ONLINE SHOPPING CART SYSTEM

LOW LEVEL DESIGN (LLD)

By

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DOCUMENT APPROVAL

Approvers of this document

Name	Department	Role	Signature	Date

DOCUMENT CHANGE HISTORY

Document Version #	Author	Date	Description
1.0	Ritika Raj	12/09/2022	Shopping Cart System LLD
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SYSTEM OBJECTIVES

- To automate product purchase by converting the shopping system from manual to online.
- Provides the product searching facilities based on variour factors such as categories, names, etc.
- It helps in tracking all the information/data of the products.
- It helps in reducing the manual work done.
- Users/Customers can register or login to the site with the required information in the application.
- Integration of all records of costumers.
- It manages the shopping details.
- Admin has the authority to perform new particulars to the items list whenever they are needed such as add, delete, modify, search, and category.

DOCUMENT PURPOSE:

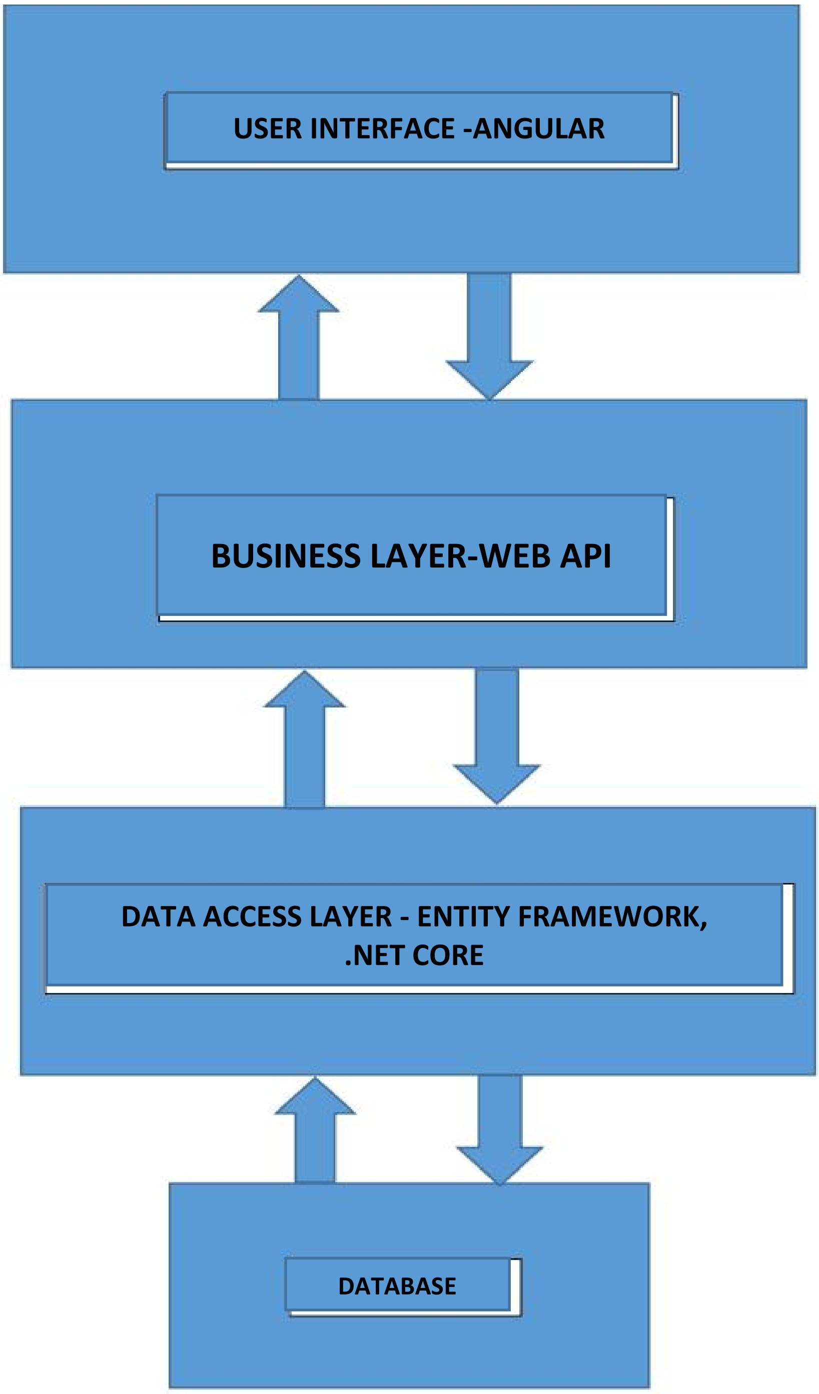
The project makes a sincere effort to meet the requirements and expectations of diverse customers in day to day life.

Intended Audience

This document is intended as a reference for the following roles and stakeholders who are interested in the Shopping Cart Microservice 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 Product management 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 Customer management Microservice

THREE LAYER ARCHITECTURE



In the Online shopping cart system , we will be using three layers of application . The entities layer and the data access layer is taken a library .The entities layer is referenced and imported in the data access layer ,the data access layer connected with the database is also referenced and imported in the Web API and the Web API is further connected with the Angular UI layer of the project site.

User Interface (UI) -The UI of this system will be built with the help of Angular where is an open-source framework hat helps to create attractive HTML5 hybrid mobile and desktop apps.

BUSINESS LAYER-The Business Layer of this system is the Asp.Net WEB API where in WEB API ,API stands for Application Programming Interface,an Application Programming Interface for the web.

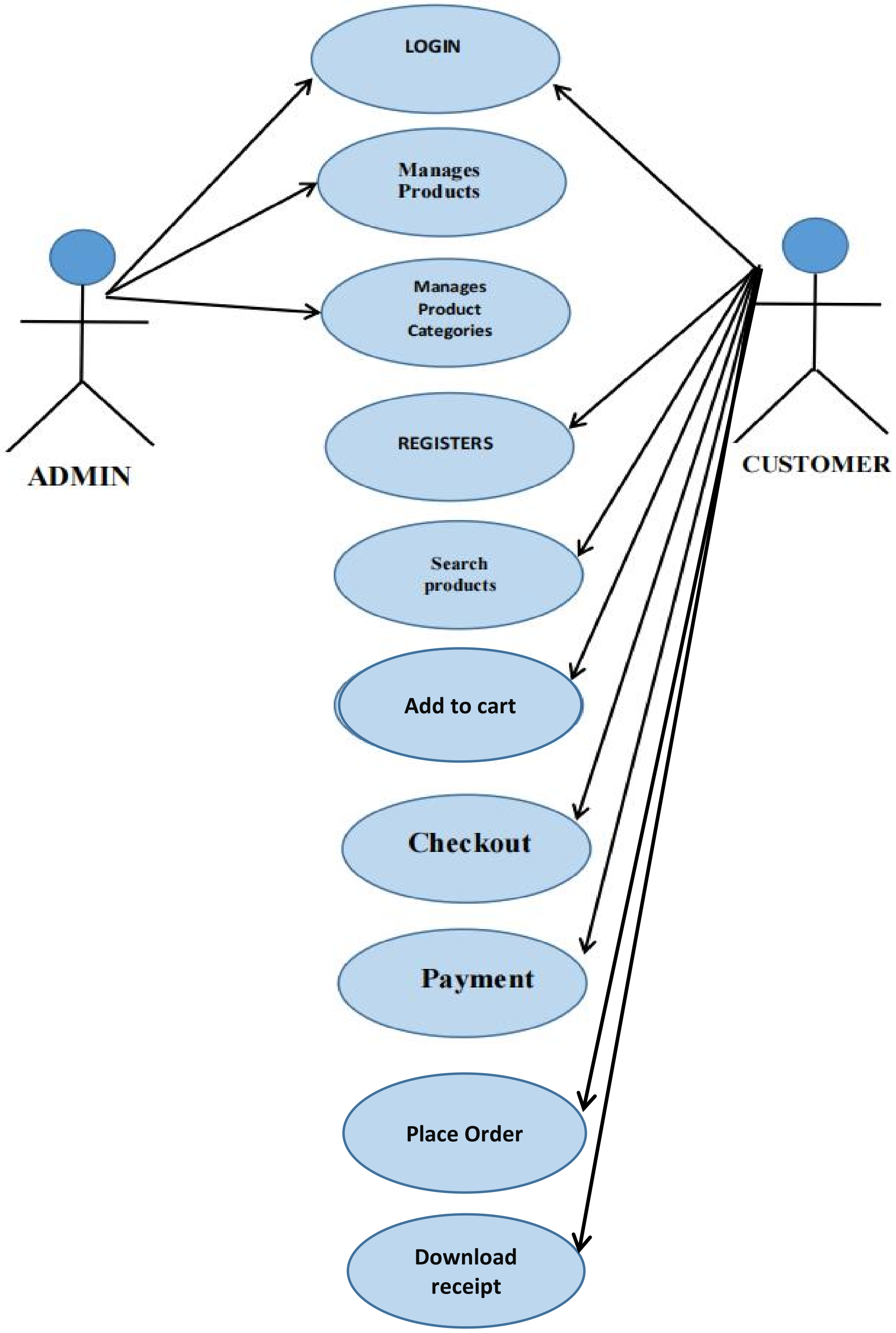
DATA ACCESS LAYER- In order to perform the database operations the Data Access Layer of this system will be done with the help of CRUD(Create,Retrieve,Update and Delete) Operations .

These three major layers of the Application will help in building up this entire an Online Shopping Cart System positively.

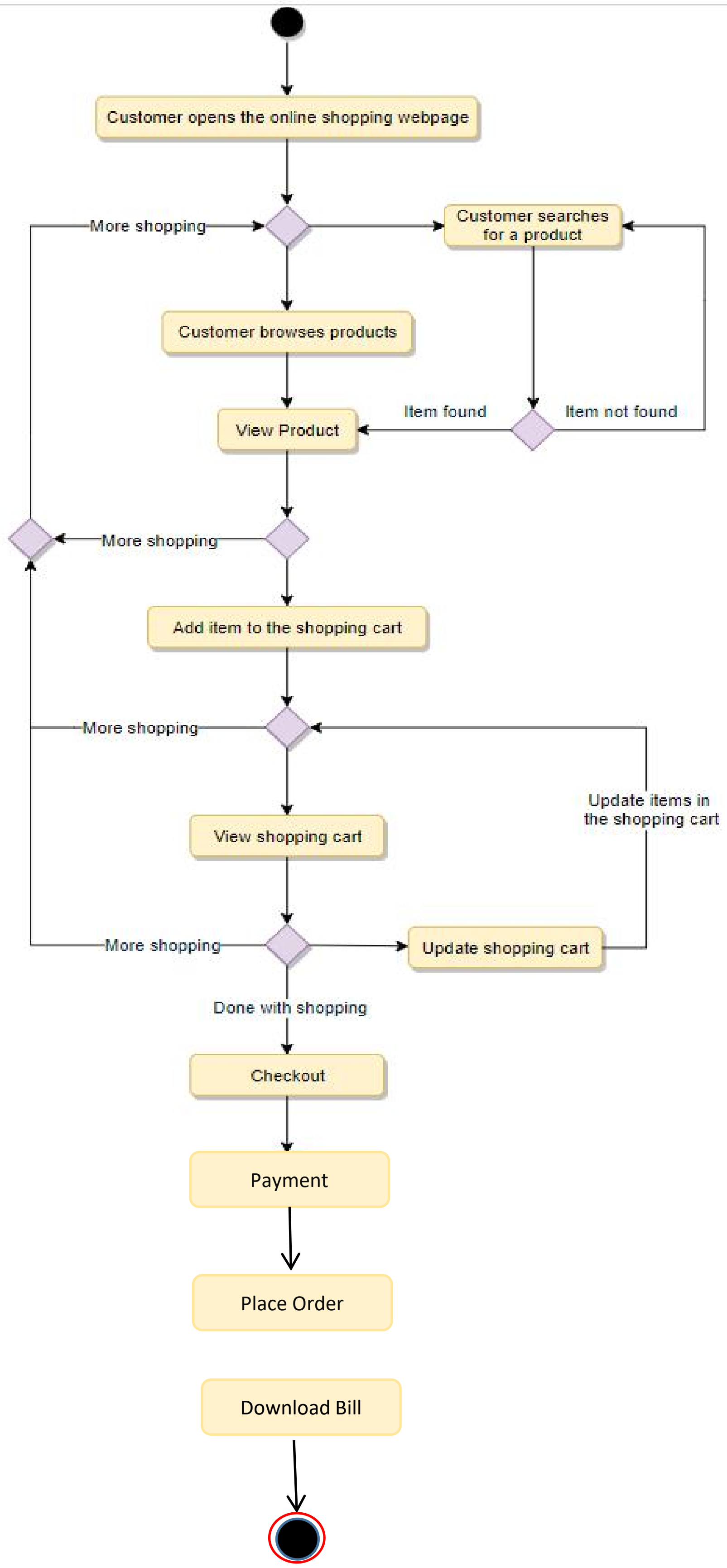
USE CASE DIAGRAM

The use case diagram is usually referred to as behavior diagram used to describe the actions of all user in a system.

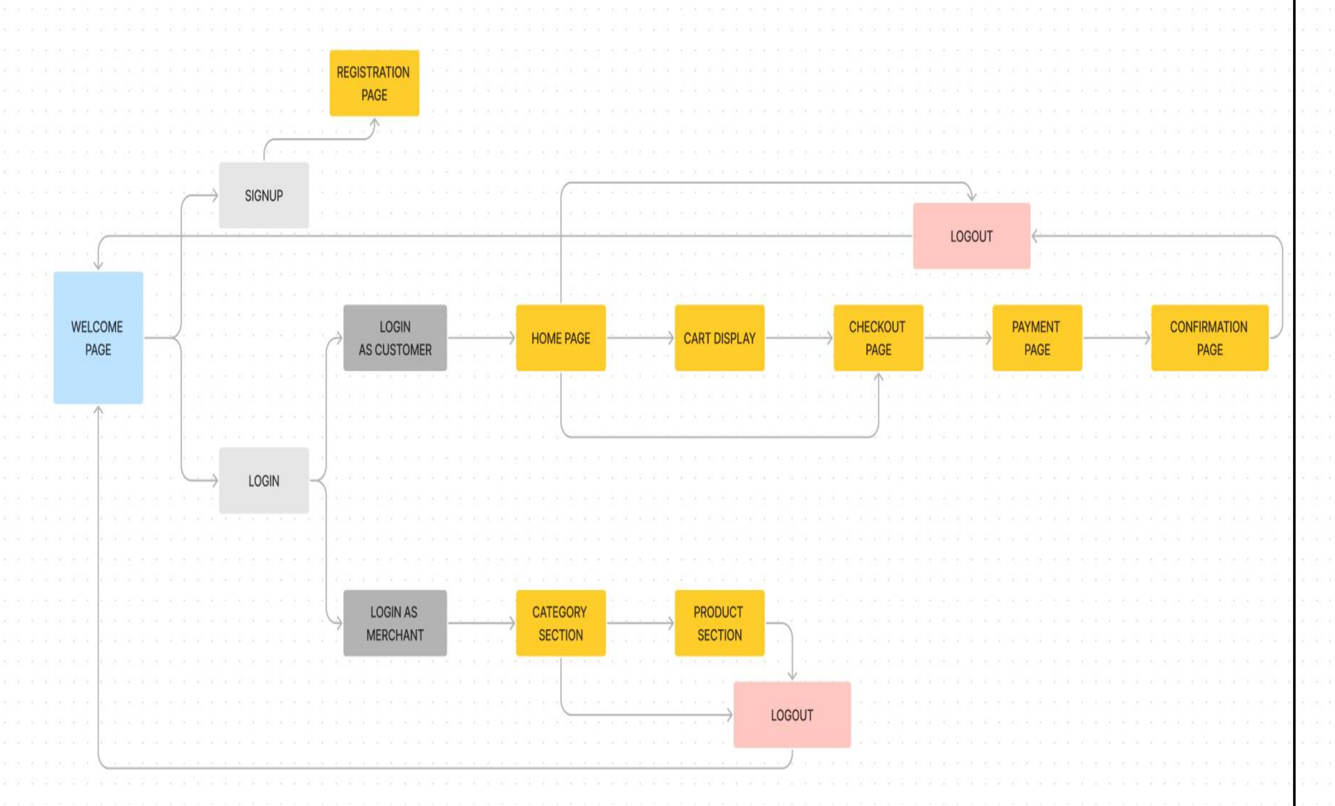
All user describe in use case are actors and the functionality as action of system.



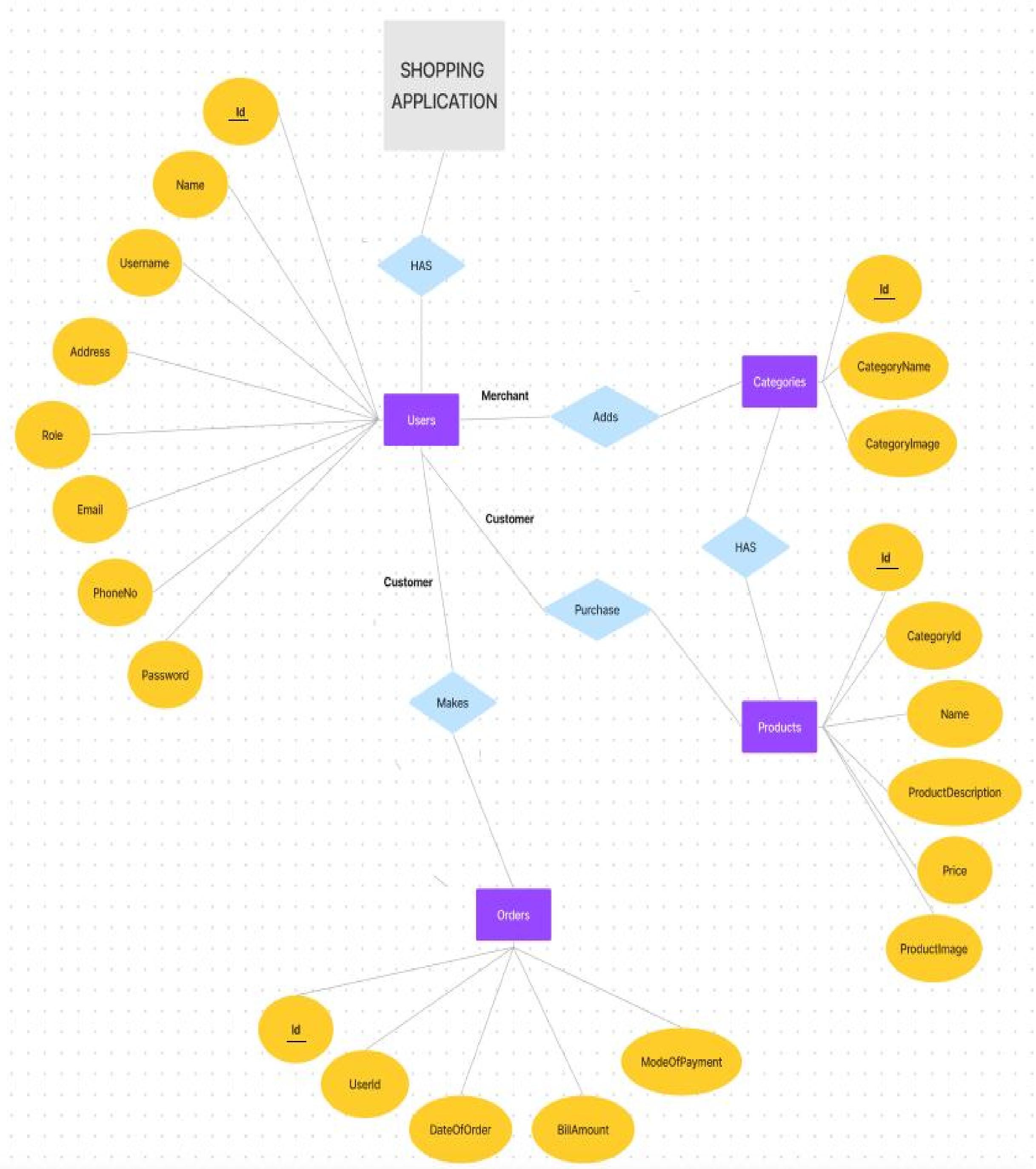
ACTIVITY DIAGRAM



SYSTEM FLOW DIAGRAM



ENTITY RELATIONSHIP(ER) DIAGRAM



API CANVAS

The basic CRUD operations are mapped to the HTTP protocols in the following manner:

CRUD Methods	REST API Methods	Description
Create	POST	Method refers to the C(Create) part of the CRUD. It is used to create a resource.
Read	GET	Method refers to the R(Retrieve) part of the CRUD. It is used to read a resource.
Update	PUT	Method refers to the U(Update) part of the CRUD. It is used to update a resource.
Delete	DELETE	Method refers to the D(Delete) part of the CRUD. It is used to delete a resource.

- REST API is best used for distributed systems.

- A distributed database is used everywhere, database stores data, on which CRUD (Create, Retrieve, Update, and Delete) operations are performed.

HTTP STATUS CODE

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

Request

Register Customer

/customers/
{
Name: John Doe
Username: john
Address: America
Role Id:102
Email: john@gmail.com
Phone Number:7098765434
Password:12345
}

Response:

Register Customer

If valid details

```
{
   "message": "Customer registered successfully"
}
status code: 201
```

If invalid details

```
{
“message”: “Inputs are not valid”
}, status code: 400
```

If server encounters unexpected error

```
{
  “message” :” Internal server error ”
}, status code: 500
```

List customers

If valid ID

```
{
Name: John Doe
Username: john
Address: America
Role Id:102
Email: john@gmail.com
Phone Number:7098765434
Password:12345


}
status code: 200
```

If invalid ID

```
{
“message”: “Customer not found”
}, status code:404
```

If server encounters unexpected error

```
{
  “message” :” Internal server error ”
}, status code: 500
```

Update customer

If valid ID

{
“Customer updated successfully”
 }
status code: 200

If invalid ID

{
“message”: “Customer not found”
}, status code:404

If server encounters unexpected error
{
  “message” :” Internal server error”
}, status code: 500

Delete customer

If valid ID
{
“Customer Deleted successfully”
 }
status code: 200

If invalid ID

{
“message”: “Customer not found”
}, status code:404

If server encounters unexpected error
{
  “message” :” Internal server error ”
}, status code: 500

SYSTEM MODULES

The proposed system categories follow these modules to implement.

ACCOUNT MODULE

1. Merchant/Admin
2. User/Customer

Both the Merchant and the Customer can login.

MERCHANT MODULE

1. Admin

- This is the functionality, which will allow a Merchant/ Admin with Username and Password to access the admin section.

- Admin perform functions like Create new Product,

View Products, Update Product Details, View information of a
particular product and Delete a product of a particular Category

CUSTOMER MODULE

1. Home Page of the Shopsy Website
2. Add to Cart
3. Checkout
4. Payment
5. Place Order
6.Download Bill

The above functions are performed by the Customer for successful online purchase.

MODULES DESCRIPTION

Account Module:

Login and Registration :

-The login Page redirects both to the Customer Home Page and the Admin Section

-A new Customer can register into the site with the following details:-

- Name
- Username
- Phone no
- Address
- Email
- Password

-The Customer information will be stored in the database immediately after the registration

-After successfully registering the user(customer) can log in into the shopping site immediately

-An existing Customer can log in immediately after opening the site with the following credentials:

- Username
- Password

-Admin can directly Login to the Admin Section with the same login credential as the Customers .

-When Customer wants to Logout from the site the logout button will redirect to welcome page immediately.

Merchant/Admin Module:

-The Login Page also Redirects to the Admin Page if an Admin wants to access the Admin Section of the site

-The Admin Section contains all the Products details with its specific Product Id.

-Admin can Create new Product Categories, View the Product Categories, Get the details of the Product Categories, Update a particular product Category and Delete a Product Category of the site.

-Admin can also Create new Products of a particular Category, View the Products, Get the details of the Products , Update a particular product info and Delete a particular Product from the site

-The Logout Button in the admin Section redirects to the welcomePage of the site .

Customer/User Module:

Home Page of the site:

-After successful login the customer(user) can access the products details .

-Customers can view the products on basis of categories and can also find a product by a name .

-Customers can also add his/her specific item into the cart for further purchasing.

-Customer can also logout from this page.

Cart:

-The selected products will be added in this page with its information .

-Customers can remove items from the cart as well.

-The amount of the products will also be displayed with the details of the products

-To purchase the product ,customer can go to the further check out page.

Check out:

-In this page,customer can choose to update his/her shipping details such as Name address.phone number .

-Customers can go back to the Shopping home page from here to shop more items.

- Customers can go to the Payment Page from this page .

Payment:

-This is the final page , the payment page.

-Customers can select two options Cash on Delivery/ Card

-Customer can add the payment details such as Card Name,Card Number, Valid till ,CVV to make payment for the final purchase of the items selected .

Order Confirmation/Download Bill:

-Customers can download the receipt from this page in a pdf format .

DATABASE TABLES

- Users

ATTRIBUTE	TYPE	
Id	int	FK
Name	nvarchar(MAX)	
Username	nvarchar(MAX)	
Address	nvarchar(MAX)	
Role	Nvarchar(MAX)	
Email	nvarchar(MAX)	
PhoneNo	long	
Password	nvarchar(MAX)	

- Categories

ATTRIBUTE	TYPE	
Id	int	PK
CategoryName	nvarchar(MAX)	
CategoryImage	nvarchar(MAX)	

- Products

ATTRIBUTE	TYPE	
Id	int	PK
CategoryId	int	FK

ProductName	nvarchar(MAX)
ProductDescription	nvarchar(MAX)
Price	float
Image	string

- Orders

ATTRIBUTE	TYPE	
Id	int	PK
UsersId	int	FK
ModeOfPayment	nvarchar(MAX)	
DateOf Order	datetime	
TotalAmount	float	