available   Unavailable

Product 7
Amount: 120   Tax: 20%
Available   Unavailable

Product 8
Amount: 120   Tax: 20%
Available   Unavailable

Product 9
Amount: 120   Tax: 20%
Available   Unavailable

Product 10
Amount: 120   Tax: 20%
Available   Unavailable

Product 11
Amount: 120   Tax: 20%
Available   Unavailable

Product 12
Amount: 120   Tax: 20%
Available   Unavailable

Product 13
Amount: 120   Tax: 20%
Available   Unavailable

Product 14
Amount: 120   Tax: 20%
Available   Unavailable

INVOICE PAGE

Set Product	Product	Report	Bill	**Invoice**	Admin	

INVOICES

Invoice No: 20034
Item count: 10

Select Type ▼

Item	Qty	Price	VAT	Total
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2
X O Product	2	2	2	2

Total : 10000

Search Item 🔍 | **Indian** | **Saudi**

Item	Discount	Quantity	Price	VAT	Total
Product	2%	+ 0 −	120	2	Rs.120
Product	Nil	+ 0 −	120	2	Rs.120
Product	50%	+ 0 −	120	2	Rs.120
Product	1%	+ 0 −	120	2	Rs.120
Product	20%	+ 0 −	120	2	Rs.120
Product	5%	+ 0 −	120	2	Rs.120

Search Categories 🔍

Product
Product
Product
Product
Product
Product
Product
Product

Option	Takeaway	Delivery
Cash	Card	Credit

Search Customer 🔍 | **+ Add New Customer**

Customer Name   1234567890   200 Points   **GET**

Customer | New Customer

🖨 **PRINT**

BILL PAGE

Navigation

Update Product | Set Product | Product | Report | Bill | Invoice | Admin

BILL HISTORY

Search Item | SORT BY MONTH ▾ | SEARCH BY DATE 📅

Invoice No	Date	Detail	State	Count	Tax	Price	VAT	Amount	Total	View
20034	2024-12-20	1234567890 customer	New Customer	10	120	120	2	1200	Rs120	▷
20035	2024-11-15	1234567890 customer	Regular	3	120	120	2	360	Rs120	▷
20036	2024-12-10	1234567890 customer	Regular	5	120	220	2	1100	Rs120	▷
20037	2024-01-05	1234567890 customer	Regular	5	120	100	2	500	Rs120	▷
20038	2024-02-20	1234567890 customer	New Customer	6	120	120	2	720	Rs120	▷

Enzo Management
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Invoice No: 20034 | 2024-12-20

Item	Qty	VAT	Rate	Amount
Product 1	10	2	120	1200

Total:1200

🖶 PRINT AGAIN

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.

THANK YOU!!