Shopping Cart System

Low Level Design (LLD)

Date: 13/07/2022

Current Document Version: [*1.0*]

DOCUMENT APPROVAL

Approvers of this document

Name	Department	Role	Signature	Date

DOCUMENT CHANGE HISTORY

Document Version #	Author	Date	Description
1.0	Saurabh Gogoi	13/07/2022	Shopping Cart System LLD

Table of Contents

1.0 Document Purpose

This document describes the solution architecture for Shopping Cart System

2.0 Intended Audience

This document is intended as a reference for the following roles and stakeholders who are interested in the Shopping Cart System technical architecture.

Role	Nature of Engagement in WB Classics Portal Technical Architecture
Product Owners/SME	Key stakeholder to ensure that the architecture is aligned with business goals.
Business Analysts	Business analysts are one of the stakeholders who are informed with the key architectural decisions.
Enterprise Architects	To enforce Shopping Cart System Platform Architecture is aligned to business goals and architecture, architectural guidelines.
Solution Architects	To ensure solution design and architecture is aligned to business requirements, architectural guidelines.
Developers	Use Technical Architecture Document as the guiding document for detail design and implantation approach to align with Shopping Cart System

3.0 Project Background, Objective(s)

3.1 Project Background

Shopping Cart System leads to perform where merchant can sell their products and customer can view or buy their products with the help of different payment options like cash on delivery ,card payment ,etc.

3.2 Project Objective

Shopping Cart System will perform various operations like listing, creation, Update and delete products for merchant and customers can view them without log in .But ,if a customer wants to buys items then he/she required to login himself/herself and can add to cart or buy them.

4.0 Design Pattern

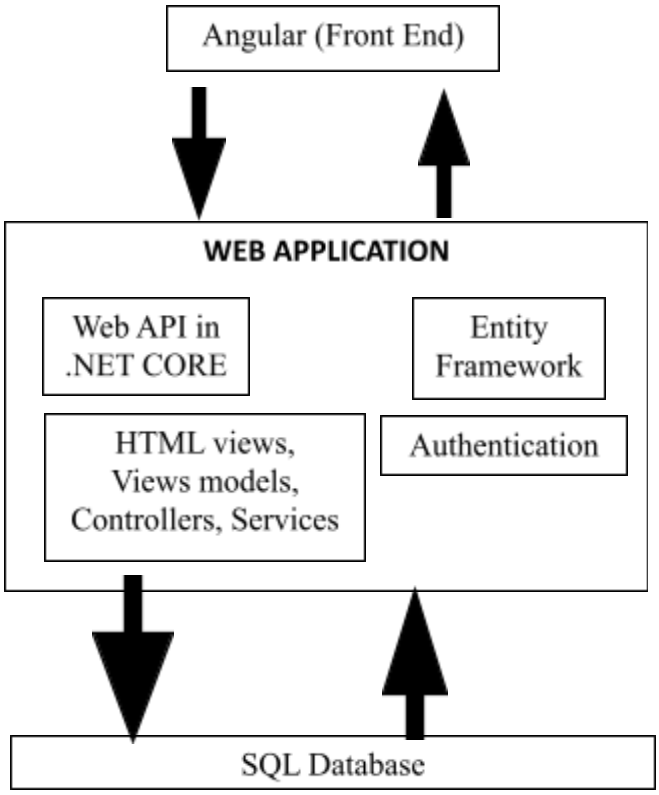
#	Name	Description
1	API	API acts as the middleware between the frontend and the backend.

2	Angular	To create and design the front end
3	Database	To store and retrieve the information.

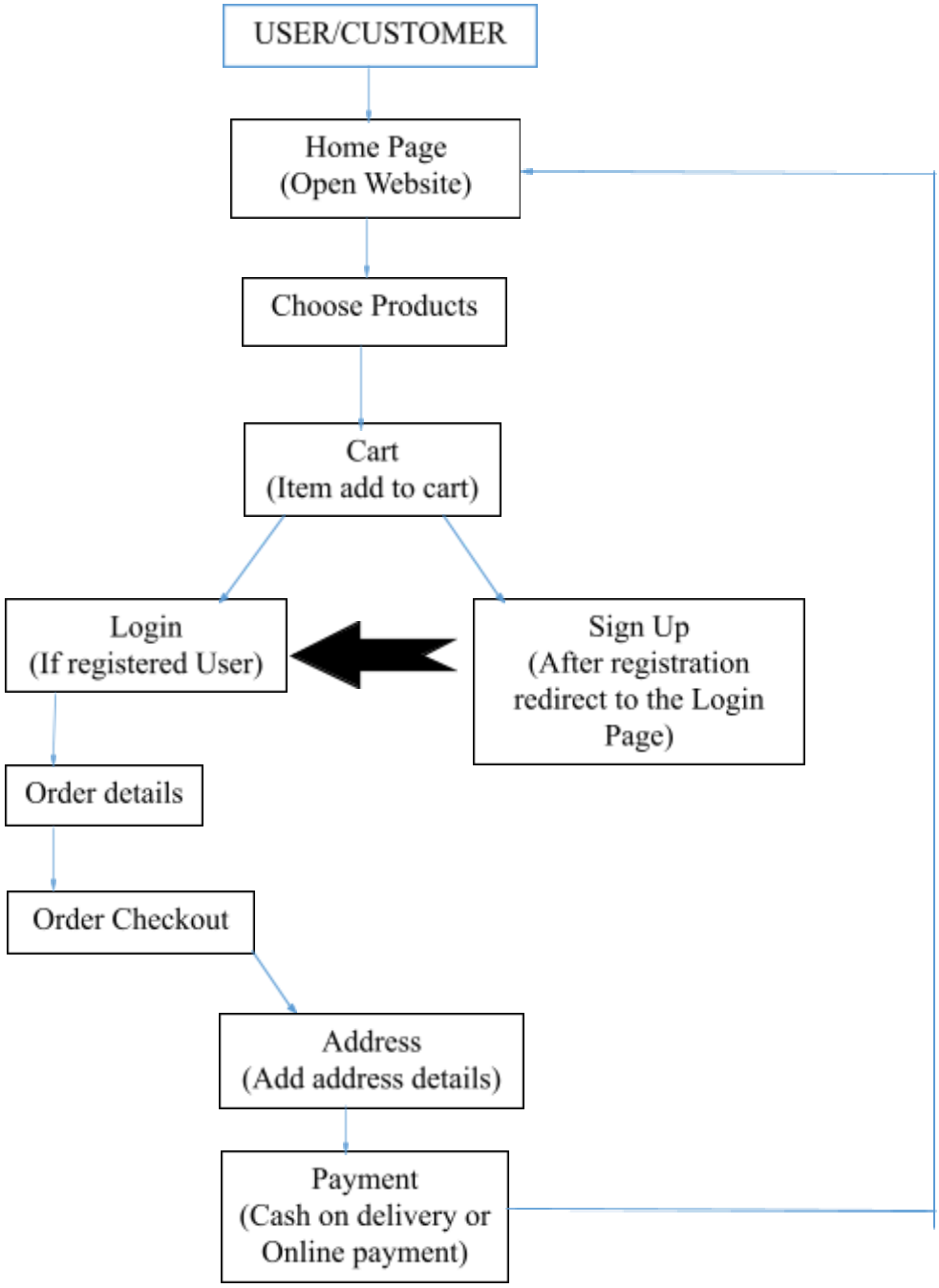
5.0 Requirements:

Operating Systems: Windows 10
Hardware: processor: x64
Ram: min. 512MB
Hard Disc: upto 3GB of free space may be required.
Softwares: Visual Studio 19/22
VS Code
SSMS 18
Browser Support: Chrome ,Firefox , Opera ,Edge

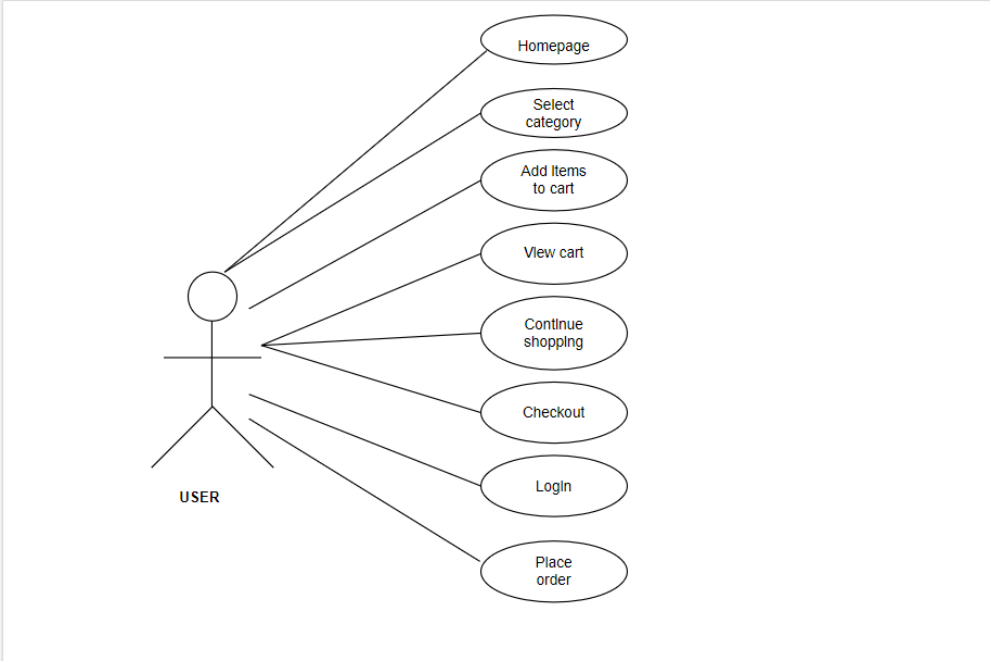
6.0 Solution Diagram:



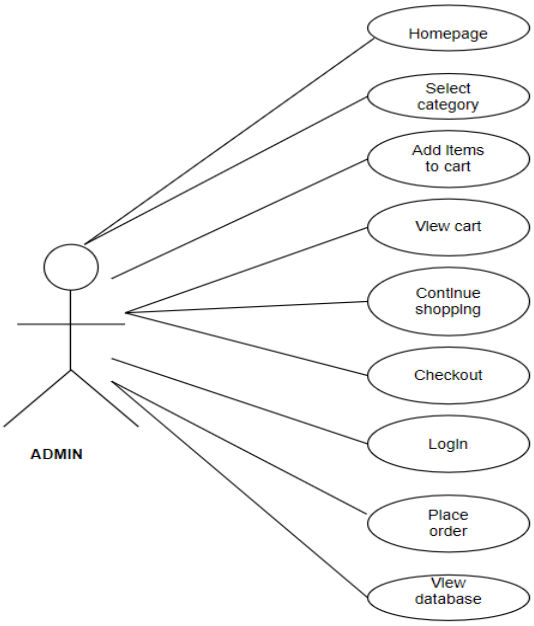
USE CASE DIAGRAM



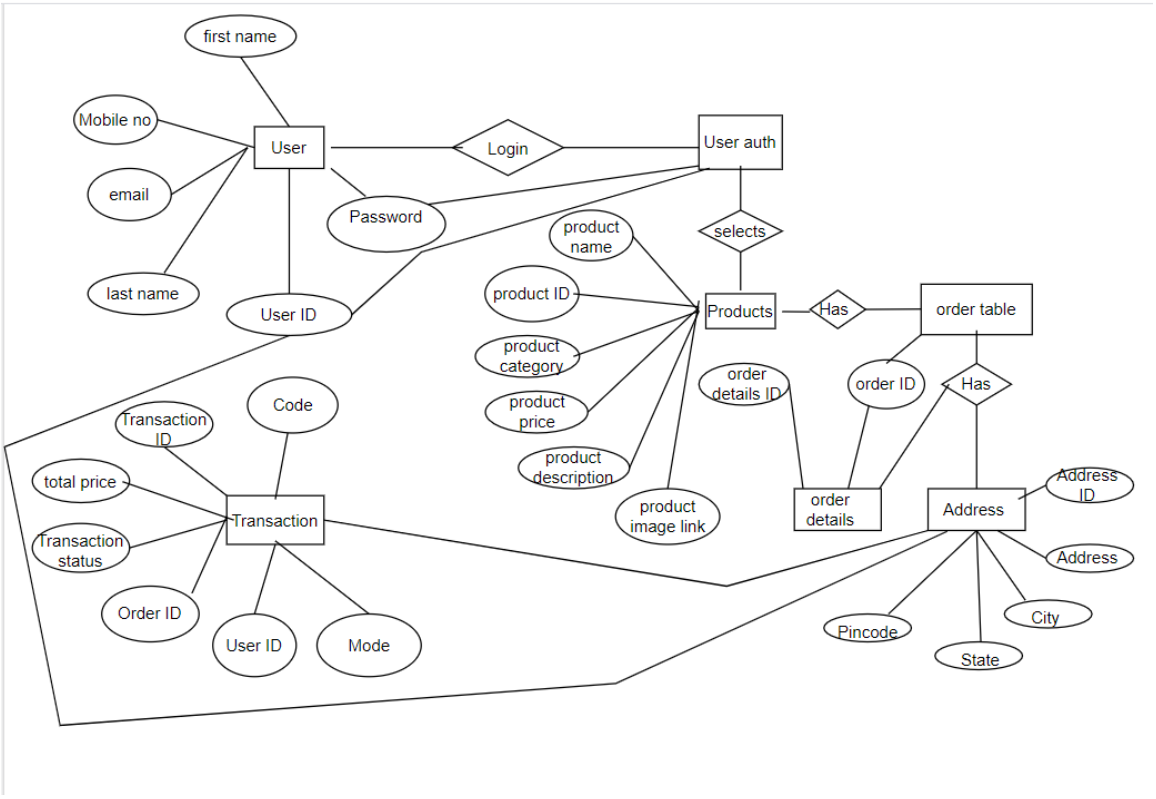
USER


Homepage
Select category
Add Items to cart
View cart
Continue shopping
Checkout
Login
Place order
USER

ADMIN


Homepage
Select category
Add Items to cart
View cart
Continue shopping
Checkout
Login
Place order
View database
ADMIN

ERD Diagram:


first name
Mobile no
User
Login
User auth
email
Password
product name
selects
last name
User ID
product ID
Products
Has
order table
product category
order details ID
order ID
Has
Code
Transaction ID
product price
product description
total price
Transaction
order details
Address
Address ID
Transaction status
product image link
Address
Order ID
City
Pincode
User ID
Mode
State

7.0 Solution Streps:

User Registration:
This is for the Customer, Merchant and Admin to login/signup for the WebApp

- For login, we're going to use an email id and password.
- For signup, we're going to use the details like First Name, Last Name, email, etc. (Full Details in the table section)

Product Details:
This is about the product details which are available in WebApp. Here some fields include like Product ID, Product name, Price, etc. (Full details in the table section)

- This product can be seen by every user without logging in or register
- Only merchant can add and delete the products
- Admin can delete any product inside the WebApp. (If any inappropriate products are there.)

Cart Details:
The cart will display the total price of products those were added by the user. User will be able to remove item from the cart.

Address Details:
In this section, the user needs to add the proper address with the fields like flat no./house no., street /road, locality, pincode. (Full details in the table section)

- Once the address is added this user details can be used for the future references.

Payment Details:
In this section after addition of address user can make payment by using online payment mode or by using Cash on delivery mode of payment.

9.0 Classes/function

Controllers - contains application logic and passing user input data to service
For eg.
ProductController.cs
CartController.cs
UserDetailController.cs

Services - The middleware between controller and repository. Gather data from controller, performs validation and business logic, and calling repositories for data manipulation.
For eg.
ProductServices.cs
CartServices.cs
UserDetailServices.cs

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	Model holds the users schema details
2	AuthenticationController.cs	Has the functionality of Register, Login, Logout. It uses Dto and user to do the functionality
3	Product.cs	It contains details about the product
4	OrderTable.cs OrderDetailsTable.cs	It Has the functionality for the cart details and the full order detail are there is the order detail table
5	Payment.cs	Has the detail for the various payment method that is availableblob:file:
6	AddressTable.cs	It contains detail about the address and it is connected with the user table by using the foreign key “UserID”
7	ProductController.cs	Has all the API operation for product table
8	OrderTableController.cs OrderDetailsTableController.cs	Has the API Details for the corresponding
9	AddressController.cs	Has the API Details for the use of Address table
10	PaymentController.cs	Has the API Details for the use of Payment table

10.0 Data model/Table

1. USER TABLE:

UserID	INT
FirstName	VARCHAR
LastName	VARCHAR
Email	VARCHAR
Phone	INT
Password	VARCHAR

2. ADMIN TABLE:

Email	VARCHAR
Password	VARCHAR

3. ORDER TABLE:

OrderID	INT
CartID	INT
UserID	INT
TotalPrice	DECIMAL
ProductID	INT
ProductName	VARCHAR
Quantity	INT

4. PRODUCT TABLE

ProductID	INT
ProductCategory	VARCHAR
ProductName	VARCHAR
Price	DECIMAL
Description	VARCHAR
Image	VARCHAR

5.CART TABLE:

CartID	INT
ProductID	INT
ProductName	varchar
UserID	INT
Quantity	INT
TotalPrice	DECIMAL

6. ADDRESS TABLE:

UserID	INT
AddressID	INT
Address	VARCHAR
City	VARCHAR
State	VARCHAR
PIncode	INT

7. TRANSACTION TABLE:

TransactionID	INT
TotalPrice	DECIMAL
TransactionStatus	VARCHAR
OrderID	INT
UserID	INT
TransactionType	VARCHAR
Mode	VARCHAR
Code	VARCHAR

11.0 ENV variables

12.0 Integration

N/A

14.0 HTTP Status Code

201 – Customer Registered
200 - Request succeeded
400 – Inputs are invalid
404 – Customer Not found
502 – Bad gateway

15.0 Unit Testing

Project Name	Shopping Cart System
Created by	Saurabh Gogoi
Date of Creation	15/07/22
Date of review	

For Registration of customers

Test CASE ID	TEST CASE SCENARIO	TEST CASE	PRE CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	Actual Result

TC_o1	Customer registration	Enter the valid data to get registered	Customer needs to enter all the valid details	1) Enter customer_first_name: John customer_last_name:doe emai:customer@gmail.com Phone:0123456789 age:22 address:delhi gender:male 2) Enter Submit	<Valid Details	Successful registration	Successful registration
TC_o2	Customer registration	Enter invalid data to get registered	Customer needs to enter the valid details with wrong phone number type	1) Enter customer_first_name: John customer_last_name:do emai:customer@gmail.com Phone:01234567 age:22 address:delhi gender:male 2) Enter Submit	<invalid phone number>	Phone number should be of 10 digits	Phone number should be 10 digits
TC_o3	Customer registration	Enter all the required fields to get registered	Customer must enter all the required field as per specified in schema	1) Enter customer_first_name: John customer_last_name:doe emai:customer@gmail.com Phone:0123456789 age:22 address:delhi gender:male 2) Enter Submit	<All the Required fields are available>	Successful registration	Successful registration

TC_o4	Customer registration	Enter all the required fields to get registered	If customer misses one of the fields during registration which is marked as required in schema	1) Enter customer_first_name: John customer_last_name:doe Phone:0123456789 age:22 address:delhi gender:male 2) Enter Submit	<email is missing>	You need to enter email	You need to enter email

