

# IBM-NJ-E-COMMERCE CART SYSTEM

## PHASE 5

### PROJECT DEMONSTRATION & DOCUMENTATION

#### Final Demo walkthrough:

##### 1. Overview

Start by briefly describing what your demo shows.

Example: The final demo walkthrough illustrates the step-by-step working of the E-Commerce Cart System, showing how users can browse products, add them to the cart, update quantities, and place an order. It highlights both frontend interaction and backend function

##### 2. Step 1 – Home Page / Product Display

Explain what appears first.

Example: When the application is launched, the home page displays a list of available products with details such as name, price, and image.

Users can view all products and select desired items.

##### 3. Step 2 – Add to Cart

The user can click on the “**Add to Cart**” button to add selected products.

Once added, the cart icon updates automatically to reflect the total number of items.

##### 4. Step 3 – View Cart

When the user opens the cart, all added items are displayed with product names, prices, and quantity options.

Users can update or remove products directly from the cart.

##### 5. Step 4 – Checkout Process

The checkout section collects delivery details and payment options.

The system calculates the total price dynamically and confirms the order once payment is completed.

##### 6. Step 5 – Order Confirmation

After successful payment, an order confirmation message is displayed to the user, and the details are stored in the database for admin reference.

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## Project Report – E-Commerce Cart System

### 1. Introduction

The **E-Commerce Cart System** is a web-based application designed to provide users with a smooth online shopping experience. The main objective of this system is to allow customers to browse products, add items to their shopping cart, manage quantities, and complete the checkout process efficiently.

With the rapid growth of online shopping, this project aims to simulate a real-world e-commerce platform with essential functionalities, responsive design, and secured transaction flow. The system also enables administrators to manage product listings and order details effectively.

### 2. Objectives

- To develop a user-friendly and responsive e-commerce website.
- To implement an efficient cart management system for users.
- To ensure secure data handling between the client and server.
- To integrate API functionalities for dynamic product management.
- To deploy the system on a reliable hosting platform (like Vercel or Netlify).

### 3. Technologies Used

- **Frontend:** HTML, CSS, JavaScript, React.js
- **Backend:** Node.js, Express.js
- **Database:** MongoDB
- **Version Control:** GitHub
- **Deployment Platforms:** Vercel / Netlify
- **Tools Used:** Visual Studio Code, Postman

### 4. System Overview

The **E-Commerce Cart System** consists of two major modules:

1. **User Module** – Enables customers to view available products, add them to the cart, and proceed with checkout.

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2. **Admin Module** – Allows administrators to manage product details, monitor orders, and maintain inventory.

The system ensures seamless integration between frontend and backend through RESTful APIs. It also includes validation, authentication, and performance optimization for a better user experience.

## 5. Features Implemented

- Product listing with name, image, and price.
- Add to cart and remove from cart functionalities.
- Dynamic total calculation in the cart.
- Checkout process with user details and payment simulation.
- Order confirmation page.
- Admin panel for product management.

## 6. Workflow

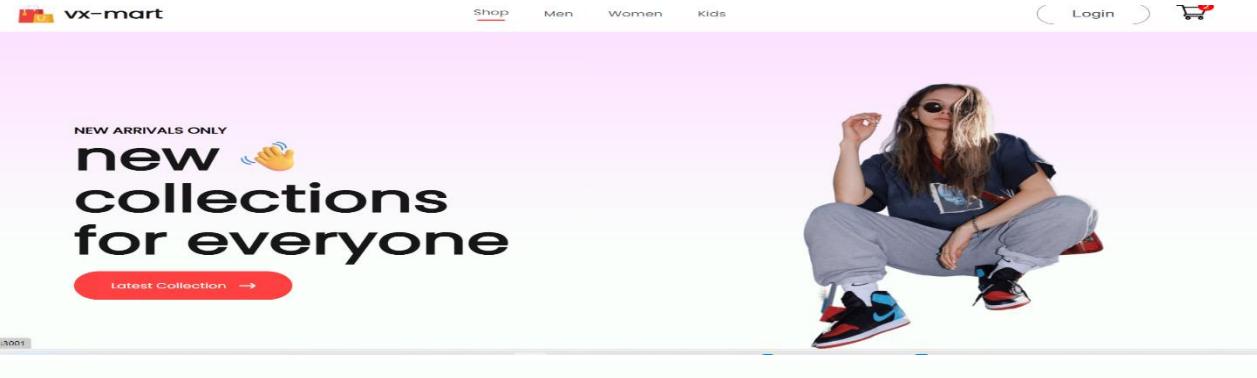
1. The user opens the website and views the product catalog.
2. Selected items are added to the shopping cart.
3. The user reviews the cart, modifies quantities, or removes items.
4. The user proceeds to checkout and submits order details.
5. The system stores the data in the database and confirms the order.
6. The admin verifies and manages product and order information.

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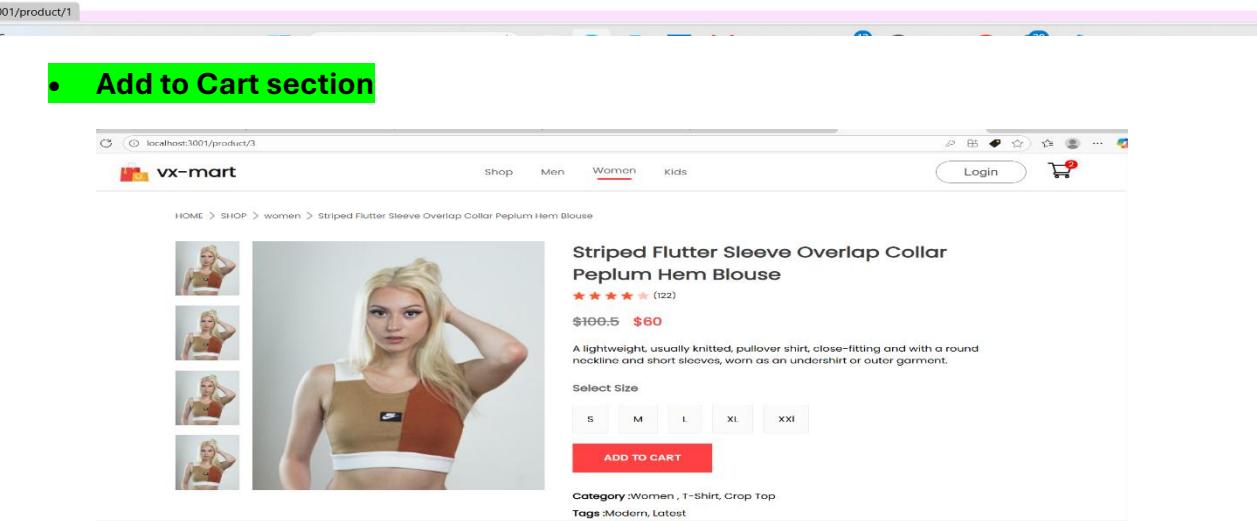
## 4. Screenshots / API Documentation

To visually represent the system's working, relevant screenshots have been included:

- Product display page



The screenshot shows the homepage of the vx-mart e-commerce platform. At the top, there is a navigation bar with links for Shop, Men, Women, and Kids. On the right side of the header are icons for Login and a shopping cart. The main banner features a woman in a blue t-shirt and grey sweatpants sitting on the floor. To the left of the banner, there is a promotional text: "NEW ARRIVALS ONLY" followed by "new collections for everyone" with a watering can emoji. Below the banner is a red button labeled "Latest Collection →". The main content area has a heading "POPULAR IN WOMEN" and four product cards, each featuring a woman modeling a different blouse. The products are: "Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse" (Rs1999 - Rs2099), "Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse" (Rs3999 - Rs5999), "Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse" (Rs6999 - Rs7999), and "Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse" (Rs999 - Rs1599).



The screenshot shows a detailed product page for a "Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse". The URL in the browser bar is "localhost:3001/product/1". The page includes a navigation bar with links for HOME, SHOP, men, women, and kids. It also has a "Login" button and a shopping cart icon. The product title is "Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse" with a rating of 4.5 stars from 122 reviews. The price is \$100.5 - \$60. A description states: "A lightweight, usually knitted, pullover shirt, close-fitting and with a round neckline and short sleeves, worn as an undershirt or outer garment." Below the description is a "Select Size" dropdown menu with options S, M, L, XL, and XXL. There is also an "ADD TO CART" button. At the bottom of the page, under "Category", it says "Women, T-Shirt, Crop Top" and under "Tags" it says "Modern, Latest".

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The screenshot shows the vx-mart website's shopping cart page. At the top, there is a navigation bar with links for Shop, Men, Women (which is underlined), and Kids. There are also>Login and a shopping cart icon with a '3' indicating three items.

The main content area displays a table of items in the cart:

Products	Title	Price	Quantity	Total	Remove
	Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse	\$85	<input type="text" value="2"/>	\$170	X
	Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse	\$60	<input type="text" value="1"/>	\$60	X

Below the cart table, there is a section titled "cart Totals" showing Subtotal (\$230) and Shipping Fee (Free). To the right, there is a field for entering a promo code with a "Submit" button.

When we click cart that add and show in cart bucket

- **Checkout page**

The screenshot shows the checkout page for the vx-mart website. The URL in the browser is localhost:3000/cart.

The page displays the same shopping cart table as the previous screenshot:

Products	Title	Price	Quantity	Total	Remove
	Striped Flutter Sleeve Overlap Collar Peplum Hem Blouse	\$85	<input type="text" value="1"/>	\$85	X

Below the cart table, there is a section titled "cart Totals" showing Subtotal (\$85), Shipping Fee (Free), and Total (\$85). To the right, there is a field for entering a promo code with a "Submit" button.

A red button at the bottom left of the page says "PROCEED TO CHECKOUT".

- Order confirmation
- Admin product management dashboard

The **API documentation** section explains how the backend endpoints handle requests and responses — such as adding items to the cart, fetching product

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details, or processing orders.

Tools like **Postman** were used for API testing to ensure accurate and secure data flow between client and server.

## 5. Challenges and Solutions

Challenges	Solutions Implemented
Managing real-time cart updates	Used React state management for instant refresh and total calculation
API request and response errors	Implemented Express error-handling middleware
UI responsiveness issues	Applied CSS Flexbox and Grid for consistent design
Deployment errors on Vercel	Reconfigured environment variables and build scripts
Database connectivity	Used Mongoose for stable MongoDB connection with schema validation



## 6. GitHub README & Setup Guide

A comprehensive **README file** was prepared for the GitHub repository.

It includes:

- Project overview
- Technology stack used
- Installation and setup instructions
- Folder structure explanation
- API routes and their functionalities
- Deployment link and testing guide

This guide ensures that anyone reviewing or testing the system can easily clone, install dependencies, and run the project without confusion.

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## 8. Testing of Enhancements

After integrating the enhancements from Phase 4, rigorous testing was conducted:

- **Unit Testing:** Verified each function (add-to-cart, delete, checkout, etc.).
- **Integration Testing:** Ensured smooth communication between frontend and backend APIs.
- **Performance Testing:** Checked for loading speed and server response time.
- **Security Testing:** Tested database input validation and protected routes.

The system passed all tests with consistent and stable result

## ▣ 9. Final Submission

The final project submission includes:

Repo+deployment link:

<https://github.com/ashik00-7/E-COMMERCE--CART-SYSTEM-VX-MART>

<https://fathima-ceo.github.io/E-COMMERCE-CART-SYSTEM-VX-MART/> (LEADER)