
Software Requirements Specification

for

NUElectronics: Online E-Commerce Website

Version 1.4 approved

Prepared by

Nayera Hisham Elsaady - 18100036

Nile University

June 2022

Table of Contents

Table of Contents	ii
Revision History	ii
1. Introduction.....	1
1.1 Purpose	1
1.2 Document Conventions	1
1.3 Intended Audience and Reading Suggestions.....	1
1.4 Product Scope.....	1
1.5 References	2
2. Overall Description	3
2.1 Product Perspective	3
2.2 Product Functions.....	3
2.3 User Classes and Characteristics	4
2.4 Operating Environment	4
2.5 Design and Implementation Constraints.....	4
2.6 User Documentation.....	4
2.7 Assumptions and Dependencies	5
3. External Interface Requirements	5
3.1 User Interfaces.....	5
3.2 Hardware Interfaces.....	25
3.3 Software Interfaces	25
3.4 Communications Interfaces	25
4. System Features	26
4.1 Login.....	26
4.2 Sign Up.....	26
4.3 User Accounts	27
4.4 Home Page.....	28
4.5 Products (Shopping Page)	28
4.6 Product Page	28
4.7 Cart	29
4.8 Checkout.....	29
5. Other Nonfunctional Requirements	30
5.1 Performance Requirements.....	30
5.2 Safety Requirements.....	30
5.3 Security Requirements.....	31
5.4 Software Quality Attributes.....	32
5.5 Business Rules	33
6. Other Requirements	34
Appendix B: Analysis Models	36

Revision History

Name	Date	Reason For Changes	Version
First Draft	12/3/2022	Original first draft	1.0
Second Draft	23/4/2022	Documentation and work progress	1.1
Third Draft	3/5/2022	Documentation and work progress	1.2
Fourth Draft	16/5/2022	Diagrams' addition	1.3
Final Draft	29/5/2022	Final editing and revision	1.4

1. Introduction

1.1 Purpose

With e-commerce taking over the world, especially after COVID-19, it makes it a necessity to understand the design and applicability of developing e-commerce websites, which also reflects on the engineering sectors, and understand their functionality. This report discusses the software requirements and the development process for an e-commerce Online Shopping System (OSS) that will be called “NUElectronics”. NUElectronics will be a general platform for Egyptians – not university-related only – to find and shop all the electronic devices they might need whether new or used for a wide range of devices. This report will cover all the details of the whole system. It will be designed as a website, a common platform for all users, with all product details visible to everyone. The system also supports user business operations for buying and returning products.

1.2 Document Conventions

The format of the document follows the standard System Requirement Specifications (SRS) template provided by the Institute of Electrical and Electronics Engineers (IEEE). No special structuring or formatting was needed. Each system requirement has been assigned a unique requirement number and priority level. Priorities for higher-level requirements informed the development of further detailed requirements.

1.3 Intended Audience and Reading Suggestions

This report targets:

- **Developers:** programmers, developers, and anyone in the field of practical engineering or programming that would like to study and apply the technical concepts related to the project and apply the specification requirements to design such a system.
- **Testers:** software testing for each unit feature and the system integration's success.
- **End-users:** The users/customers themselves, where they can take this document as a guide/manual to discovering and using the website.

The document could also be used by instructors, students, and researchers as a guide during their studies of relevant software topics and techniques. It could also be used as a documentation guide for similar projects. The document's preferred sequence of reading is as per the structure in the table of contents, to provide the best consistency and chronology.

1.4 Product Scope

The designed system is an online e-commerce website for electronics, named “NUElectronics” to provide a unified platform for all interested members to buy the products they need whatever the category based on the user's preference. The main scope is to provide an online shopping platform with Cash-on-Delivery (COD) payment for ease of use and flexibility. The target is to develop a MySQL database (back-end) and a website as the software application (front-end) to manage the operations of the electronics selling the business as a full-stack implementation. The software will have two modules, one for users to shop and one for admins to add the products and manage the business. The software will provide the general users with options to pick products, specify quantities, buy, return or replace products, with cash payments only.

1.5 References

The references below are given for further insight if needed.

D. M. Kroenke, D. J. Auer, S. L. Vandenberg, and R. C. Yoder, *Database concepts*. Hoboken, NJ: Pearson, 2020.

<https://opus.govst.edu/cgi/viewcontent.cgi?article=1079&context=capstones>

<https://www.ijert.org/research/online-store-using-e-commerce-and-database-design-and-implementation-IJERTV9IS100168.pdf>

<https://github.com/tutorials24x7/shopping-cart-database-mysql>

<https://www.oecd-ilibrary.org/docserver/5jlnb5q93jlt-en.pdf?expires=1652720461&id=id&accname=guest&checksum=CED6CFDF5438B2B6FF65EA9BEACFBAA3>

https://www.measureevaluation.org/resources/publications/tl-19-34/at_download/document

<https://www.uml-diagrams.org/index-examples.html>

2. Overall Description

2.1 Product Perspective

With online interactions and digitalization controlling the direction of almost all aspects of our lives and in business, it makes it a necessity to understand the backend process of developing e-commerce websites and understand their functionality. This report reflects the software development process for an e-commerce electronics store that will be called “NUElectronics”. The e-commerce design will target to resemble various famous e-commerce websites like “BestBuy” and “Walmart Electronics”. The designed system follows the same concept as other Egyptian websites such as “Jumia” with the addition of selling used products. However, instead of generalizing the store to include all shopping categories, such as clothes, personal products, house décor, and others, it will focus only on electronic products. It will also be on a local scale to provide a more personalized experience and for ease of shopping, with added privileges on occasions through discounts and special offers.

The supported user business operations are for buying and returning new/refurbished/used products. Also, the system supports admins to manage the application by adding new data, administering users, observing business activities, and creating business reports. For each product specified, these will be the specifications shown:

- Product Name
- Product Category
- Manufacturer
- Technical Specs
- Price
- Status (New/Refurbished/Use)
- Subcategories (if needed and could be further categorized)

The customer is to open the website, choose the products he/she wants to buy, based on their preferences, choose the payment methods and complete their purchase. The functions are to be further discussed below. The customer also has the option to return/exchange products based on

2.2 Product Functions

The product functions will be further discussed in detail, but could be summarized in:

- The customer creates an account and inputs his/her data.
- The customer adds their address, with the option of adding more than one address.
- The customer has to log in first to continue his shopping experience.
- The customer is allowed to search for products (i.e., products are viewed on the website based on the requirements and categories mentioned earlier).
- The customer can add/remove items to his cart.
- The customer can add/remove and choose his payment method.
- The customer makes a purchase, where cart items are saved as an order.
- The customer can request refunds, returns, and exchanges.
- The customer can provide feedback on the products.
- The customer can check, pay, and follow up with orders.
- Admins can manage and follow up on all business interactions done by the customers.

- Admins can add/remove products.
- Admins can edit product data: check/change product state and available stock value, change prices and follow/change orders' status.
- Admins can observe business activities, customer data and create business reports.

2.3 User Classes and Characteristics

- **End Users/ Customers:**

The main customers deal more often with the website. Their functions revolve around surfing the website for their targeted products, making purchases and transactions, and on occasion, requesting returns and exchanges. They provide their data, their addresses and their billing info. Each customer's data is protected from other customers. There is no differentiation or categorization between customers of any sort.

- **Admins:**

Administrative Users "Admins" have free access to the system's control and have access to more privileged functions on the website: they control all edits and changes made to the products, categories and subcategories. They also supervise all users' data and orders. They can update the users' order status and work on the return and exchange processes. The admins are working developers/editors working on the software and are hired and chosen based on recruitment specifications based on the owing company.

2.4 Operating Environment

The designed system is an online website, and thus the operating system is irrelevant to its functionality. The website can operate on any web browser and is not limited to either location or platform. Thus, the environment can be a mobile phone, a tablet, a laptop or a PC.

The website also does not require any plugins or extra extensions from the browser. It might request access to the customer's location and privileges to save data, and the occasional request to allow usage of cookies. The only requirement would be for the user to have a stable network connection to proceed with his functions as it is not an offline platform and to have the latest updates for his browser for all functions of the website to work properly.

2.5 Design and Implementation Constraints

- Internet Connectivity is a must for all users.
- The customer cannot proceed to checkout with an empty cart.
- The only way of delivery is through a specific address and phone number.
- For the current implementation, only COD will be applicable. No online transactions are implemented in this design, for simplicity.

2.6 User Documentation

- Online short videos will be available through the website's YouTube channel to help the users through their shopping experience.
- A Q&As section will be provided on the website for any questions or inquiries the users might have.

- The current manual could be checked by the developers for further understanding of the system and its structure, and by users if they require further info.
- For further information or complaints, the inquiring party could contact the developing team through the emails or the messages section that will be provided on the website.

2.7 Assumptions and Dependencies

While the system does not have any critical assumptions or dependencies, the mentioned below are just for clarification and basic consideration.

1. Both developer and customer should have a stable active internet connection to access the website.
2. For the developers, the right software and tools should be installed (mentioned in detail in section 3.3).
3. The assigned developers should have the right knowledge to deal with the database and any technical issues.

3. External Interface Requirements

3.1 User Interfaces

Home page:

- The home page was designed with minimalist by taking in account the ease of use so, user can easily browse
- the website easily without making much decision.
- It includes a banner where it shows latest discounts, offers, and what is new on the website, in addition to that there is view products button to show the featured products on the banner. featured collection section shows products in cards.
- Navbar contains register, sign in, home, and shop buttons. it also includes cart icon and profile icon.
- Footer contains contact information, why buy from us section where you see shipping & returns, secure shipping, testimonials, and ethical trading documentation, your account section contains sign in, view cart, track order, and update information, and contact details section shows details of location of head office, telephone, and email.
- Note: navbar & footer are included in all pages.

Welcome :Guest

NU Electronics

HOME SHOP 0 items

HOT DEAL THIS WEEK
NEW COLLECTION UP TO 50% OFF

View all products

Featured Collection

New	New	Refurbish	Refurbish
Apple Airpods Pro \$600	Galaxy NX Digital Camera \$2500	HP omen 17 \$1000	Samsung Galaxy Z Flip \$500
View Details	View Details	View Details	View Details
Apple	Microsoft	Dell	
IPHONE 13 \$700	Microsoft Surface Laptop 3 \$1500	Laptop Dell Inspiron 17 7000 \$1700	
View Details	View Details	View Details	

INFORMATION WHY BUY FROM US YOUR ACCOUNT CONTACT DETAILS

About Us Shipping & returns Sign in Head Office: Nile University
Contact Us Secure shipping View cart Sheikh Zayed, Cairo.
Testimonials Track an order Telephone: 0123456789
Ethical trading Update information Email: NU@outlook.com

© 2022 NU Electronics™

Register page:

- It contains a form where user fill it to register to easily purchases any product from the website.
- This form contains customer name, email, password, confirm password, country, city, contact number, address, upload image, and register button.

Customer Name

Customer Email

Customer Password

Confirm Password

Customer Country

Customer City

Customer Contact

Customer Address

Customer Image
 Choose File | No file chosen

 Register

Login page:

- In login page user find a form where they fill it to log on the website to purchase products or contain purchases.
- In this form they fill their email and password.
- If the user forget their password there is an option for them to make a new password by clicking on the forget password button. And if they are new to the website, they can register by clicking on new? Register here button to take them to the register page where they register for the website.

Login

Already our Customer

Email

Password

[Forgot Password](#)

 Log In

[New ? Register Here](#)

Forget password page:

- In this page they fill their email and click send my password and a temporary password will be send to their mail to login by it then they can change their old password to their new password from the profile page.

The screenshot shows a registration form. At the top, there is a breadcrumb navigation: 'Home > Register'. Below this is a large text field placeholder: 'Enter Your Email Below , We Will Send You , Your Password'. Underneath the placeholder is a smaller input field labeled 'Enter Your Email'. At the bottom right of the input field is a teal-colored button labeled 'Send My Password'.

Profile page:

- It contains orders of customer by listing them in a table
- User can see their orders and orders that they paid offline, can edit account where they can change any information about their account, change password where they enter their old password then the new password and confirm new password to make a new password, see their Wishlist where to see products they wish to buy, see return products where they see product that they have returned, and logout button.

The image displays two screenshots of a web application's profile section. Both screenshots feature a sidebar on the left with a user profile picture, the name 'Name : loay tareq', and a blue 'My Orders' button. Below these are links for 'Pay Offline', 'Edit Account', 'Change Password', 'My WishList', 'Return Product', and 'Logout'.

Screenshot 1: My Orders

The main content area is titled 'My Orders' with the sub-instruction 'Your orders on one place.' Below this is a message: 'If you have any questions, please feel free to contact us, our customer service center is working for you 24/7.' A table lists the user's orders:

#	Amount	Invoice	Qty	Order Date	Status	Action
1	\$1400	1637683086	2	2022-01-15	Unpaid	<button>Confirm If Paid</button>
2	\$600	1559257642	1	2022-01-15	Unpaid	<button>Confirm If Paid</button>

Screenshot 2: Pay Offline Using Method

The main content area is titled 'Pay Offline Using Method' with the same contact message. Below it is a table for bank account details:

Bank Account Details	Fawry No.	Branches
Bank Name: Misr Banque No:03333333 Branch Code:0342	Mobile No:7410000000, Name: NUELECTRONICS	Branch Loacation:Sheikh Zayed, Mobile No:7000015000



Name : loay tareq

- [My Orders](#)
- [Pay Offline](#)
- [Edit Account](#)
- [Change Password](#)
- [My WishList](#)
- [Return Product](#)
- [Logout](#)

Edit Your Account

Customer Name:

Customer Email:

Customer Country:

Customer City:

Customer Contact:

Customer Address:

Customer Image:



Name : loay tareq

- [My Orders](#)
- [Pay Offline](#)
- [Edit Account](#)
- [Change Password](#)
- [My WishList](#)
- [Return Product](#)
- [Logout](#)

Change Password

Enter Your Current Password

Enter Your New Password

Enter Your New Password Again

[Change Password](#)



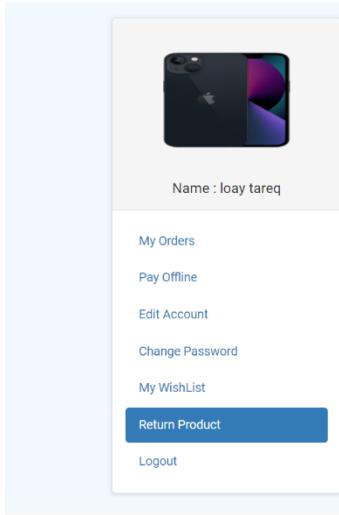
Name : loay tareq

- [My Orders](#)
- [Pay Offline](#)
- [Edit Account](#)
- [Change Password](#)
- [My WishList](#)
- [Return Product](#)
- [Logout](#)

My Wishlist

Your all Wishlist Products on one place.

Wishlist No:	Wishlist Product	Delete Wishlist
1	 Galaxy NX Digital Camera	Delete



Orders List

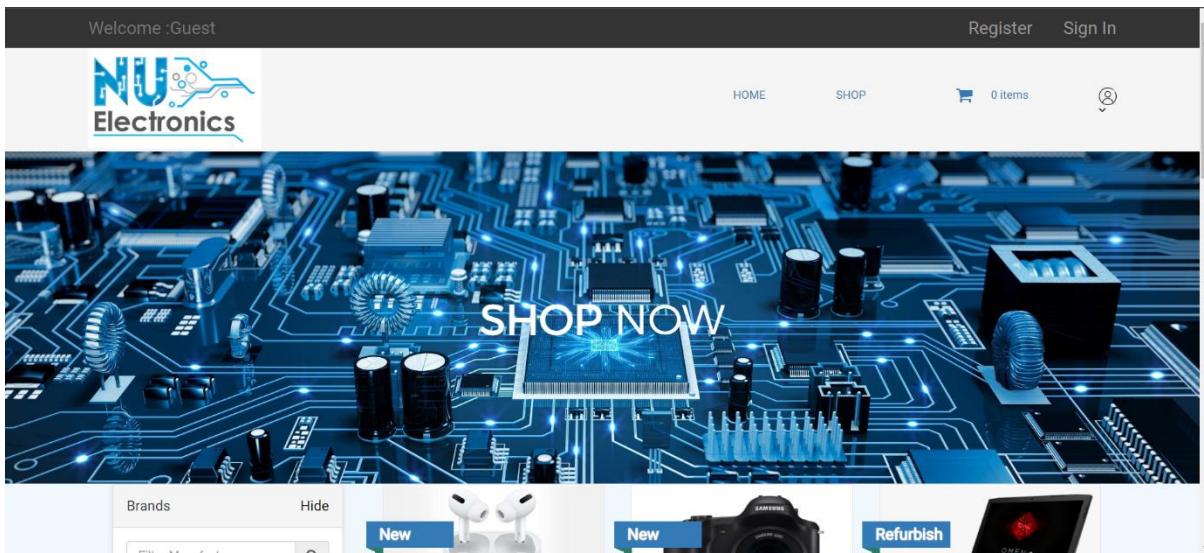
Your orders on one place.

Changed your mind on any of your orders? . . . You can submit your return request now via [contact us](#).

#	Amount	Invoice	Qty	Order Date	Status
1	\$1400	1637683086	2	2022-01-15	Unpaid
2	\$600	1559257642	1	2022-01-15	Unpaid

Shop page:

- In this page all products are shown in card in different pages.
- User can choose which Brand and category to show in the page to make it easy to browse products.



Welcome :Guest

Register Sign In

HOME SHOP 0 items

SHOP NOW

Brands Hide

New New Refurbish

Product page:

- It contains details about specific product where it shows its price and let user choose quantity of that product they want to buy.
- product description has a small description of what is the product about. And features contains details about that product. In addition to that sound and videos section contains a link this product quality sound or release video of it.
- In this page there is also a you may also like these product section where it shows some products in cards that may be appealing to the user.

Microsoft Surface Laptop 3

Product Quantity: 1

Product Price: \$1500

Add To Cart | Add to Wishlist

Product Description | Features | Sounds and Videos

Display: 13.5-inch, 2256 x 1504 (201 ppi) touchscreen, 3:2 aspect ratio Dimensions: 308 mm x 223 mm x 14.51 mm Weight: 2.89lbs Processor: Intel Core i5 or i7 (10th Gen, Ice Lake) RAM: Up to 16GB of LPDDR4X, 3733MHz (non-upgradable) Storage: Up to 1TB M.2 NVME SSD Wireless: Wi-Fi 802.11ax (Wi-Fi 6), Bluetooth 5.0 (no LTE option) Ports: 1 USB-C, 1 USB-A, 3.5mm headphone jack, Surface Connect

You may also like these Products: We provide you top 3 product items.

Refurbish Samsung Galaxy Z Flip \$500 View Details Add To Cart	New Apple Airpods Pro \$600 View Details Add To Cart	New Microsoft Surface Laptop 3 \$1500 View Details Add To Cart
--	--	--

Cart page:

- Cart page contains shopping cart that contains all the products that the user wants to buy and total of these products.
- Also, there is an option where they can enter a coupon code to have a discount on their shipping or product itself according to type of coupon they entered.
- Order summery contains order subtotal before shipping and handling price and taxes then total after adding shipping and handling price and taxes.
- In addition to that there is you also may like these products section where they find products like what they are buying in cards to see more products they like to buy if they want.

Shopping Cart

You currently have 1 item(s) in your cart.

Product	Quantity	Unit Price	Delete	Sub Total
Microsoft Surface Laptop 3	1	\$1500.00	<input type="checkbox"/>	\$1500.00
Total				\$1500.00

Coupon Code : **Apply**

[Continue Shopping](#) [Update Cart](#) [Proceed to Checkout >](#)

Order Summary

Shipping and additional costs are calculated based on the values you have entered.

Order Subtotal	\$1500.00
Shipping and handling	\$0.00
Tax	\$0.00
Total	\$1500.00

You might also like...

- New Apple
- New Dell
- New Samsung

Checkout page:

- It's the page where they get to choose how are they going to pay for their products where they going to choose from paying offline or paying online by PayPal, visa, Mastercard, American Express, discover network.

Payment Options For You

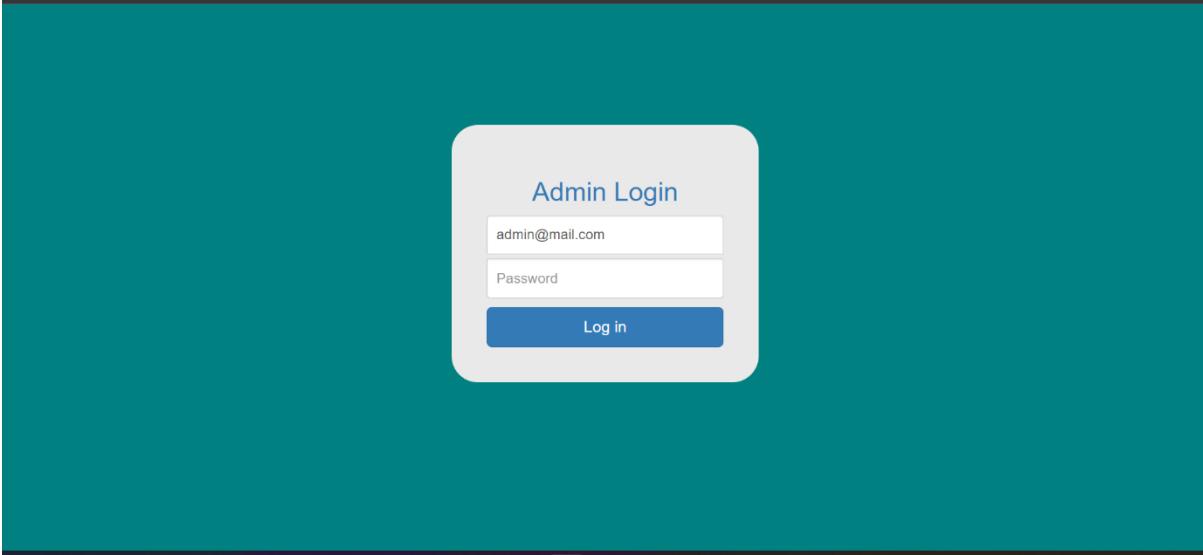
Pay Offline

Buy Now

PayPal

Admin login page:

- Admin can not get to the admins website without logging in by adding their email and password.

**Admin dashboard:**

- Dashboard of admins is divided into three section navbar, sidebar, and board.
- Navbar contains administrator icon where admin can choose to see their profile, products, customers, product categories and log out.
- Sidebar contains dashboard, products where they can choose to insert or view products, bundles where they can choose to insert or view bundles, assign products to bundles relations where they can choose to insert or view relations, manufacture where they can choose to insert or view manufactures, product categories where they can choose to insert or view product categories, categories where they can choose to insert or view categories, stores where they can choose to insert or view stores, contact us section where they can choose to edit contact us, insert or view enquiry type, edit about us page, coupons where they can choose to insert or view coupons, terms where they can choose to insert or view terms, view customers, view orders, view payments, users where they can choose to insert or view user or edit profile, and log out.
- Board when the admin land on it, it shows dashboard page where there are some statical card showing how many products, customers, products categories, orders, earnings, pending orders, completed orders, and coupons are there on the website. In addition to that it shows all orders in a table by giving specific details on each order like name of customer, invoice no, product ID, quantity, and status of order.

The screenshot shows the Admin Panel Dashboard. On the left is a sidebar with navigation links: Dashboard, Products (with sub-links for Bundles, Assign Products To Bundles Relations, Manufacturers, Products Categories, Categories, Stores, Contact Us Section, Edit About Us Page, and Coupons), and a general Contact Us link. The main area displays a dashboard with four cards: 'Products' (7), 'Customers' (3), 'Products Categories' (4), 'Orders' (15). Below these are four more cards: 'Earnings' (\$2765), 'Pending Orders' (8), 'Completed Orders' (7), and 'Total Coupons' (2). At the bottom, there is a table titled 'New Orders' with columns: Order #, Customer, Invoice No, Product ID, Qty, and Status. The table contains three rows of data.

Order #	Customer	Invoice No	Product ID	Qty	Status
1	i.tareq@gmail.com	1181218458	8	1	pending
2	s.moustafa@gmail.com	1175274446	14	2	pending
3	s.moustafa@gmail.com	1011366172	14	2	pending

Insert / view product page:

- In insert product page admin is required to fill a form to add a new product on the website.
- Admin needs to specify product title, URL, select manufacturer, product category, category, add product images, price, sale price, add product description, features, sounds & videos, and specify product label. Then admin clicks on insert product button to add product to website.

The screenshot shows the Admin Panel Insert Products form. The left sidebar is identical to the one in the previous screenshot. The main area is titled 'Insert Products'. It contains several input fields: 'Product Title' (text input), 'Product Url' (text input), 'Select A Manufacturer' (dropdown menu), 'Product Category' (dropdown menu), 'Category' (dropdown menu), 'Product Image 1' (file upload input), 'Product Image 2' (file upload input), and 'Product Image 3' (file upload input). Below the 'Product Url' field is a note: 'Product Url Example : navy-blue-t-shirt'.

#	Title	Image	Price	Sold	Keywords	Date	Delete	Edit
1	Laptop Dell Inspiron 17 7000		\$ 1700	1	Dell Laptops	2022-01-15 10:45:47		
2	Microsoft Surface Laptop 3		\$ 1500	1	Microsoft Laptops	2022-01-15 19:46:21		
3	IPHONE 13		\$ 700	2	Apple Mobile	2022-01-15 10:45:54		
4	Samsung Galaxy Z Flip		\$ 500	0	Samsung Mobile	2022-01-15 19:47:50		
5	HP omen 17		\$ 1000	3	HP Laptops	2022-01-15 19:47:55		
6	Galaxy NX Digital Camera		\$ 2500	0	Samsung Cameras	2022-01-15 19:46:54		

Insert and view bundle pages are the same as insert and view product pages.

Insert / view relation page:

- In insert relation page admin creates relation between a product and a bundle by giving this relation a title and choosing which product and bundle then clicks on insert relation button where it saves relation in view relation page.

The screenshot shows a table with the following columns: #, Title, Product, Bundle, Delete, and Edit. There are no rows of data displayed.

Insert / view manufacturer page:

- In the insert manufacturer page admin can add a new manufacturer by specifying their name, choose if they want to show them as a top manufacturer or not, and by adding their image then click on insert manufacturer button to save manufacturer in view manufacturer page.

The screenshot shows a form with the following fields:

- Manufacturer Name:** An input field.
- Show as Top Manufacturers:** A radio button group with options "Yes" and "No".
- Select Manufacturer Image:** A file input field with placeholder text "Choose File | No file chosen".
- Insert Manufacturer:** A blue button at the bottom of the form.

The screenshot shows a table with the following columns: #, Manufacturer, Delete, and Edit. The data is as follows:

#	Manufacturer	Delete	Edit
1	Apple	Delete	Edit
2	Samsung	Delete	Edit
3	Microsoft	Delete	Edit
4	Dell	Delete	Edit
5	HP	Delete	Edit

Product categories insert and view pages and categories insert, and view pages are like manufacturer insert and view pages.

Insert / view stores pages:

- In insert store page admin can add a new store just by adding store title, image, description, button, URL then click on insert store to be saved and shown in view stores page where they can delete or edit a store.

The screenshot displays two main sections of the Admin Panel:

- Insert store:** A form for adding a new store. It includes fields for 'store Title' (with a text input), 'store Image' (with a file upload button showing 'Choose File | No file chosen'), 'store Description' (with a large text area), 'store Button' (with a text input), and 'store Url' (with a text input). A blue 'Insert store' button is at the bottom.
- View store:** A section showing three store locations: London Store, New York Store, and Paris Store. Each location has a thumbnail image, address, and a short description. The London Store address is '180-182 RECENTS STREET, LONDON, W1B 5BT'. The New York Store address is '109 COLUMBUS CIRCLE, NEW YORK, NY10023'. The Paris Store address is '2133 RUE SAINT-HONORE, 75001 PARIS'. The descriptions for each store are placeholder text.

Contact us section:

- Admin can choose between editing existing contacts or insert, or view enquires.

Edit contact us page:

- Admin can edit existing contact of the store where they can change contact email, heading, description.

Contact Email: ecomstore@mail.com

Contact Heading: Contact To Us

Contact Description: If you have any questions, please feel free to contact us, our customer service center is working for you 24/7.

Update Contact Us

Insert / view Inquires page:

- In insert enquiry page admin can add a new enquiry by adding its title and clicking on insert inquiry where it will be saved and shown in view inquiry page where all inquiries are listed in a table and admins can edit or delete them.

#	Enquiry Type Title	Delete	Edit
1	Order and Delivery Support		
2	Technical Support		
3	Price Concern		

Edit about us page:

- In this page admin can edit about us page by changing heading, short description, and description.

Insert / view coupons pages:

- In insert coupon page admin can add a coupon by specifying coupon title, price, code, limit, and select its product or bundle.
- By clicking insert coupon on insert page it saves coupon in the view coupon page.
- In view coupon page coupons are listed in a table where some information about coupons is displayed such as title, product specified to coupon, coupon price, code, limit. In addition to that admin can delete a coupon or edit it.

#	Title	Product	Coupon Price	Code	Limit	Used	Delete	Edit
1	Sale	Microsoft Surface Laptop 3	\$10	CASTRO	2	1		
2	Sale	HP omen 17	\$65	CODEASTRO	3	1		

Insert / view terms pages:

- In insert terms page admin can add new term by giving it title, description, and link.
- Then by clicking on insert term it will be saved and shown in view terms page.
- In view terms page admin can see terms listed in cards and can edit or delete terms.

The image consists of two vertically stacked screenshots of an Admin Panel interface. Both screenshots show a dark sidebar on the left with various navigation options. The top screenshot shows the 'Insert Terms' page, which has fields for 'Term Title', 'Term Description', and 'Term Link', followed by a blue 'Insert Term' button. The bottom screenshot shows the 'View Terms' page, which displays three cards with titles: 'Rules And Regulations', 'Refund Policy', and 'Pricing and Promotions Policy'. Each card contains a short description and two buttons: 'Delete' and 'Edit'.

View customer page:

- In this page admin can see all customers that are registered on the website. Customers are listed in a table listed by their names.
- The customer table specifies the customer's name, email, image, country, city, and phone number.
- Admin can delete customers.

View orders page:

- In this page orders are listed in a table admin can delete an order and can see if the order is completed or pending.
- Orders are listed by their customer's name and specifying each order invoice number, product bought, quantity of product, order date, amount, and status.

View payment page:

- In this page admin can see all payments done on the website.
- Payments are listed on a table by specifying invoice number, amount paid, reference number, payment code, and payment date.
- Admin can delete a payment.

#	Invoice No	Amount Paid	Payment Method	Reference #	Payment Code	Payment Date	Action
1	1807603019	\$447	UBL/Omni	5678	33	11/1/2016	
2	314788500	\$345	UBL/Omni	443	865	11/1/2016	
3	6906	\$400	Western Union	101025780	696950	January 1	
4	10023	\$20	Bank Code	1000010101	6969	09/14/2021	
5	69088	\$100	Bank Code	1010101022	88669	09/14/2021	
6	1835758347	\$480	Western Union	1785002101	66990	09-04-2021	
7	1835758347	\$480	Bank Code	1012125550	66500	09-14-2021	
8	1144520	\$480	Bank Code	1025000020	66990	09-14-2021	
9	2145000000	\$480	Bank Code	2147483647	66580	09-14-2021	
10	858195683	\$100	Bank Code	1400256000	47850	09-13-2021	
11	2138906886	\$120	Bank Code	1455000020	202020	09-13-2021	

Insert / view admin pages:

- In this page admin can add another admin by specifying their name, email, password, country, job, contact, about, and image.
- Then by clicking insert user, the new admin will be saved and can be viewed by admin in view user page where admin can see or delete admin.
- In view user page, admins are listed in a table by their username, email, image, country, and job.

User Name	Email	Image	Country	Job	Delete
Administrator	admin@mail.com		Morocco	Front-End Developer	Delete

Edit profile page:

- In this page admin can edit their profile by changing name, email, password, country, contact, about, and image.

User Name: Administrator

User Email: admin@mail.com

User Password: Password@123

User Country: Morocco

User Job: Front-End Developer

User Contact: 7777775500

User About: Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, connector, from a Lorem Ipsum passage, and going through the cites of the word in classical

User Image: No file chosen

User Image: No file chosen

[Update User](#)

3.2 Hardware Interfaces

Since it is an online website for the end-user, its functionality does not rely nor depend on a specific operating system or a specific device type. Any modern, smart device could be used. Processing and memory limitations are not crucial as there is no data to download, and the smoothness and loading of the website depend on the developing side, so no user hardware limitations are needed.

For the system establishment, the bare minimum for running an e-commerce website with controlled traffic is:

- CPU: 1.6 GHz for web, Quad 1.6 GHz CPUs for web and database hosting.
- RAM: 8 GB.
- Storage Space: 40 GB (HDD) – 40 GB (SSD – drive) for backup and recovery.
- An active and stable internet connection.
- Most recent versions of the intended browsers to use.

3.3 Software Interfaces

The system is solely based on a website interface. For an E-commerce application, the inputs of the system largely depend on the database and can be divided into two: user inputs and admin inputs. Admin inputs are products' data to be displayed for the user. The user inputs are his personal data. The service requested here is through the user searching for his targeted product, and thus the system output is the purchase done successfully by the user.

Such systems mainly depend on user satisfaction and providing the right products for viewing. The connection between both is displayed through the website interface and the database. The database holds the customer's data, the products' specifications, the admin's data, the payments and orders made and their details (e.g., order status, time of order, total price, ... etc.). The software interface, design and tools could further be detailed as follows:

- **Front-end technologies:** HTML, CSS, JavaScript
- **Back-end technologies:** PHP
- **Database:** MySQL
- **Operating Environment:** Windows 11
- **Software and Editors:** Adobe XD, VS Code, XAMPP
- **Frameworks:** Apache Tomcat

3.4 Communications Interfaces

For the end-user, a stable well-established Wi-Fi connection is a must to function on the website. For development, the following is required:

- Broadband Internet to support the ongoing traffic (The bandwidth is measured by using and adapting traffic history).
- TCP/IP protocol for intranet communications.
- HTTPS protocol for internet communication; basic HTTP with TLS (SSL) as a security/encryption tool for the protection of ongoing transactions.

4. System Features

4.1 Login

4.1.1 Description and Priority

Users will be asked to enter their valid username and password to be authenticated into the website to continue their shopping experience with valid accounts on the website to proceed with their orders.

Priority Level: High

4.1.2 Stimulus/Response Sequences

1. The customer clicks on the “login” button on the header, top of the page.
2. The customer is redirected to the login page.
3. The user enters his email and password in the specified blocks.
4. The system authenticates the user from the database.
5. The system displays the “Home” page upon successful authentication.

4.1.3 Functional Requirements

REQ-1: The user should enter the right credentials to login successfully.

REQ-2: If the user forgot his password, he should have valid access to the associated email, as a token will be sent there for him to confirm and change his password.

REQ-3: In case of 3 failed login attempts, the user will be blocked from login and an email will be sent to his associated account for further instructions on how to deal with it after confirming he is the one indeed responsible for the failed attempts.

4.2 Sign Up

4.2.1 Description and Priority

The user must create an account on the website to be able to surf the full online shopping experience and checkout with his/her cart items.

Priority Level: High

4.2.2 Stimulus/Response Sequences

1. The user is directed to the “Sign Up” page.
2. The user inputs his name.
3. The user inputs a valid email.
4. The user inputs a valid password based on the given criteria by the system (See section 5.3.).
5. The user is asked to re-write his password for validation.
6. The user inputs their country and city.
7. The user inputs their contact information (mobile number, Telephone, etc.)
8. The user inputs their photo for identification (optional).

4.2.3 Functional Requirements

REQ-1: User has to input a valid email, as the system sends a test email and if it bounces back the user's sign-up is refused and the user is redirected to the signup page again.

REQ-2: The user has to choose a password that fits the criteria of the system, otherwise the signup will be refused.

4.3 User Accounts

4.3.1 Description and Priority

Users can check their account details and edit their information, check their orders, pay and confirm, change passwords, see their wishlist, and return products.

Priority Level: low

4.3.2 Stimulus/Response Sequences

1. The user is directed to “profile” page.
2. The user will see their orders when they land on profile page.
3. The user can confirm payments.
4. The user can see their pay offline products.
5. The user can edit account their account details.
6. The user can change their password.
7. The user enters old password.
8. The system confirms that it is the right password.
9. The user enters new password.
10. The user reenters new password.
11. The system confirms that two passwords are matched.
12. Users see their Wishlist products.
13. The user can delete a wish-listed product.
14. The user sees all returned products.
15. The user can click on log out and log out from account.

4.3.3 Functional Requirements

REQ-1: Addresses and mobile number should be correct and checked as they are the only contact between the user and delivery.

REQ-2: If the user's data are incorrect, the account will receive a warning. Upon repetition, the account will be blocked.

REQ-2: Any changes to the account could be applied effectively after the user's password is entered correctly .

4.4 Home Page

4.4.1 Description and Priority

Index page where the user can have a fast review on some selected products, check the latest offers on the website and have access to the rest of the website's functions and pages through different tabs, such as his account, the shopping page, or any of the footer's pages (contact us, about us, help center, ... etc.)

Priority Level: medium

4.4.2 Stimulus/Response Sequences

1. User can view all products by pressing “view all products” which lead to the shopping page
2. Users can check any random product details.
3. Users can go to their account page by pressing the customer icon.
4. Users can view their cart by pressing the shopping cart icon.
5. Users can sign in/sign up to their accounts.
6. Users can get help/extra information from the footer's pages.

4.5 Products (Shopping Page)

4.5.1 Description and Priority

On the main shopping page, all details of all products are displayed. The user can search per category or brand.

Priority Level: medium

4.5.2 Stimulus/Response Sequences

1. Users can input the name of the
2. Users can view a specific product by clicking on it.
3. Users see all product details.
4. Users can add this product to the cart or Wishlist.

4.5.3 Functional Requirements

REQ-1: If the product is not available, the list shown to the user will be empty.

REQ-2: If admins are editing products, the products will be invisible to the user until changes are effective.

4.6 Product Page

4.6.1 Description and Priority

The product page is where all the details for a specific product are found, including the technical specs, images, and functional options for the user to specify quantity and add to the cart if he chooses to buy the product.

Priority Level: High

4.6.2 Stimulus/Response Sequences

1. Users can check the product specifications.
2. Users can specify the quantity needed from the product.
3. Users can add the product to the cart.
4. Users can check similar recommended products.
5. Users can add the product to the wishlist for further surfing.

4.6.3 Functional Requirements

REQ-1: If there is no current stock of a specific product, the user will not be able to add the product to his cart.

REQ-2: If the admins decide to edit/change a product, it will be invisible to the customer until the changes are effective.

4.7 Cart

4.7.1 Description and Priority

The page contains all the products the user chose, with the further options to edit quantities, remove a product, or check out and finalize his order.

Priority Level: high

4.7.2 Stimulus/Response Sequences

1. Users see their cart products.
2. Users see their order's total price.
3. Users can apply a coupon.
4. Users can proceed to checkout.
5. Users can edit quantities of a specific product.
6. Users can remove a product from the cart.

4.7.3 Functional Requirements

REQ-1: Users cannot proceed to checkout with an empty cart.

REQ-2: Users must enter the vouchers before their intended deadline to be effective.

REQ-3: Users cannot add more quantities of a product if the stock does not cover it.

REQ-4: Users have to click "update cart" for any changes to be effective before checking out.

REQ-5: If the user deletes a product, he cannot undo it. He/she has to return to the products page if he/she chooses to re-add it.

4.8 Checkout

4.8.1 Description and Priority

The final page in any shopping session for every user is where he finalizes his order based on the products he chose in his cart.

Priority Level: Medium

4.8.2 Stimulus/Response Sequences

1. Users can view all cart items.
2. Users can update quantities if wanted.
3. Users check the total price including the taxes and delivery fees.

4. Users confirm and finalize the order.
5. Users choose to pay online or offline.

4.8.3 Functional Requirements

REQ-1: Only option of payment is COD.

REQ-2: Returns and exchanges are allowed only after the user receives the product and not before.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- Based on agreed standards, Google's most known criteria is for websites to not take more than 3 seconds of loading, with the flexibility to mobile devices, assuming different connection types (i.e., 3G or 4G).
- Load time is a very important performance metric, with multiple standpoints that affect it:
 - The quality and size of images and videos used should be within a reasonable limit with respect to the database.
 - While fonts enhance the visual appearance of the website, they could be heavy or increase the load time. Hence, the tendency to use basic and simple fonts.
 - **Time to first byte (TTFB):** The time it takes for the very first byte of information to reach a user's browser after a connection to the server has been established.
 - **Lookup time:** the total time taken for the products to load based on the user's research.
 - **Overall weight:** the total number of bytes the user receives from the website. This contributes hugely to the overall loading time of every page.
 - **DNS lookup:** When you visit a website, the browser uses its Uniform Resource Locator (URL) to find the computer hosting the site. The consistency, organization and layering of the code and communication between each reflect directly on the DNS lookup which is also tied to the page load time.
- Error rate represents the total number of errors to the total number of requests done, and the target for each system is to decrease this rate as much as possible.
- Bounce rates negatively affect websites if users go through a single session and encounter a problem. Following up with the bounce rate is important for the SEO, and follow up with inspection and testing stages on the website.
- Use the waterfall chart to illustrate all the info for each user and how long their sessions and take to load at each stage.

5.2 Safety Requirements

- **Banned/recalled products:** Admins and developers are to follow up with political, economic – exports and imports – regulations and policies regarding the sold electronic products. If a specific brand or product has been banned due to any criticality, the product is immediately removed from the site. If the product has been recalled from the offline retail market, it ought to be removed directly from the online platforms to avoid conflict and regulatory actions.

- **Safety warnings and manuals:** Each product should be delivered with the right specifications and the safety warnings to be clear. The product is to be delivered with its manual to ensure safe and correct usability and functionality by the user.
- **Compliance with health requirements:** Products sold should meet the right environment and health guidelines specified by either the country or international authorities. The product is to be checked for any imposing health hazards (e.g., thermal effects, toxic material, ... etc.) before being added to the website.

If any of the above terms are breached by the system, governmental legislation will occur in the marketplace. With the above-mentioned terms, the user thus indemnifies the product and the responsible parties of any loss, harm or damage done after receiving the product due to misusage or any personal liabilities.

- **Data backup:** The database should have a backup:
 - Daily, with a weekly retention period.
 - Weekly, with a monthly retention period.
 - Monthly, with a retention period of 52 weeks.
 - A retention policy/rule will also be adopted: to delete the previous version of retentions after **3 months**.
- **Protection against attackers:** Providing a safe trafficking and shopping experience for the users is a must, while securing the personal information they provide on the website. Forms of protection include:
 - Shields against SQL injections.
 - Using HTTPS – adding SSL to the website – to provide secure communication for the data.
 - Guarding against XSS – Cross-site scripting by using advanced Security Development Lifecycle (SDL).
 - Notify users against spam and attacks through email.
 - Adding extra layers of protection, such as IP allow listing; allowing listed IP addresses guarantee that these only have access to the website's administration.

Other protection methods could always be used or adapted, as the field of options is vast.

5.3 Security Requirements

- All user passwords or any sensitive data are to be encrypted in the database for protection.
- The system should destroy all of the user's session data after logging out.
- The system shall make use of CAPTCHA technology to prevent spammers
- The system shall use two-factor authentications, by sending a token to the user's email for login verification.
- The system shall not leave any cookies on the user's computer containing the user's password or any of the user's confidential information.
- Use HTTPS instead of normal HTTP by acquiring an SSL certificate for your website for further data encryption and security.
- Enforce strong password policies for users by adding criteria for accepted passwords, which include:
 - Using special characters and numbers is a must.
 - Minimum of 8 characters.
 - Both lower- and upper-case characters must be present.
- Limit repeated login attempts to block any brute force bots by denying entry to any IP address after 3 failed attempts whether through firewalls or plugins.
- Emailing the user with any suspicious or authorized actions taken.
- Secure the admin area by adding permissions, security keys and file lock-down options.
- Use an activity log for all admin actions in case of any illegitimate actions taken and to trace errors.

5.4 Software Quality Attributes

5.4.1. Adaptability and Flexibility

The system's adaptability to changes is a crucial attribute. The website provides both internal and external adaptability with an efficient reflection of dynamic changes and configurations. Any internal changes to the website's source code are directly reflected in the external view to the customer, based on the ease of flow and design between the classes of the website and the coding organization and structure. Since the website does not depend on either an operating system or a device type, it achieves high adaptability for the customer's experience.

5.4.2. Availability

A highly functioning system will have a high availability percentage despite the expected and occurring faults. The response measures to guarantee the availability of an online shopping system depend mainly on how quickly the system recovers from the faults. These include an overload on the system or the database, which might cause time delays for the customer, a delayed update in the database, which should be masked on the user's side until the edit is fully affected, and similar situations.

5.4.3. Correctness

Since it is an online shopping store, most of the functional requirements depend on correct values and outputs. Showcasing the right product data, calculating the right prices per quantity, adding all product prices in the shopping cart, adding taxes and delivery fees, and saving the checkout info to the right account and the right address. All functions depend on the correctness of the outputs provided in each process.

5.4.4. Interoperability

The system should follow basic web interoperability with the elements used, HTML and CSS. This demands from the web service to function the same on different application platforms, programming languages, hardware, operating systems, ... etc. This could be further maintained by avoiding using vendor-specific extensions that are used when working on the web service.

5.4.5. Maintainability

The system is structured consistently, making it easy to debug and further develop. Integrations could be easily done to add features to the website or update the design through the code. The code structure will be subjected to continuous checks for any errors and bugs that need fixing. The relational design of the database also makes it easy to drop or add columns and values to the database.

5.4.6. Reusability

Any development on the website should be done based on the two user modules provided, and generalized edits to each class/block are necessary in case the system could be reused or integrated into another application.

5.4.7. Testability

For each function or output of each page on the website, classes should be well structured as layers that could be tested alone. The subsystem integration should be analyzed by classes, then blocks or files as a whole, to check each input and output singularly.

5.4.8. Usability

The website is very user-friendly and designed with criticality when it comes to the user experience and human factors of web development. That includes the color choices, button positions, titles, and organization of the pages and the written content itself. It is very important to also provide a usable design that adapts to any device, whether a laptop, a phone or a tablet. The operational sequence

should also be easy and short, with no complex processes involved to be easy for all types and ages of users.

5.5 Business Rules

Business rules identify what should be done/not done on the website, based on the client's preferences. The business rules given could be summed up in:

5.5.1. Online Interactions:

- Users must input valid phone numbers and addresses. If the customer is unreachable or has input the wrong data, their account will receive a warning. Upon repetition, the account will be blocked.
- Payments are made through COD only; the customer pays the delivery person when the order is received in person.
- The website only supports the English Language.

5.5.2. Stock state:

The product could have 3 states:

- **Standard:** sufficient available quantity.
- **Running out:** limited quantity available.
- **Not Available:** no stock/quantities available for the product.

For the running out state, since the user did not specify his requirement for this part, this state will be set to appear when the quantity of a product is less than 10.

5.5.3. Product status:

There are two states for the products, which are illustrated below:

- **New:** First time to be bought by the user/ First time distributed from the vendor. If the product is returned before 15 days of the purchase, it is still classified as new. The product will be resold at the original price
- **Refurbished:** Has been previously bought and returned to the vendor for considering reasons. If the product is returned between 15 – 30 days, it is classified as refurbished. The product will be resold with a 10% discount on the original price.
- **Used:** The product has been acquired from a user and has been used for a while but within a reusable scale. Used products will the usage period and the state and issues within the product mentioned with the product specifications.

5.5.4. Order Status:

Each customer has multiple orders, and each order contains multiple purchases. Each order has its status, which could be one of the following:

- **Ordered:** The order has been submitted and is being processed.
- **Shipped:** The order has been shipped from the vendor and is to be received by the distributor.

- **Out for Delivery:** The order has been acquired by the delivery and is soon to be delivered to the customer.
- **Canceled:** The order was canceled by the customer before receiving it.
- **Delivered:** The order has been delivered and payment is complete.
- **Payment Ongoing:** The order has been delivered and received by the customer, but installments are still ongoing.
- **Return Requested:** The customer has requested a return and is waiting for the item to be picked up.
- **Refund Complete:** The refund has been completed for the returned item after it has been acquired by the delivery.

5.5.5. Return Policies:

The chosen return policies are:

- No returns are allowed after 30 days of receiving the product.
- Full funding for products returned less than 15 days of purchase.
- 85% funding for products returned between 15 and 30 days of purchase.
- The customer must provide reasons for the return request, and the causes are to be reviewed by the admins before proceeding with the refund.

6. Other Requirements

None.

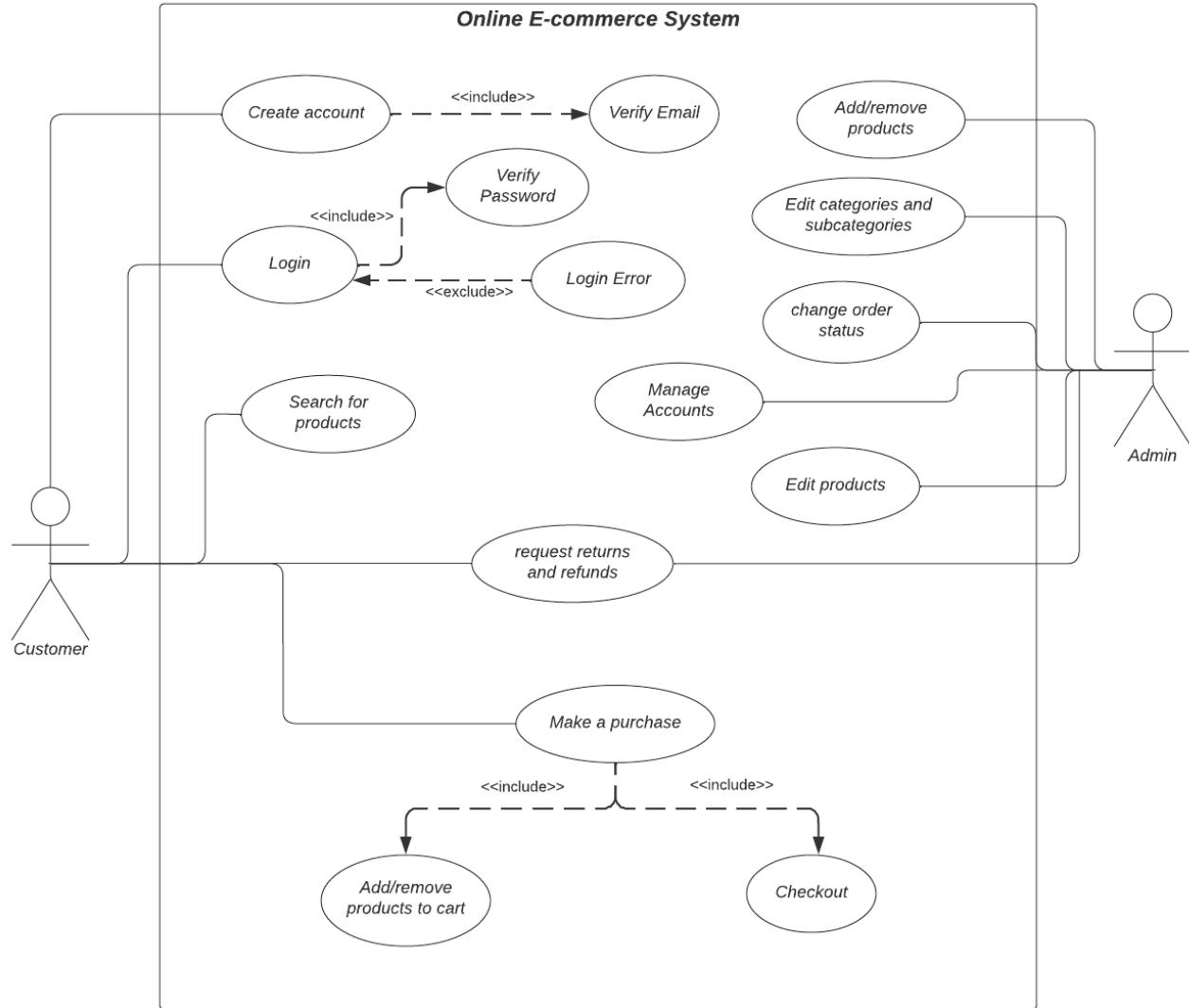
Appendix A: Glossary

The acronyms and abbreviations are listed in alphabetical order and not in the sequence of appearance in the document.

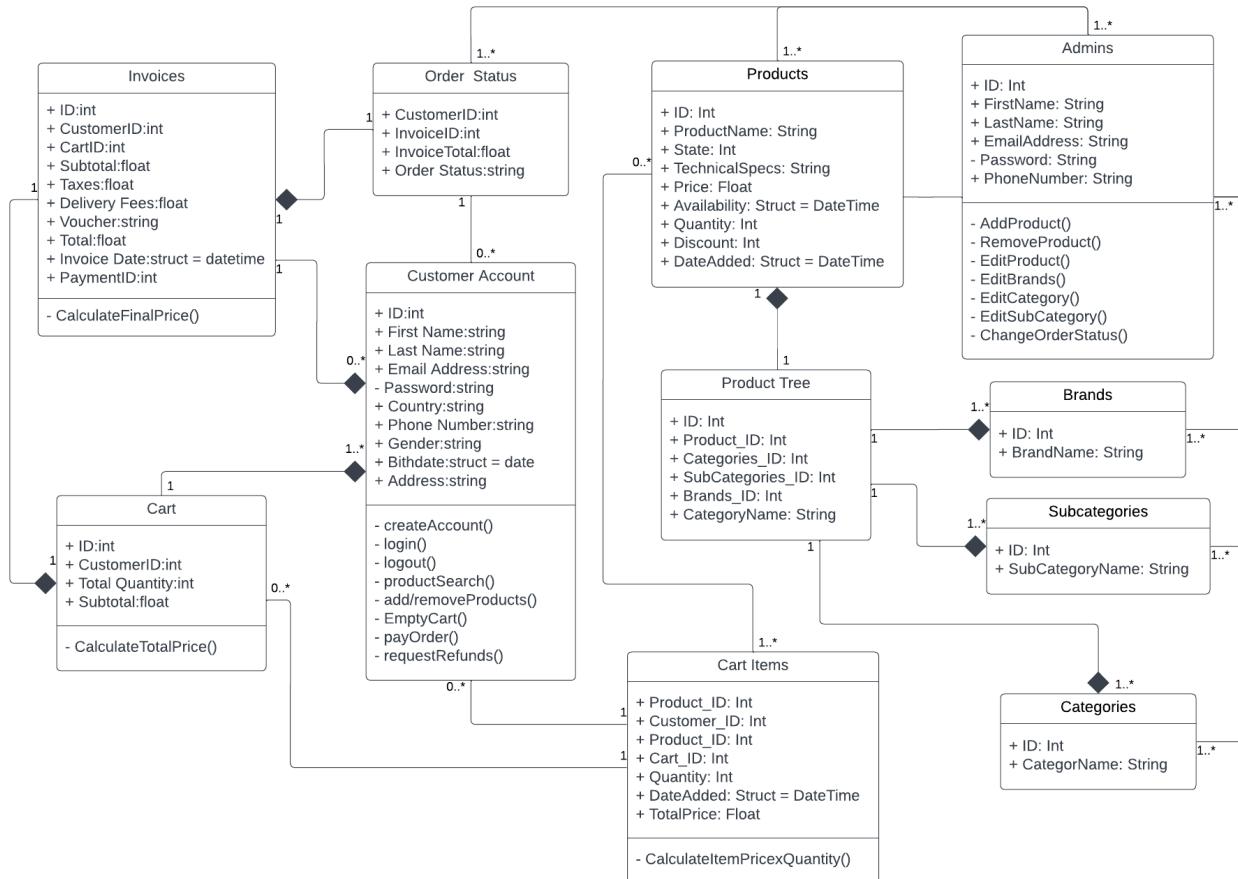
Admin	Administrative User
COD	Cash-On-Delivery
CSS	Cascading Style Sheets: a styling language for HTML elements and layouts.
DNS	Domain Name System
HTML	Hypertext Markup Language: the standard language used for designs intended for web browsers.
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
IEEE	Institute of Electrical and Electronics Engineers
OSS	Online Shopping System
SDL	Security Development Lifecycle
SRS	Software Requirements Specification
SSL	Secure Sockets Layer
MySQL	Structured Query Language: a relational database programming language
TCP/IP	Transmission Control Protocol/Internet Protocol
TLS	Transport Layer Security
URL	Uniform Resource Locator

Appendix B: Analysis Models

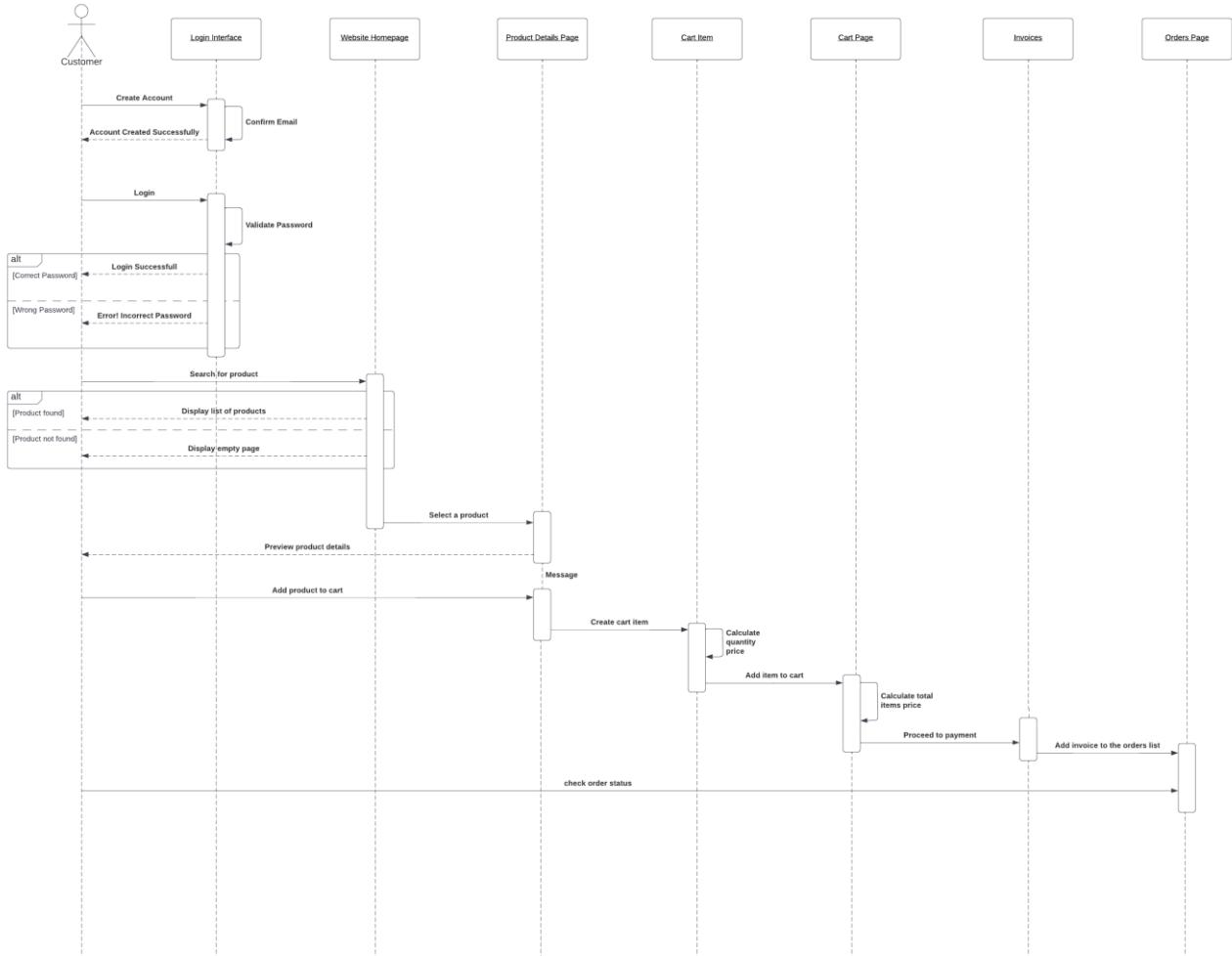
UML Use Case Diagram



UML Class Diagram



UML Sequence Diagram



UML Activity Diagram

