Project Title: My E- Commerce Store

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Course Name: FULL STACK DEVELOPMENT

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2. Introduction

This project involved building a **feature-rich, responsive e-commerce website** that allows customers to browse products, view detailed descriptions, and manage their shopping cart before checkout. The emphasis was on creating a **modern UI** with a seamless shopping experience while applying core web technologies and good coding practices.

Unlike typical tutorials, this project was designed from scratch with a **clean architecture**, modular files, and easily extendable components to support future enhancements such as payment gateways or backend APIs.

3. Objectives

- Develop a **responsive online store** that works across desktop and mobile devices.
- Implement **product listings** with categories, filters, and sorting to help users quickly find items.
- Create a **dynamic shopping cart** with add, remove, and update functionality.
- Design an intuitive **product detail page** with images, price, and description.
- Use **client-side storage** to persist cart data without a backend.
- Follow **clean code principles** and proper project structuring for maintainability.

Technologies/Frameworks Used:

- **Frontend:** HTML5, CSS3, JavaScript
- **Styling & Responsiveness:** Flexbox, CSS Grid
- **Data Storage:** Local Storage (for cart functionality)
- **Tools:** VS Code, Web Browser

3. Project Structure

The project files are organized as follows:

```
Ecommerce/
│
├── index.html            # Homepage
├── products.html         # Product listing page
├── product_detail.html   # Product detail page
├── cart.html             # Shopping cart page
├── style.css             # Styles for all pages
├── script.js             # JavaScript for product & cart
functionality
├── images/               # Folder containing product and
category images
│   ├── laptop.jpg
│   ├── tshirt.jpg
│   └── ...
└── README.md             # Project overview
```

4. Technical Stack

This project was built entirely using **frontend technologies**, focusing on clean, maintainable, and responsive design. The following tools and technologies were used:

1. Frontend Layer

- **HTML5** – Semantic markup for header, nav, sections, footers, product cards; improved accessibility and SEO.

- **CSS3** – Modern styling, animations, and transitions; consistent branding colors and fonts.
- **CSS Grid & Flexbox** – Responsive product grids and flexible layouts that adapt to different screen sizes.
- **JavaScript (ES6+)** – Used const/let, arrow functions, template literals, and array methods for cleaner interactivity code.

2. Data & State Management

- **Local Storage API** – Persistent client-side cart storage using JSON objects.

5. Features and Functionalities

Homepage:

- Displays a hero section with welcome message.
- Categories section for browsing products by type.
- Responsive design that works on both desktop and mobile devices.

Products Page:

- Lists all available products.
- Filtering option by maximum price and category.
- Buttons to view product details or add a product to the cart.

Product Detail Page:

- Displays detailed information about a selected product.
- Shows product image, name, and price.
- Option to add the product to the cart.

Shopping Cart:

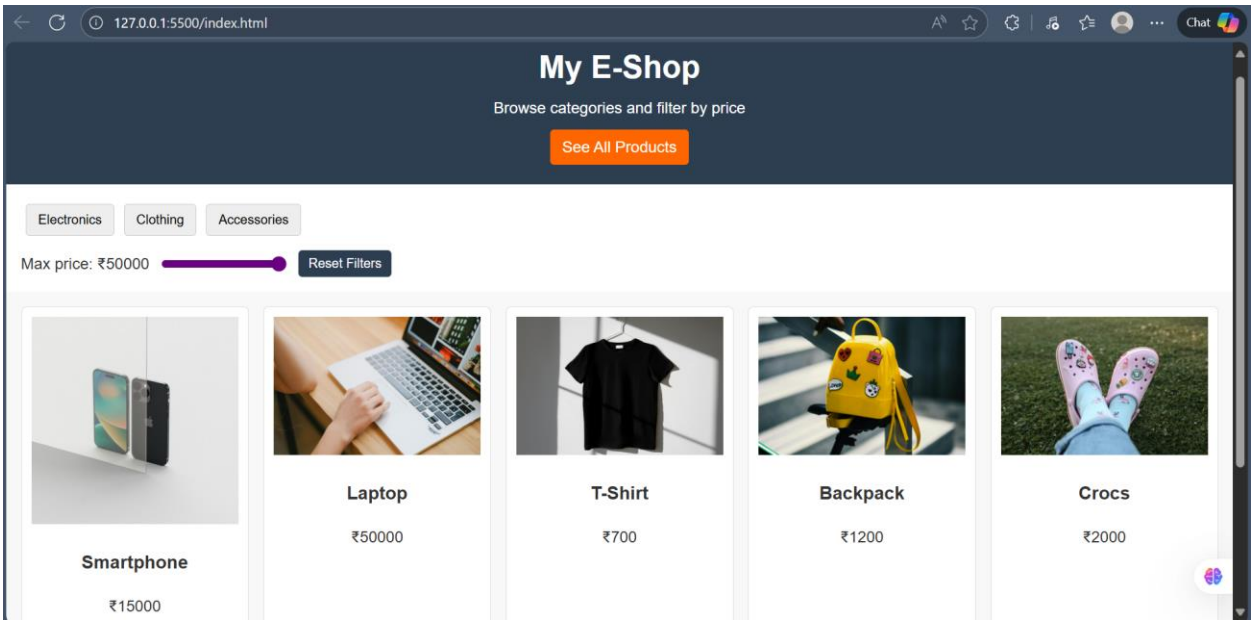
- Lists products added to the cart.
- Shows product image, name, and price.
- Allows removal of products from the cart.
- Updates dynamically as products are added or removed.

General Features:

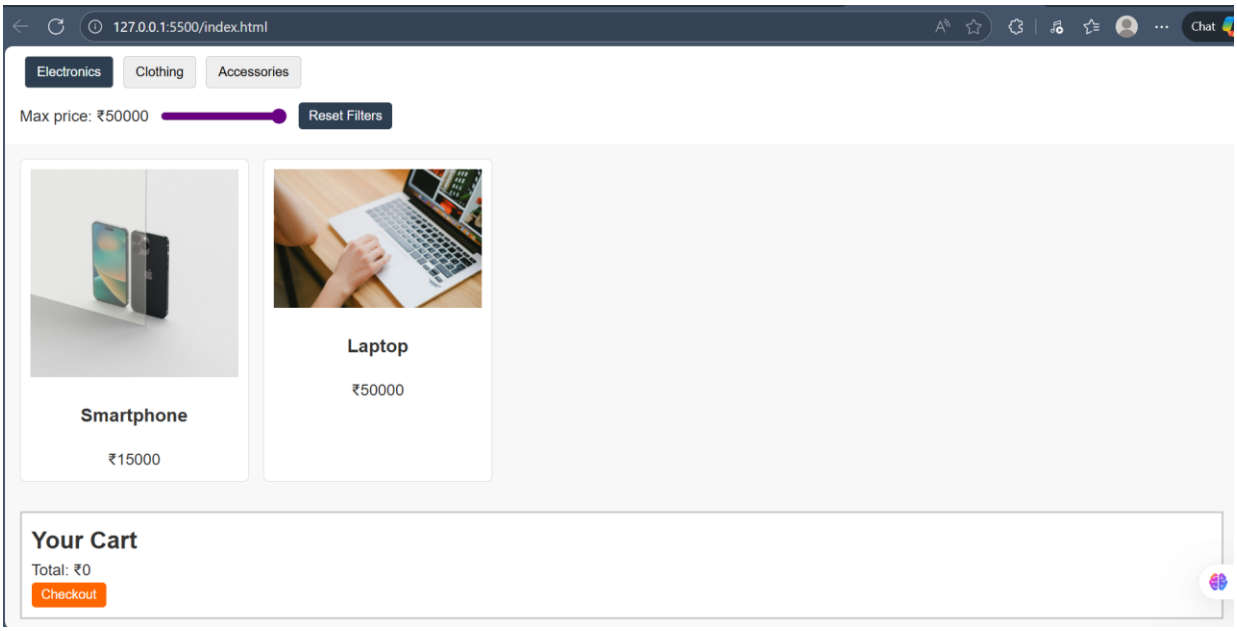
- Responsive layout using Flexbox and CSS Grid.
- Modern and clean UI with hover effects on buttons and cards.
- Horizontal scrolling for product grids on small screens.

6. Screenshots and Visuals

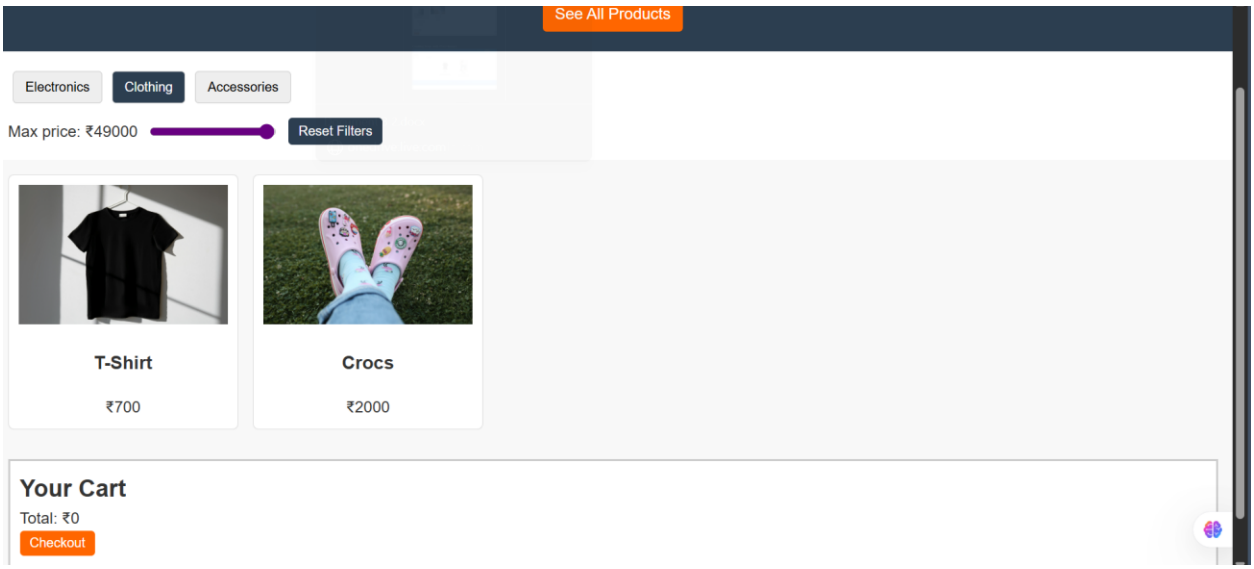
Homepage:



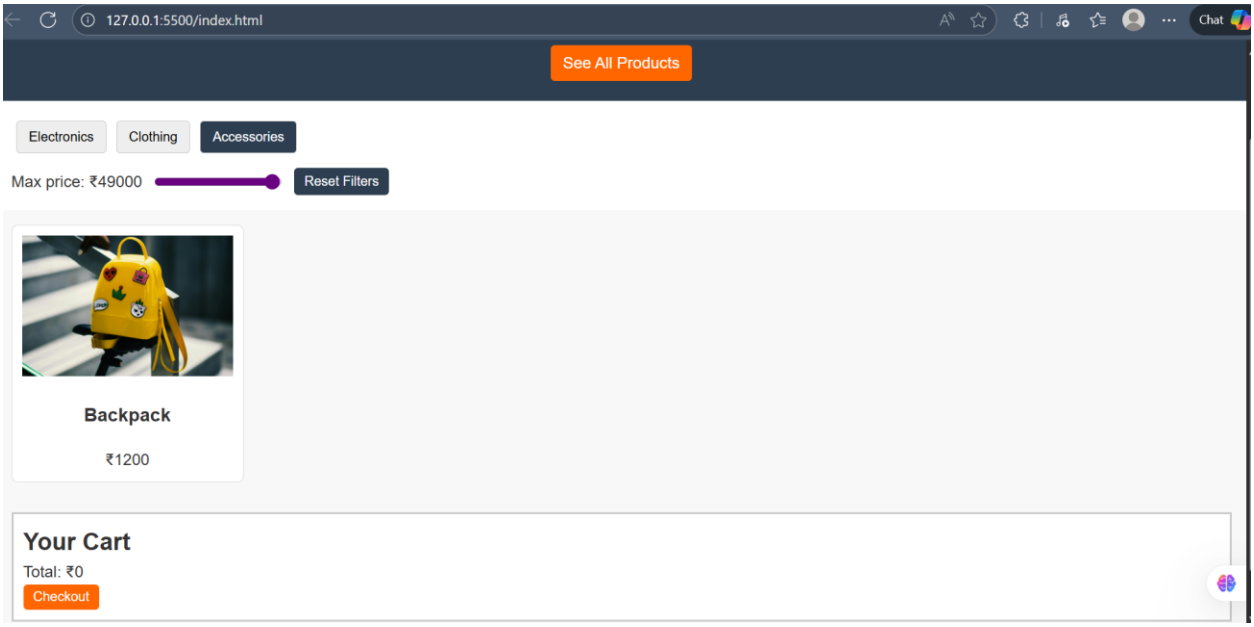
Electronics Page:



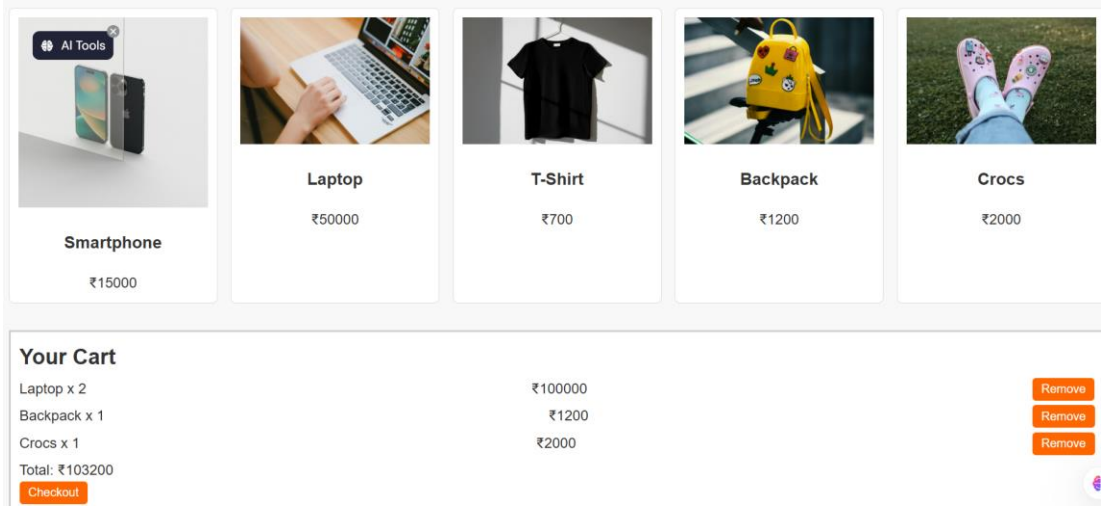
Clothing Page with Price Range:



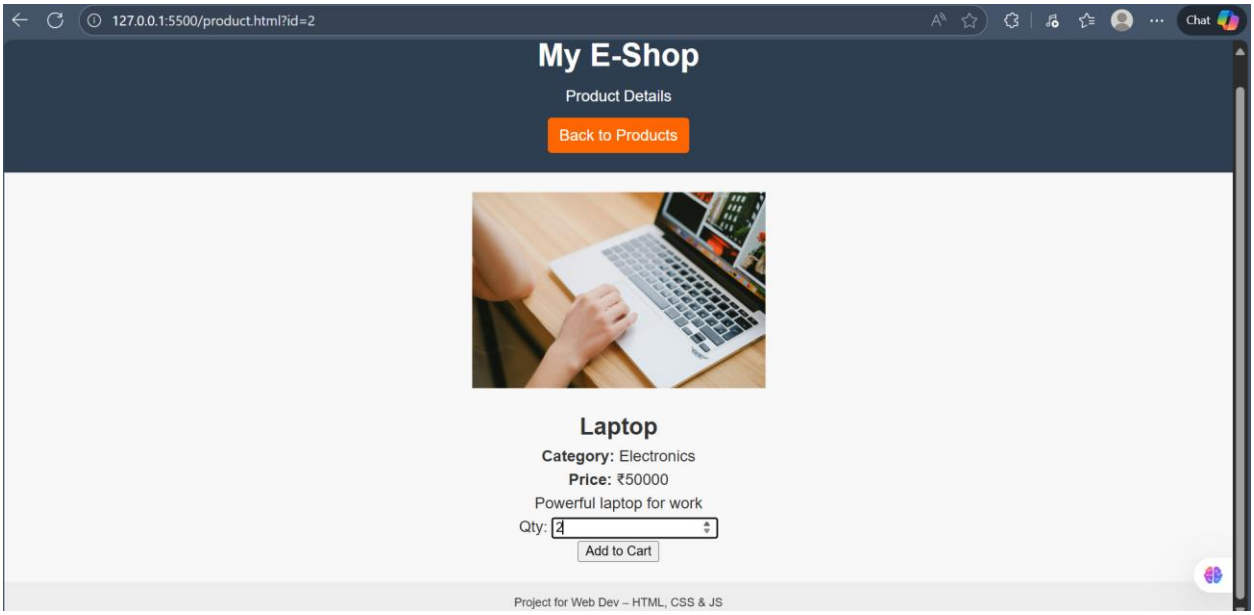
Accessories Page:



Shopping Cart Page:



Product Details page:



7. Database Structure

This project uses **Local Storage** instead of a backend database. The cart items are stored as JSON objects:

Cart Object Example:

[

{ id: 1, name: 'Laptop', category: 'electronics', price: 50000, image: 'images/laptop.jpg' },

{ id: 2, name: 'Smartphone', category: 'electronics', price: 30000, image: 'images/smartphone.jpg' },

{ id: 3, name: 'T-Shirt', category: 'clothing', price: 500, image: 'images/tshirt.jpg' },

{ id: 4, name: 'Backpack', category: 'accessories', price: 1800, image: 'images/backpack.jpg' },

]

8. Challenges Faced

- Designing a layout that looked good on both large monitors and small mobile screens.
- Persisting cart data between pages without a backend database.
- Implementing filtering for category and price dynamically in JavaScript.
- Keeping code modular and organized while handling multiple product categories.
- Optimizing image sizes to ensure faster page loads.
- Ensuring accessibility by using semantic HTML and alt text for images.

Solutions

- Used CSS Grid, Flexbox, and media queries to achieve a fully responsive layout.
- Leveraged Local Storage to store cart items in JSON format and update them dynamically.
- Wrote JavaScript functions to handle add, remove, and filter operations efficiently.

- Broke the code into smaller modules (products, cart, UI) to make it maintainable.
- Compressed and lazy-loaded images to improve load time.
- Followed accessibility best practices and semantic HTML tags to make the site usable by all.

9. Conclusion

This project demonstrates a **fully functional frontend e-commerce website** with product listing, filtering, detail view, and cart functionality. Through this project, I learned:

- How to create responsive layouts using Flexbox and Grid.
- How to manage state with Local Storage in JavaScript.
- How to structure a small web project for maintainability.

The project provides a solid foundation for adding backend support and payment integration in the future.

10. GitHub Repository

https://github.com/nehaa-vignesh/My-ECommerce-Project/tree/edd61bef7ba112dc2d237c1ef0e996ac78c1f989/My-ECommerce-Project