

# Shopping Cart System

## Low Level Design



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## **1.0 Document Purpose**

Following document describes detailed description of module present , it also includes logic for system component. Document provides an overview about EshoppingZone web application.

## **2.0 Intended Audience**

This application is will be very helpful to the merchants (i.e. sellers) and customers (i.e. Buyers) who want to sell or buy various products like electronics, books, apparel, and personal-care items, etc. Anyone can browse though the apps and explore its contents.

## **3.0 Project Background, Objective(s)**

### **Project Background**

This is a e-commerce website which will be make it easier for merchants to sell and customers to buy. It will provide a easy platform for both the parties to sell or buy products

### **Project Objective**

2) Anybody who wants to only buy something or surf the website, needs only to open the website and they can browse through the products available on the website section wise.

3)Customers can item they want to buy to cart, for this operation also user don't have to login .

4)When user wants to buy the product or items for cart, He/She needs to login.

If login not present then user has to register on website, login using github option is also available.

5) Multiple payment option are available for payment like Wallet , Cash on Delivery.

## **4.0 Design Steps**

1) Frontend – Angular

2) Backend – SSMS

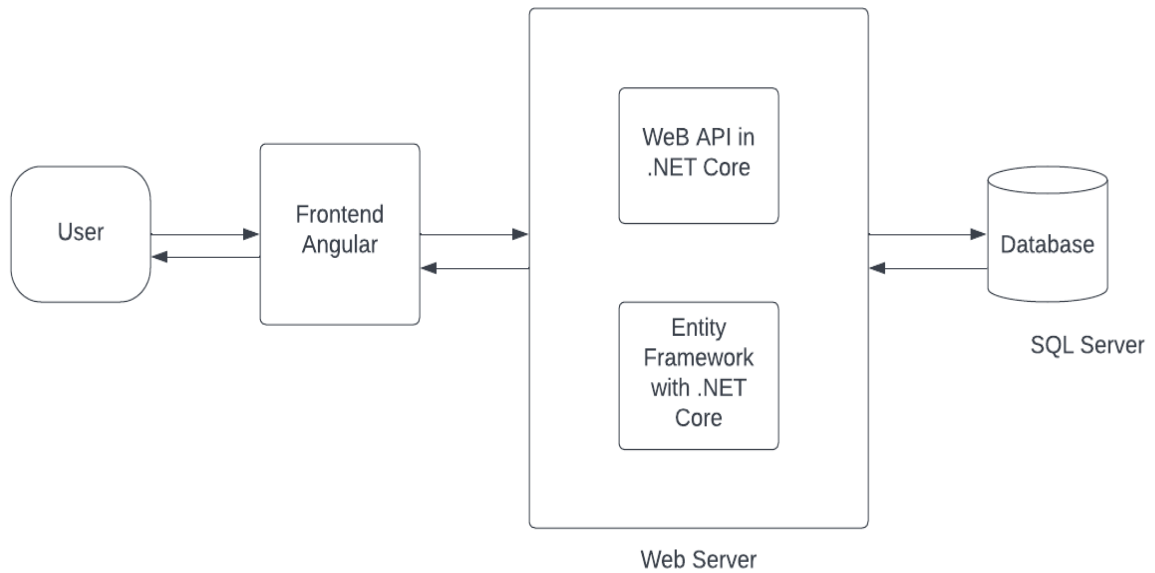
3) Web API

## **5.0 System Requirements**

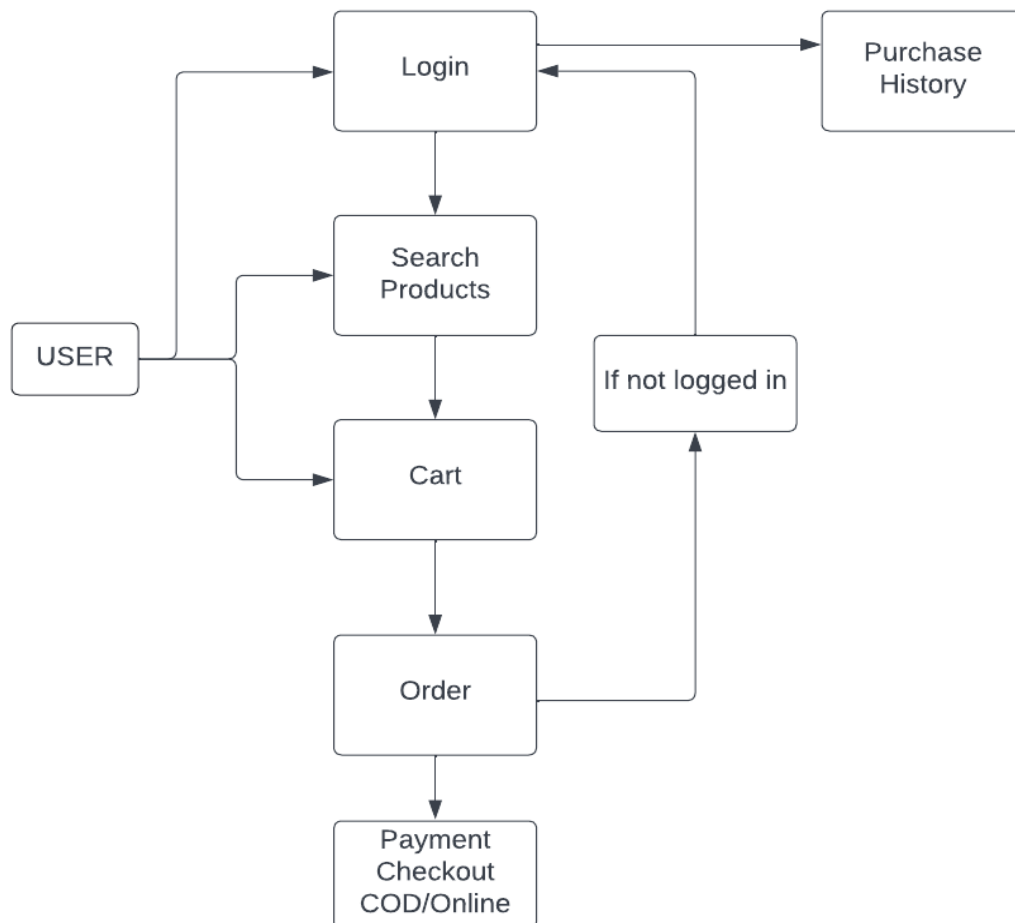
**Hardware Requirements:-** 64 GB Windows System

**Software Requirements:-** 2019 Visual Studio , Microsoft SQL Server Management Studio,  
Visual Studio Code

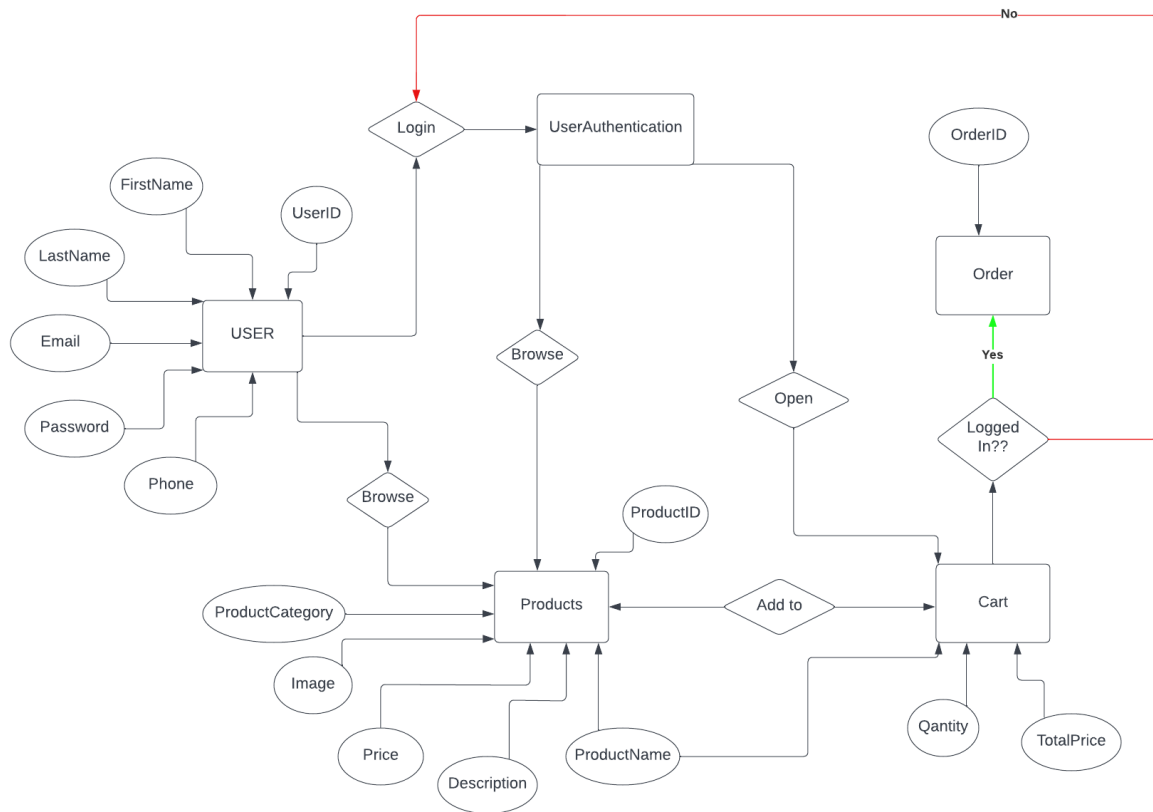
## 6.0 Solution Diagram



## 7.0 Use Case Diagram



## 8.0 ER Diagram



## 9.0 Solution Steps

### Home

1. It will have products classified according to the type. (e.g. Books, personal care, Electronics, etc.)
2. User can navigate according to their requirement to specific page.
3. It will have the option of adding products to the cart, login link and cart link.
4. User do not have to login to navigate products and adding them to cart.

### Cart

1. The products added to the cart, will be visible here.
2. Customer will have option add, remove, increase or decrease the quantity of products.
3. There will also be link to order/Buy the components in the cart, once clicked on that user will be directed to login page if not logged in or payment options if already logged in.

### User Login/Registration

1. Users can login right away, when entering the site. In that case they will be directed to products page to shop for products.

2. User will have their order history accessible, when they are logged in.
2. Once products are added to the cart, user do not have to login to make payment.
3. User can also login when, they are going to buy actual product from cart.
4. If first time user, there is also option to register on the login page as well as home page.

## 10.0 Classes/function

**Controllers** - contains application logic and passing user input data to service

**Services** - The middleware between controller and repository. Gather data from controller, performs validation and business logic, and calling repositories for data manipulation.

**Repositories** - layer for interaction with models and performing DB operations

**Models** – models declare the all the attributes of the database .

#	Class	Description
1	User.cs , Product.cs, Cart.cs, Order.cs, Transaction.cs	Model for holding the data schema for user, product, cart, order, transaction respectively.
2	Iuser.cs, Iproduct.cs, Icart.cs, Iorder.cs, Itransaction.cs	The interface in Data Access Layer for user, product, cart, order, transaction respectively.
3	UserRepo.cs, ProductRepo.cs, CartRepo.cs, OrderRepo.cs, TransactionRepo.cs	Implementation of interface for user, product, cart, order, transaction respectively.
4	UserCont.cs, ProductCont.cs, CartCont.cs, OrderCont.cs, TransactionCont.cs	Controller handles the incoming HTTP requests and send the response back to the caller.
5	UserSer.cs, ProductSer.cs, CartSer.cs, OrderSer.cs, TransactionSer.cs	It is Business Access Layer holding the Business Logic and mediates the communication between the controller and repository.

## 11.0 Data model/Tables

### User Table

UserID	INT	PK
FirstName	VARCHAR	NA
LastName	VARCHAR	NA
Email	VARCHAR	Unique
Phone	VARCHAR	NA
Password	VARCHAR	NA

### Product Table

Name	Datatype	Keytype
ProductID	INT	PK
ProductCategory	VARCHAR	NA
ProductName	VARCHAR	NA
Price	DECIMAL	NA
Description	VARCHAR	NA
Image	VARCHAR	NA

### Cart Table

Name	Data Type	Key Type
CartID	INT	PK
ProductID	INT	FK
ProductName	varchar	FK
UserID	INT	FK
Quantity	INT	NA
TotalPrice	DECIMAL	NA

### Order Table

Name	Datatype	keyType
OrderID	INT	PK
CartID	INT	FK
UserID	INT	FK
TotalPrice	DECIMAL	FK
ProductID	INT	FK

ProductName	VARCHAR	FK
Quantity	INT	NA

### Transaction Table

Name	Datatype	keyType
TransactionID	INT	PK
TotalPrice	DECIMAL	FK
TransactionStatus	VARCHAR	NA
OrderID	INT	FK
UserID	INT	FK
TransactionType	VARCHAR	NA

## 12.0 Http Status Code

201-user Register

200-Request succeeded

400-Inputs are invalid

404-user not found

502-Bad gateway

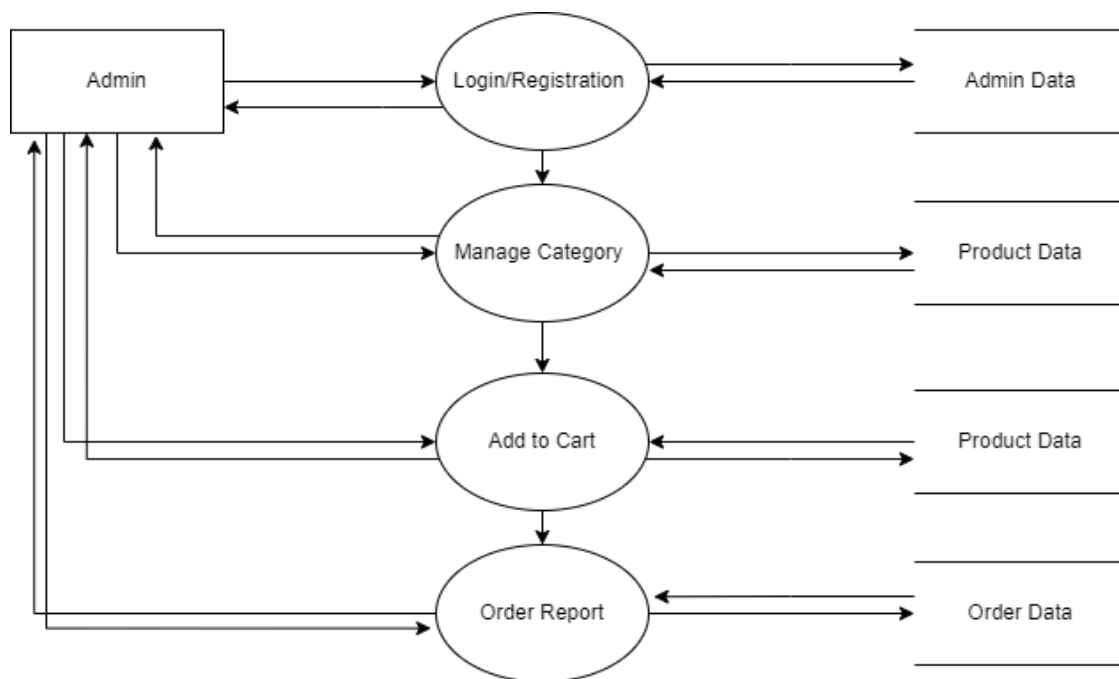
## 13.0 Unit Testing

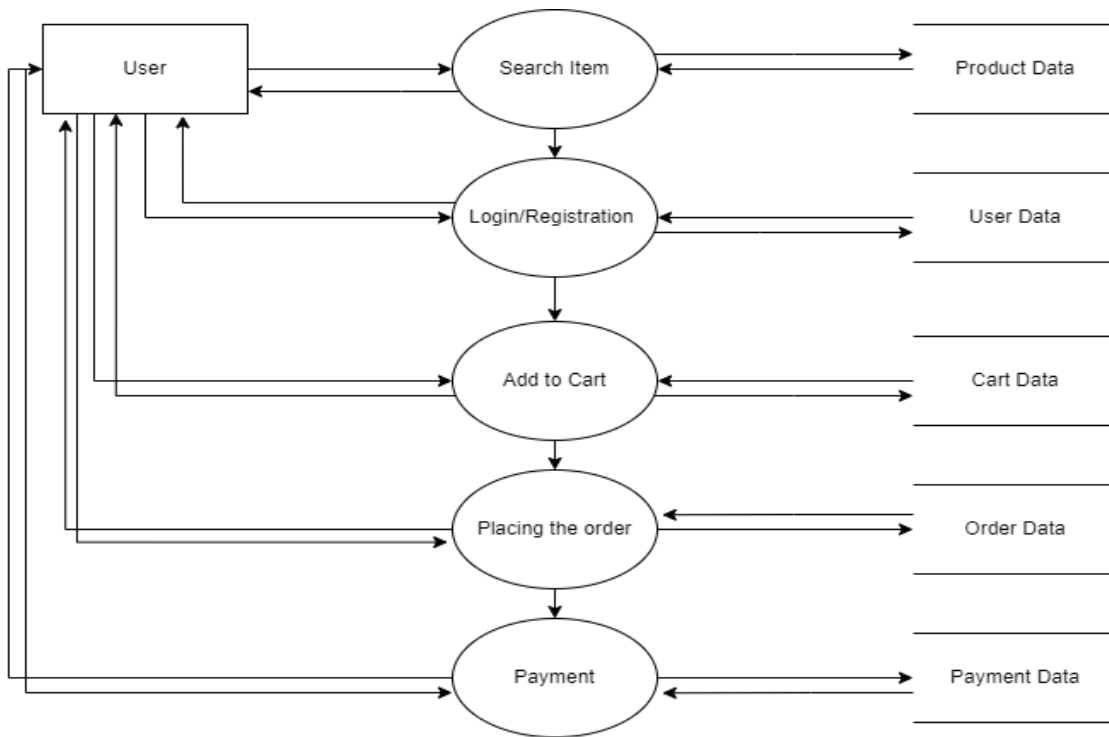
Test Case Id	TEST CASE SCENARIO	TEST CASE	PRE CONDITION	TEST STEPS	TEST DATA	EXCEPTED RESULT	ACTUAL RESULT
TC 1	Registration	Enter Valid data to get register	User needs to enter all the valid details	Enter First name, last name, email and every necessary information	Valid details	Successful registration	Successful registration
TC 2	Adding Data	Enter Valid data to add the product	Admin needs to enter all the valid product details	Enter product name, Image, Price and every necessary information	Valid Details	Successfully added	Successfully added
TC 3	Updating Data	Enter Valid	Admin needs to enter all	Enter product	Valid Details	Successfully updated	Successfully Updated



		data to Update the product	the valid product details	name, Image, Price and every necessary information to update			
Tc 4	Placing Order	Enter valid payment details	User needs to enter all the valid details	Enter address And payment details	Valid Details	Successfully Placed	Successfully Placed

#### 14.0 DFD Diagram





## 15.0 Use Case Diagram

