CS 411 Project

Group 11

Project Title: CyberBuy Electronic Supplies E-Commerce Platform

Project Summary

Cyberbuy is a website that aims to provide sellers and customers with a convenient way to shop for electronic supplies. Our website only allows official self-operated businesses in order to help customers get a better understanding of the products and get relatively low prices. Also, our website only focuses on the sale of electronic products, where most customers have a strong desire to buy electronic products so that merchants can access quality customer resources. The project aims to build a professional shopping platform for electronic products, where customers can compare various brands and choose the most suitable products for them.

Description

CyberBuy aims at establishing an e-commerce website which targets selling computer and communication supplies to our customers. Our 'start-up' inspiration originates from existing electronics shopping platforms in the current US domestic market, like Best Buy, B&H, etc. Compared with the existing electronic supplies shopping platform, some so-called electronic product market is a mixed bag. For instance, Best Buy sells health and wellness products like mattresses, which made it have gradually evolved into a 'supermarket'. Meanwhile, many e-commerce platforms like Amazon also allow other merchants to sell similar products independently apart from proprietary trading, which results in inconsistent product prices and product qualities. Hence, we plan to only sell electronic products (such as computers, cellphones, etc.), and only allow official self-operating, which means that we act as an agent, get agency rights from various brands, purchase goods from brand manufacturers, and sell to customers by ourselves. Since our 'industry' is just getting started, we currently only sell small electronic products like computers & tablets, and communication tools like mobile phones, and audios. Any

large electronic appliances like washing machines, and refrigerators are not in our consideration yet.

The unique functionalities of our website are shown as below. From the user perspective, CyberBuy tried to reduce the difficulty when users tried to select a product, for instance, if a user wants to buy an HP computer, and would like to see the price of different configures. CyberBuy would allow users to choose a product series like "HP Laptop 15 ", and select the memory, storage, and screen size on the product detail page, as shown on the Compared to other shopping sites, for example, the Best buy, which put the product attributes like memory, storage, and screen size into the product title. Shown as below figures.
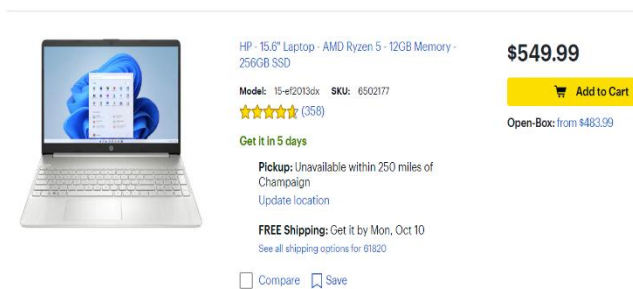

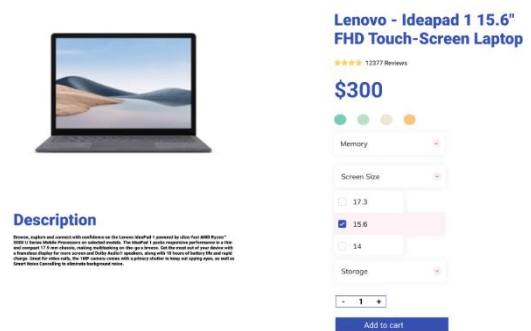Figure 1 The product description on Best Buy

Figure 2 The product description on CyberBuy

Figure 3 The selling report for merchant on CyberBuy

From the merchant perspective, CyberBuy provides merchant with product selling analysis report, helping Merchants to change the sell strategy based on the product selling situations.

On our website, we will classify the products into several categories, such as computers and laptops, mobile phones, office supplies, and set up a menu bar and search engine on the homepage to guide users easily. Like common e-commerce websites, our platform also contains Member/User Registration function to facilitate the management of user information, as well as Order Tracking and After-Sales Service after the user places an order.

Usefulness:

Similar e-commerce platforms like Best Buy, Amazon already has provided a great example supply chain that connects with manufacturer, website administrator and customer. We imitate the business model of BB and Amazon to divide the application into two core functions: inventory management and selling merchandises. At the same time, we cooperate with logistics companies to provide logistics query windows.

Additionally, our website creates some powerful features. We regularly provide Product Selling Analysis Reports [shown in both figure 3 and the functionality section] for merchants to help them analyze each product. In other e-commerce platforms such as Bestbuy, data is often presented only in the form of numbers, making it difficult for merchants to visually compare the differences between each product. In our website, the report will use histogram and pie chart to help the merchant know which product the customers purchases most and which product brings the most profits. By offering the charts, the merchants can have a deeper and more intuitive understanding of the customers' preferences, so the merchants can adjust their selling strategy in a more efficient way.

This functionality is implemented by computing the product's sales by month and finding the most popular product (which has maximum purchase times this month), the trading volume of each month, and the profit distribution of selling products.

Also, we can provide order tracking services for merchants and customers to help users check the status of their deliveries. We plan to visualize the order tracking service in the future to better serve merchants and customers. Finally, customers and merchants will use the same platform to access our website, which can help customers and merchants communicate better.

Realness:

The users' data address data, and order data would be added for test purposes in the third stage of the project using the Postman software.

The product data comes from web scraping and auto-generated data. Because of the selection of product attribute functionality CyberBuy provides, the product would have attributes like memory, storage, and screen size. Since the anti-web scraping techniques Amazon and Best Buy used, we were unable to fetch data of the product and extract product attributes from the products' titles. We used different solutions including a chrome extension called "Instant data scraper", and the python library includes Requests and Beautiful Soup, for different websites.

We fetched the laptop product data from Microsoft's official website, the mobile and computer product data from Apple's official website, and the mobile and laptop data from Samsung's official web site, and got the data including product series, product images, screen size, memory,

and storage. Since these data have the same attributes, they could be combined through Union operations in SQL. We used an auto-generated application ([Data Generator link](#)) to generate the products' stock and price.

Functionality & UI mockup:
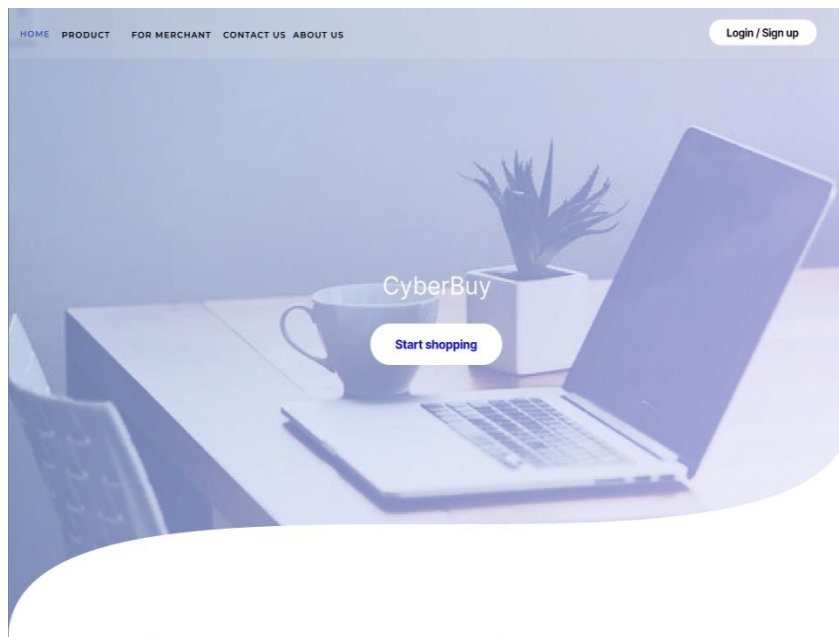
1. Home Page

   The home page provides a navigation bar with functionalities like login/register, go to product list and so on.

2. Login/Register page

   The login/register page allows user to login or register.

3. Account Page

If user is logged in as a customer, then the account page would show options to edit personal details and view purchase history.

4. Product page - customer
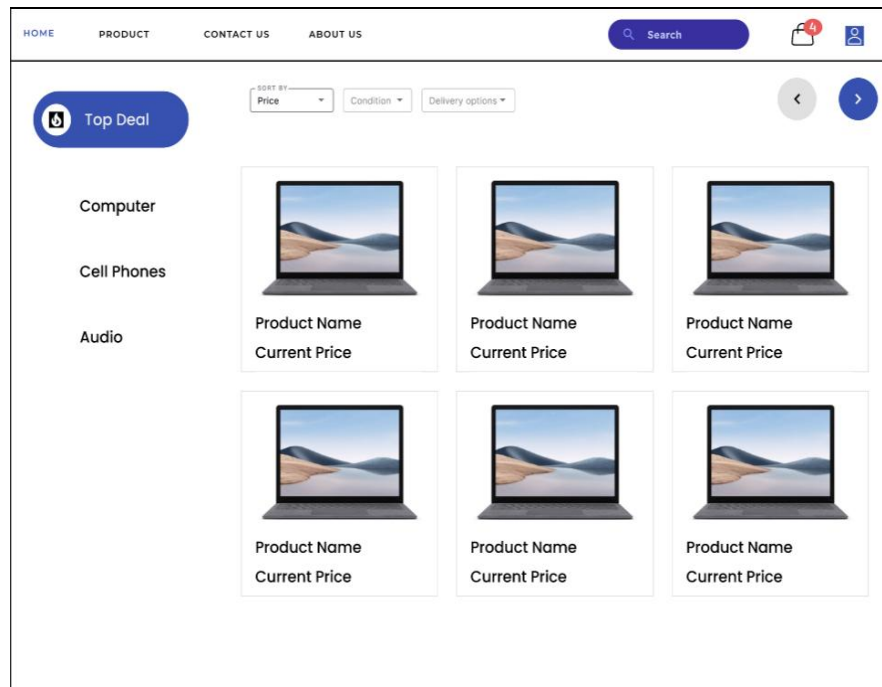
The product page contains a product list that can be filtered with price, condition, and delivery options. This page as well provides product categories and search boxes, helping customers to find products easier.

HOME   PRODUCT   CONTACT US   ABOUT US   Search

**Lenovo - Ideapad 1 15.6"
FHD Touch-Screen Laptop**

★★★★ 12377 Reviews

$300

Memory

Screen Size

☐ 17.3

☑ 15.6

☐ 14

Storage

\- 1 +

Add to cart

Description

Browse, explore and connect with confidence on the Lenovo IdeaPad 1 powered by ultra-fast AMD Ryzen™ 5000 U Series Mobile Processors on selected models. The IdeaPad 1 packs responsive performance in a thin and compact 17.9 mm chassis, making multitasking on-the-go a breeze. Get the most out of your device with a frameless display for more screen and Dolby Audio® speakers, along with 10 hours of battery life and rapid charge. Great for video calls, the 1MP camera comes with a privacy shutter to keep out spying eyes, as well as Smart Noise Cancelling to eliminate background noise.

5. Product detail page - customer

The product detail page contains the information about a product, user could view the product information and add the product to cart.
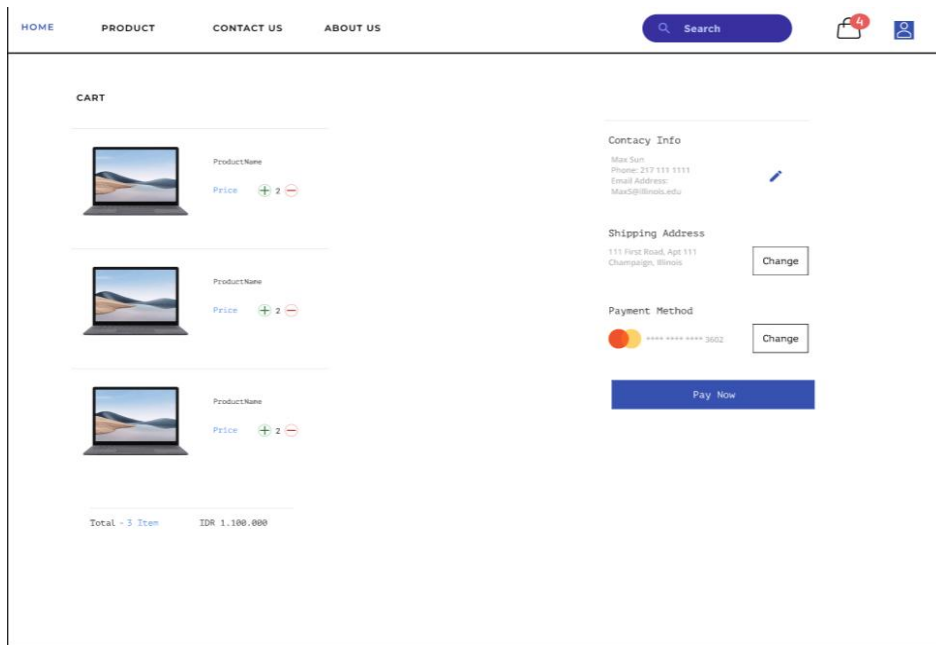
6. Cart Page - customer

The cart page gives a list of products the users had added to the cart. Users could edit the number of products and place an order on this page.

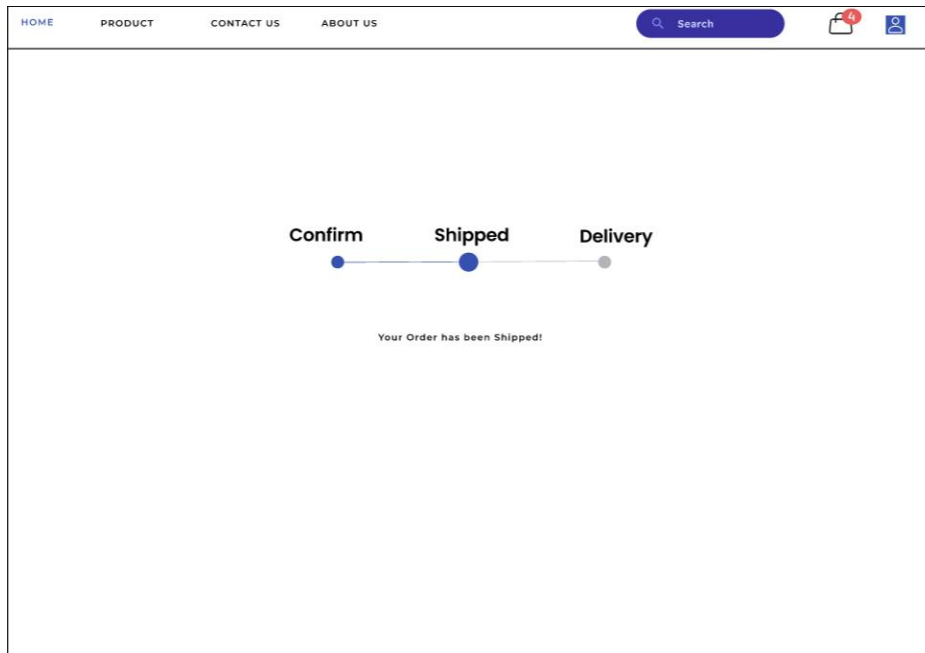7. Order submit page - customer
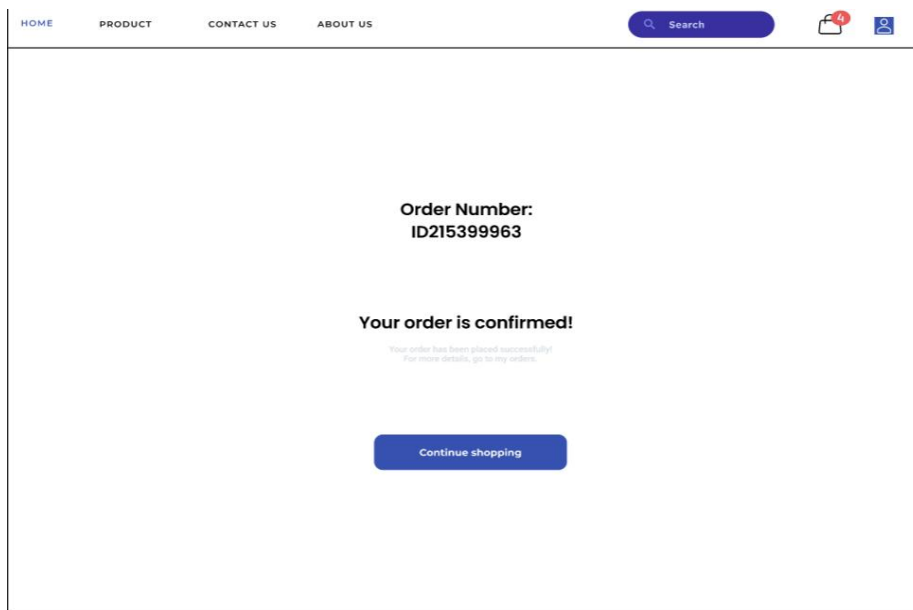
This page is to confirm an order has been placed successfully while provide a valid order number.
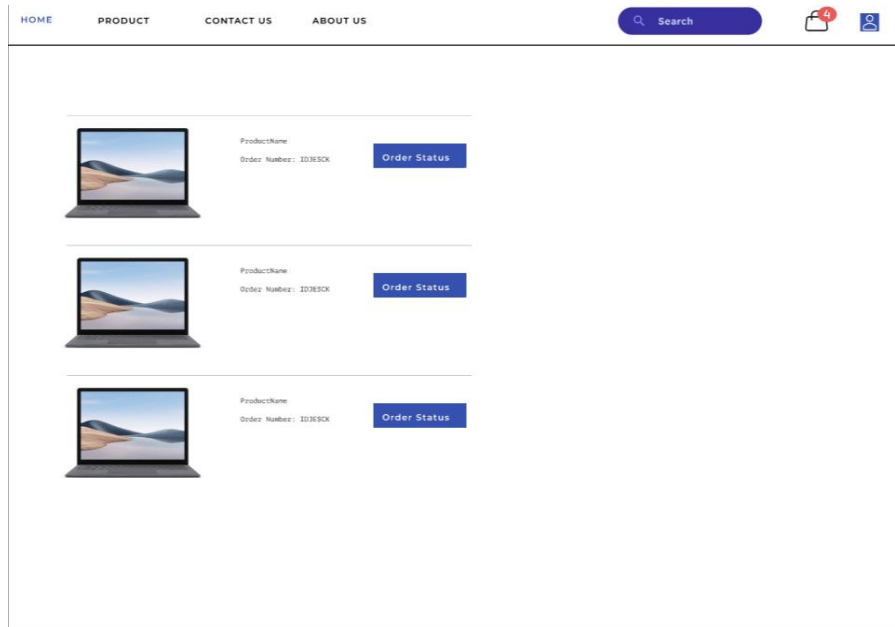
8. Purchase history page - customer

This page provides a view for users' purchased product, user could check the order status for this product.
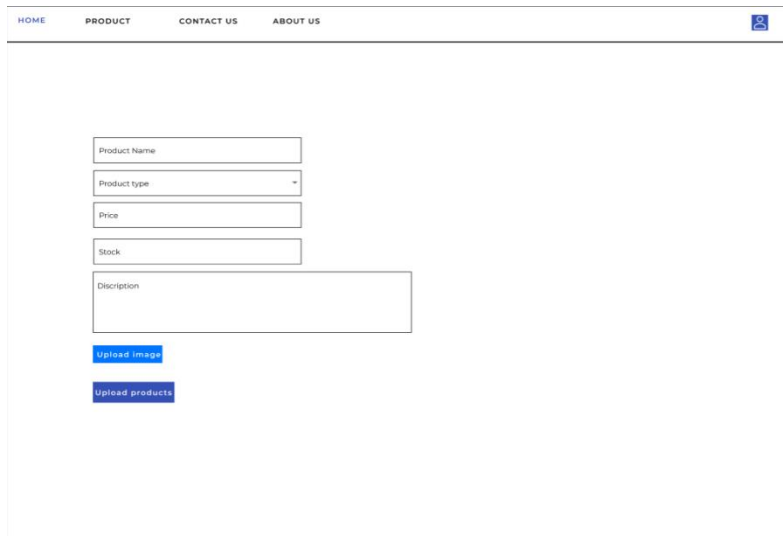
9. Order status page - customer

This page showed the order status for a specific product with a dynamic process bar.

Main page - seller
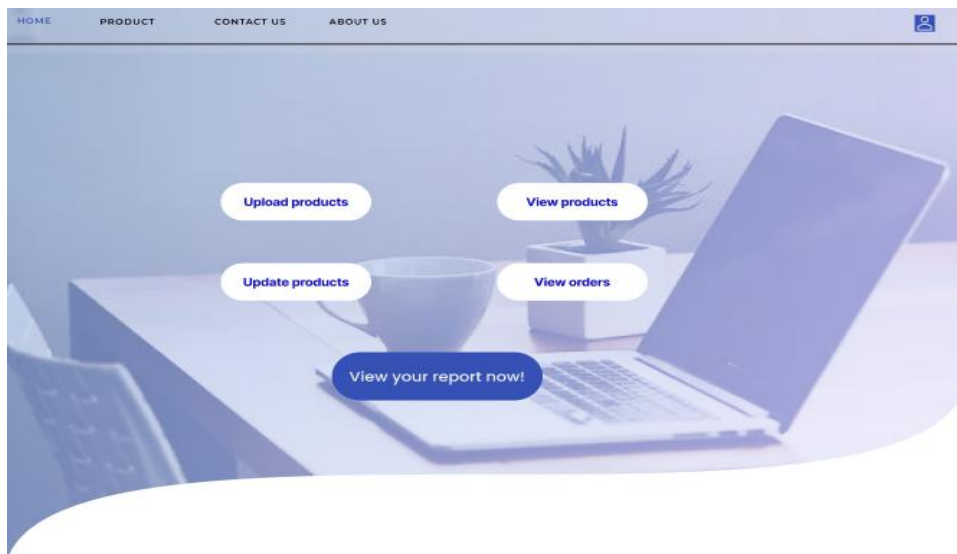
10. Start page - seller

If the user logins in as a seller, he will be redirected to this page. The user can choose to upload products, view products, update products, view orders, and view the selling report.

11. Upload products page - seller

In this page, the sellers can upload new product to their online shop. The information includes product name, product type(select), price, stock, and description. The sellers are also required to upload an image for the new product.
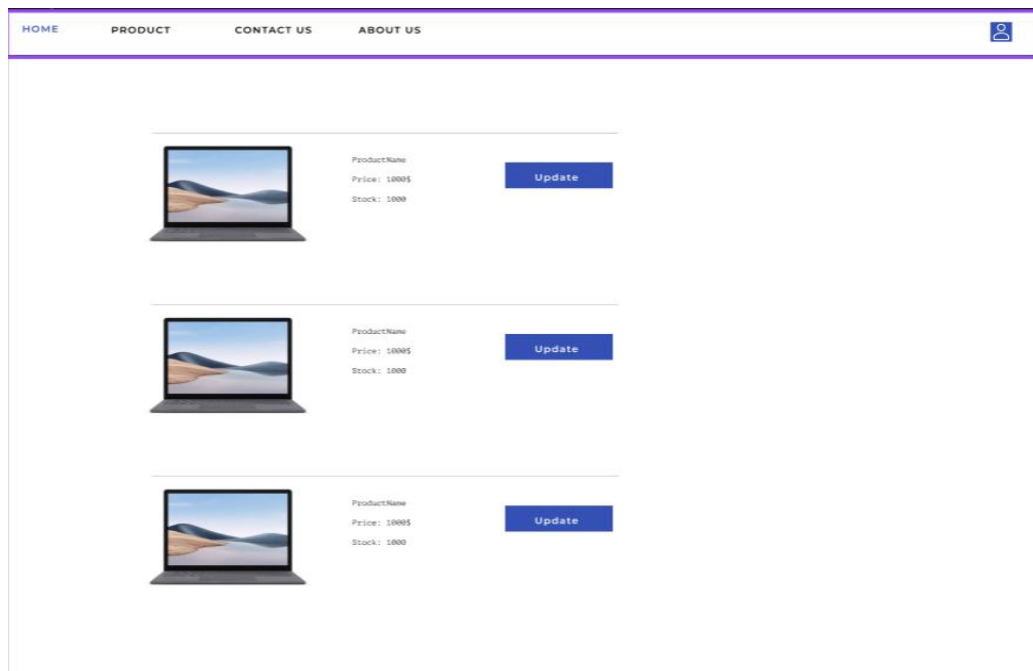
12. View product page - seller

In this page, sellers can view the information about their products. By clicking on the update button, they can enter the Update products page to revise the information of the products.

13. Update products page - seller

In this page, the sellers can update the information of their products.

14. View order page - seller
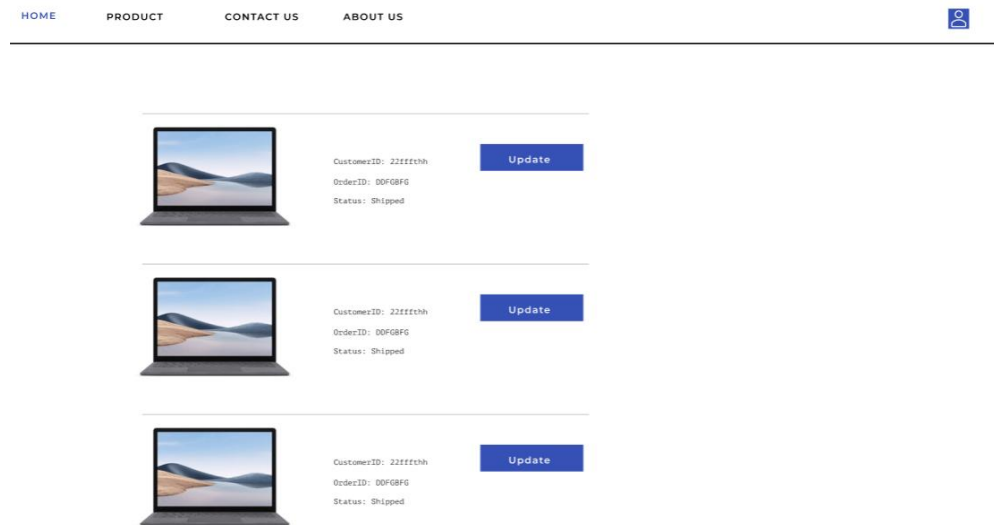
In this page, the sellers can view their current orders. They can see the customerID, orderID and Status. By clicking on the update page, they can update the status of the order.

15. Update order page

Confirm   Shipped   Delivery

OrderID: FFFWFFAf22

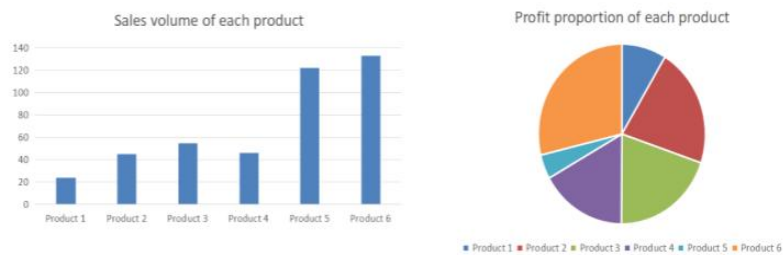New status

Confirm

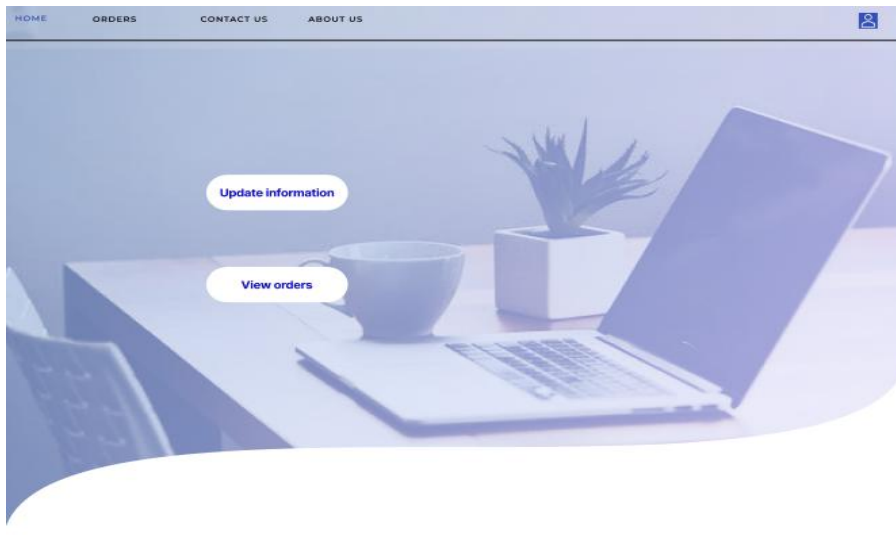In this page, the sellers can change the status of the order.

16. Selling report - sellers

Your selling report of this month is here!

Sales volume of each product   Profit proportion of each product

Product 1 ▪ Product 2 ▪ Product 3 ▪ Product 4 ▪ Product 5 ▪ Product 6

In this page, the sellers can view their monthly selling report.

17. Main page - admin

If the user logins in as an admin, he will be redirected to this page. The user can choose to update information and view orders.
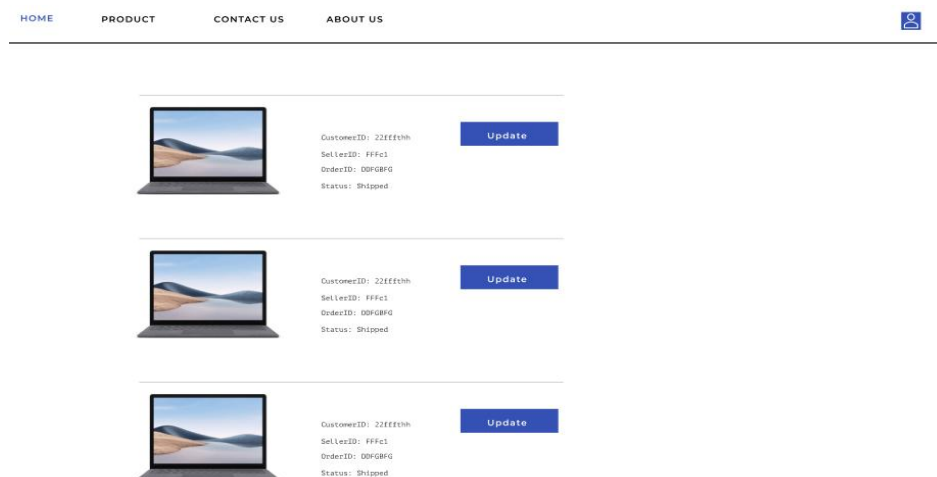
18. Current order page - admin

The admin can also view the orders and edit them. They can also see the sellerID of the order.

19. Update info page - admin

| Contact - Phone number |
| Contact - Email |
| Contact - Address |
| Discription |

Update info

In this page the admin can change the information on Contact us and About us pages.

Project work distribution:

Front-end:

    Functionality 1-5: Weiru Sun

    Functionality 6-10: Runyu Liu

    Functionality 11-15: Haoyu Zhang

    Functionality 16-19: Yizhan Xue

The authentication, http request for getting and updating the products and users' information would be implemented by Weiru Sun, Runyu Liu, and Haoyu Zhang.

Data collection and preprocessing would be implemented by Weiru Sun and Yizhan Xue.

The database structure in MySQL would be implemented by Runyu Liu, Haoyu Zhang, Weiru Sun, and Yizhan Xue.