Software Requirements Specification

For

Shopping Cart

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1. Introduction

Online shopping is one of the most widely used words in the business world. It is very common in developing and developed countries. Now virtual store, market space are very commonly used word. Online shopping saves time which is very important for modern people because people becomes so busy now a days that they can't or they are unwilling to spend much time in shopping on the other hand it is said that money is time and time is money.

The aim of this document is to gather and analyse and give an in-depth insight of the complete Online Shopping system by defining the problem statement in detail. The project aims to develop a web-based application to improve the service to the customers which in turn increases the sales and profit in "online shopping". The detailed requirements of the Online Shopping System are provided in this document.

1.1 Purpose and Intended Audience

The purpose of this software requirement specification is to provide a clear, documented model of the requirements for the online shopping system. This document serves to provide top level use cases for a web customer making purchases online. It is implemented as an Internet based enterprise and has a vast inventory of products.

1.2 Project Scope

The online shopping system provides a platform for conducting sales of a wide range of products as well as a method of attracting customers onto an online platform to conduct secure transactions all over the world. It is deployed as a web-based business. Customers can shop from a large selection of things online using this approach. The most significant benefit of the service is the convenience it provides when used remotely.

A key feature is secure money transaction along with guaranteed and time bound product delivery. Increasing sales is of the highest priority to the online shopping system. The vision of the online shopping system is to be able to provide a smooth and user-friendly platform for customers to select from a wide range of products conveniently.

- Secure registration and profile management facilities for Customers.

- Adequate searching mechanisms for easy and quick access to particular products and services.
- Creating a Shopping Cart so that customers can shop 'n' number of items and checkout finally with the entire shopping carts. Customers can add or delete items in the cart.
- Maintaining database of regular customers of different need.
- Adequate payment mechanism and gateway for all debit or credit cards and other relevant payment options, as available from time to time

1.3 Terms, Definitions, and Acronyms

It is important to know frequently used terms to help enhance and optimize online shopping system. E-commerce terms and acronyms are language elements that relate strongly to the online shopping space. The following is a list of just a few of the many terms with definitions that every online shopping business needs to know and it is helpful to understand easily.

- **ASP.NET MVC:** ASP.NET MVC is a web application framework developed by Microsoft that implements the model–view–controller pattern. ASP.net MVC offers an alternative to ASP.net web forms for building web applications. It is a part of the .Net platform for building, deploying and running web apps.
- **Microsoft SQL Server**: Microsoft SQL Server is a relational database management system developed by Microsoft. As a database server, it is a software product with the primary function of storing and retrieving data as requested by other software applications, which may run either on the same computer or on another computer across a network.
- **C#:** C# is a simple, modern, general-purpose, object-oriented programming language developed by Microsoft. C# can be used to create various types of applications, such as web, windows, console applications, or other types of applications using Visual studio.
- **Database**: A database is an organized collection of data, so that it can be easily accessed and managed.
- **User:** A person who uses or operates something to perform the desired action.
- **Ecommerce** Known as electronic or internet commerce, this refers to the buying or selling of goods and products over the internet.

- **Cookies**: Cookies are small text files a website sends to a visitor's browser to store data related to that visitor's interactions with the website. These text files are sent back to the server each time the visitor accesses the website. Cookies are mainly used for ad and content targeting, and for saving shopping cart information.
- **HTML**: The Hypertext Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.
- **Gateway (or payment gateway)**: An ecommerce service provider that communicates with your merchant account provider to authorize and process credit card payments.
- **Inventory**: Inventory is a retailer's or ecommerce store's products on hand, waiting to be sold.
- **Webpage**: Webpages are the collection of pages of information placed on network that may contain text, graphics, images, moving pictures, sound files & other type of electronic information.
- **Website:** Collection of files called webpage, which can contain text & images.

ABBREVIATIONS/ ACRONYMS

- **SQL**: Structured Query Language
- **SRS**: System Requirement Specification
- **OS**: Operating System
- **DBMS**: Database Management System
- **URL**: Uniform Resource Locator
- **IIS**: Internet Information Server
- **XML**: Extensible Markup Language
- **MVC:** Model View Controller
- **CSS:** Cascading Style Sheet
- **HTML:** Hypertext Markup Language
- **COD:** Cash on Delivery
- **FAQ:** Frequently Asked Questions
- **OOS:** Out of Stock
- **GST:** Goods and Services Tax

1.4 References

- Anne Boehm, Joel Murach, Murach's ASP.NET 4 Web Programming with C# 2010, 4th Edition, Murach, 2010.
- Bryan Syverson, Joel Murach, Murach's SQL Server 2012 for developers, Murach, 2012.
- E-commerce websites (Example – Flipkart, Amazon, etc)
- Google Website
- Wikipedia Website
- http://msdn.microsoft.com/

2. Overall Description

A shopping cart is an essential part of a retailer's online store that streamlines the online shopping experience. It's software that allows website visitors to select, reserve, and purchase a product or service from an ecommerce interface. You can add and remove items as you wish, just like you would in the real world.

2.1 Product Perspective

- The system includes the user subsystem as well as the seller subsystem. The online shopping system provides an outstanding way of bringing sellers and customers on an online platform to sell and make purchases in an efficient and secure manner irrespective of the distance between the two.
- It is a platform for customers to shop items online without having to visit a store or meet a seller physically, and a platform for vendors to sell their items online without having to meet the customers physically or have a physical store set up for his products. This system is a one stop for customers to shop from millions of products online. The seller uploads his listing to the system and the customers browse from these items and purchase them.

2.2 Product Features

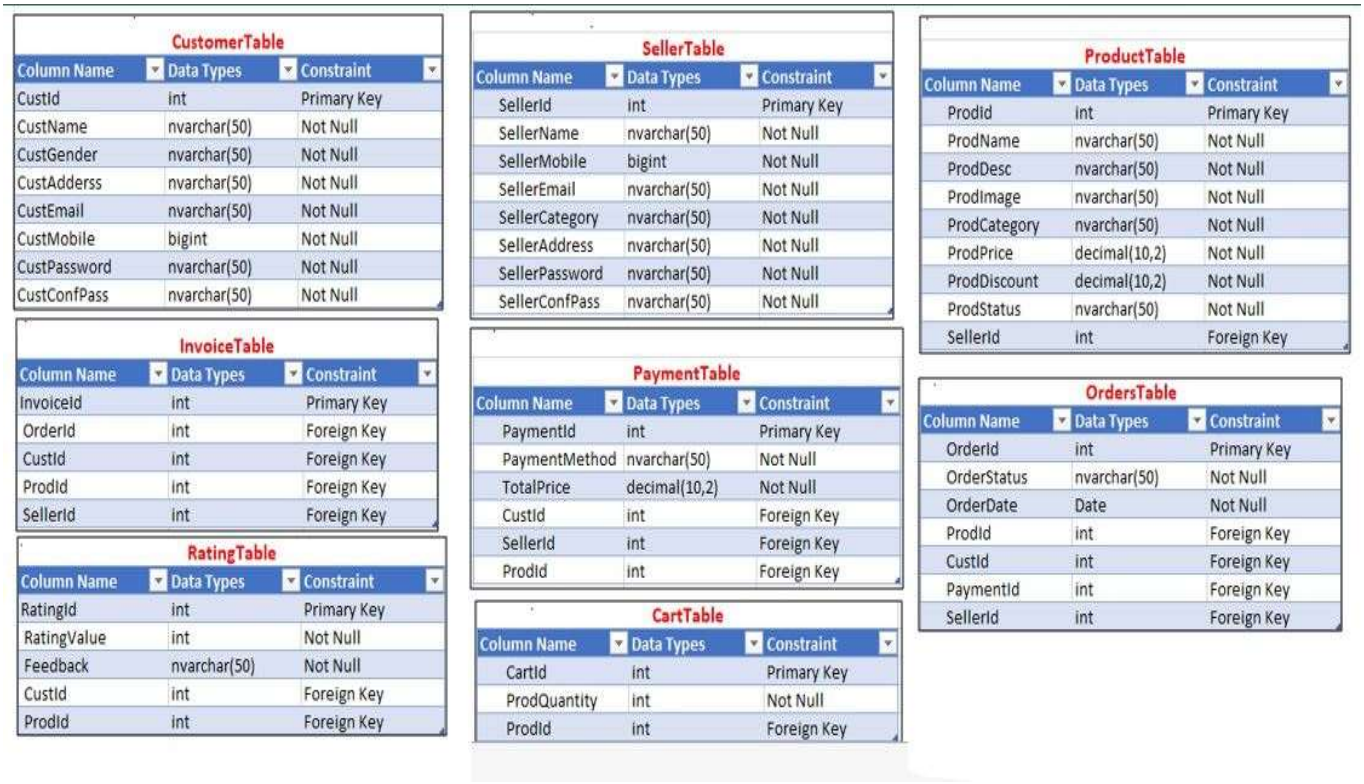
This software will have these given features and many more. Some of which are listed below.

- **Functional Product Images:** Product images are among the most effective ways to communicate with customers on an ecommerce site.
- **Product Reviews:** Online purchasing partially depends upon the customer's reviews. Many people who need to purchase online, they will first check the reviews of that product.
- **Search:** Searching option will make the consumers to search the required product in short time, instead of scrolling all the given products.
- **Single-Page, Fast Checkout:** One of the simplest methods to speeding checkout is to limit the checkout form to as few fields as possible and keep the entire form on a single page to avoid loading a new page at each stage of the checkout process.
- **Analytics and Sales Reporting:** A good shopping cart must have built-in sales reporting and analytics capabilities. Be sure that you can track product sales down to a significant level of detail.

2.3 User Classes and Characteristics

There are two kinds of users for the proposed system.

- **Customer:** Customers are the verified users of the website. Customers can view the list of products and purchase items. The functions used by customers are register, view account, login, browse item, view item, buy item, add to cart, view cart, proceed to buy, enter delivery address, enter mode of payment, make payment, place order, view order, track package, write review, cancel order, return item and logout.
- **Sellers:** Sellers will link their goods to the system, which will be displayed on the website where the customers can buy the product by choosing what they need. Sellers have the rights to handle the items which are added by the customers.



CustomerTable

Column Name	Data Types	Constraint
CustId	int	Primary Key
CustName	nvarchar(50)	Not Null
CustGender	nvarchar(50)	Not Null
CustAdderss	nvarchar(50)	Not Null
CustEmail	nvarchar(50)	Not Null
CustMobile	bigint	Not Null
CustPassword	nvarchar(50)	Not Null
CustConfPass	nvarchar(50)	Not Null

SellerTable

Column Name	Data Types	Constraint
SellerId	int	Primary Key
SellerName	nvarchar(50)	Not Null
SellerMobile	bigint	Not Null
SellerEmail	nvarchar(50)	Not Null
SellerCategory	nvarchar(50)	Not Null
SellerAddress	nvarchar(50)	Not Null
SellerPassword	nvarchar(50)	Not Null
SellerConfPass	nvarchar(50)	Not Null

ProductTable

Column Name	Data Types	Constraint
ProdId	int	Primary Key
ProdName	nvarchar(50)	Not Null
ProdDesc	nvarchar(50)	Not Null
ProdImage	nvarchar(50)	Not Null
ProdCategory	nvarchar(50)	Not Null
ProdPrice	decimal(10,2)	Not Null
ProdDiscount	decimal(10,2)	Not Null
ProdStatus	nvarchar(50)	Not Null
SellerId	int	Foreign Key

InvoiceTable

Column Name	Data Types	Constraint
InvoiceId	int	Primary Key
OrderId	int	Foreign Key
CustId	int	Foreign Key
ProdId	int	Foreign Key
SellerId	int	Foreign Key

PaymentTable

Column Name	Data Types	Constraint
PaymentId	int	Primary Key
PaymentMethod	nvarchar(50)	Not Null
TotalPrice	decimal(10,2)	Not Null
CustId	int	Foreign Key
SellerId	int	Foreign Key
ProdId	int	Foreign Key

OrdersTable

Column Name	Data Types	Constraint
OrderId	int	Primary Key
OrderStatus	nvarchar(50)	Not Null
OrderDate	Date	Not Null
ProdId	int	Foreign Key
CustId	int	Foreign Key
PaymentId	int	Foreign Key
SellerId	int	Foreign Key

RatingTable

Column Name	Data Types	Constraint
RatingId	int	Primary Key
RatingValue	int	Not Null
Feedback	nvarchar(50)	Not Null
CustId	int	Foreign Key
ProdId	int	Foreign Key

CartTable

Column Name	Data Types	Constraint
CartId	int	Primary Key
ProdQuantity	int	Not Null
ProdId	int	Foreign Key

Figure: Class Diagram

2.4 Operating Environment

The system will operate in a windows environment. The Online Shopping System is a website and will operate in all famous browsers, like Microsoft Internet Explorer, Google Chrome and Mozilla Firefox. The only requirement to use this online system would be the internet connection.

3. System Features

The proposed system is designed to develop a Shopping Web Application in order to make the process of purchasing the products easily by customer as well as for Sellers to sell their products in much easier way in comparison to traditional method. The below given figure represents the execution flow of the proposed project.

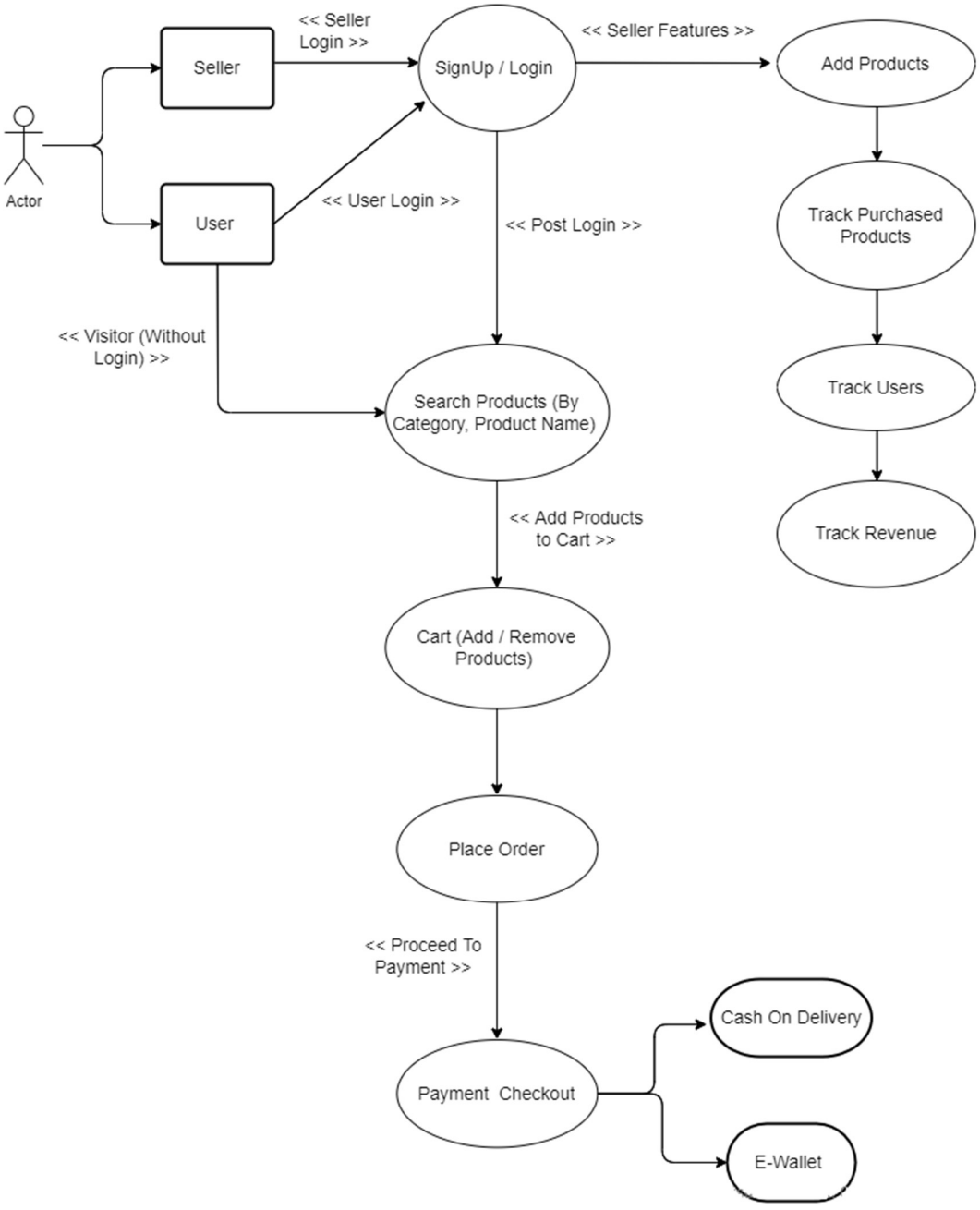


Figure: Execution Flow of Diagram

3.1 Seller:

- **Log-in account:** Login to Seller account as an Administrator account with the system Administrator clicks button or link to initiate login process. System prompts the Administrator for email and password. System verifies information. System displays account home page to Administrator.
- **Database Management:** Seller can control the database and keep track of all records of customer and product details.
- **Add Products:** Seller can add the products and details to the website. System prompts the seller to fill out product name, product id, product description, product price, upload a product image, number of items in inventory, and availability of product. System validates the new product information. System creates a new product page for the new product. System displays the newly created product page.
- **Delete Products:** Remove product to the system. System prompts the seller to select a product by searching or viewing a list of products. System validates the product information. System removes the product page and product information from the system. System displays the newly created product page.
- **Update the products:** Update product attributes within the system. System prompts the seller to select a product by searching or viewing a list of products. System displays all of the product attributes and allows seller to update the product name, product id, product description, product price, update the product image, product availability, and/or the number of items in the inventory. System validates the product information. System updates the product page and product information within the system. System displays the newly updated product page.
- **View All Details**: Seller can view the details of all customers and products. Seller has the access to control the whole site. Seller is responsible for all the operations in the website.
- **Track users:** Seller can track the user details and purchased details.
- **Advertising the site:** Seller is responsible for making advertisements for the site.
- **Logout Account:** Logout the seller account the system.

3.2 User:

- **Registration:** If a customer wishes to purchase a product, he or she must first register; visitor can search and view the products without login. System prompts the customer to fill out his/her first name, last name, billing address, shipping address, email address, and their password. System validates the customer's information. System creates a new account for the customer. System displays an account home page to customer.
- **Login:** The customer logs into the system by providing a valid user id and password. System prompts the customer for his/her email and password. System verifies the information. System displays account home page to the customer. If the user forgot the password he/she can recover it.
- **Manage Account:** Customers can view/edit their personal information, payment information, and information about the services they have received. System verifies the changes. System stores new account information.
- **Search Products:** Customer enters a category or name of the product in the search engine. System searches the matching product. System displays the results. If there are no products under the search criteria then system will give message that there are no products found under this category.
- **Add Items to Cart**: After logging into the website a customer has the opportunity to add items to the shopping cart. Customer specifies the quantity of item(s) to be ordered. System checks the availability of the product. Customer drags the desired item and drops it to the cart. System adds the items to the cart. Customer confirms the items in the cart. Customer returns to product listings.
- **Remove Items From The Cart:** Customer selects the item in the cart and clicks the button to initiate the deletion of items. System prompts the customer to specify quantity of items to remove from cart. Customer confirms the number of items to remove. System removes the items from the cart.
- **Confirm Order:** Customer places and confirms an order. System calculates order of items in the shopping cart. System presents the customer with the account details. Customer confirms account details. Customer confirms order. System stores order confirmation and order details. System sends email confirmation to the customer.

- **Out of Stock**: If an item is out of stock or has been restocked, the customer must be notified.
- **Payment:** In this system, customer can select cash on delivery option or wallet payment method.
- **Giving Feedback**: Customers can provide feedback on the product or service they bought.
- **Logout:** After using or purchasing the products from the website then user can logout from his/her account.

4. Non-Functional Requirements

This section provides requirements those are responsible for the positive user experience and optimal website performance. Various non-functional modules that can be implemented by the system will be:

- **Operational:** In the assurance to the internet, the system will secure access to consumer's confidential data and will ensure 24*7 availability to consumers. In addition to these two, the system has better component design with flexible service based architecture to provide future enhancements and extensions.
- **Performance**: For increasing the traffic on the website, the system will focus on the loading part of the website as fast as possible regardless of the number of integrations and traffic on the system. It also focuses on how the system is to interface with its environment, users, and other systems.
- **Security**: As the system deals with monetary transactions and users' financial sensitive data, the system provides utmost importance to the security part. In order to ensure the security, the system provides different roles to different users (Seller or Customer) by which the system has proper control over who can create, see, copy, change or delete the information.
- **Cultural/Political:** Because of the different opinions and behaviors of the consumers across different locations across the globe, system has also focused on special factors that would make the products included in the system unacceptable because of human customs, religions, languages, taboos, or prejudices.

In addition to these above four requirements, the system also focused on scalability, reliability, regulatory, maintainability, Manageability, data integrity, capacity, usability, interoperability, etc.

5. External Interface Requirements

5.1 User Interfaces

Application will be accessed through a browser interface. The software would be fully compatible with chrome. No user would be able to access any part of the application without logging on to the system. The user interface has been specifically designed with their customers in mind, allows the customer to buy clothes and accessories without going to shopping.

There are four different ways for a user to interact with the system:

- **Viewers:** Unauthorized individuals have access to the online shopping system. They gather information and conduct a search to see what things are available in the online store.
- **New user:** A new user can come into the store and look around the products. If a new user wants to purchase things, they must first register and then shop.
- **Existing user:** The existing users have their own account and who have registered they can buy items and they can check updates for new products.
- **Seller:** Seller is master user of the system because they are the main role of the system. Seller can add products, track purchased products, track users, and track revenue.

5.2 Communication Interfaces

The communication interface refers to the wireless or wired technologies that are used to connect device or websites and applications. The system uses LAN for the communication and WAN for connection between two people.

- **LAN**: - LAN (Local Area Network) is used for a private area and the speed of LAN is higher. The configuration and maintenance is comparatively easy in LAN.
- **WAN**: - WAN (Wide Area Network) is used to cover a broad area using private or public network transports.

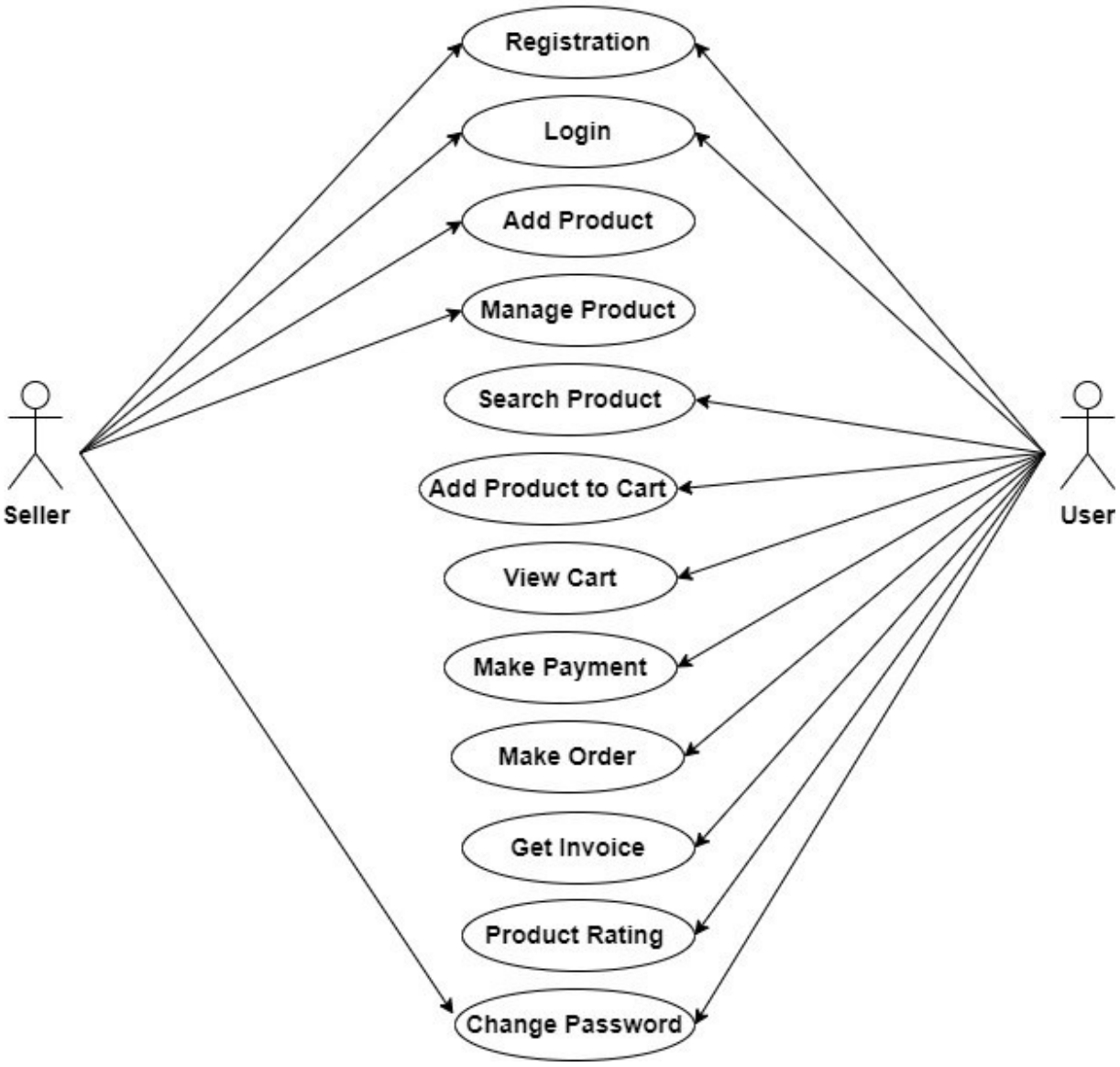
6. Detailed Use Cases

This section represents the detailed use case of the proposed system. The proposed system is basically based on web application which mainly comprises of two kinds of user. The first and foremost user is the customer that can purchase the product from the shopping cart project. Another important user is seller which has several rights and authority to manage the system. Considering the customer functionality, the customer can search the products without login but cannot proceed further. To purchase the product, the customer has to create an account and login to it. The user can add or remove the products post login. The customer can buy the desired product which is already added to cart by placing the order. The user can choose the payment method like Cash on Delivery or E-wallet method. The product is finally placed once the payment method is selected.

On the other hand, seller has different roles and responsibilities in the proposed system. The seller initially needs to login to account to use the different functionalities. The seller is primarily responsible to different functions like add the products, track the purchased products, and track the existing customers and last but not least to track the generated revenue.

The conclusion of online shopping has resulted in a more informed consumer who can purchase with relative ease and without wasting a lot of time. In exchange, shopping cart allows many small shops to thrive who would not have been able to do so if they had to pay the hefty costs of running a physical store. In the end, it was a win-win situation for both the buyer and the seller.

Use Case Diagram



Entity Relationship Diagram