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MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

TEQUIP
An Online Shopping System

Software Requirements Specification (SRS)

Prepared by

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Contents

1. Introduction

1.1. Document Purpose

The document delineates/describes the features of an online shopping system that promotes the sale of technological products/equipment. It describes the functionality requirements as well as the non-functional requirement of the product to meet the demands of the stakeholders, both clients and business analysts. This document ensures that everyone involved in the project- clients, business analysts and developers are on the same page with what is expected at the end of the project and so the details of the same are not lost.

1.2. Product Scope

Purpose:

The platform acts as a user-friendly intermediary platform where sellers and customer for the sale of technological equipment. The online shopping system website is intended to provide a complete solution for vendors/ third party sellers as well as customers through a single get way using the internet.

It will enable a third-party seller to display his products for sale on the website. Or a third-party seller can sell the products to TEQUIP, who will then list those products under their portfolio. The customer will browse through the website, check prices and product details, and purchase those items via credit card, debit card, net-banking or by cash (COD). Products will be managed by operators from the admin panel and facilitate smooth sale between third-party vendors and customers.

Benefits:

- Convenience: The convenience of ordering technological products directly online without stepping out of your houses.
- Variety: One can browse through 100 plus shops instantly providing them with a huge variety of options and ensuring them the best price for a product.
- Profits: Third party sellers attract many more customers online as compared to just offline sales. Hence, they receive more traction and profits as well.
- Privacy: Integrity of seller and consumer data is maintained better and hence both parties remain more secure.

Objective:

- Design an interface that provides a complete solution to customers and vendors for sale of products.

1.3. Intended Audience and Document Overview

This document is intended for the following groups of people:

- Developers (Coding Staff and Designing Staff): The SRS will help them understand the scope and requirements of the project.
- Testers: The SRS will help testers analyse the code, to check whether the software code is working properly or not.
- Project Managers: To help them keep track of project status, if modifications are required and to oversee teams working on the project.
- Marketing Team: The document is required to understand the project in order to market/ pitch it properly.

- Business Analyst: The SRS will provide them with the required information needed to have a proper analysis of the project.
- Documentation Writers: They need to check it to make sure to include all details.
- Merchants/Vendors/Sellers: They will need the SRS to understand the project and sell their products accordingly.
- End Users/ Customers: The users will need to understand the terms and conditions of the OSS before being able to buy products.

1.4. Definitions, Acronyms and Abbreviations

- COD: Cash on delivery
- FAQ: Frequently Asked Questions
- IDE: Integrated Development Environment
- OSS: Online Shopping System
- OTP: One Time Password
- SRS: Software Requirements Specification
- UI: User Interface
- UID: The Unique Identification Number (UID) is used to reference a specific product.
- Customer: The person who purchases the product
- Third-party seller: The person/dealer/company who sell the product

1.5. Document Conventions

The Software Requirement Specification (SRS) document has been prepared using Microsoft Word 2015. Throughout the document, headings have 'Arial' font, with section headings in 18-pt. white text, and the sub-section headings in 14-pt. Font. For the content, the font used is 'Times New Roman' with a font size of 12-pt.

1.6. References and Acknowledgments

[1] G. Lan-Juan, L. Quan, and J. Xue-Mei, "The Design and Implementation of the Online Shopping System for Digital Arts," *2010 Ninth International Symposium on Distributed Computing and Applications to Business, Engineering and Science*, 2010, pp. 414-416, doi: 10.1109/DCABES.2010.90.

[2] P. Woodson and Z. J. Wang, "A Shopping Store Online Database System," *2012 International Conference on Computing, Measurement, Control and Sensor Network*, 2012, pp. 56-59, doi: 10.1109/CMCSN.2012.15.

[3] K. M. Sam and C. R. Chatwin, "Evaluating the effectiveness of online product planning and layout tools in online apparel shopping," *2015 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, 2015, pp. 635-639, doi: 10.1109/IEEM.2015.7385725.

[4] *https://www.amazon.in/*

2. Overall Description

2.1. Product Perspectives

TEQUIP provides a new self-contained product which is a complete solution for online retail of technological equipment. Earlier, customers had to go to physical shops, or hunt for products for projects, academic or corporate and online solutions provided limited range. With TEQUIP online shopping system, the hassle of having to travel or struggle to find said product reduces as it creates a one-stop-online-shop for all technological gadgetry, tools or supplies. All of this delivered to your doorstep at best possible prices with easy access.

The system aims to provides the following functionalities:

- Login and Registration
- Product availability and Storage
- Shopping cart
- Billing
- Shipping/Tracking and Returns
- Customer Service and Feedback

How a firm will be benefitted by this system:

TEQUIP provides an end-to-end solution from managing placed orders, to organising delivery and logistics for white-label products with ease-of-use backend admin panel.
The firm will find much faster buying processes and hence see more number sales. Also being online, it will draw in more customers all over India from the comfort of their homes. The shipping companies will also receive more delivery orders.

Backend functionalities:

- Sales Report
- Refund Report
- Customer Registration Report

2.2. Product Functionality

- **Login and Registration**: Users will need an account to access the website. They can either create an account or login directly with a pre-existing account. To register they will need to use their number or email on which an OTP will be sent for verification purposes. Using an account will allow them to access their wish list and basket from multiple devices.

- **Managing customer database**: Keep track of registered and logged in users.
  Every time a user creates an account or logs in , it is registered in the database.

- **Product availability and Storage**: Displays all the products available to the users. Keep track of products available and sold at storage facilities.
  All products available to the user will be displayed to them from where they can add the specified product to their wish list or cart . When a product bought , its stock is automatically reduced from the data base.

- **Shopping cart**: Adding products to a list which of things which the users will order
  A shopping cart and a wish list is maintained. The user can add items to wish list to buy it at a later date or add it to the shopping cart and once the user is satisfied with the cart , they can view their cart and bill amount of the items.

- **Billing**: Gives the total cost (including shipping) of all the products in the cart and payment details.
  After adding the required items to the shopping cart the user can see the total price for the items selected. And then move onto the payment of the items where they would be shown the final bill which would include shipping charges as well and then would be moved to the payment gateway.

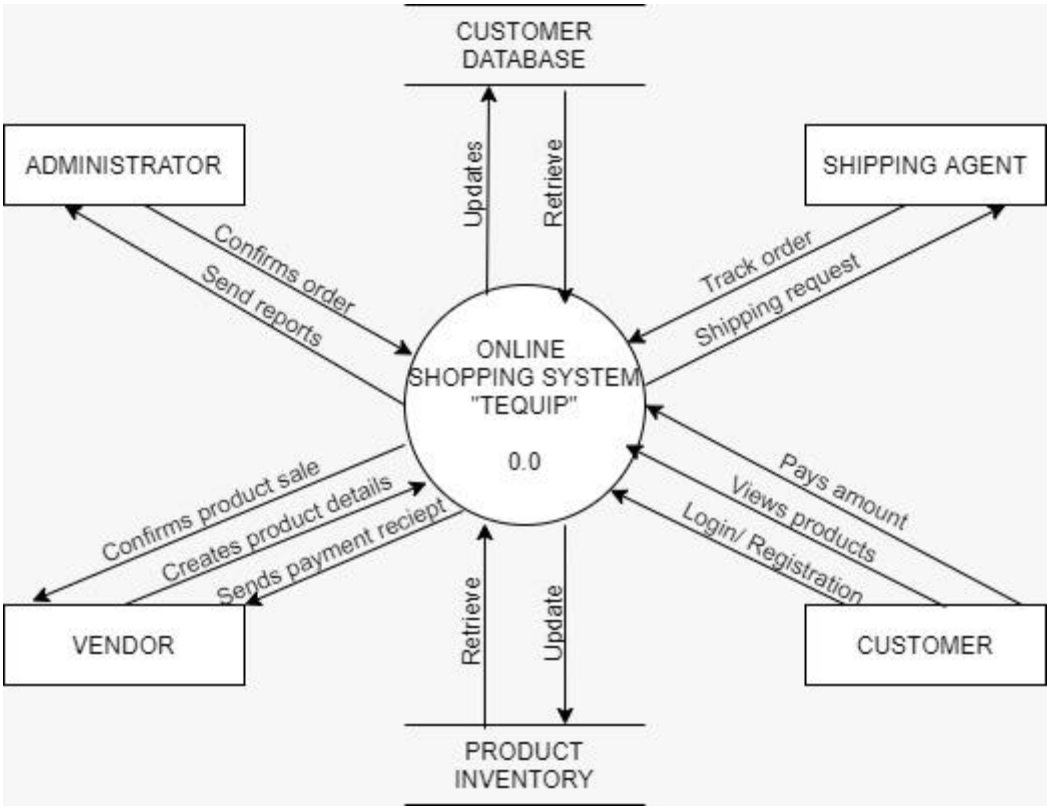
- **Shipping/Tracking**: Allows users to track their products' delivery and coordinate with delivery services. Once an order is placed and confirmed, the packed order will reach the customer through a shipping/delivery partner with tracking status available for customers to know estimated time of delivery.

- **Returns**: If the user is not satisfied with the product they receive, they can return the product. They need to select the item and file a return order on the site. Note that the user will need to have the bill for the product as well.

- **Customer Service and Feedback**: Provides contact info to assist users; and take in feedback from the users to further improve on the system and customer experience
  Customers will be easily able to contact customer service for assistance with using website or any other problems which may arrive. They can find the contact numbers right on the website. They can also leave us feedback which will be used by us to update our website.

2.3. Data Flow Diagram

Zero-level data flow diagram for an online shopping system



2.4. User Classes and Characteristics

- **Admin**: The admin has access to the backend functions of the system. He ensures that the processes being carried out smoothly and that there are no bottlenecks.
    - Manage customer database
    - Manage third-party seller database
    - Ensure proper documentation of purchase and payment transfers
    - Track product availability
- **Customers**: Customers will visit the site to browse products and make purchases
    - Add items to cart/ wish list
    - Browse products listed under respective categories
    - Make payments
- **Vendors**: Third party sellers/ vendors provide products for purchase either by selling them to TEQUIP to list under their portfolio or carrying out independent purchase transactions through TEQUIP's website.
    - Add/ Edit products
    - List products according to categories
    - Access their own portfolios
    - Co-ordinate with TEQUIP's delivery partners regarding order tracking and returns

2.5. Operating Environment

Software Requirements:

- Windows 7 or later/ Mac OS
- Dev-C++

Hardware Requirements:

- Intel 3.1GHz processor or onwards
- Random Access Memory (RAM): 8 GB RAM.
- Hard Disk Drive / Solid State Drive
- 50GB (min. free useable disk space)

2.6. Design and Implementation Constraints

- Only administrator will have access to the backend panel of the system
- All reports generated and customer databases can be accesses through passwords.
- The number of users visiting the site will be limited basis the size of the server
- The system will be designed in English.
- In order to access the website, a user is required to have a unique password linked to email address or contact number.
- For security purposes, to verify the order placed an OTP will be generated and sent to registered email address or contact number.
- Customer will not be able to connect to third-party seller directly, customer service will have to go through TEQUIP's administrative team.
- Limit on products added to wish list and cart.

2.7. Project Documentation

Software Life Cycle Phase	Documentation	Intended Activities
Requirement Gathering, Analysis and Specification	• Project charter • Project proposal • Software Requirement and Specification (SRS) which includes ✓ Entity relational diagram ✓ Data flow diagrams ✓ Use case diagrams ✓ Use case scenarios	Includes the customer expected software features, constraints, interfaces and other attributes. Moreover, the objectives and the benefits gained through the system are clearly specified
Software Design	• Software Design Description (SDD)	Describes the logical basis of design decisions taken and how it will pave way in acquiring the requirements of the customer through the software
Implementation	• Technical Documentation	Contains information regarding the implementations of the system using the programming concepts

Software Testing	• Software Test Documentation (STD)	Includes information degrading testing procedures to validate and verify the software results. Main types of testing techniques are unit testing, integration testing, system testing and acceptance testing
Maintenance	• User Documentation	Includes manuals for the end users according to their position of access levels

2.8. User Documentation

As part of the system itself, in order to improve customer experience, an FAQ section will be included on the system dashboard along with a step-by-step manual of how the system functions and what can be accessed where. This will enable users to explore the system and place orders seamlessly. FAQ section will include answers pertaining to Orders, Payments, Shipping and Returns. The website will also include contact details for customer enquiries like toll-free numbers and an email address.

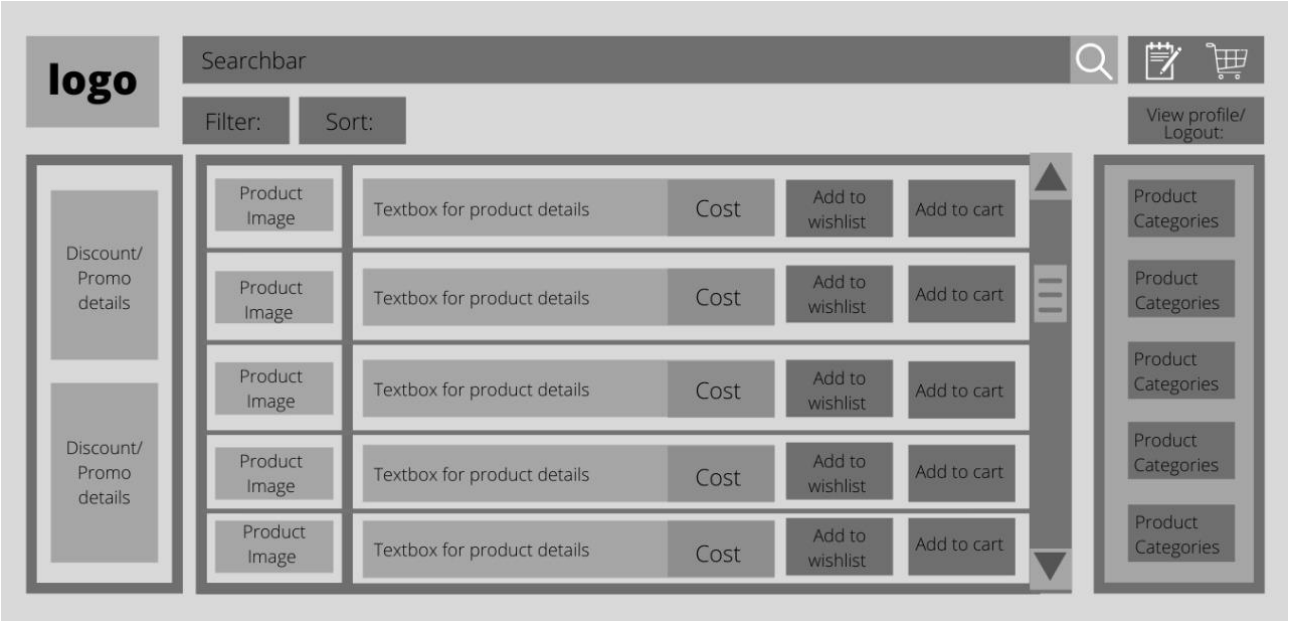
2.9. Assumptions and Dependencies

- User has to sign up with email address/ mobile number and password in order to make a purchase.
- User has to login to the website on every visit.
- Internet connection is a must.
- The customer and seller have basic knowledge of computers.
- Admin will have access to add and delete records from the system.
- Server must be running for system to function.
- At a time only 50 users have logged in.
- All user's login or make purchases through laptops/ desktops.
- All users must be familiar with English as it’s the only language the software will be available in.
- The product assumes that the users don’t opt for the same product number simultaneously.

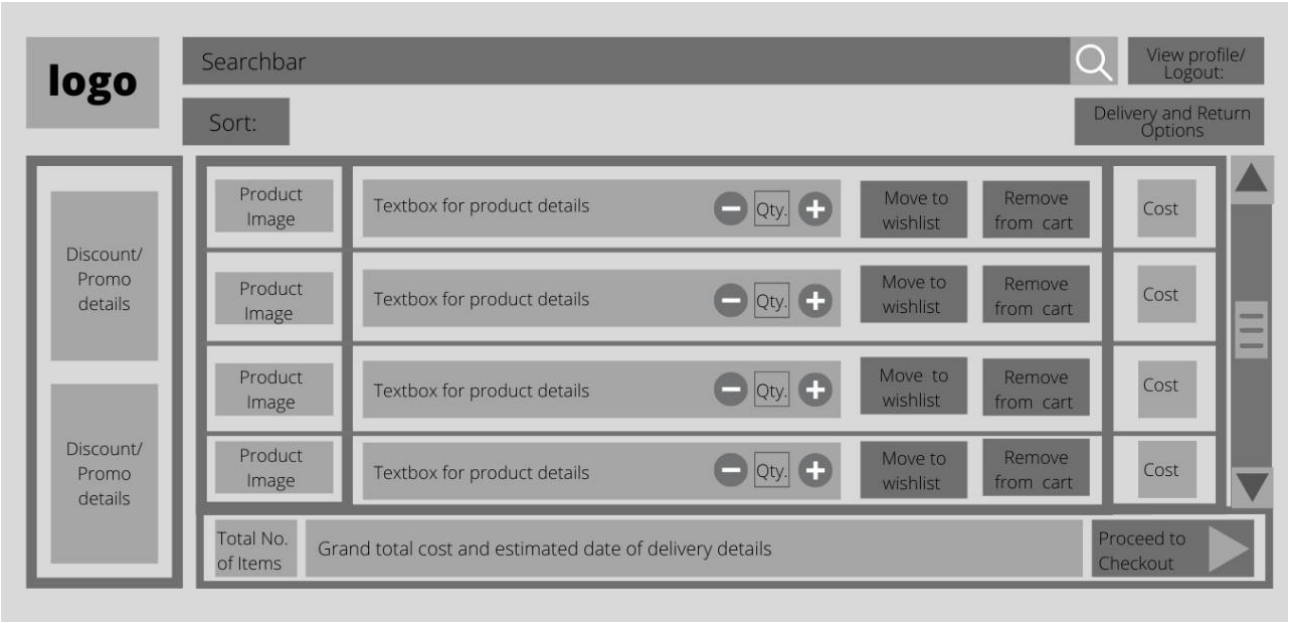
3. Specific Interface Requirements

3.1. User Interfaces

User Interface 1:
Searching/Browsing Products
Product Inventory Display



User Interface 2:
Shopping Cart



3.2. Hardware Interfaces

- **Laptop/ Desktop PC:**
  - PC/MACs
  - Minimum hardware requirements:
    - Intel 3.1GHz processor or onwards
    - Random Access Memory (RAM): 8 GB RAM
    - Hard Disk Drive / Solid State Drive
    - NIC: A network Interface card for each party involved to be connected over a network.
  - The purpose of this PC is for the administrator, client and third-party seller to access the online software.
    - The administrator will be able to access the backend dashboard in order to monitor the system, process orders, etc.
    - The client will require a PC to use the shopping system, browse products, place orders, track shipping, along with perform other tasks.
    - The third-party seller will access the system to add products and check inventory through a seller dashboard with specific login details.

- **Laser Printer**
  - A laser printer will be required to print labels, invoices, and shipping details to add on the package to be delivered.
- **Wi-Fi router**
  - Wi-Fi router is used for internetwork operations between consumers device and database servers.

3.3. Software Interfaces

- **Developer End**
  - Rhino/SDK: A developer's kit for C++ which is reliable and ensures speedy operations.
  - VS Code/ Code blocks: IDE for using C++
  - MySQL server: A server provider needed to maintain databases.
  - Adobe Photoshop cs4 - Required for logo designing

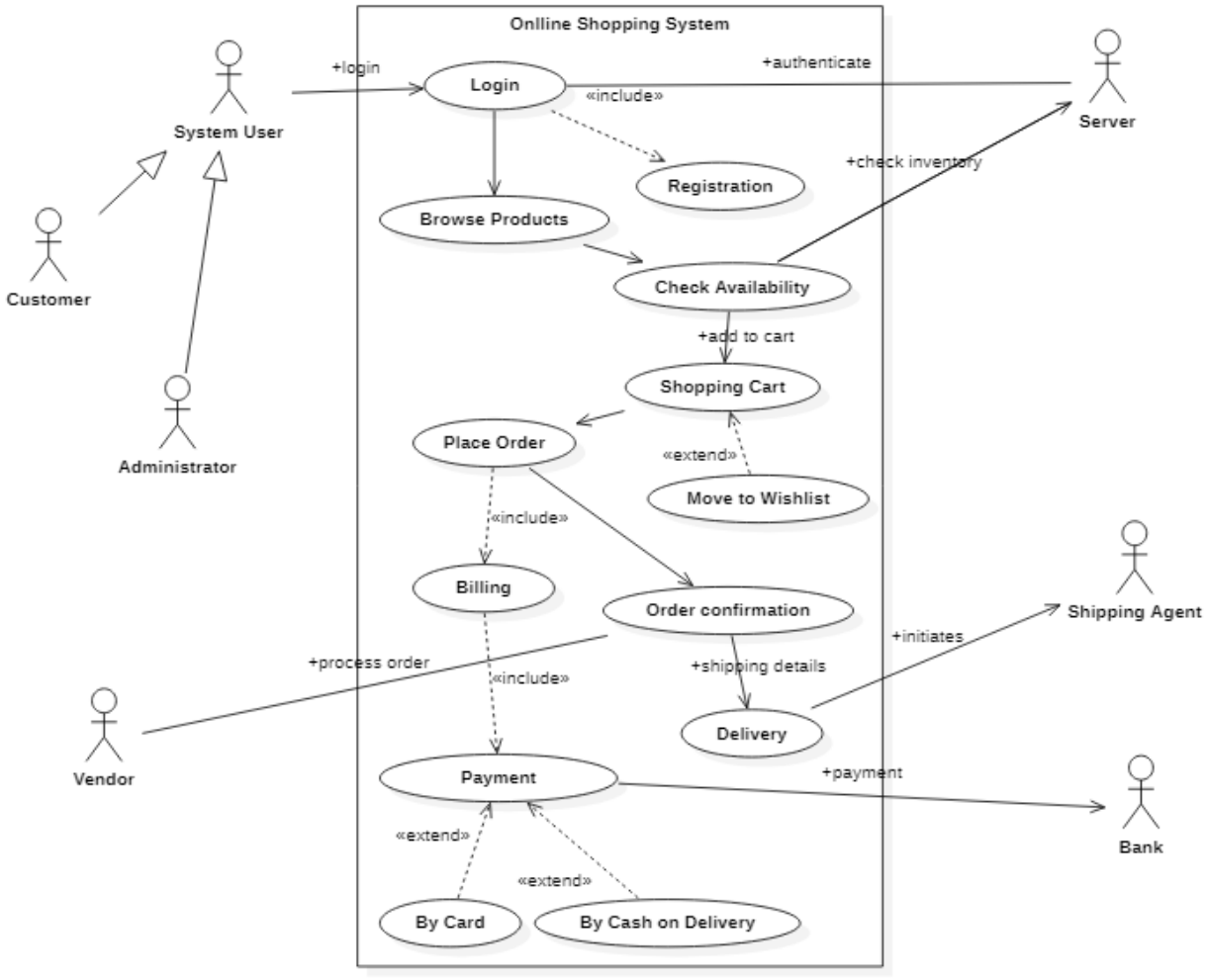
- **Client End**
  - OS – Windows 7 or later / Mac OS: Both are user-friendly and fairly common
  - Google Chrome/ or any other browser: A browser is required to use the web site
  - XL C++: Runtime environment required to run C++ programs.

3.4. Communication Interfaces

- TCP/ IP protocol will be implemented to access and share information over the internet.
- The two parties should be connected to the system via Wi-Fi or Ethernet connection.
- Telephone Line with landline and headset for to enable customer service requirements for client to reach out to TEQUIP directly.
- A company email domain for promotional mail, employee official communication, customer service enquiries. System generated mails for order confirmation, billing information, delivery and tracking details will be set up through the same email domain.

4. System Features

4.1. Use Case Model



4.2. Use Case Scenarios

Name	Login
Description	User can either login as the admin or customer to access the
Actors	Customer, Administrator
Pre-Conditions	User will enter personal details like contact information, email address, etc.
Main flow of events	1. User selects the option of Login at the start 2. User enter details 3. User is now logged in as either customer or administrator / If password

	entered is wrong it asks to re-enter login details
Extension	Registration
Post-Conditions	User will be taken to home page, Server will authenticate login, User will be able to add products to wish-list and purchase products

Name	Browse Products
Description	The logged in user can traverse through all the products.
Actors	System User
Pre-Conditions	User will see all available products
Main flow of events	User scrolls through all the products User can select an item and add it to either their shopping cart or wish list.
Extension	-
Post-Conditions	User can add product to shopping cart/ wish-list, product availability will be checked

Name	Check Availability
Description	When a product is selected or browsed, its checked for availability from the product database.
Actors	Server
Pre-Conditions	Server checks product data base for availability
Main flow of events	After a product is selected, its availability is checked according to the location of the user.
Extension	-
Post-Conditions	If available, it will allow user to make purchase or add to cart. If unavailable, system will display ‘out of stock’

Name	Shopping cart
Description	Shopping cart stores all the products the customer is buying
Actors	System User
Pre-Conditions	User will see their items added to the shopping cart. If purchase is to be made later, product can be moved to wish-list

Main flow of events	Users can see all the items they have selected to buy. They can either choose to go ahead with billing or move some items to wish list to buy later
Extension	Move to wish list
Post-Conditions	User can move on to billing procedures

Name	Place Order
Description	After finalization of the shopping cart user can procced to pay for the cart by placing order
Actors	System User
Pre-Conditions	Shopping cart must be loaded.
Main flow of events	Once the products are added to the cart and user is sure of the products they want to purchase, placing order will transfer them to payment gateway
Extension	Moving to billing by calculating the final payable amount.
Post-Conditions	If available, it will allow user to make purchase or add to cart. If unavailable, system will display ‘out of stock’

Name	Billing
Description	Shopping cart stores all the products the customer is buying
Actors	System User and Server
Pre-Conditions	User will see the final payable amount and enter address details for delivery.
Main flow of events	After confirming the products to be purchased, the final bill amount is calculated, the user goes to ‘place order’, enters shipping details like location of delivery and is redirected to payment.
Extension	Move to payment gateway to pay by cash or card.
Post-Conditions	User will move on to payment.

Name	Payment
Description	Connects the user to the payment gateway.
Actors	System User and Bank

Pre-Conditions	User gets connected to bank for the payment of the final bill.
Main flow of events	Here, user selects the mode of payment to be opted for and enters the details for payment
Extension	User can make payment by card or by cash.
Post-Conditions	User pays online or can choose to pay through cash on delivery and will be connected to payment gateway.

Name	Order Confirmation
Description	After billing and checking availability in the server the orders are confirmed
Actors	Vendor
Pre-Conditions	Auto-generated mail for order confirmation sent by admin. User sees the order confirmed by the vendor and shipping agents.
Main flow of events	After billing orders are confirmed and an order confirmed message pops up and email for the same is sent to the customer along with the estimated delivery date.
Extension	-
Post-Conditions	Orders confirmed will get processed. Order details will be sent to vendor. Shipping will be initiated.

Name	Delivery
Description	Orders which are confirmed are then dispatched and marked as delivered on arrival
Actors	Shipping agent
Pre-Conditions	Order will get shipped to customer with option to track shipping.
Main flow of events	Orders are shipped to the customers through delivery agents Orders shipped are marked as delivered
Extension	-
Post-Conditions	The products get shipped and order is marked as delivered. Email of delivery confirmation and feedback/ customer review form sent.

5. Other Non-functional Requirements

5.1. Performance Requirements

- User Interface- The screen will give a response within 2 seconds
- Capacity – The system must be able to support at least 50,000 users at once and multiple transactions/ payments being made simultaneously.
- Conformity – The system must be confirmed with Windows or MacOS
- Response time- The system will give responses within 1 second after validation user input for login or search. The system is required to give quick responses to orders as required, and should update product database and user database quickly.

5.2. Safety Requirements

- In case of hardware failure or database corruption, a replacement page will be shown. Also, in such a case, backups of the database should be retrieved from the server and saved by the administrator. Only then will the system and service be restarted

5.3. Security Requirements

- Each administrator and user should have a unique login, with passwords being unique.
- The passwords must contain uppercase, lowercase letters, numbers and at least one special character.
- The system must automatically log out all customers after a period of inactivity
- The system's back-end servers shall only be accessible to authenticated administrators
- Sensitive data will be encrypted before being sent over insecure connections like the internet.

5.4. Software Quality Attributes

- Availability: The system will be available at all times, meaning the user should be able to access the system using a browser at any time.
- Reliability: The reliability of the entire system depends on the reliability of the separate components. The main pillar of reliability of the system is the backup of the databases which is continuously maintained and updated to reflect the recent changes.
- Maintainability: A commercial database is used for maintaining the database and the application server takes care of the site. The software design was done with modularity in mind so that maintainability can be done efficiently.
- Portability: The end-user part of the system is fully portable, which means it can work on any system using any web browser for the user to access the features of the system.
- Accessibility: The system can be accessible from any location with an internet connection via a web browser on a laptop device, the user-end can be accessed by anyone. The back-end panel of the website will be accessible by administrators with specific login ID and passwords.