
Web Store Wonders: Enabling Real-Time Negotiations in E-commerce

By

Md. Rafiqul Islam (ID: 21200101272)

Sharmin Akter (ID: 21200101281)

Md. Juel Haque (ID: 21200101273)

Submitted in partial fulfillment of the requirements
of the degree of Bachelor of Science in Computer Science and Engineering



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Approval

The Project Report titled **Web Store Wonders: Enabling Real-Time Negotiations in E-commerce** submitted by **Md. Rafiqul Islam (ID: 21200101272)**, **Sharmin Akter (ID: 21200101281)**, and **Md. Juel Haque (ID: 21200101273)** to the Department of Computer Science and Engineering at Northern University Bangladesh, has been accepted as satisfactory for the partial fulfillment of the requirements for the Bachelor of Science in Computer Science and Engineering degree and is approved in terms of its content and format.

Board of Examiners

Rumman Ahmed Prodhan

(Supervisor)

Lecturer

Department of Computer Science & Engineering
Northern University Bangladesh (NUB)

Sakib Anwer Rieyan

(Examiner)

Lecturer

Department of Computer Science & Engineering
Northern University Bangladesh (NUB)

Sumya Akter

(Examiner)

Lecturer

Department of Computer Science & Engineering
Northern University Bangladesh (NUB)

Md. Raihan-Ul-Masood

Associate Professor & Head

Department of Computer Science & Engineering
Northern University Bangladesh (NUB)

Declaration

We hereby certify that the work detailed in this project report represents the results of our own research and investigation, conducted under the guidance of our supervisor, **Rumman Ahmed Prodhan**, Lecturer, Department of Computer Science and Engineering, Northern University Bangladesh (NUB). We further confirm that no portion of this project has been previously submitted or is currently being submitted for any degree or diploma at any other institution.

Candidates Signature

.....
Name: Md. Rafiqul Islam
(ID: 21200101272)

.....
Sharmin Akter
(ID: 21200101281)

.....
Md. Juel Haque
(ID: 21200101273)

Abstract

In the world of e-commerce, most platforms provide a static, fixed-price purchasing experience, which limits customer interaction and negotiation, key components of traditional marketplaces. This gap creates a barrier for customers seeking a more dynamic and personalized shopping experience. Addressing this issue is critical to fostering stronger buyer-seller relationships and improving customer satisfaction. Our project, "Web Store Wonders," introduces a unique feature that enables customers to negotiate directly with sellers in real-time, enhancing flexibility in pricing and creating a more engaging buying process. This conversational approach mimics in-person shopping, allowing both parties to reach mutually agreeable terms. By incorporating negotiation as part of the e-commerce experience, our platform stands out by providing a blend of traditional marketplace interactions with modern online convenience. Early user feedback has shown that a large majority of customers feel more empowered in their purchasing decisions, and sellers have reported a notable increase in conversion rates, demonstrating the effectiveness of this feature in creating win-win scenarios for both buyers and sellers. To build "Web Store Wonders," we utilized HTML5, CSS3, and Bootstrap for crafting a responsive and user-friendly interface, complemented by JavaScript for added interactivity. On the backend, raw PHP and object-oriented programming (OOP) were combined with the Laravel framework to ensure a structured, scalable development process. jQuery and Ajax enabled smooth, real-time data communication without page reloads, while MySQL managed the database. We used XAMPP for local development and testing, and integrated domain hosting to make the platform accessible to users globally.

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Table of Contents

Approval	i
Declaration	ii
Abstract	iii
Acknowledgments	iv
Table Of Contents	v
List Of Figures	vii
List Of Tables	viii

1.	Introduction to E- Commerce	10
	1.1 Motivation	10
	1.2 Objectives	10
	1.3 Methodology	11
	1.4 The Rise of E-Commerce	13
	1.5 The Evolution of E-Commerce	13
	1.6 The Different E-Commerce Models	13
	1.7 Benefits and Challenges of E-Commerce	14
2.	Background	16
	2.1 Design Tools	16
	2.2 Development Tools	16
	2.3 Literature Review	17
	2.4 Benchmark Analysis Chart	19
	2.5 Key Gaps and Opportunities	20
3.	Project Design Procedure	21
	3.1 Functional and Nonfunctional Requirements	21
	3.2 Use Case Diagram	23
	3.3 Project Plan	24
4.	User Interface	25
	4.1 User Interface (UI)	25
	4.2 Administrative Panel	25
5.	Implementation and Results	41
	5.1 Design Environment	41
	5.2 Testing and Evaluation	42
	5.3 Results and Discussion	42

6.	Standards and Design Constraints	43
6.1	Compliance with the Standards	43
6.2	Software Development Life Cycle (SDLC) Standard.....	43
6.3	Coding Standards.....	43
6.4	UI and UX Standards	43
6.5	Ethical Standards.....	44
6.6	Design Constraints.....	44
6.7	Economic Constraints.....	44
6.8	Ethical Constraints.....	45
6.9	Social Constraints.....	45
6.10	Health and Safety Constraints.....	45
6.11	Sustainability.....	45
6.12	Cost Analysis.....	46
6.13	Complex Engineering Problem.....	46
6.14	Complex Problem Solving.....	46
6.15	Knowledge Profile.....	46
7.	Conclusion.....	47
8.	References.....	48

List of Figures

1.1 Methodology.....	12
3.1 Use case diagram	23
3.2 Gantt Chart FYDP.....	24
4.1 Home page sliders	25
4.2 Categories & Sub-categories menu bar.....	26
4.3 Services & categories with thumbnail	26
4.4 Featured products	27
4.5 Top selling products	27
4.6 Latest products	28
4.7.1 Shop page including Category, Sub-Category and Brands	28
4.7.2 Brands and price limit	29
4.8 Product details	29
4.9 Related products & Product review.....	30
4.10 Cart page with real-time negotiation	30
4.11 Login	31
4.12 Order checkout & Shipping address.....	31
4.13 Payment methods	32
4.14 Thank you/conformation page	32
4.15 Customer profile & order list	33
4.16 Customer order details & status	33
4.17 Registrations	34
4.18 Dashboard	35
4.19 Category management	35
4.20 Sub-category management	36
4.21 Brand management	36
4.22 Product management	37
4.23 Shipping management	37
4.24 Order management	38
4.25 Order details check, update and send invoice mail	38
4.26 Coupons code management	39
4.27 Discount coupons	39
4.28 Database.....	40

List of Tables

2.1 Benchmark Analysis	19
6.1 Cost Analysis.....	46

Chapter - 01

Introduction

"Web Store Wonders" is an innovative e-commerce platform that redefines online shopping by enabling real-time negotiation between customers and sellers. Unlike traditional platforms with fixed pricing, our project fosters dynamic interactions, empowering users to engage in personalized discussions to reach mutually beneficial agreements. This approach not only enhances the buying experience but also cultivates stronger relationships between buyers and sellers, mimicking the personalized service of brick-and-mortar stores. Laravel and MySQL, our platform ensures seamless functionality and scalability. The integration of features like direct call based negotiations, responsive design, and efficient inventory management sets it apart from competitors. Early feedback highlights a significant increase in customer satisfaction and sales conversion rates, demonstrating the effectiveness of our unique model. Ultimately, "Web Store Wonders" aims to revolutionize the e-commerce landscape by blending modern technology with traditional marketplace values.

1.1 Motivation:

The motivation behind creating our e-commerce platform stems from the challenges faced by many in Bangladesh when it comes to online shopping [1]. A significant portion of the population is not yet accustomed to e-commerce due to the complexity of existing platforms. Our goal is to simplify this process, making it user-friendly and accessible to all. Additionally, many entrepreneurs are hesitant to establish online businesses due to the high costs associated with traditional e-commerce setups. Our aim to reduce these costs, making it affordable and manageable for small business owners. Another key issue is that most websites offer fixed prices, preventing customers from negotiating [2]. By allowing real-time price negotiations, our platform can help customers secure better deals, encouraging more purchases. Furthermore, while the educated and tech-savvy can navigate current platforms, many with limited education struggle to do so. This project focuses on making e-commerce more inclusive, catering to a broader audience by simplifying the experience and empowering both buyers and sellers.

1.2 Objectives

The primary objective of "Web Store Wonders" is to develop an innovative e-commerce platform that simplifies online shopping for users in Bangladesh, particularly for those who are less familiar with existing e-commerce systems. The platform aims to:

- a. **Facilitate negotiation:** Enable real-time price negotiation between buyers and sellers, mimicking traditional market interactions to provide flexibility and better deals for customers.
- b. **Ease of use:** Design a user-friendly interface that is accessible to people with varying levels of education and technical expertise, removing the complexity commonly associated with online shopping platforms.

- c. **Affordable solutions for entrepreneurs:** Lower the cost and barriers for entrepreneurs to establish and maintain their own online stores, making e-commerce more accessible for small businesses.
- d. **Boost customer engagement:** Create a dynamic, conversation-driven shopping experience that fosters stronger customer-seller relationships and improves overall satisfaction.
- e. **Increase sales conversion:** Improve sales conversion rates for sellers by providing a more personalized and interactive shopping experience that encourages purchases through negotiation.

These objectives collectively aim to revolutionize the e-commerce experience in Bangladesh by blending traditional marketplace values with modern technology.

1.3 Methodology:

"Web Store Wonders" is an innovative e-commerce platform designed to facilitate buying and selling goods, services, and digital products online with a focus on user-friendly design and real-time negotiation between buyers and sellers. The methodology for developing and implementing this platform is structured around the following key elements:

- a. **Case study approach:** We adopted a real-world business-driven approach, examining successful e-commerce platforms and analyzing how they address challenges like usability, customer engagement, and negotiation processes. Through these case studies, we draw insights that directly shape our platform's features and design [3].
- b. **Agile development framework:** "Web Store Wonders" is developed using an agile methodology, allowing for incremental releases and continuous improvement. This iterative process involves:
 - i. Modular development of key features, such as real-time negotiation and responsive design, ensuring scalability and flexibility.
 - ii. Continuous integration and testing to ensure seamless user experience.
- c. **User-centered design:** The design approach focuses on simplifying the user interface, ensuring that individuals with different levels of education can easily navigate the platform. A user-centered design process, including wireframes, prototypes, and user testing, was employed to optimize the shopping experience. Emphasis was placed on: [4]
 - i. Accessibility for non-tech-savvy users.
 - ii. Simple and intuitive navigation for seamless browsing and product selection.

- d. **Research and analysis:** Extensive research into local user behavior, pricing flexibility, and negotiation practices was conducted. Key market trends were identified to align the platform with the needs of Bangladeshi consumers. Data-driven analysis guided decisions around real-time interactions, inventory management, and payment gateway integration [5].
- e. **Practical tools and resources:**
The platform incorporates tools for sellers, including:
 - i. **Inventory management systems:** Allowing easy product uploads, pricing adjustments, and stock tracking.
 - ii. **Negotiation features:** Providing customers the ability to negotiate pricing with sellers, mimicking traditional market experiences.
 - iii. **Analytics and reporting:** Sellers can monitor traffic, conversion rates, and customer interactions to optimize their strategies.
- f. **Continuous improvement with feedback:** Throughout the development process, user feedback is gathered at various stages. This allows for adaptive changes to be made in both design and functionality, ensuring that "Web Store Wonders" meets user expectations and evolves with market demands.

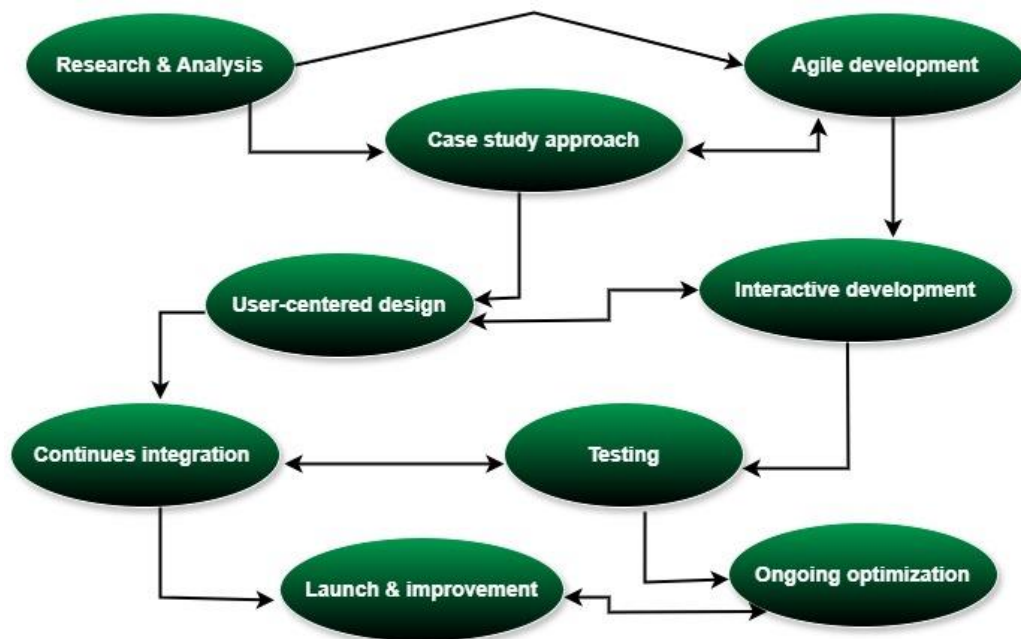


Figure 1.1: Methodology

1.4 The Rise of E-Commerce:

Over the last decade, e-commerce has emerged as a pivotal component of the global economy, reshaping the retail landscape in unprecedented ways. What initially started as a modest platform for online purchases has evolved into a formidable force, revolutionizing how consumers shop, how businesses sell, and how they interact with each other. The rise of e-commerce is driven by its remarkable convenience, enabling consumers to effortlessly browse a vast array of products, compare prices, and complete transactions from the comfort of their own homes. For businesses, this shift has opened doors to a global marketplace, significantly reducing the overhead costs typically associated with traditional brick-and-mortar establishments. As a result, e-commerce has not only enhanced the shopping experience for consumers but has also empowered businesses of all sizes to expand their reach and maximize their potential in the digital age.

1.5 The Evolution of E-Commerce:

E-commerce has undergone a remarkable transformation since its humble beginnings, evolving from simple online transactions to sophisticated digital marketplaces that shape consumer behavior today. The journey began in the mid-1990s with the launch of Amazon, a groundbreaking platform that not only revolutionized the retail sector but also set the standard for online shopping experiences worldwide. Following this, the emergence of PayPal in the early 2000s introduced a new level of security in online payments, providing users with confidence to transact in a previously uncertain digital environment.

As technology continued to advance, the 2010s witnessed the rapid rise of mobile commerce, driven by the proliferation of Smartphone and dedicated applications that made shopping more accessible than ever. This shift not only changed how consumers interact with brands but also prompted businesses to adapt their strategies to meet the demands of a mobile-first audience.

Today, the e-commerce landscape is characterized by innovative features such as AI-powered shopping experiences that personalize recommendations based on user behavior, augmented reality applications that allow virtual product trials, and targeted marketing strategies that engage consumers more effectively than ever before. These advancements have paved the way for a vibrant digital marketplace, making e-commerce an integral part of daily life for millions around the globe.

1.6 The Different E-Commerce Models:

The e-commerce landscape is diverse, featuring several distinct models that serve various business needs and consumer preferences. Understanding these models is crucial for businesses looking to navigate the digital marketplace effectively [6].

- i. **B2C (Business to Consumer):** This is the most prevalent e-commerce model, wherein businesses sell products or services directly to end consumers. Companies like Amazon and Wal-Mart exemplify this model, offering a vast array of products accessible from the comfort of home. This model thrives on providing a seamless shopping experience, including features like personalized recommendations and convenient payment options.
- ii. **B2B (Business to Business):** In this model, transactions occur between businesses. Typically, it involves wholesalers or manufacturers selling products to retailers. B2B

platforms streamline the procurement process, allowing businesses to manage their supply chains more efficiently. Companies like Alibaba and ThomasNet are prominent examples of B2B e-commerce.

- iii. **C2C (Consumer to Consumer):** C2C platforms facilitate transactions between individual consumers. Websites like eBay and Craigslist enable users to buy and sell goods and services directly with one another. This model empowers consumers to monetize their unwanted items, creating a vibrant marketplace driven by peer-to-peer interactions.
- iv. **C2B (Consumer to Business):** A relatively recent addition to the e-commerce landscape, the C2B model allows individuals to sell products or services to businesses. Freelancers offering their expertise on platforms like Upwork or Fiverr illustrate this model, where consumers can provide value to businesses in various forms, including services, products, and creative work.

These e-commerce models highlight the versatility and adaptability of online commerce, catering to the evolving needs of consumers and businesses in a dynamic marketplace.

1.7 Benefits and Challenges of E-Commerce:

E-commerce has significantly transformed the retail landscape, offering a range of benefits while also presenting certain challenges for businesses and consumers alike.

Benefits:

- i. **24/7 Availability and convenience:** E-commerce platforms operate round the clock, providing consumers with the flexibility to shop at any time that suits them. This convenience is a major draw for busy individuals who may not have the time to visit physical stores.
- ii. **Global reach:** E-commerce enables businesses to transcend geographical boundaries, reaching a broader audience than traditional retail models. This global access not only enhances sales opportunities but also allows companies to tap into emerging markets and diversify their customer base.
- iii. **Lower overhead costs:** Operating an online store typically incurs lower overhead costs compared to maintaining a physical storefront. Businesses can save on rent, utilities, and in-store staffing, allowing them to allocate resources more effectively, often resulting in competitive pricing for consumers.

Challenges:

- i. **Intense competition:** The e-commerce space is highly competitive, with numerous players vying for attention in nearly every niche. This saturation can make it challenging for new entrants to establish their presence and differentiate themselves in the marketplace.
- ii. **Logistics and shipping complexities:** Managing logistics and shipping can be a daunting task for e-commerce businesses. From inventory management to ensuring timely deliveries, the complexities involved can lead to increased costs and operational challenges that must be navigated carefully.
- iii. **Data security and customer trust:** With the rise of online transactions, concerns about data security and customer trust have become paramount. E-commerce businesses must invest in robust security measures to protect sensitive customer information and build trust to encourage repeat purchases.

While e-commerce presents significant opportunities for growth and innovation, it is essential for businesses to navigate these challenges effectively to thrive in the competitive digital landscape.

Chapter – 02

Background

In developing "Web Store Wonders," we conducted extensive background research to understand the existing e-commerce landscape. Our analysis began with a review of similar platforms, where we identified key strengths such as user-friendly interfaces, robust payment systems, and effective customer engagement strategies. However, we also noted weaknesses, including limited negotiation features and a lack of personalized shopping experiences, which our project aims to address.

We explored related works to gather insights and best practices from the industry, focusing on innovative functionalities that enhance user interactions. This research informed our design and development choices, enabling us to create a platform that stands out in the competitive e-commerce market.

To bring "Web Store Wonders" to life, we utilized a variety of tools:

2.1 Design Tools:

HTML5: HTML5 provides a modern structure for web content, allowing us to create semantic and accessible web pages. Its features support multimedia integration, enhancing user engagement [7].

CSS3: CSS3 allows for advanced styling options, enabling us to craft visually appealing layouts that enhance the overall user experience. It supports responsive design, ensuring our platform looks great on any device [8].

Bootstrap framework: The Bootstrap framework facilitates rapid development by offering pre-designed components and a responsive grid system. This tool ensures consistency across our platform while saving time in design implementation [9].

JavaScript: JavaScript adds interactivity to our web application, enabling dynamic content updates and enhanced user interactions. It allows us to create features such as real-time notifications and engaging user interfaces [10].

2.2 Development Tools:

Raw PHP & OOP PHP: Raw PHP is used for server-side scripting, while Object-Oriented Programming (OOP) PHP promotes code reusability and organization. This combination allows for scalable and maintainable code [11].

Laravel framework: Laravel streamlines the development process with its elegant syntax, built-in features, and robust security. It helps us efficiently handle routing, authentication, and database interactions [12].

jQuery & Ajax: jQuery simplifies DOM manipulation and event handling, while Ajax enables asynchronous data loading. This combination allows for seamless user experiences, with content updates without full page reloads [13].

MySQL database: MySQL provides a reliable and structured way to manage our data, allowing for efficient storage and retrieval of user information and transaction records [14].

XAMPP Server: XAMPP serves as our local development environment, combining Apache, MySQL, and PHP. It allows for easy setup and testing of our application before deployment.

Domain & Hosting: Securing a domain and hosting service makes our platform accessible to users worldwide. This step is crucial for establishing our online presence and facilitating smooth transactions.

This combination of tools and research ensures that "Web Store Wonders" delivers a unique and user-friendly e-commerce experience, setting the stage for effective buyer-seller interactions.

2.3 Literature Review:

In this section, we summarize the existing literature on e-commerce platforms in Bangladesh, analyzing their functionalities, features, and user experiences. Our comparative study of notable local e-commerce websites reveals valuable insights into the industry.

Similar e-commerce platforms:

Here, we examine several e-commerce websites operating in Bangladesh, focusing on key features such as usability, interface, payment options, product range, and customer service.

i. **Daraz Bangladesh (<https://www.daraz.com.bd>): [15]**

Overview:

Daraz is one of the largest e-commerce platforms in Bangladesh, offering a wide range of products, including electronics, fashion, and home goods.

Features:

- a. User-friendly interface with easy navigation.
- b. Multiple payment options, including cash on delivery and digital wallets.
- c. Frequent discounts and promotional campaigns.
- d. Active customer service support, including live chat and phone support.

Weaknesses:

- a. While extensive, product availability can vary, leading to stock inconsistencies.
- b. Daraz Bangladesh does not provide a feature for price negotiation during product purchases on its website.

ii. **Evaly (<https://evaly.com.bd>): [16]**

Overview:

Evaly aims to provide a platform for buying and selling a variety of goods, with a focus on competitive pricing.

Features:

- a. Attractive pricing models, including flash sales and promotional discounts.
- b. User registration through social media accounts for ease of access.
- c. Offers both physical and digital products.

Weaknesses:

- a. The platform has faced challenges with delivery times and customer trust, impacting user satisfaction.
- b. Evaly does not provide a feature for price negotiation during product purchases on its website.

iii. **AjkerDeal (<https://ajkerdeal.com>): [17]**

Overview:

AjkerDeal is a marketplace that connects buyers and sellers, featuring a variety of products from local vendors

Features:

- a. Simple interface that emphasizes local products.
- b. Mobile-friendly design for on-the-go shopping.
- c. Various payment methods, including cash on delivery.

Weaknesses:

- a. Limited marketing and brand recognition compared to larger competitors.
- b. AjkerDeal does not provide a feature for price negotiation during product purchases on its website.

iv. **Chaldal (<https://chaldal.com>): [18]**

Overview:

Chaldal is an online grocery delivery service that focuses on delivering fresh produce and daily essentials.

Features:

- a. User-friendly mobile app for easy grocery shopping.
- b. Real-time inventory updates to ensure product availability.
- c. Efficient delivery service with a focus on local neighborhoods.

Weaknesses:

- a. Product range is limited to groceries, which may not appeal to all consumers.
- b. Chaldal does not provide a feature for price negotiation during product purchases on its website.

v. **Shajgoj (<https://shajgoj.com>): [19]**

Overview:

Shajgoj is a beauty and personal care e-commerce site that specializes in cosmetics and skincare products.

Features:

- Curated selection of high-quality beauty products.
- Engaging content and tutorials to enhance user experience.
- Regular promotions and discounts on popular items.

Weaknesses:

- Limited to beauty products, which may restrict audience reach.
- Shajgoj does not provide a feature for price negotiation during product purchases on its website.

2.4 Benchmark Analysis Chart:

Feature	Daraz	Evaly	AjkerDeal	Chaldal	Shajgoj	Web Store Wonders
User interface	Yes	Yes	Yes	Yes	Yes	Yes
Payment options	Yes	Yes	Yes	Yes	Yes	Yes
Product range	Yes	Yes	Yes	Yes	Yes	Yes
Delivery service	Yes	Yes	Yes	Yes	Yes	Yes
Customer support	Yes	Yes	Yes	Yes	Yes	Yes
Mobile app	Yes	Yes	Yes	Yes	Yes	Future plan
User signup	Yes	Yes	Yes	Yes	Yes	Yes
User authentication	Yes	Yes	Yes	Yes	Yes	Yes
Product listings	Yes	Yes	Yes	Yes	Yes	Yes
Search filters	Yes	Yes	Yes	Yes	Yes	Yes
Order tracking	Yes	Yes	Yes	Yes	Yes	Yes
Return & Refund policy	Yes	Yes	Yes	Yes	Yes	Yes
Seller accounts	Yes	Yes	Yes	N/A	N/A	Yes
User reviews & Ratings	Yes	Yes	Yes	Yes	Yes	Yes
Live chat option	Yes	No	No	No	Yes	Future plan
Negotiation option	No	No	No	No	No	Yes
SEO optimization	Yes	No	No	No	No	Future plan
Shipping options	Standard	Standard	Local	Local	Standard	Yes

Table 2.1: Benchmark analysis

This literature review and benchmark analysis highlight the strengths and weaknesses of existing e-commerce platforms in Bangladesh, providing a framework for "Web Store Wonders" to differentiate itself by focusing on unique features such as negotiation options, personalized shopping experiences, and improved customer service.

2.5 Key Gaps and Opportunities:

Price negotiation: Our unique selling point is price negotiation feature, which none of the competitors offer. This feature can be marketed heavily to differentiate the platform and attract price-sensitive customers.

Mobile app: The lack of a mobile app currently puts us at a disadvantage, as most competitors already offer this feature. However, we plan to develop a mobile app soon, which will allow customers to access our platform more easily and conveniently on the go. This app will ensure a smarter, more seamless, and complete user experience, enabling shopping and selling anytime from mobile devices.

Chapter – 03

Project Design Procedure

Requirement analysis:

Requirement analysis for our e-commerce platform involves identifying both functional and non-functional requirements through user feedback, market research, and competitor analysis. These requirements are essential to delivering a seamless experience for users, sellers, and administrators.

3.1 Functional and nonfunctional requirements

Functional requirements:

- i. **User registration:** Users must register on the platform to make purchases or create a seller account.
- ii. **User authentication:** Registered users can log in securely with their credentials to access their accounts and track orders.
- iii. **Product listings:** Sellers can upload, edit, and manage their products with descriptions, prices, and images.
- iv. **Product search and filters:** Users can search for products by category, price range, ratings, and other filters.
- v. **Shopping cart and checkout:** Users can add items to a shopping cart and proceed to secure checkout for payment.
- vi. **Order tracking:** Users can track the status of their orders from purchase to delivery.
- vii. **Payment processing:** The platform will support multiple payment methods such as credit cards, mobile banking, and cash on delivery.
- viii. **Review and ratings:** Users can leave product reviews and rate their purchases, helping other users make informed decisions.
- ix. **Seller dashboard:** Sellers can view sales reports, manage inventory, and communicate with customers.
- x. **Admin control:** The admin can manage the platform's users, sellers, products, and ensure compliance with policies.
- xi. **Discounts and promotions:** Sellers can offer discounts, and users can apply coupon codes during checkout.

- xii. **Negotiation option:** Users can negotiate prices with sellers where applicable.

Nonfunctional requirements:

- i. **Performance:** The platform must be able to handle multiple concurrent users without performance degradation.
- ii. **Scalability:** The system should be scalable to accommodate future growth in the number of users and sellers.
- iii. **Usability:** The platform should have an intuitive and user-friendly interface for easy navigation.
- iv. **Security:** User data, including payment information, should be secured through encryption and follow industry best practices.
- v. **Availability:** The platform should ensure high uptime and availability, minimizing downtime.
- vi. **Mobile responsiveness:** The site must be fully responsive to ensure a smooth experience on all devices.
- vii. **Customer feedback:** Users should be able to submit feedback on products and services.
- viii. **Forum/Community:** Users can discuss products, share experiences, and connect with sellers and other customers via a forum or community section.

This structure will guide the development of our e-commerce platform, ensuring that all essential features are covered while also focusing on performance, security, and user experience.

3.2 Use Case Diagram:

A use case diagram provides a visual representation of how users interact with the features of an e-commerce platform. It identifies the primary actors (such as customers, sellers, and admins) and the interactions they have with the system. The diagram typically uses ellipses to represent different use cases and lines to show the relationship between actors and their interactions with the system. For our e-commerce project, "Web Store Wonders," the key use cases would include user registration, product browsing, order placement, payment processing, and customer support, among others. Our project's use case diagram is depicted in Picture 3.1.

This captures how our system supports different user roles and their various interactions with the platform.

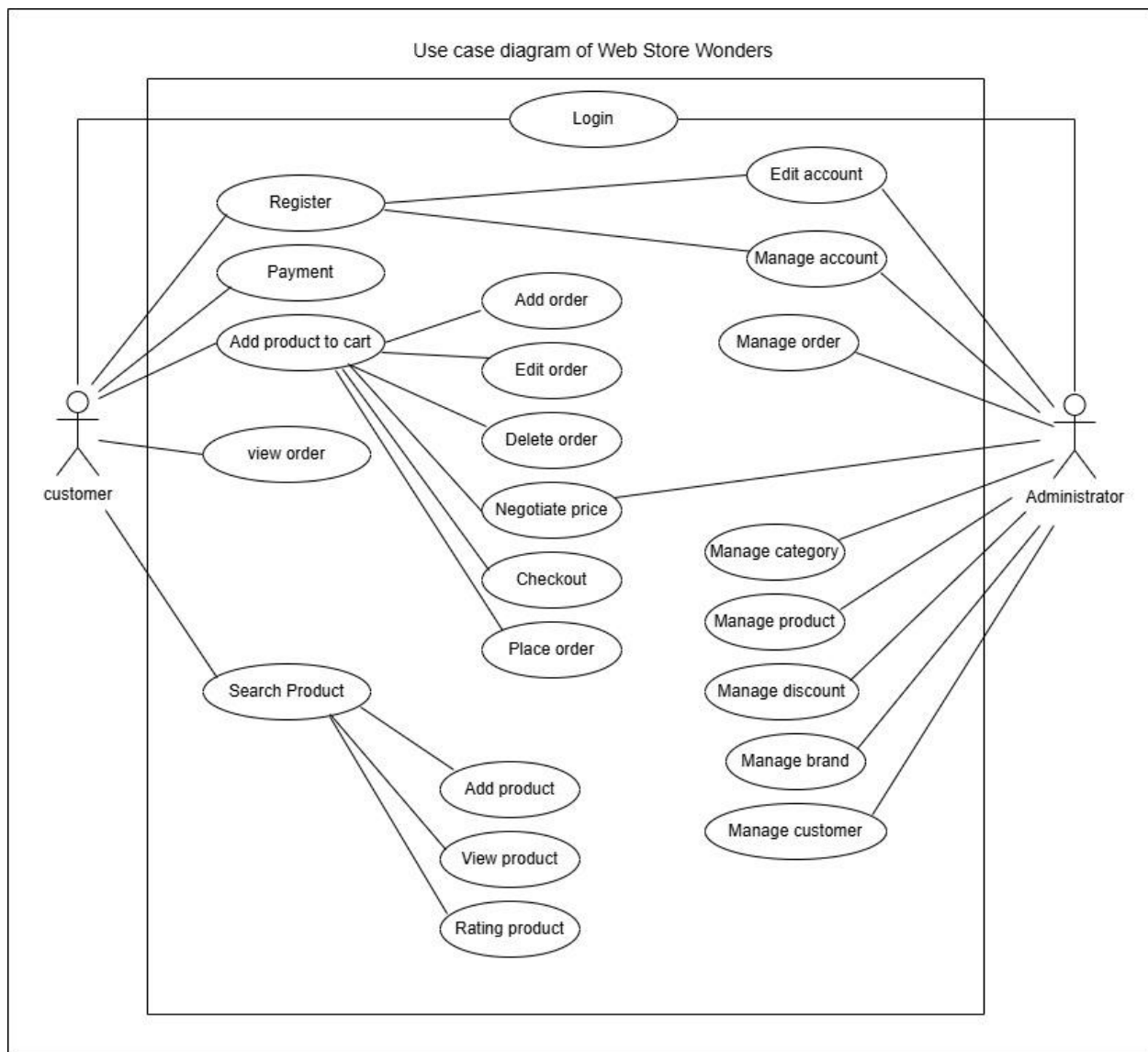


Figure: 3.1 Use Case diagram

3.3 Project Plan:

The project plan for "Web Store Wonders" focuses on creating a robust and accessible e-commerce platform aimed at providing a seamless shopping experience for users in Bangladesh. The plan includes key features like user authentication, product listings, payment options, and seller management, alongside future goals such as developing a mobile app and offering enhanced customer support.

WBS Number	Task Title	PCT of Task Complete	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
1	Project Conception and Initiation	100%	100%	100%										
2	Platform Selection and Research	100%	100%	100%										
3	Designing User Interface	75%	50%	75%	100%									
4	Developing Functional Backend	50%	25%	50%	75%	100%								
5	Payment Gateway Integration	25%		25%	50%	75%	100%							
6	Testing and Quality Assurance	0%					25%	50%						
7	Mobile App Design (Future Plan)	0%							25%	50%	75%	100%		
8	Marketing and SEO Optimization	0%								25%	50%	75%	100%	
9	User Feedback and Iteration	0%									25%	50%	75%	100%
10	Final Report and Launch	0%										25%	50%	100%

Figure: 3.2 Gantt chart FYDP

Chapter – 04

User Interface

4.1 User Interface (UI): User Interface (UI) refers to the visitor/customer interface and visitor/customer experience elements of a website, including the visual design, layout, and interactive components.

4.2 Administrative Panel: Administrative panel refers to the administrative or control panel of a website's backend. The backend of a website is the server-side, where data is processed, and various functionalities are implemented. The backend panel, sometimes known as an admin panel or dashboard, is a user interface that allows administrators or authorized users to manage and control different aspects of the website.

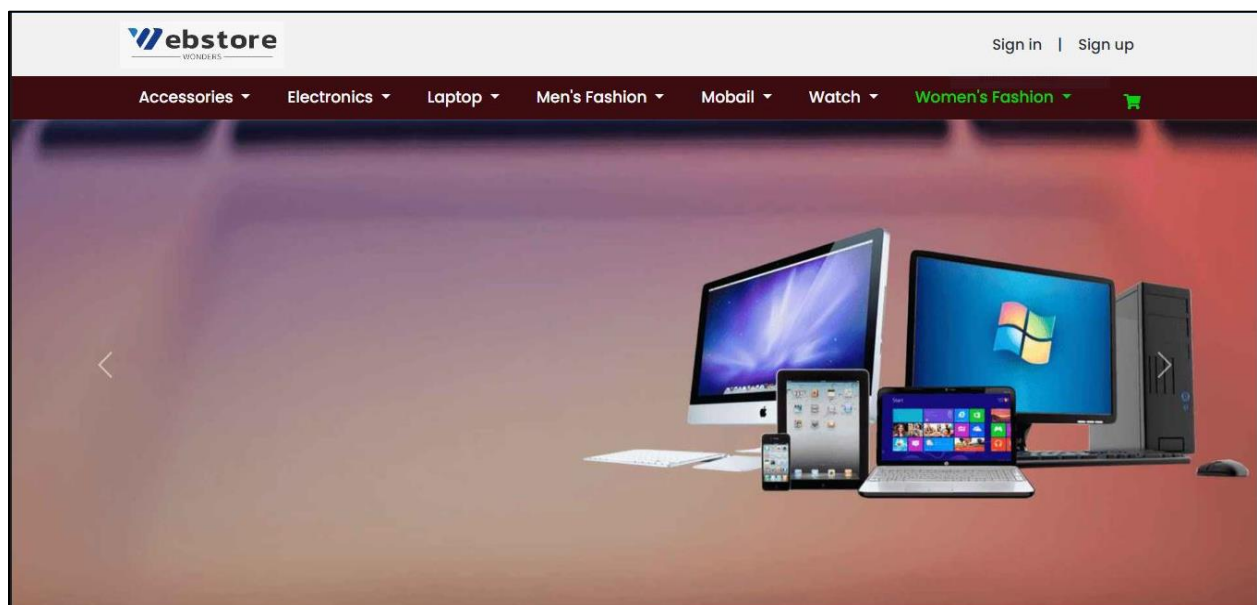


Figure: 4.1 Home page sliders

Sliders: Sliders showcase featured products and exclusive deals, enhancing shopping experience.

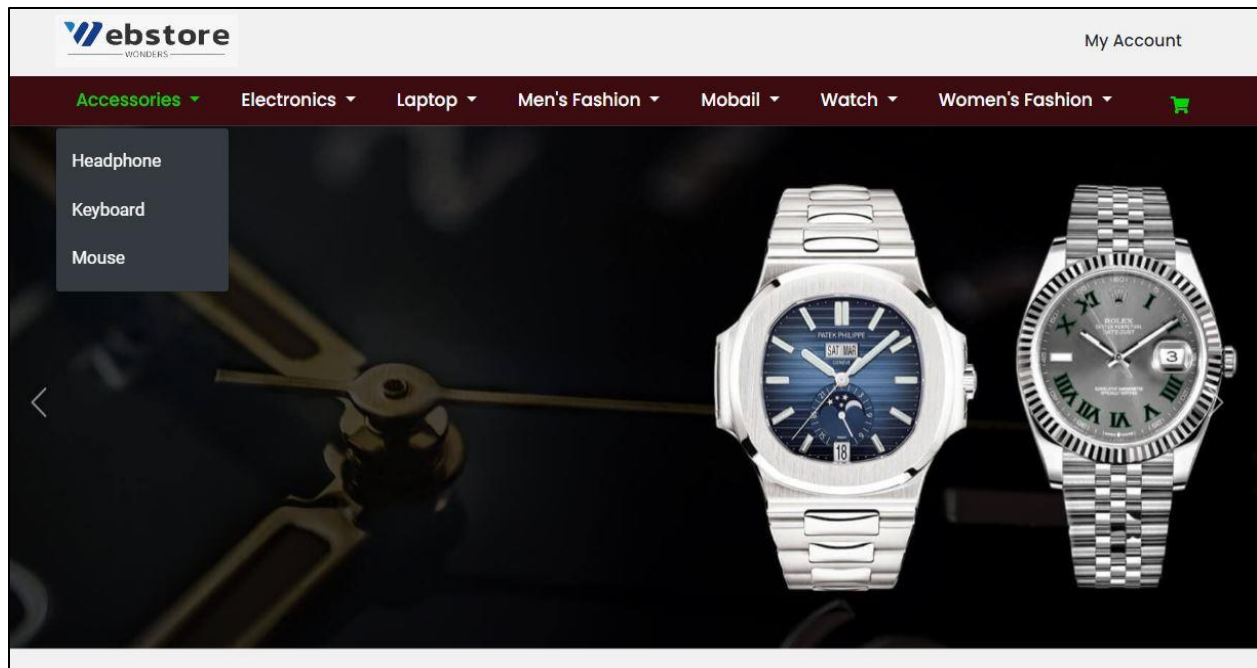


Figure: 4.2 Categories & Sub-categories menu bar

Categories & Sub-categories menu bar: The Categories & Sub-categories menu bar streamlines navigation, allowing customers to easily browse and discover products based on their interests, enhancing their shopping experience.

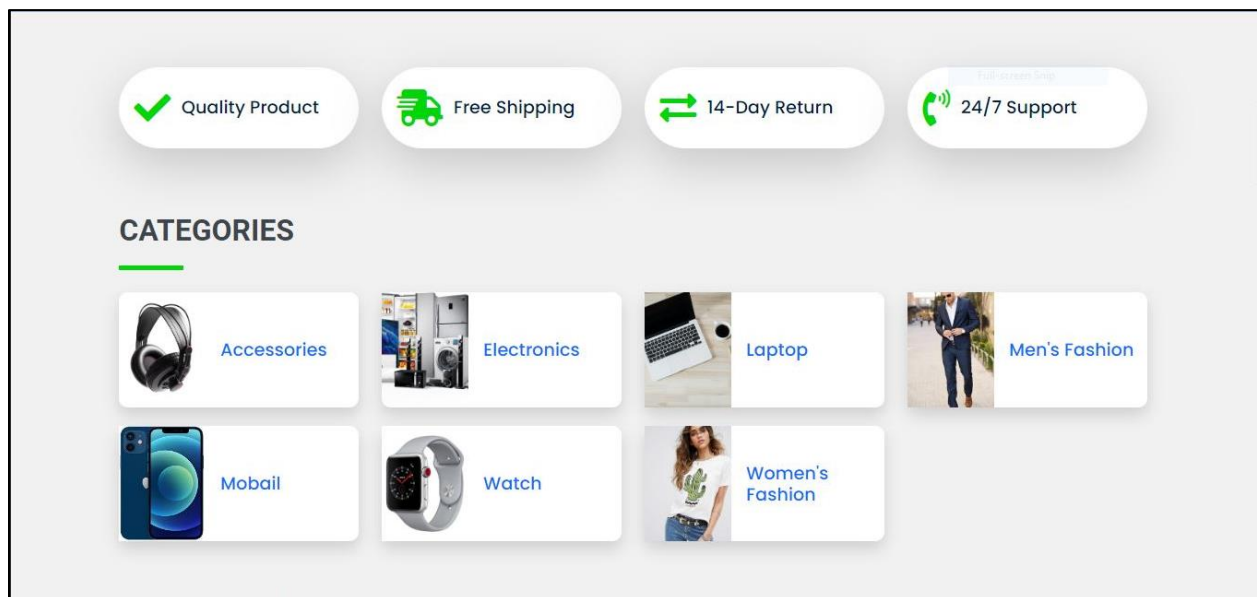


Figure: 4.3 Services & categories with thumbnail

Services & categories with thumbnail: Services & categories with thumbnail visually guide customers to explore offerings, enhancing product discovery.

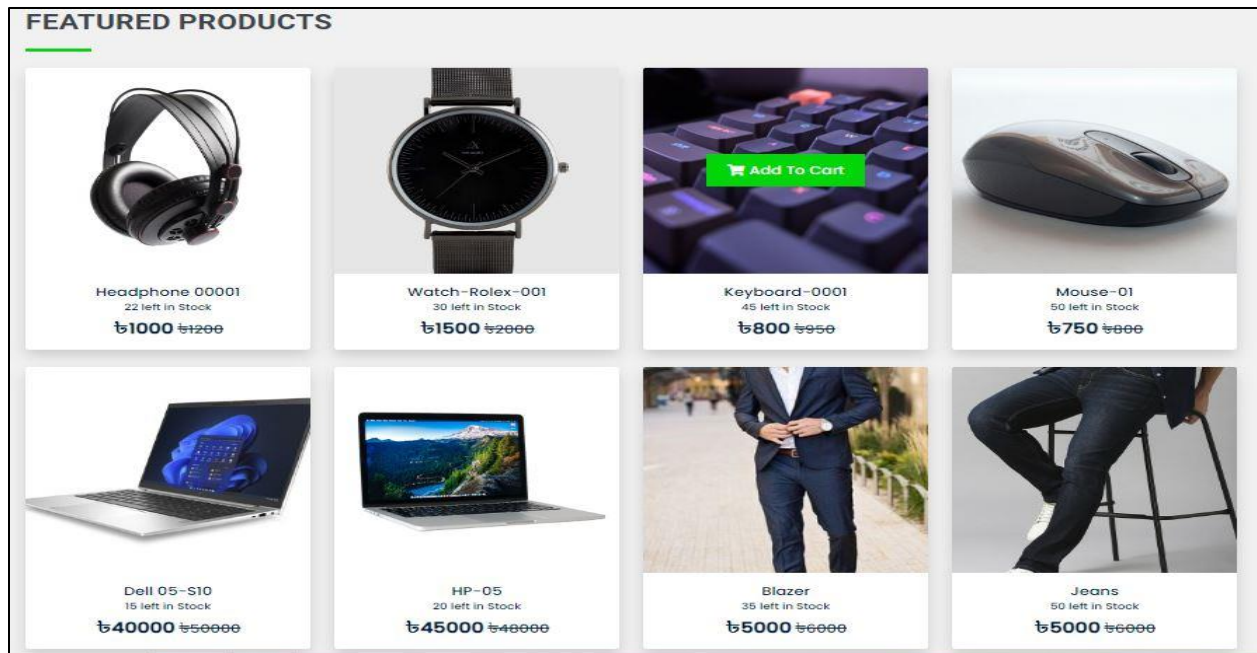


Figure: 4.4 Featured products

Featured products: Featured products highlight top selections, attracting customer attention and driving sales.

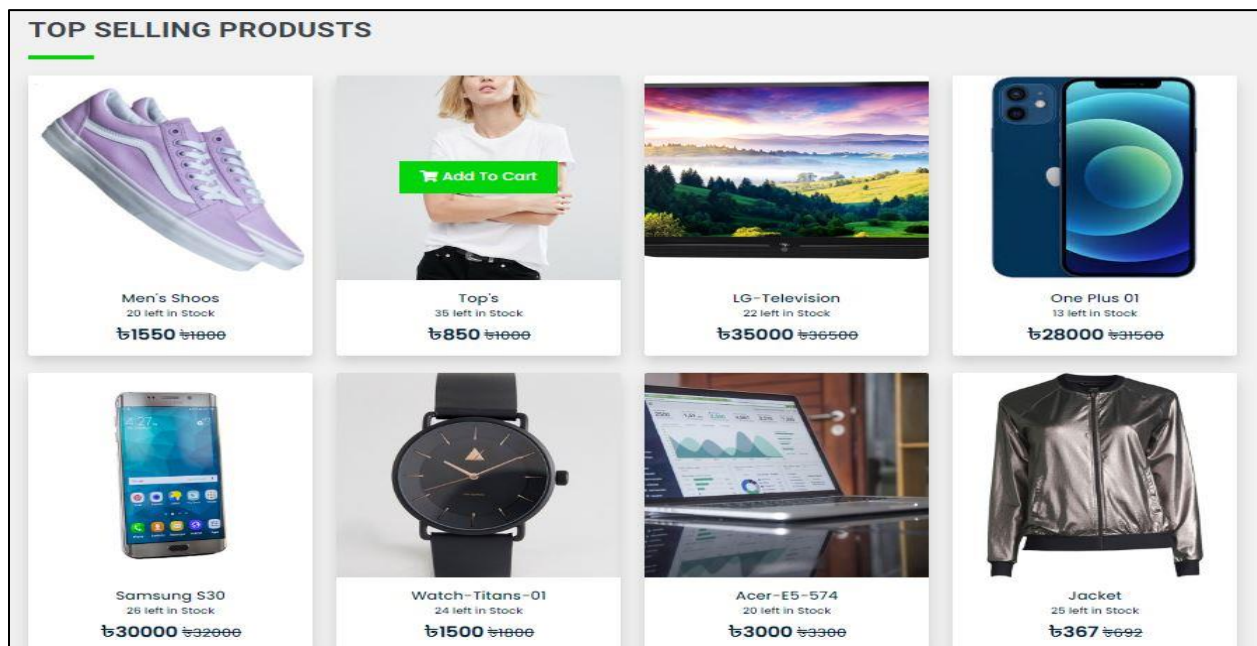


Figure: 4.5 Top selling products

Top selling products: Top selling products showcase popular items, building customer trust and encouraging purchases.

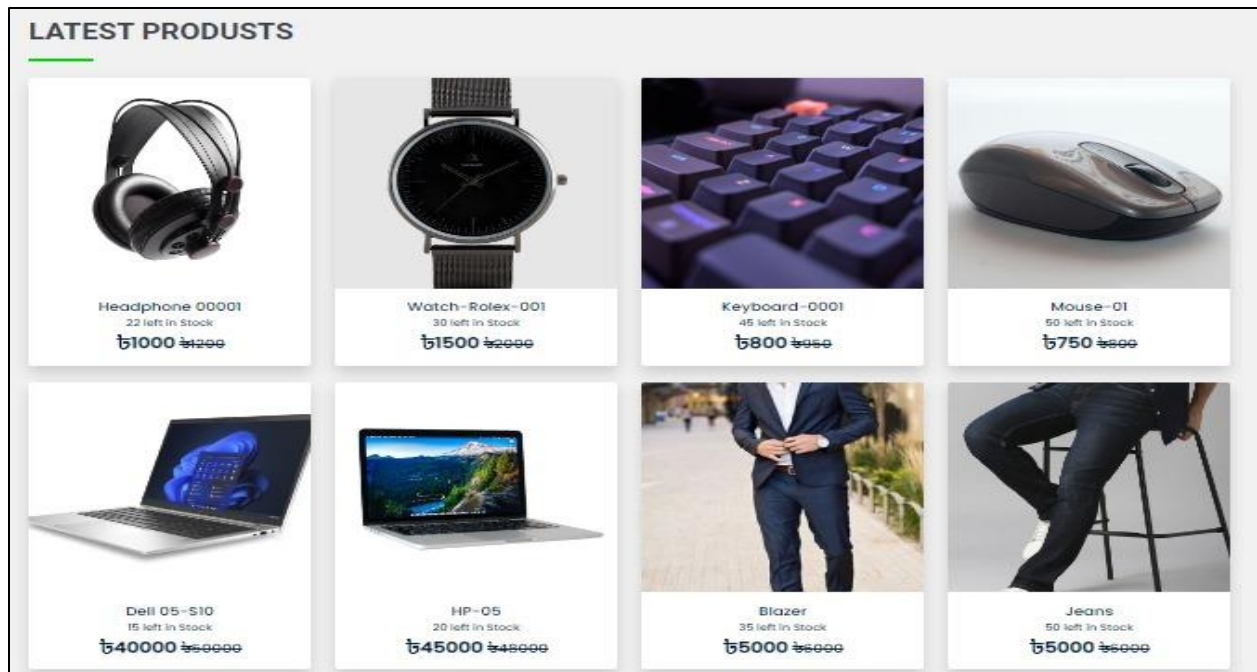


Figure: 4.6 Latest products

Latest products: Latest products display new arrivals, keeping customers updated and engaged with fresh selections.

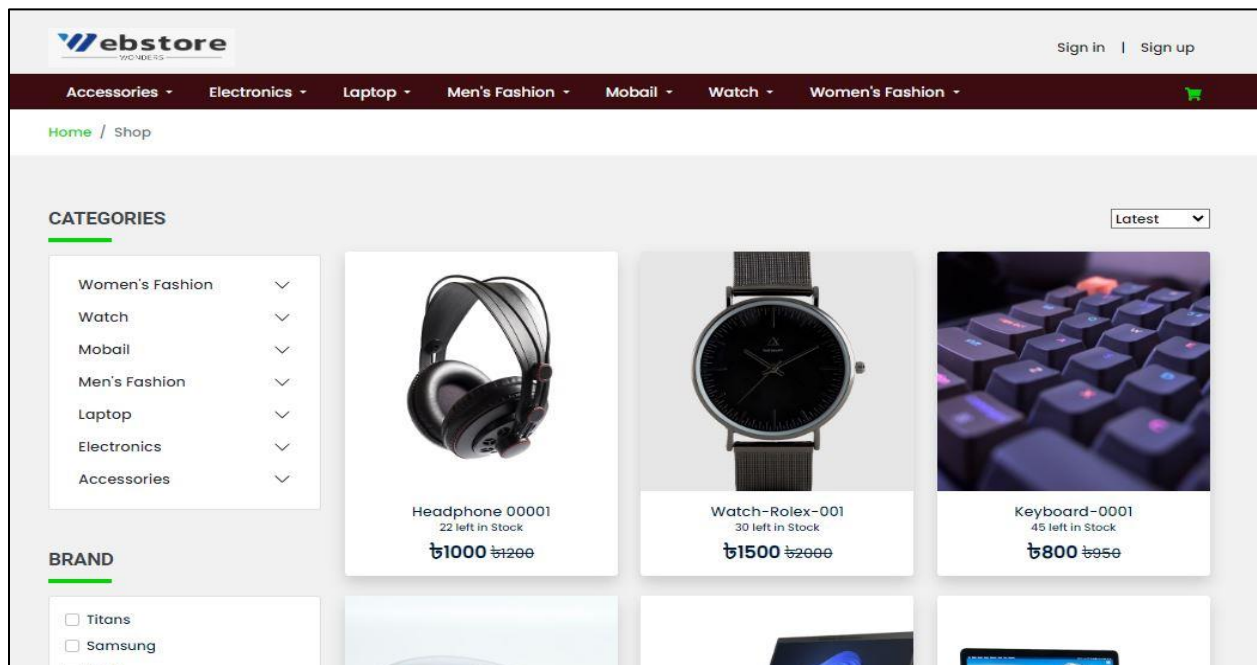


Figure: 4.7.1 Shop page including category, sub-category and brands

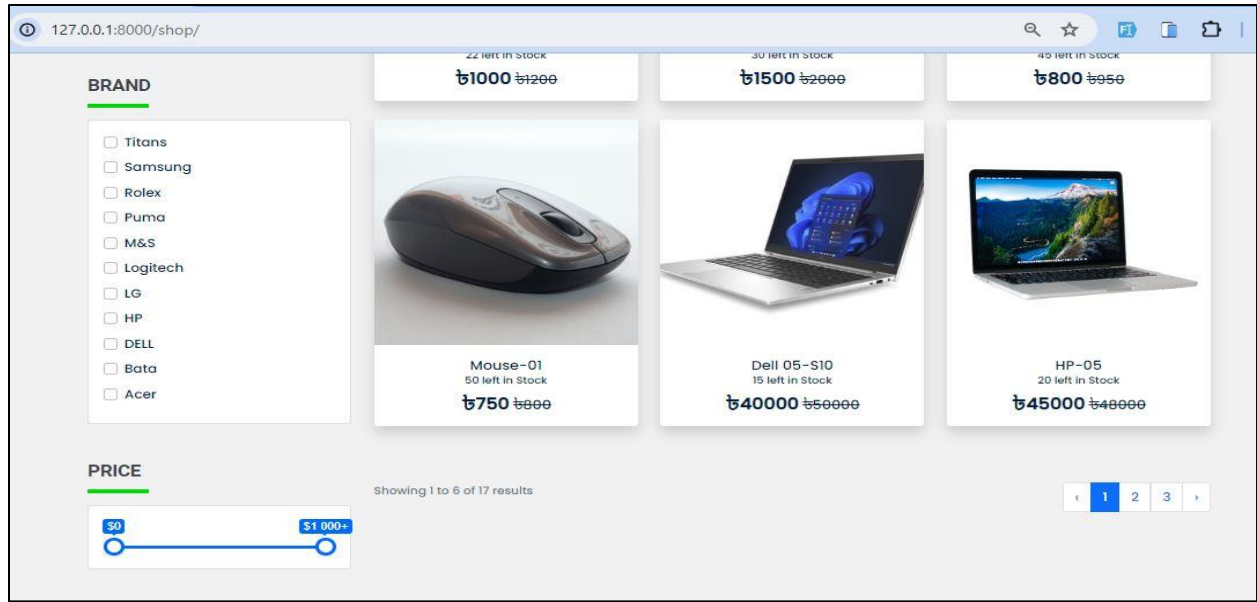


Figure: 4.7.2 Brands and price limit.

Product Page including Category, Sub-Category, Brands and Price limit: The product page, with Category, Sub-Category, Brands, and Price limit filters, allows customers to refine their search, making it easier to find exactly what they need.

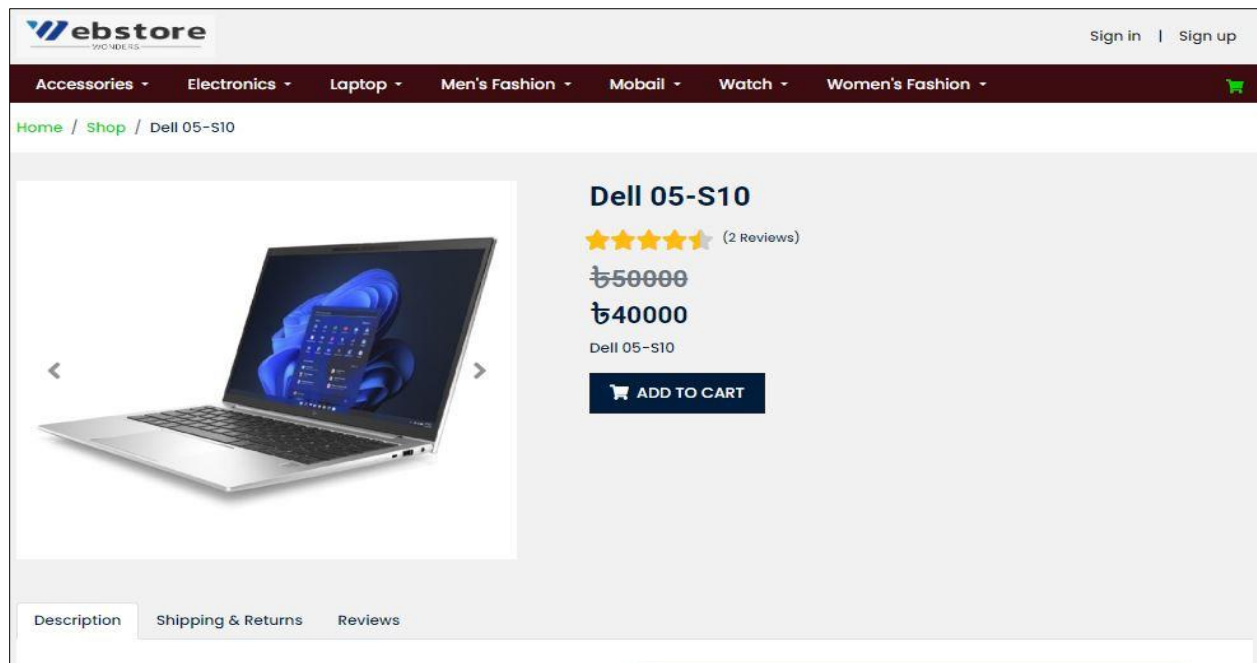


Figure: 4.8 Product details

Product details: Product details provide essential information, helping customers make informed purchasing decisions.

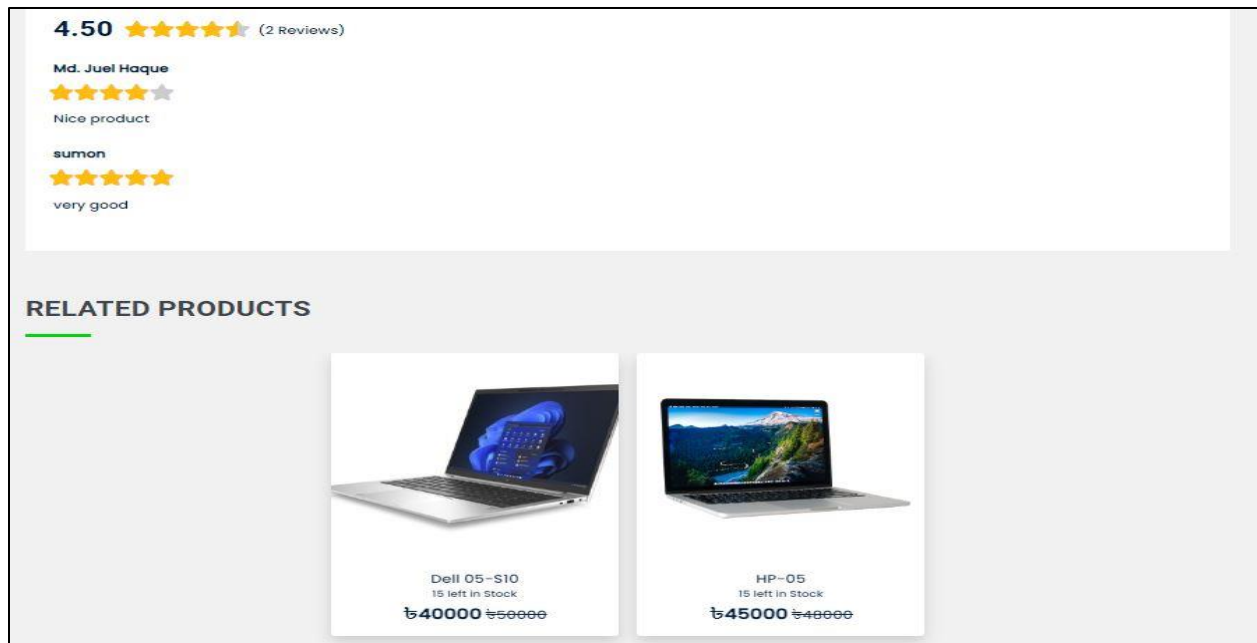


Figure: 4.9 Related products & Product review

Related products & Product review: Related products and product reviews offer personalized recommendations and insights, enhancing customer confidence and shopping experience.

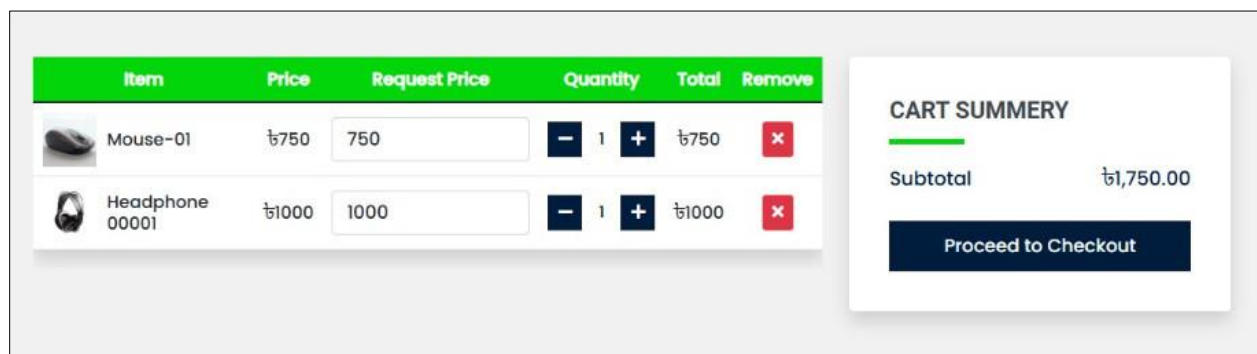
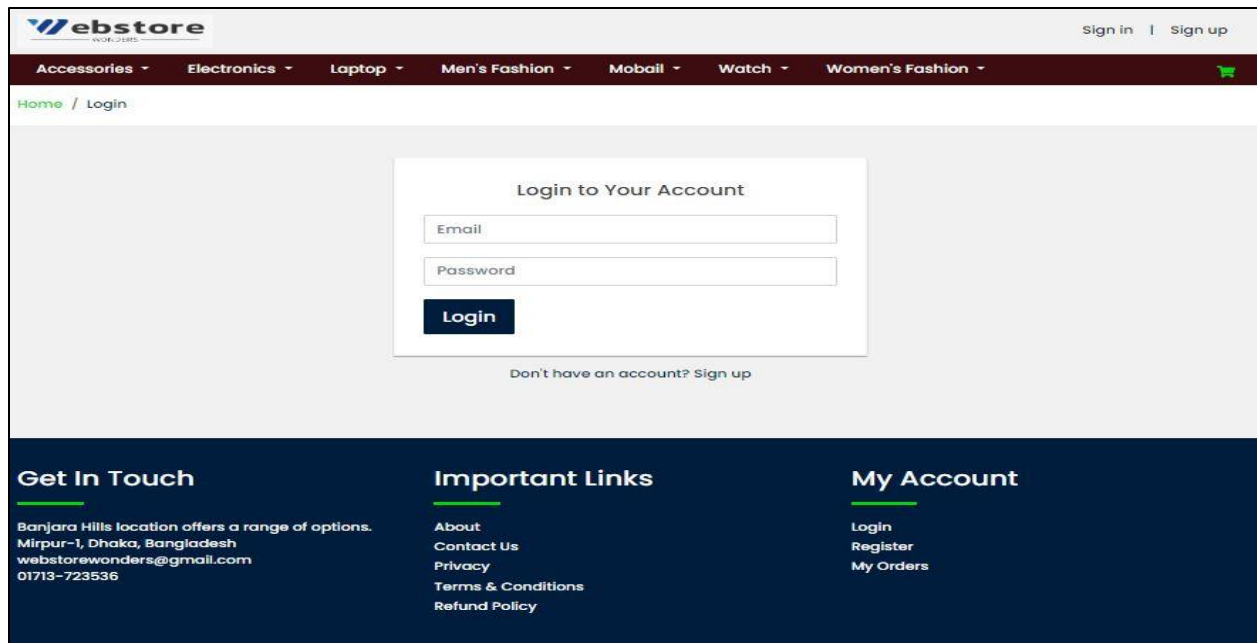


Figure: 4.10 Cart page with real-time negotiation

Cart page with real-time negotiation: The Cart page with real-time negotiation enables dynamic pricing, allowing customers to secure the best deals and enhancing their shopping satisfaction.



webstore WONDERERS Sign in | Sign up

Accessories ▾ Electronics ▾ Laptop ▾ Men's Fashion ▾ Mobail ▾ Watch ▾ Women's Fashion ▾

Home / Login

Login to Your Account

Email

Password

Login

Don't have an account? [Sign up](#)

Get In Touch

Banjara Hills location offers a range of options.
Mirpur-1, Dhaka, Bangladesh
webstorewonders@gmail.com
01713-723536

Important Links

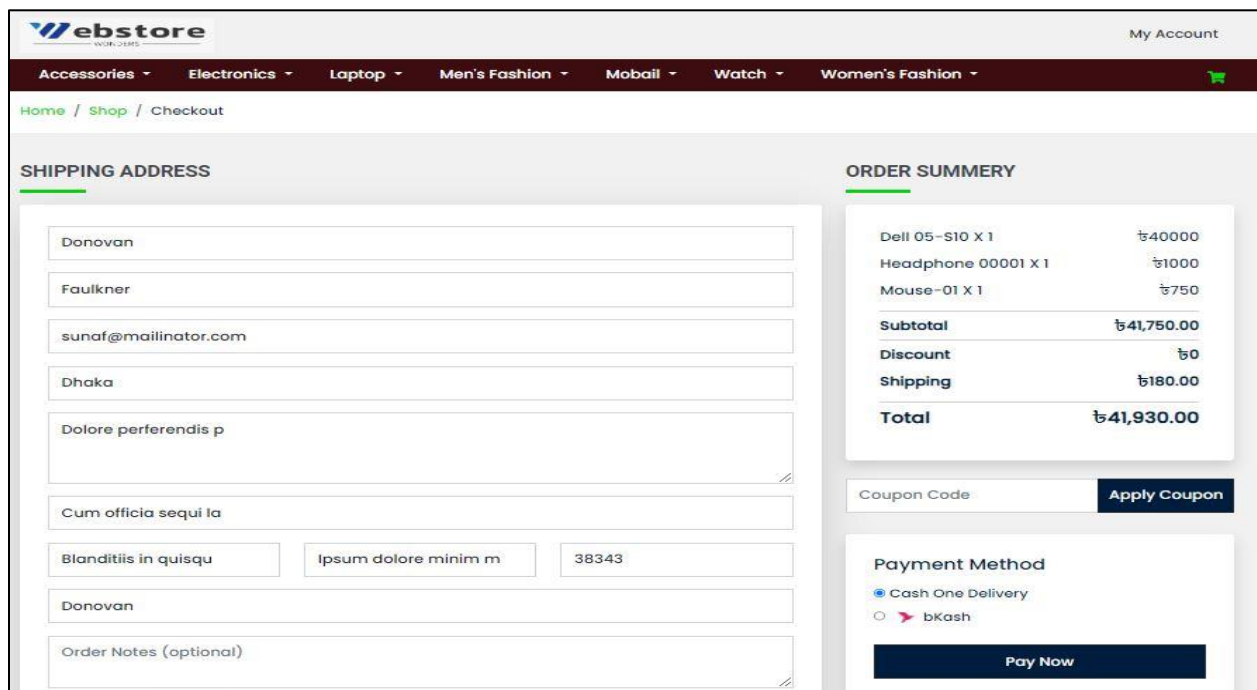
About
Contact Us
Privacy
Terms & Conditions
Refund Policy

My Account

Login
Register
My Orders

Figure: 4.11 Login

Login: Login provides secure access, personalizing the shopping experience and enabling order tracking.



webstore WONDERERS My Account

Accessories ▾ Electronics ▾ Laptop ▾ Men's Fashion ▾ Mobail ▾ Watch ▾ Women's Fashion ▾

Home / Shop / Checkout

SHIPPING ADDRESS

Donovan

Faulkner

sunaf@mailinator.com

Dhaka

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Donovan

Order Notes (optional)

ORDER SUMMARY

Dell S10-S10 X 1	₹40000
Headphone 00001 X 1	₹1000
Mouse-01 X 1	₹750
Subtotal	₹41,750.00
Discount	₹0
Shipping	₹180.00
Total	₹41,930.00

Coupon Code **Apply Coupon**

Payment Method

☒ Cash On Delivery

☐ bKash

Pay Now

Figure: 4.12 Order checkout & Shipping address

Order checkout & Shipping address: Order checkout & Shipping address streamline the final purchase steps, ensuring accurate delivery and a smooth shopping experience.

Dhaka

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38343

Donovan

Order Notes (optional)

Shipping ৳180.00

Total ৳41,930.00

Coupon Code [Apply Coupon](#)

Payment Method

☐ Cash On Delivery

☒ bKash

Please Pay to: 01700-000000

Account holder name

Account holder name

Account number Transaction ID

Pay Now

Get In Touch

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webstorewonders@gmail.com

Important Links

About
Contact Us

My Account

Login
Register

Figure: 4.13 Payment methods

Payment methods: Payment methods offer flexible, secure options for completing purchases, enhancing convenience.

webstore
WONDERS

My Account

Accessories ▾ Electronics ▾ Laptop ▾ Men's Fashion ▾ Mobail ▾ Watch ▾ Women's Fashion ▾

You have placed your order successfully

Thank You !

Your Order id is : 35

Get In Touch

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webstorewonders@gmail.com
01713-723536

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My Account

Login
Register
My Orders

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Figure: 4.14 Thank you/confirmation page

Thank you / confirmation page: The thank you / confirmation page provides order assurance, reinforcing customer trust and satisfaction.

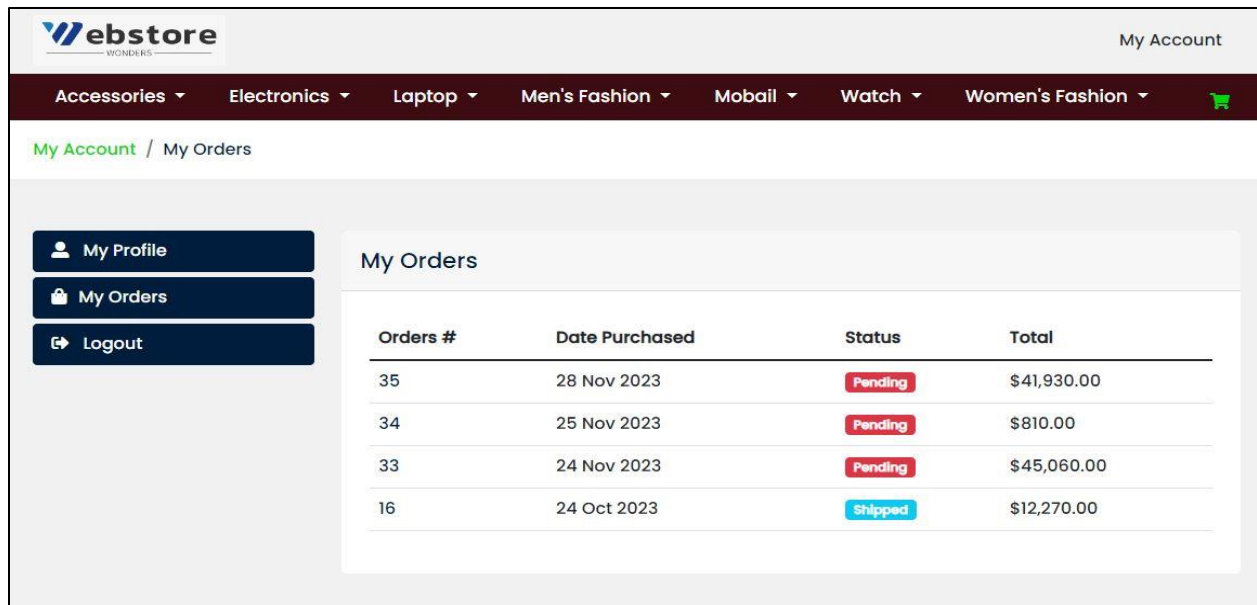


Figure: 4.15 Customer profile & order list

Customer profile & order list: Customer profile & order list allow users to view personal information and track past purchases, enhancing account management.

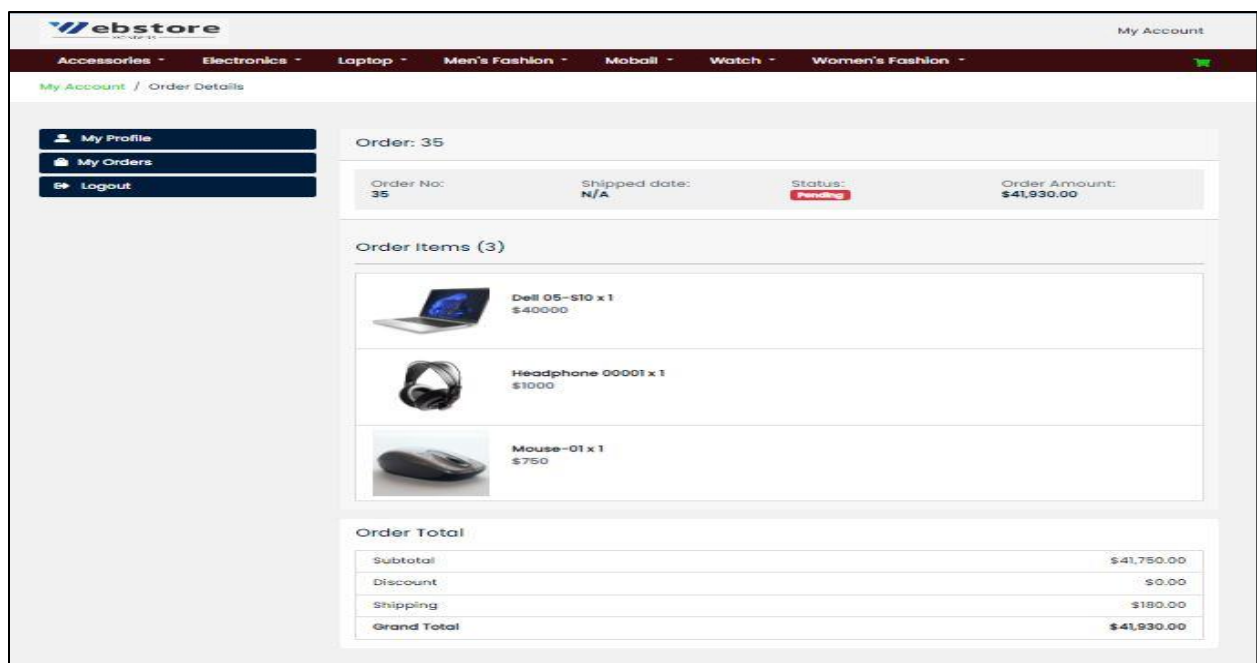


Figure: 4.16 Customer order details & status

Customer order details & status: Customer order details & status keep users informed about their purchase progress, improving transparency and customer satisfaction.

Webstore

Sign in | Sign up

Accessories - Electronics - Laptop - Men's Fashion - Mobail - Watch - Women's Fashion -

Home / Register

Register Now

Name

Email

Phone

Password

Confirm Password

Register

Already have an account? Login Now

Figure: 4.17 Registrations

Registration: Registrations enable customers to create accounts, facilitating a personalized shopping experience and streamlined order management

Administrative Panel

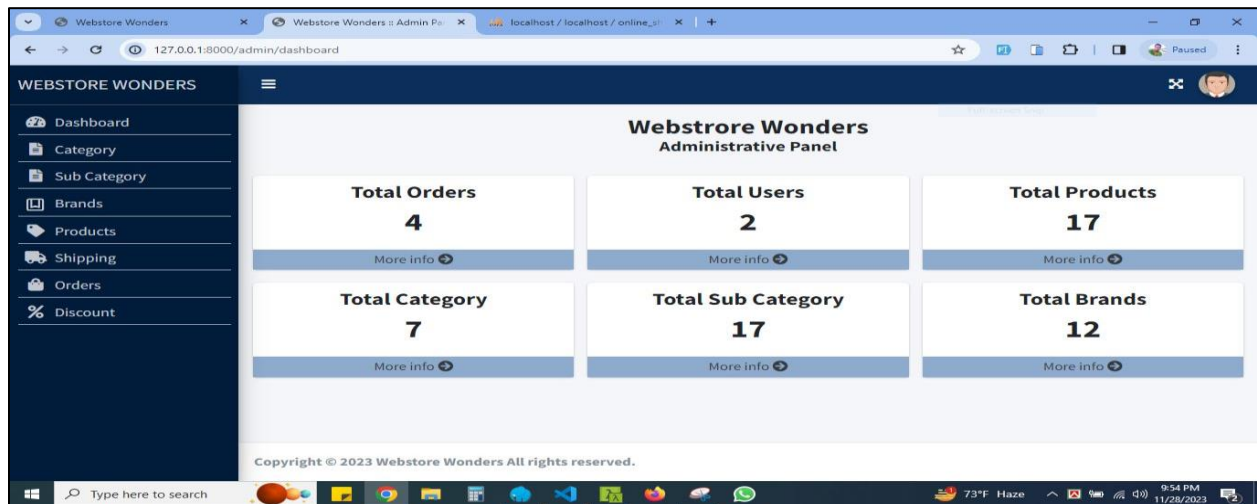


Figure: 4.18 Dashboard

Dashboard: The dashboard offers a comprehensive overview of key metrics and performance indicators, enabling efficient monitoring and decision-making for administrators.

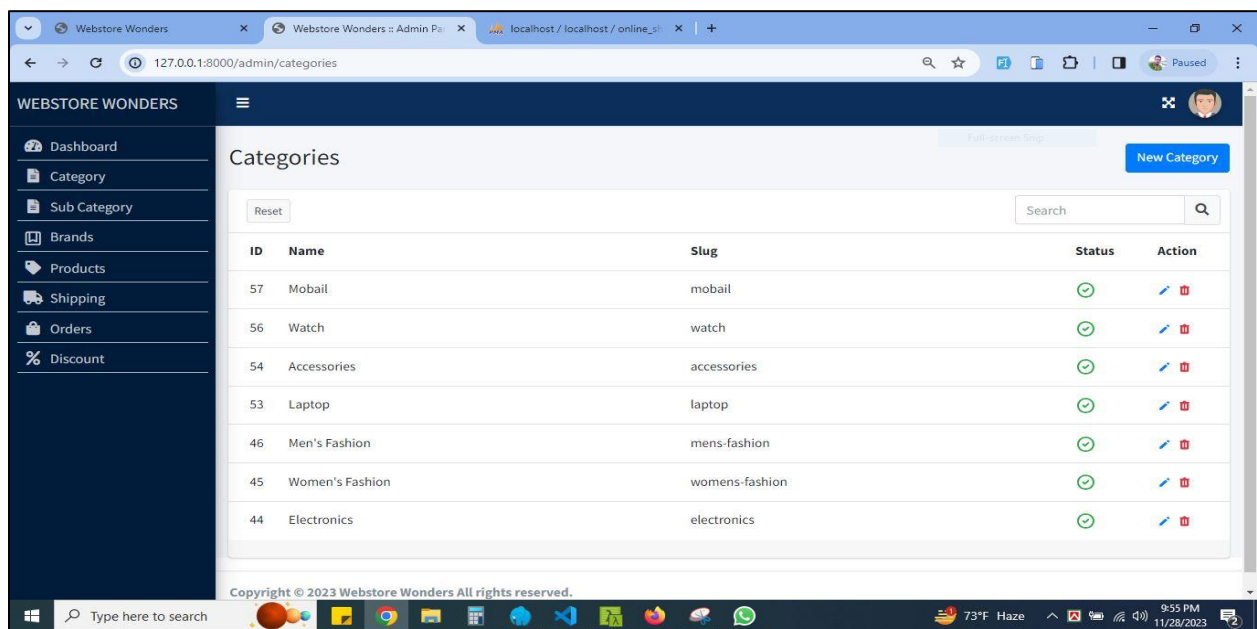


Figure: 4.19 Category management

Category management: Category management allows administrators to organize and update product categories, enhancing navigation and improving the customer shopping experience

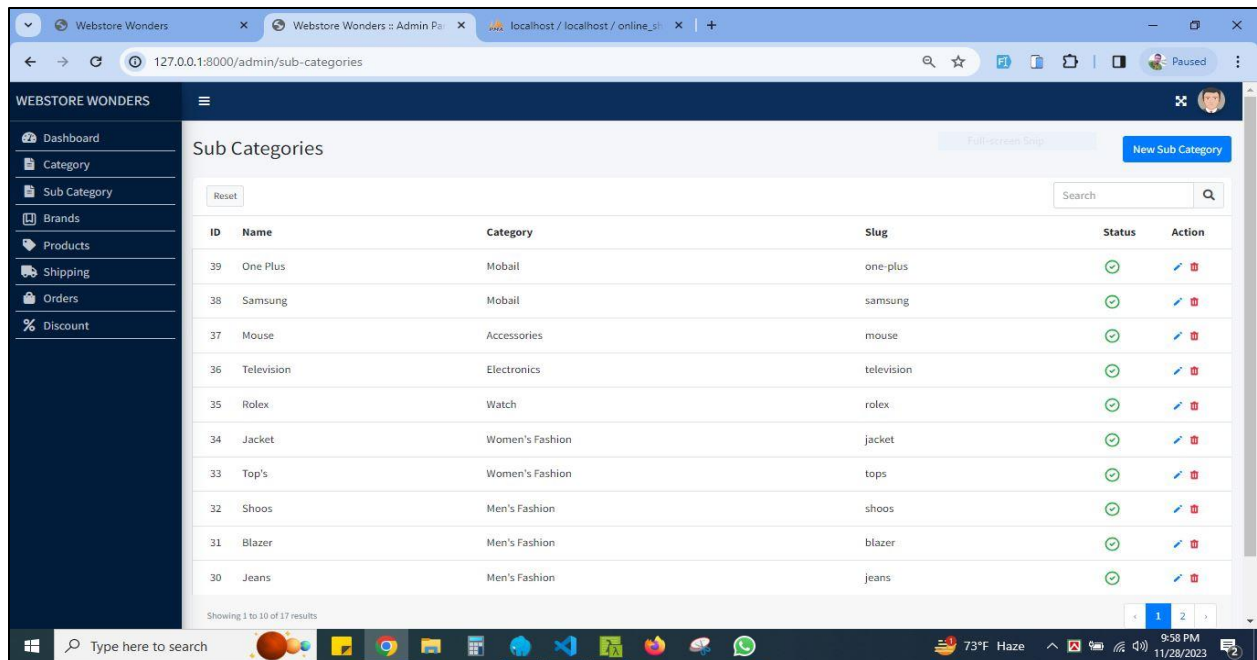


Figure: 4.20 Sub-category management

Sub-category management: Sub-category management enables precise organization of products within categories, improving search ability and enhancing user experience

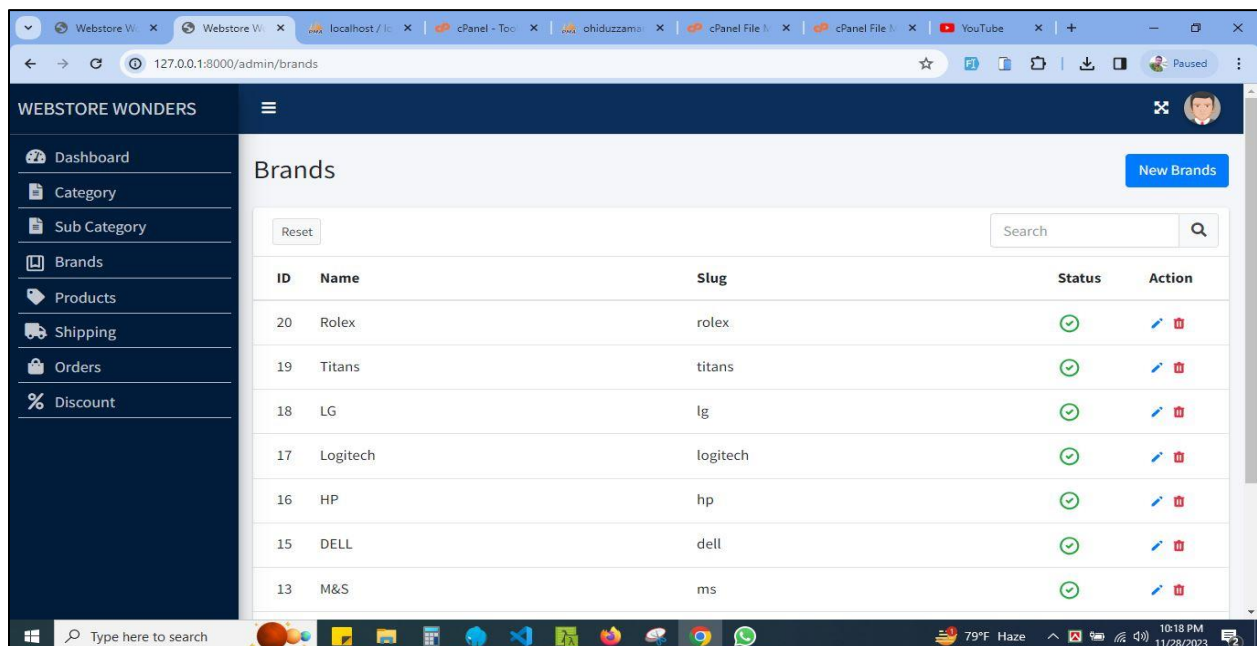


Figure: 4.21 Brand management

Brand management: Brand management allows administrators to oversee and showcase brands, helping to create a cohesive shopping experience and strengthen brand identity.

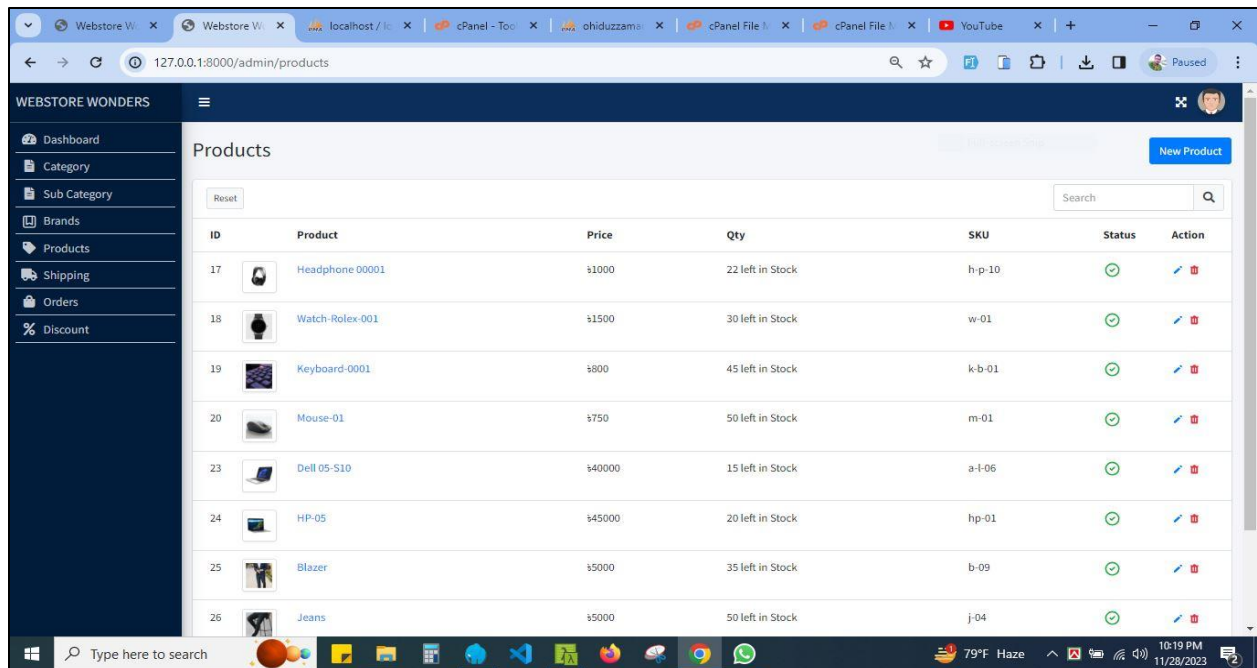


Figure: 4.22 Product management

Product management: Product management enables administrators to add, edit, and remove products, ensuring accurate inventory and up-to-date offerings.

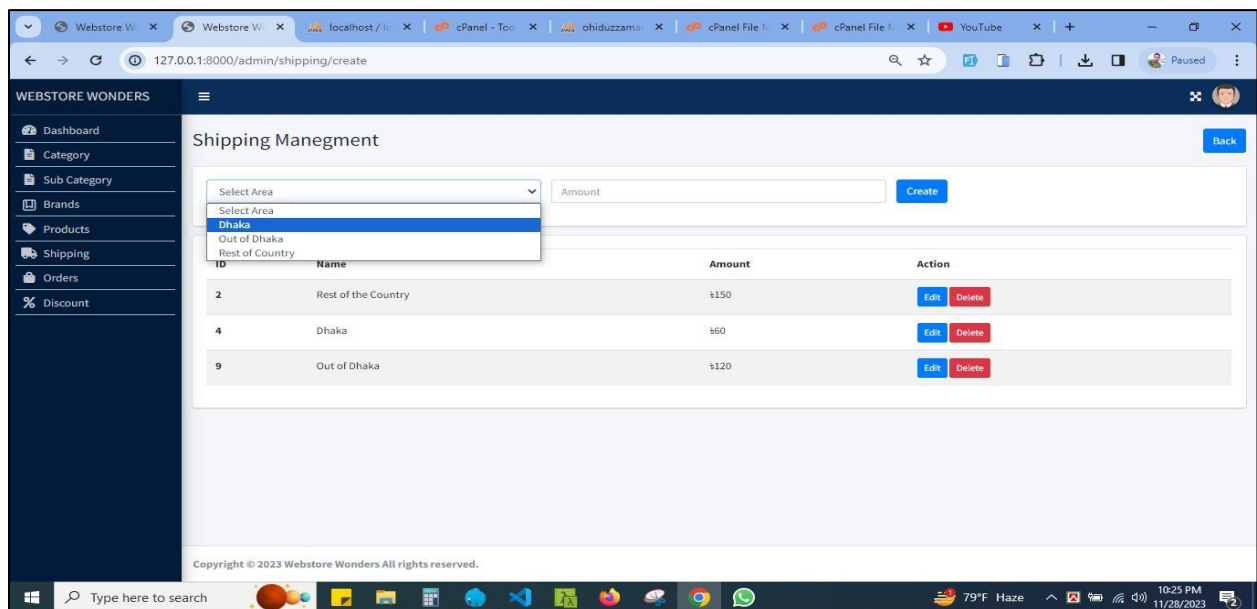


Figure: 4.23 Shipping management

Shipping management: Shipping management facilitates the setup and management of shipping methods and costs, optimizing delivery efficiency and improving the overall customer experience.

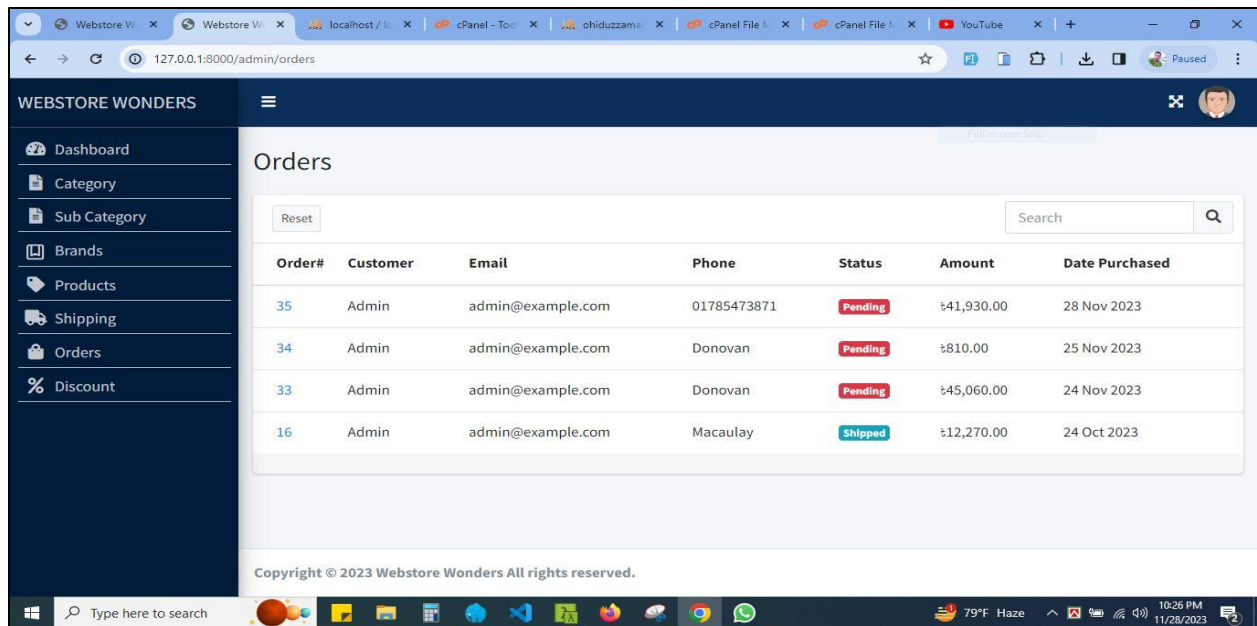


Figure: 4.24 Order management

Order management: Shipping management streamlines the configuration of shipping options and rates, ensuring efficient delivery processes and enhancing customer satisfaction.

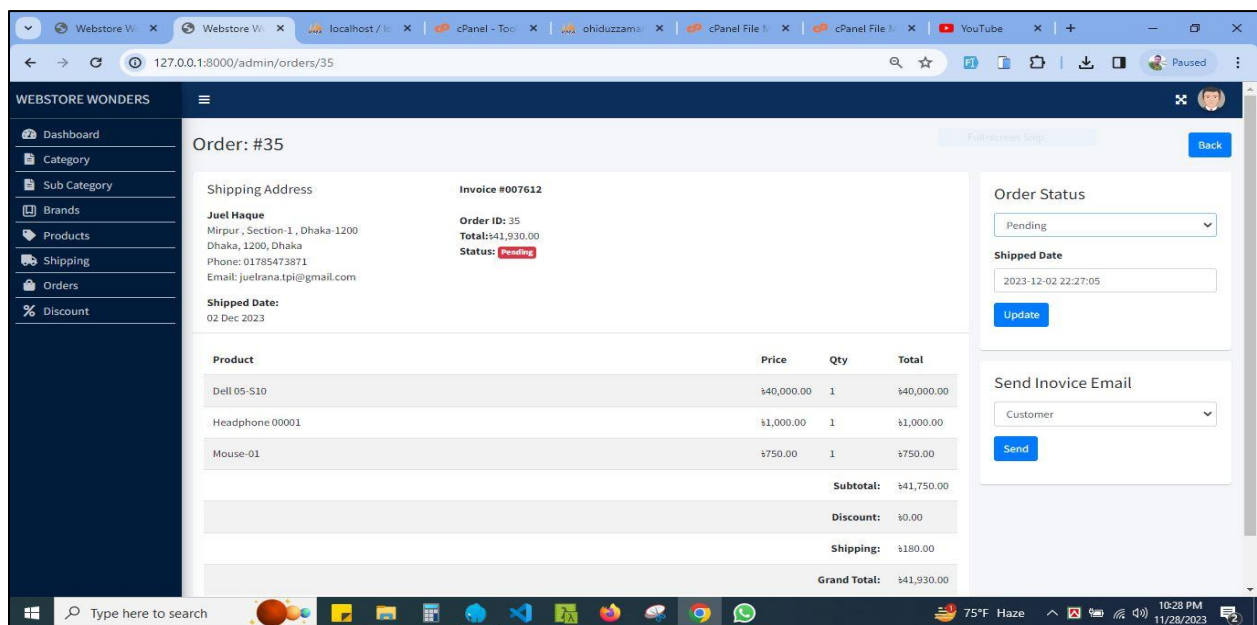


Figure: 4.25 Order details check, update and send invoice mail

Order details check, update and send invoice mail: Order details check, update, and send invoice mail streamline order processing and communication, ensuring customers receive accurate information and invoices, enhancing satisfaction.

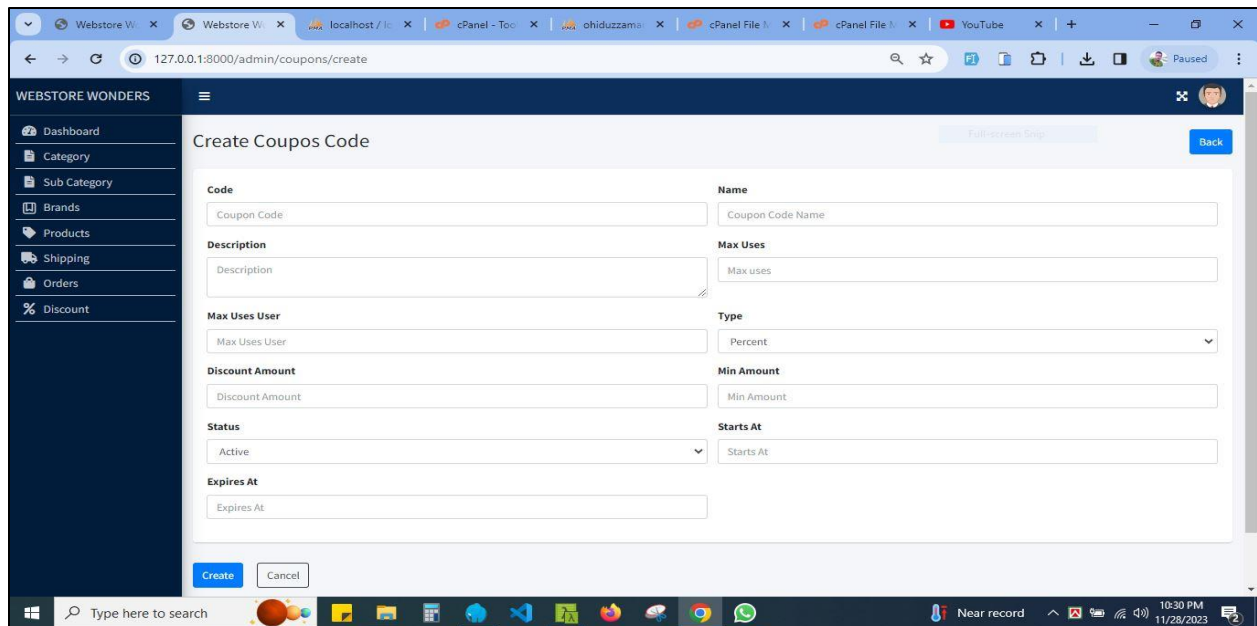


Figure: 4.26 Coupons code management

Coupons code management: Coupons code management enables administrators to create and manage discount codes, driving customer engagement and increasing sales.

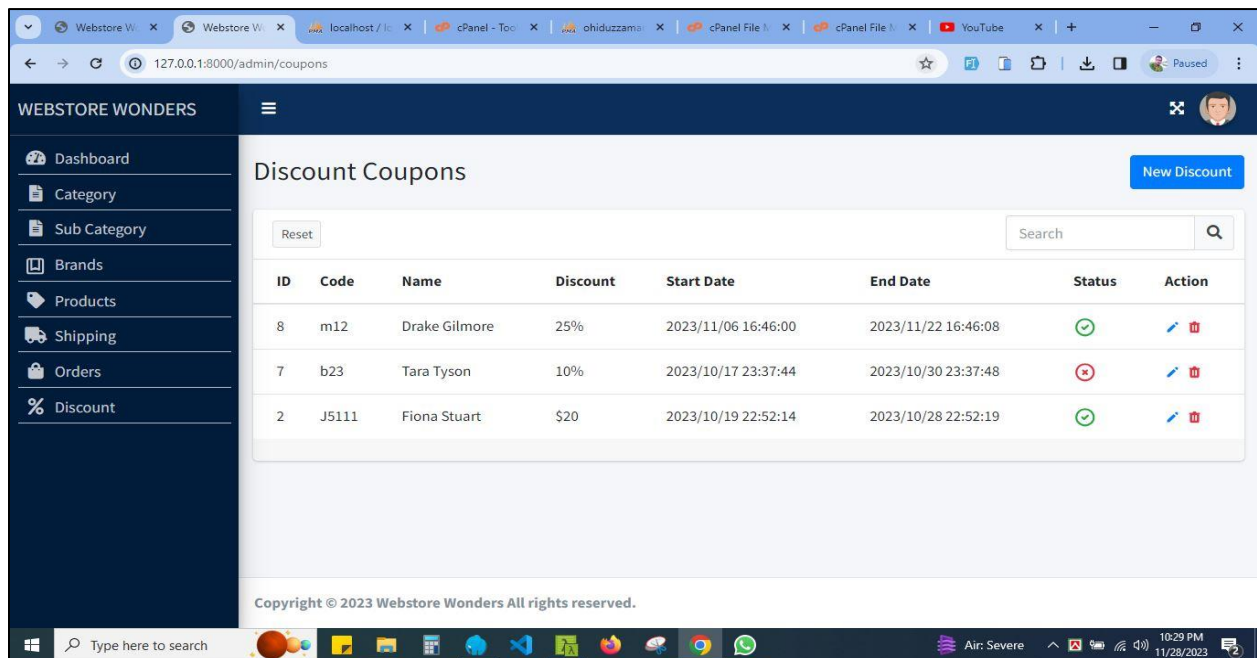


Figure: 4.27 Discount coupons

Discount coupons: Discount coupons incentivize purchases by offering savings, enhancing customer loyalty and driving sales.

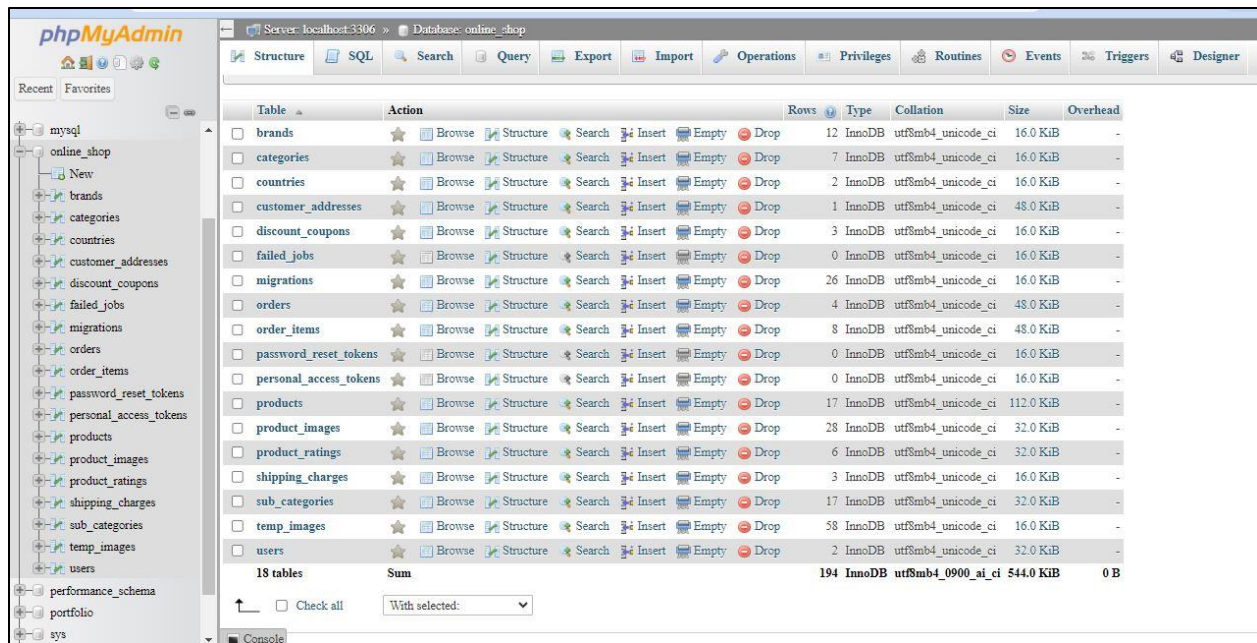


Figure: 4.28 Database

Database: The database stores and organizes all project data, ensuring efficient retrieval and management of information essential for operations.

Chapter – 05

Implementation and Results

Environment setup:

Setting up the environment for our project is crucial for its success. We established three key environments: coding, version control, and design. Below, we describe each component of our environment setup.

Coding environment:

For our coding environment, we used Visual Studio Code (VS Code). This open-source code editor supports various programming languages and provides powerful features like debugging, syntax highlighting, intelligent code completion, and built-in Git integration. Its versatility makes it ideal for our project.

Version control environment:

To manage our project efficiently, we implemented version control using Git and GitHub. This approach allows us to track contributions, manage changes, and collaborate effectively.

GitHub:

GitHub is a widely used online platform for version control and collaboration, built around the Git system. It facilitates tracking changes, collaborating on code, and managing project repositories.

Reason for using GitHub:

Our team is familiar with GitHub's interface and commands, which streamlines collaboration. Additionally, GitHub offers a detailed issue tracking system and allows us to work seamlessly, even in informal settings, through private repositories.

5.1 Design Environment

Frontend: The frontend of our project is developed using HTML, CSS, and Bootstrap for responsive design, along with vanilla JavaScript for dynamic functionality.

Backend: The backend is built using PHP and the Laravel framework, which provides a robust structure for developing web applications. Laravel's features enhance security and make database management more efficient.

Database: We are using MySQL as our relational database management system (RDBMS) to store and manage user data, product listings, orders, and other essential information.

5.2 Testing and Evaluation

Testing is a vital part of the software development process. We planned various testing methodologies to ensure the reliability of our platform.

- i. **Unit testing:** This method involves testing individual functions and components to verify they perform as expected.
- ii. **Integration testing:** After unit tests are successful, we integrate the components and evaluate their interaction and functionality together.
- iii. **System testing:** Once unit and integration testing is complete, we conduct system testing using the Black-Box testing method. This approach allows us to test the entire application without focusing on its internal workings, concentrating instead on inputs and outputs to ensure the system meets requirements.

5.3 Results and Discussion

In this section, we present the results of our project, including features such as product management, user accounts, order processing, and customer support.

Results:

We have developed the following core features:

- i. **Product management:** Sellers can easily add, update, and remove their product listings. The interface allows for seamless product management to keep the catalog current.
- ii. **User accounts:** Users can register and create personal accounts, enabling them to save their preferences, manage orders, and track their purchase history.
- iii. **Order processing:** Our platform supports a streamlined order processing system, allowing users to place orders and receive confirmations via email.
- iv. **Customer support:** We implemented a customer support system, including a live chat option, enabling users to get assistance in real-time and address their queries.
- v. **Reviews and ratings:** Registered users can leave reviews and ratings for products, providing valuable feedback and helping other customers make informed purchasing decisions.
- vi. **Secure payment processing:** The platform ensures secure transactions through integrated payment gateways, providing customers with confidence in their purchases.

Chapter – 06

Standards and Design Constraints

6.1 Compliance with the standards:

In this section, we focus on the standards related to the development of our e-commerce platform, "Web Store Wonders." Compliance with these standards ensures that the system is built on a solid foundation, follows industry best practices, and provides a secure and user-friendly experience.

6.2 Software development life cycle (SDLC) standard:

Our development process follows the ISO/IEC 12207 standard, which outlines the necessary procedures for the development and maintenance of software. This standard ensures that we take a structured approach in planning, defining requirements, designing, prototyping, developing, testing, deploying, and maintaining the system [20].

6.3 Coding standards

Our platform uses PHP (Laravel framework) and JavaScript for development. To ensure consistency, maintainability, and best practices, we adhere to the following coding standards: [21]

- i. **PHP standards:** We comply with the PHP-FIG (Framework Interoperability Group) PSR-12 standard for code style and structure, ensuring clean, readable, and well-documented code.
- ii. **JavaScript standards:** We follow ECMA Script 6 (ES6) guidelines for modern JavaScript development.
- iii. **Indentation:** Two spaces per indentation level for better readability.
- iv. **Naming conventions:** Use camel Case for variable and function names.
- v. **Comments:** Comments are included to clarify complex code and improve future code maintenance.
- vi. **File naming conventions:** PHP files have a .php extension, JavaScript files use .js, and CSS files use .css.

6.4 UI and UX standards

For the user interface (UI) and user experience (UX), we follow established principles that prioritize accessibility, usability, and user satisfaction. The key standards we adhere to include: [22]

- i. **WCAG (Web content accessibility guidelines):** Ensures our website is accessible to users with disabilities, particularly focusing on keyboard navigation, color contrast, and alternative text for images.

- ii. Heuristic Evaluation: Based on Nielsen's Usability Heuristics, we aim to:
 - a. Ensure visibility of system status.
 - b. Provide a match between the system and the real world (e.g., clear labels and actions that align with user expectations).
 - c. Offer user control and freedom, allowing users to easily correct mistakes or cancel actions.
 - d. Maintain consistency across different parts of the platform.
 - e. Prevent errors by guiding users through processes and confirming critical actions (like purchases).
 - f. Focus on recognition rather than recall, using familiar icons and intuitive design. Create a minimalist design that reduces cognitive load for users.

6.5 Ethical standards

As developers, we adhere to ethical guidelines to ensure the safety, privacy, and fairness of our platform. These principles are inspired by the ACM Code of Ethics and guide the following: [23]

- i. **User privacy:** We handle user data securely, using encryption and SSL certificates to protect personal and financial information.
- ii. **Non-discrimination:** We ensure that our platform treats all users fairly, regardless of gender, race, or any other characteristic.
- iii. **Transparency:** We are clear about data collection and usage policies, ensuring users know how their data is handled.
- iv. **Accountability:** We take responsibility for errors and ensure that any system malfunctions are quickly resolved.

6.6 Design constraints:

Every project encounters certain limitations and challenges. In this section, we discuss the primary constraints that have influenced the design of our e-commerce platform.

6.7 Economic constraints:

Budgetary constraints play a significant role in shaping the project's scope. Our platform aims to be affordable for small businesses and entrepreneurs in Bangladesh, which means we need to carefully select cost-effective tools and services (e.g., hosting, security measures, and marketing).

- i. **Hosting costs:** We opted for a cost-effective web hosting solution with scalability to accommodate future growth.

- ii. **Security and maintenance costs:** We invested in necessary security measures, such as SSL certificates and regular backups, while maintaining a budget-conscious approach to ongoing maintenance.

6.8 Ethical constraints:

Our platform must comply with ethical standards, especially in how we handle user data and transactions. We ensure: [24]

- i. **Data protection:** User data is securely stored and protected in compliance with data privacy laws such as GDPR
- ii. **Honest marketing:** We avoid misleading users with false product information or hidden fees.
- iii. **Fair transactions:** We facilitate transparent communication between buyers and sellers, promoting a fair marketplace.

6.9 Social constraints:

Our platform's success depends on user acceptance and satisfaction. Given the market in Bangladesh, many users may not be accustomed to online shopping or might have limited internet literacy. We must therefore: [25]

- i. **Simplify the user experience:** The platform needs to be intuitive and easy to navigate, even for users with minimal technical knowledge.
- ii. **Build trust:** Clear communication, responsive customer service, and transparent return policies are essential for gaining user trust in an online shopping environment.

6.10 Health and safety constraints:

We ensure that our platform is free from any risks to users' safety by:

- i. **Preventing scams and fraud:** We have implemented secure payment systems and fraud detection algorithms to protect buyers and sellers.
- ii. **Safe delivery of goods:** Working with reliable logistics partners ensures that products are delivered safely and in good condition.

6.11 Sustainability

The design and development of "Web Store Wonders" also focus on sustainability by ensuring: [26]

- i. **Energy-Efficient Hosting:** We use eco-friendly hosting solutions to minimize our environmental footprint.
- ii. **Future-Proof Development:** The platform is built with scalability in mind, ensuring it can grow without requiring a complete system overhaul in the future.

6.12 Cost analysis

The following table outlines the estimated costs for running the platform:

No	Criteria	Per/Month	Per/Year
1	Domain Registration (One-Time Fee)	-	1,500
2	Web Hosting (Dedicated Server)	150	18,00
3	Server Security (SSL Certificate)	-	3,000
4	Website Content (Content Writing)	500	6,000
5	Website Content (Logo Design - One Time)	-	1,000
6	Website Creation and Development	-	50,000
7	Maintenance Costs	-	20,000
	Total		83,300

Table 6.1: Cost Analysis

6.13 Complex engineering problem:

E-commerce platforms like "Web Store Wonders" involve multiple challenges that require careful engineering solutions, especially in terms of scalability, security, and usability [27].

6.14 Complex problem solving:

Our platform tackles several interrelated issues, including: [28]

- i. **Database design:** The database must efficiently handle large amounts of data related to users, products, orders, and transactions.
- ii. **Security implementation:** Securing sensitive user and payment data is a top priority, requiring the implementation of industry-standard encryption and security protocols.
- iii. **Usability across devices:** The platform is designed to function smoothly on a range of devices, including desktops and mobile phones, to reach the broadest possible audience.

6.15 Knowledge profile:

The knowledge required to complete this project spans several domains, including: [29]

- i. **K3 (Engineering Fundamentals):** Expertise in database design and management.
- ii. **K4 (Specialist Knowledge):** Understanding of e-commerce systems and secure online payment gateways.
- iii. **K5 (Engineering Design):** Designing an intuitive, accessible front-end interface for users.
- iv. **K6 (Engineering Practice):** Utilizing best practices in web development, version control, and project management.

Chapter – 07

Conclusion

“Web Store Wonders” represents a transformative approach to e-commerce in Bangladesh, designed to break down the barriers that have traditionally made online shopping challenging for many. Our platform is built with the user in mind, offering a simplified, negotiation-friendly shopping experience that caters to both tech-savvy users and those less familiar with digital platforms. By empowering sellers to easily create and manage their stores, we reduce the costs and complexity associated with launching online businesses, making entrepreneurship more accessible. At its core, “Web Store Wonders” is about inclusivity, flexibility, and creating a space where buyers and sellers can engage in meaningful interactions. The platform’s ability to handle a wide range of products from physical goods to digital services sets it apart as a versatile marketplace. The seamless integration of user-friendly features, secure payment gateways, and order management systems ensures that all participants, regardless of their background or resources, can confidently engage in the e-commerce ecosystem. Looking ahead, we are committed to expanding our platform with mobile applications and enhanced features that cater to the evolving needs of our users. Our ultimate goal is not just to be another e-commerce platform, but to drive a shift towards a more connected, accessible, and personalized online shopping experience. “Web Store Wonders” aims to bridge the gap between traditional commerce and the digital world, fostering growth and opportunities for businesses while simplifying the shopping experience for consumers across Bangladesh.

Future developments for “Web Store Wonders” include the launch of a mobile app, which will allow users to access the platform’s full functionality on the go, enhancing convenience and accessibility. We also plan to integrate live chat, enabling real-time communication between customers and sellers, along with improved customer support. Additionally, advanced SEO optimization will be implemented to boost visibility for sellers, making it easier for them to reach their target audiences. These enhancements will strengthen our commitment to creating an inclusive and innovative e-commerce experience in Bangladesh.

Code availability: Juelhaque. (n.d.). GitHub - juelhaque/Webstore-Wonders-e-commerce-. GitHub.
<https://github.com/juelhaque/Webstore-Wonders-e-commerce->

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