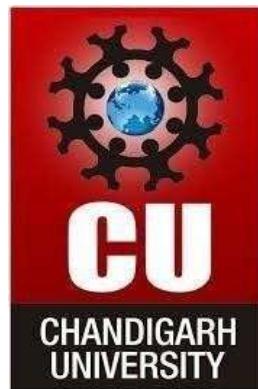




**DEPARTMENT OF
UNIVERSITY INSTITUTE OF COMPUTING
CHANDIGARH UNIVERSITY**



Project Report
Subject Name: Frontend Technologies Lab
Subject Code: 24CAH-655

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Gurjyot Singh

Tech Gadgets & Accessories E-Commerce Website

Objective:

The main goal of the Tech Gadgets & Accessories E-Commerce Website project is to transform the way users shop for technology online. This project aims to create an intuitive and dynamic shopping experience with a user-friendly interface that allows customers to explore, select, and purchase gadgets with ease. By integrating MongoDB for product data management and interactive features like category navigation, cart functionality, and a smooth checkout process, the website provides a complete e-commerce solution tailored for tech enthusiasts.

Key Features:

1. Dynamic Homepage with Product Cards

- The homepage displays a wide variety of tech gadgets and accessories.
- Each product is shown in a product card layout with:
 - Product Name at the top
 - A square image of the product
 - Price
 - Instant Buy and More Info buttons
 - Add to Cart (+) icon at the corner

2. Sidebar-Based Category Navigation

- A sidebar menu on the homepage allows users to browse through different product categories.
- Clicking on a category scrolls/navigates to that section on the homepage for quick access to relevant items.

3. Add to Cart Functionality

- Users can add any product to the cart by clicking the + icon on the product card.
- Items are stored in the cart and can be accessed anytime before checkout.

4. Product Detail View

- Clicking on the More Info button gives users detailed information about the selected product.
- Helps customers make informed decisions before purchasing.

5. Interactive Cart Page

- Shows a list of all items added by the user.
- Users can:
 - View selected products
 - Delete individual items
 - Proceed to checkout when ready

6. Checkout Page

- Collects essential delivery details:
 - Home Address
 - Landmark
 - Pincode
 - City or Area
- Displays selected cart items and total price.

7. Discount Code Application

- Users can apply discount coupons at checkout to reduce the total amount.
- Helps simulate real-life online shopping deals.

8. Order Confirmation Page

- After completing the checkout, the confirmation page:
 - Summarizes the entire order
 - Shows the total amount
 - Allows the user to confirm the order
 - Displays a success message upon placing the order
 - Offers a button to return to the homepage

9. MongoDB Integration

- All product data such as names, prices, images, and categories are stored in MongoDB.
- Ensures easy and flexible product management from the backend.

Project Overview:

The Tech Gadgets & Accessories E-Commerce Website project strategically addresses the limitations of traditional online shopping experiences by offering a dynamic, interactive, and visually rich platform. It focuses on simplifying the buying process for users by integrating intuitive navigation, clear product displays, and a smooth checkout pipeline. By using a clean UI and MongoDB-powered backend, the project provides real-time product data handling and efficient user interactions. The platform is designed to meet the needs of tech-savvy users, offering a streamlined and personalized shopping experience that mimics real-world e-commerce functionality.

Implementation Strategy:

The Voice-Activated Desktop Assistant leverages state-of-the-art technologies, including advanced voice recognition libraries, seamless API integrations, dynamic game logic, and sophisticated AI models. Ensuring technical, economic, and operational feasibility, the project seamlessly integrates open-source tools into users' daily routines. The focal point is to deliver a robust and intuitive user experience, effectively redefining the boundaries of desktop interaction for a broad user base.

Development Roadmap:

1. Project Initiation

- Define clear goals for the e-commerce platform
- Identify features like product display, cart functionality, checkout, and category filtering
- Set up team roles, timeline, and select tech stack (HTML, CSS, JavaScript, MongoDB, etc.)

2. Research and Analysis

- Study leading e-commerce websites for layout inspiration and best practices
- Analyze user behaviors and expectations for online shopping
- Understand data structure for storing products, categories, and orders using MongoDB

3. System Design

- Design a clean and responsive UI with intuitive navigation
- Structure the homepage with category-based filtering and card-style product display
- Plan MongoDB schemas for storing product info, user carts, and orders
- Design user flow from product selection to order confirmation

4. Development

- Build homepage with product cards and a sidebar for category navigation
- Implement Add to Cart, More Info, and Instant Buy functionalities
- Develop dynamic Cart and Checkout pages
- Integrate discount code logic and confirmation page flow
- Connect frontend with MongoDB to manage all product-related data

5. Testing

- Perform functional testing for each module (Add to Cart, Checkout, etc.)
- Conduct UI/UX testing for usability and responsiveness
- Carry out database testing to ensure correct data storage and retrieval
- Validate the entire purchase flow from homepage to order confirmation

6. Refinement

- Gather peer/user feedback for design and feature improvement
- Optimize loading times and interface responsiveness
- Enhance mobile compatibility and accessibility features
- Finalize UI polish for a professional and user-friendly experience

Tools and Technologies Used

The development of the **Tech Gadgets & Accessories E-Commerce Website** leveraged a set of core tools and technologies to ensure the platform was both responsive and functional, providing an engaging and seamless user experience. Below is an overview of the key technologies used:

1. Front-End Technologies

- **HTML:** Used for structuring the website content, ensuring a clean and organized layout that is easy to navigate.
- **CSS:** Employed for styling the website, making it visually appealing and ensuring that the website is responsive across different screen sizes.
- **JavaScript:** Integrated to create dynamic functionality such as adding items to the cart, filtering products, and enabling user interactions without needing to refresh the page.

2. Back-End Technologies

- **MongoDB:** A NoSQL database that stores product details, user information, and cart data. MongoDB was chosen for its scalability and flexibility in handling the dynamic nature of the e-commerce platform.

3. Frameworks and Libraries

- **Bootstrap:** A front-end framework that significantly accelerated the development process, providing pre-built responsive grid systems and design components. This ensured the website was mobile-first and user-friendly across all devices.

Implementation

The implementation phase of the Tech Gadgets & Accessories E-Commerce Website focused on translating the planned features into a fully functional web application. Using front-end technologies such as **HTML, CSS, and JavaScript**, the user interface was crafted to provide a responsive and intuitive shopping experience. Each product was displayed in a card format on the homepage, showing product name, image, price, and action buttons (Add to Cart, More Info, and Instant Buy).

A **sidebar** with category links was implemented for smooth navigation between different product sections. Clicking a category scrolls the user to that section, allowing quick access to specific types of gadgets or accessories.

For data handling, **MongoDB** was integrated as the backend database to store and retrieve all product details including names, images, prices, and categories. Server-side operations and logic were implemented to support functionalities like adding/removing items from the cart, calculating the total price, and applying discounts. The **cart system** dynamically tracked user selections and allowed easy management of selected items. The **checkout process** captured delivery details such as address, pincode, and landmark, and displayed a summary of the selected items. Users could also apply **discount codes** before confirming their purchase.

Finally, the **order confirmation page** was built to provide a summary of the transaction, giving users a clear breakdown of their purchase and the option to return to the homepage. The implementation ensured smooth flow, real-time interactivity, and a realistic e-commerce experience.

Definition of Problem

In the traditional world of e-commerce, users often face a challenging experience when trying to navigate websites. Whether it's the complexity of browsing through numerous products, difficulty in finding the right categories, or the hassle of inputting shipping details manually, the typical shopping experience is often filled with friction points. This problem is especially significant for users who are not very tech-savvy or face accessibility issues.

Our project aims to solve these problems by introducing a user-friendly interface, streamlined navigation, and easy-to-use features like category filters and quick access to product details. The challenge is to simplify the entire shopping experience, from browsing products to completing checkout, ensuring that anyone, regardless of their tech expertise, can navigate the website easily and make purchases without hassle.

The essence of the problem, therefore, is to eliminate the traditional friction points in e-commerce websites, such as difficult navigation, unclear product information, and complicated checkout processes. The goal of our project is to provide an intuitive, seamless, and efficient online shopping experience that meets the needs of all users, making online shopping accessible and enjoyable.

In simpler terms, the problem we're addressing is the complexity of traditional e-commerce websites, which can be difficult to navigate for some users. Our solution aims to create an easy and smooth online shopping experience, providing a straightforward and accessible platform that allows users to find products, add them to the cart, and complete purchases with minimal effort.

System Analysis

Purpose: The primary goal of the e-commerce website is to provide users with a seamless and enjoyable shopping experience. By offering easy navigation, smooth browsing, and a user-friendly interface, the website aims to simplify the online shopping journey.

The project seeks to ensure that customers can easily discover products, add them to their carts, and complete purchases with minimal effort, ensuring that the system enhances both productivity and convenience.

Project Scope: The e-commerce platform is designed to cater to a wide range of users, from tech enthusiasts looking for the latest gadgets to casual shoppers seeking everyday accessories. It's a versatile platform suitable for individual users as well as small businesses, offering personalized shopping experiences, diverse product categories, and secure transactions.

The scope also includes product management features like adding, updating, and removing items, ensuring an efficient backend management process.

Existing System: Current e-commerce platforms often struggle with issues such as complicated navigation, lack of personalized product recommendations, and clunky checkout processes. Many websites offer basic shopping features but fail to provide a truly personalized shopping experience, advanced filtering options, or intuitive category-based navigation.

Existing systems also often overlook mobile responsiveness and integration with advanced payment and delivery systems.

Proposed System: The proposed system improves upon these shortcomings by offering an intuitive, easy-to-navigate interface, which includes product categories, filters, and a streamlined checkout process. Users can add products to their cart, check out easily, and track their orders with minimal steps.

A special focus has been placed on accessibility, with options for filtering products by categories, price range, and features, ensuring that users can find the products that best suit their needs. Integration with MongoDB ensures that product details, user information, and order history are efficiently stored and managed.

System Overview: The e-commerce website is designed with a clean, modern user interface that provides seamless navigation between product categories, search results, and checkout pages. The system also integrates an efficient product catalog and user-friendly cart management.

Through the use of MongoDB, product and user data are stored securely, allowing for real-time updates and easy retrieval of information. The website is also optimized for mobile devices, ensuring a consistent shopping experience across all platforms. Future updates may include advanced filtering options, personalized recommendations, and the ability to integrate with external APIs for enhanced functionalities such as discount promotions and loyalty programs.

System Design

The design of the e-commerce website is structured to ensure scalability, efficiency, and ease of maintenance.

We have adopted a modular approach, breaking down the system into distinct, manageable components. Each part of the system has a specific function, ensuring that the website can be easily updated, improved, and extended as user needs evolve. Below are the core modules of the system:

1. User Authentication Module:

- **Purpose:** Handles user registration, login, and authentication processes.
- **Functionality:**
 - Secure login via email/password or third-party authentication (e.g., Google or Facebook).
 - Includes features like password recovery and secure session management.
 - Provides user roles, such as Admin and Customer, to differentiate access rights.

2. Product Catalog Module:

- **Purpose:** Manages the display and organization of products.
- **Functionality:**
 - Allows users to browse products by categories (e.g., electronics, apparel, home goods).
 - Implements advanced filtering options like price range, brand, and product features.
 - Displays detailed product descriptions, images, and prices.
 - Supports dynamic product search, where users can find products quickly based on keywords.

3. Shopping Cart and Checkout Module:

- **Purpose:** Manages the shopping cart functionality and the checkout process.
- **Functionality:**
 - Allows users to add, remove, and update product quantities in their cart.
 - Provides an easy and secure checkout process with multiple payment options (credit card, PayPal, etc.).
 - Implements order review and confirmation screens before finalizing the purchase.
 - Tracks order status, from payment processing to delivery.

4. Order Management Module:

- **Purpose:** Manages customer orders and order status updates.
- **Functionality:**
 - Provides users with real-time order tracking.
 - Sends notifications for order status changes (e.g., shipped, delivered).
 - Admin users can update order statuses, manage returns, and handle cancellations.
 - Stores detailed records of past orders for easy user access.

5. User Dashboard Module:

- **Purpose:** Provides a personalized user experience.
- **Functionality:**
 - Displays order history, saved products, and account settings.
 - Users can edit their profile, address, and payment information.
 - Allows users to manage wish lists, view recommendations, and track their shopping activities.

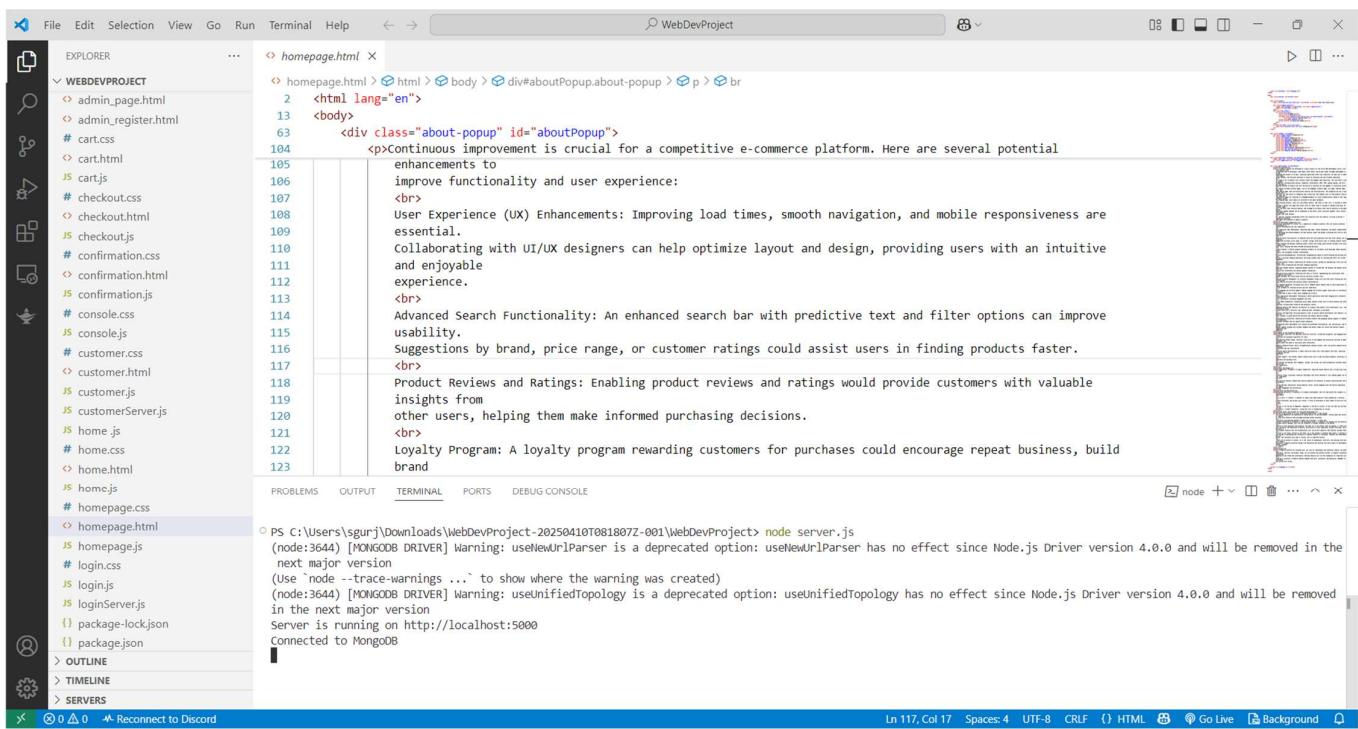
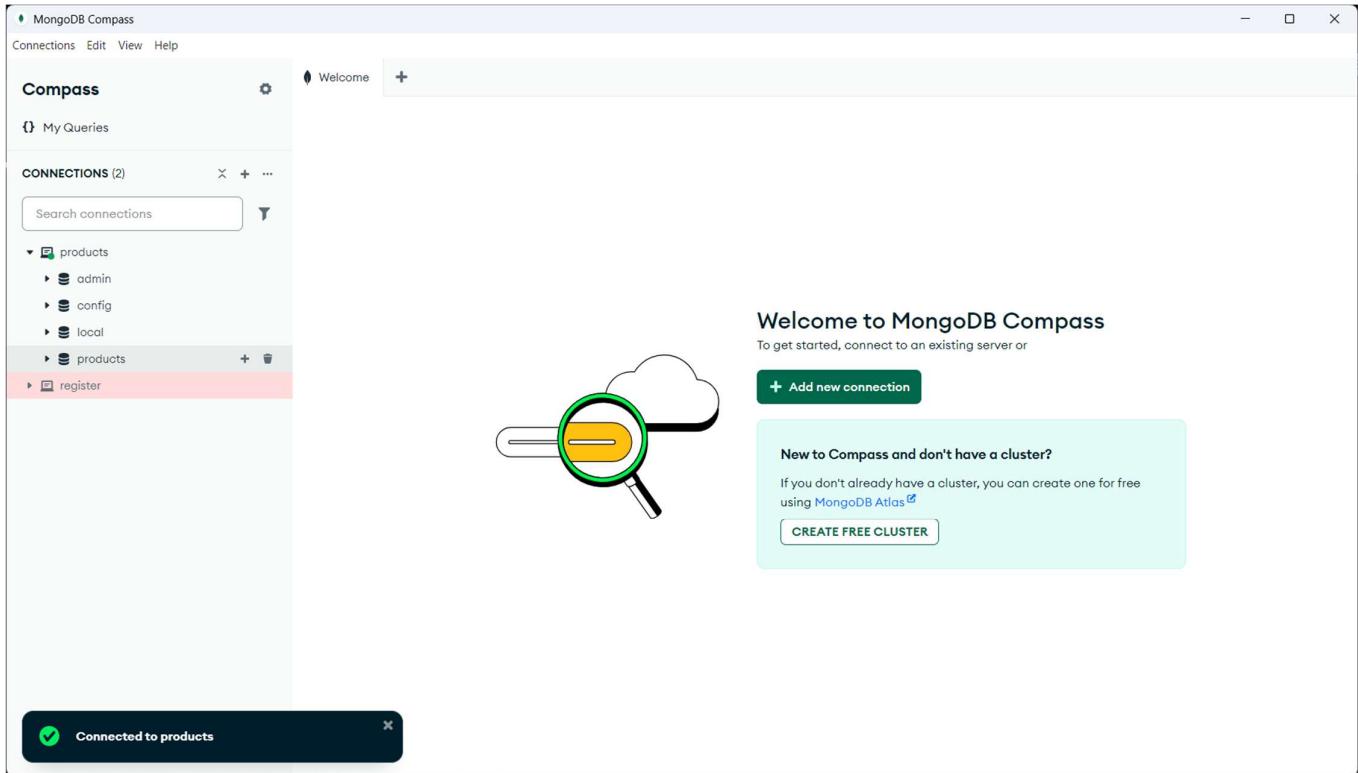
6. Admin Dashboard Module:

- **Purpose:** Provides an interface for admin users to manage products and customers.
- **Functionality:**
 - Admins can add, update, and remove products from the catalog.
 - Includes customer management features, such as viewing order history and user profiles.
 - Generates reports on sales, user activity, and inventory.

7. Payment Gateway Integration:

- **Purpose:** Handles secure transactions and payment processing.

Results / Screenshots



Screenshot of the homepage (`127.0.0.1:5500/homepage.html`) showing a grid of audio products under the Audio section.

The grid contains 10 items:

- Wireless Bluetooth Earbuds (\$59.99) - A placeholder item with a large white box containing "200 x 200 pixels".
- Sony WH-1000XM4 (\$349.99)
- Bose SoundLink Revolve (\$199.99)
- JBL Flip 5 (\$89.95)
- Sennheiser HD 599 (\$199.95)
- Beats Solo3 Wireless (\$199.95)
- Anker Soundcore 2 (\$39.99)
- Audio-Technica ATH-M50X (\$149)
- Marshall Kilburn II (\$299.99)
- Samsung Galaxy Buds Pro (\$199.99)

Screenshot of the shopping cart page (`127.0.0.1:5500/cart.html`) showing three items in the cart.

The cart items are:

- Sony WH-1000XM4 (\$349.99)
- Bose SoundLink Revolve (\$199.99)
- JBL Flip 5 (\$89.95)

Total Subtotal: \$639.93

MENU Checkout Page +

< > C 127.0.0.1:5500/checkout.html

nezuko chan - Go...

Home Profile Search Contact About

Delivery Address

Pincode
110034

Flat, House no., Building, Company, Apartment
AP 123B , Pitampura, Delhi

Area, Street, Sector, Village
Pitampura

Landmark
RDPS

Town/City
Delhi

State
Delhi

Review your cart

Name	Quantity	Price
Sony WH-1000XM4	1	\$349.99
Bose SoundLink Revolve	1	\$199.99
JBL Flip 5	1	\$89.95

Coupon Code Apply

Subtotal: \$639.93

Shipping: \$5.00

Discount: \$0.00

Grand Total: \$644.93

Pay Now

127.0.0.1:5500 SAYS

This payment method is currently under maintenance. Please choose Cash on Delivery.

OK

Pincode:	110034
Flat/House:	AP 123B , Pitampura, Delhi
Area/Street:	Pitampura
Landmark:	RDPS
Town/City:	Delhi
State:	Delhi

Order Details

Name	Sony WH-1000XM4
Bose SoundLink Revolve	
JBL Flip 5	

Payment Options

- Cash on Delivery
- Debit Card
- Credit Card
- UPI

Shipping Details

Pincode:	110034
Flat/House:	AP 123B , Pitampura, Delhi
Area/Street:	Pitampura
Landmark:	RDPS
Town/City:	Delhi
State:	Delhi

Order Details

Name	Quantity	Price
Sony WH-1000XM4	1	\$349.99
Bose SoundLink Revolve	1	\$199.99
JBL Flip 5	1	\$89.95

Subtotal: \$639.93
 Shipping: \$5.00
 Discount: \$0.00
Grand Total: \$644.93

Place Order

Order Confirmation

Thank you for your purchase!

Your order will be processed within 24 hours during working days. We will notify you by email once your order has been shipped.

Billing address

Pincode:	110034
Flat/House:	AP 123B , Pitampura, Delhi
Area/Street:	Pitampura
Landmark:	RDPS
Town/City:	Delhi
State:	Delhi

Order Summary

Date:	4/10/2025
Order Number:	#CPR-2228462
Payment Method:	Cash-On-Delivery
 Sony WH-1000XM4 Qty: 1 \$349.99	
 Bose SoundLink Revolve Qty: 1 \$199.99	
 JBL Flip 5 Qty: 1 \$89.95	
Sub Total:	\$639.93
Shipping:	\$5.00
Discount:	\$0.00
Order Total:	\$644.93

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