Shopping Cart System

POC

Low Level Design (LLD)

eShoppingZone

Date – 8th September 2022

Current Document Version – [1.0]

By Team 3

Shubhans

Raghu

Shiva

Tanushree

DOCUMENT APPROVAL

Approvers of this document

Name	Department	Role	Signature	Date

DOCUMENT CHANGE HISTORY

Document Version #	Author	Date	Description
1.0	Group 3	08/09/2022	Shopping Cart System LLD

Table of Contents

1) Document Purpose

This document describes the solution architecture for **Shopping Cart System** for the web portal or website name **eShoppingZone.**

2.0 Intended Audience

This document is intended towards the following: -

Role	Description
Merchant	Enable ones to sell it product through the website.
Customer	Enable ones to buy and browse products as per his/her needs.

3.0 Project Background and objective(s).

3.1 Project Background

Shopping Cart system leads to make shopping more comfortable and easier to access for any and every audience interested in online shopping and it targets merchants who would like to easy access to a portal to sell their product and have transparency with their transactions.

3.2 Project Objective(s).

Shopping Cart system will perform various operations for both customer and merchant. For the merchant, he/she can enlist, delist, change price and view sales of the product while the customer can browse the products, add or remove product from the cart and pay via eWallet or cash on delivery (COD).

3.3 Project Scope.

The Website is designed to be lucrative, minimalistic, and easy to eye with a simplistic design which make it easy for both merchant and customer to sell and buy product without much effort respectively. With some of the current e-commerce websites, it makes very complex for any of the above actors to navigate freely.

4.0 Design

Use – Case Diagram.

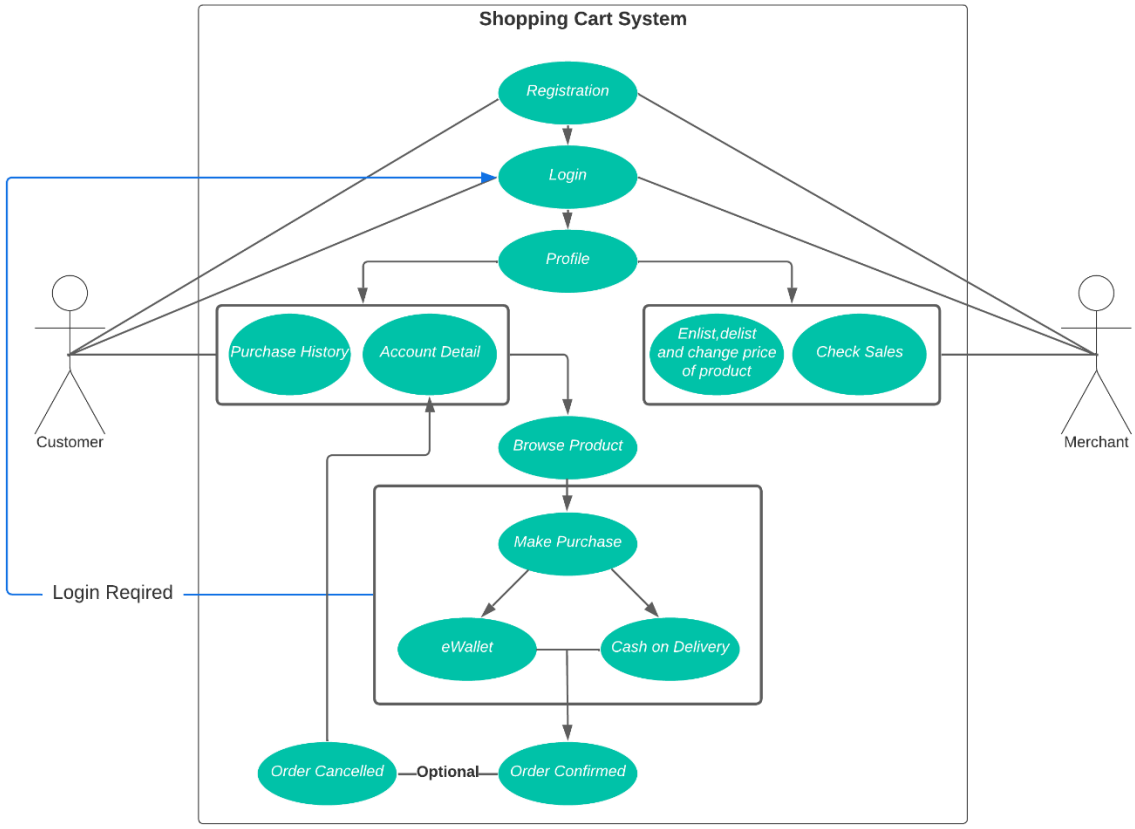

Figure 1 : Use Case Diagram

The Use case diagram intend to show the two actors in this context i.e Merchant and Customer's range of operations available in this portal. As mentioned above, it shows the various operationality give to both of our actors.

Entity Relationship Diagram

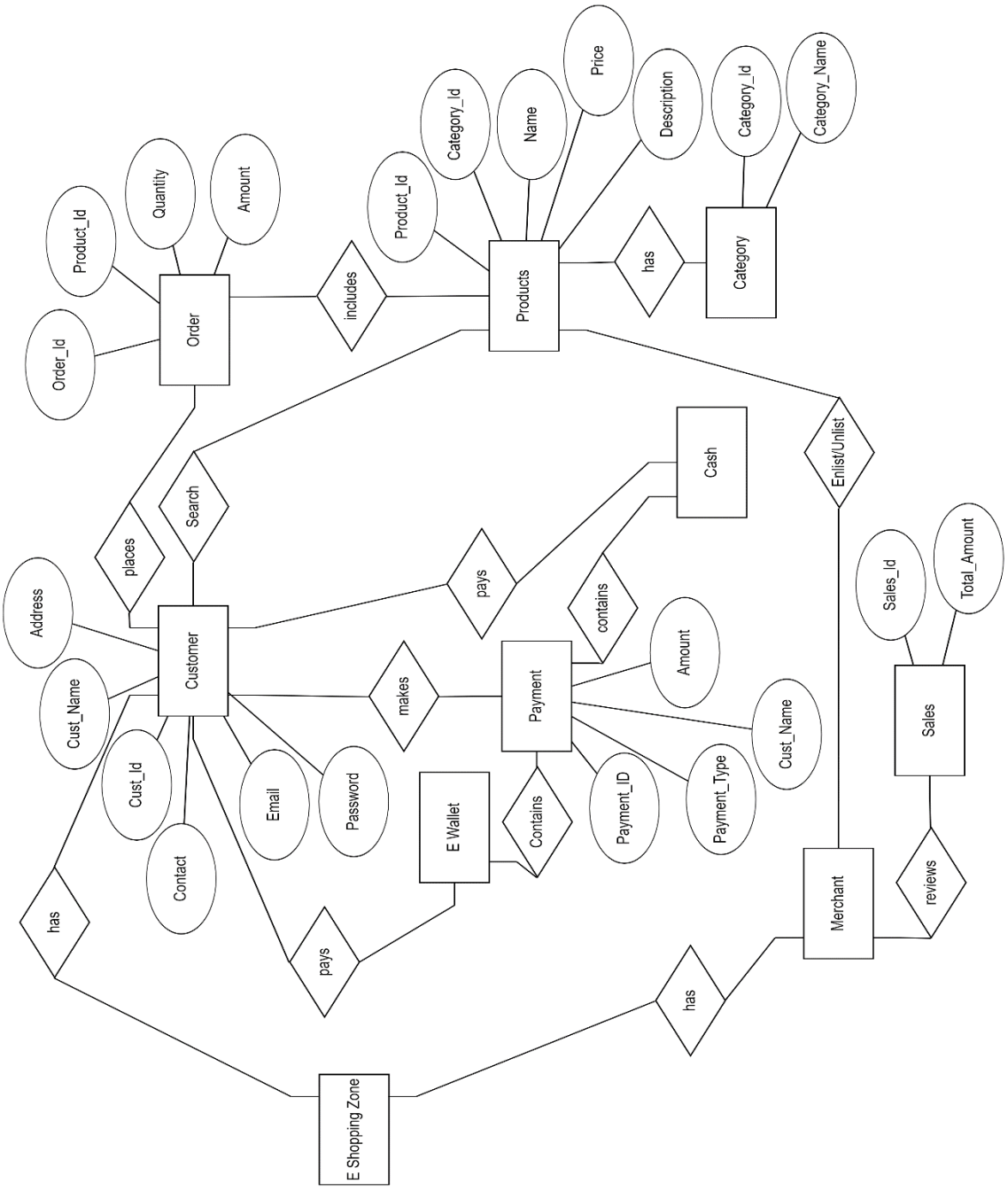

Figure 2 : E-R Diagram

The ER Diagram or the Entity Relationship Diagram helps us to understand the path and relations between methods and its entities.

Class Diagram

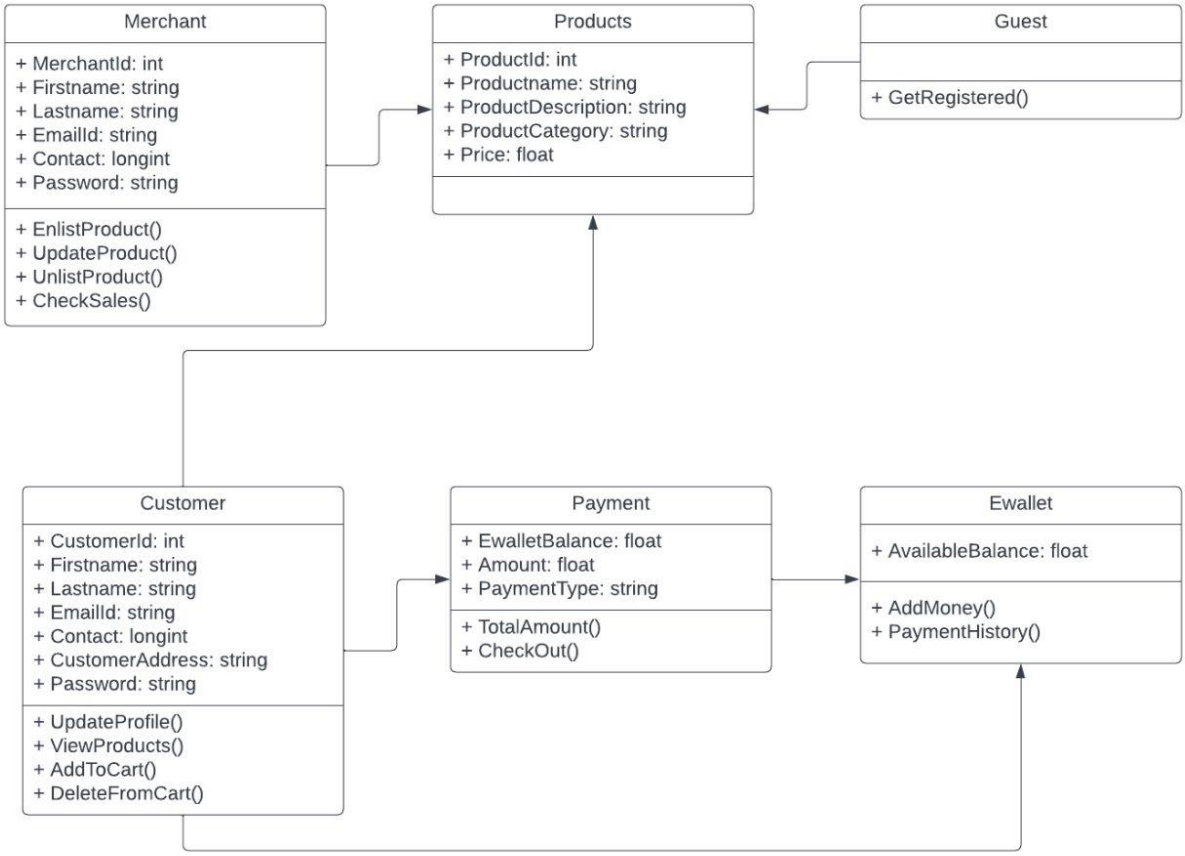

Figure 3: Class Diagram

The Class diagram here depicts the variables in each step of the process in the login of a merchant.

Data - Flow Diagram

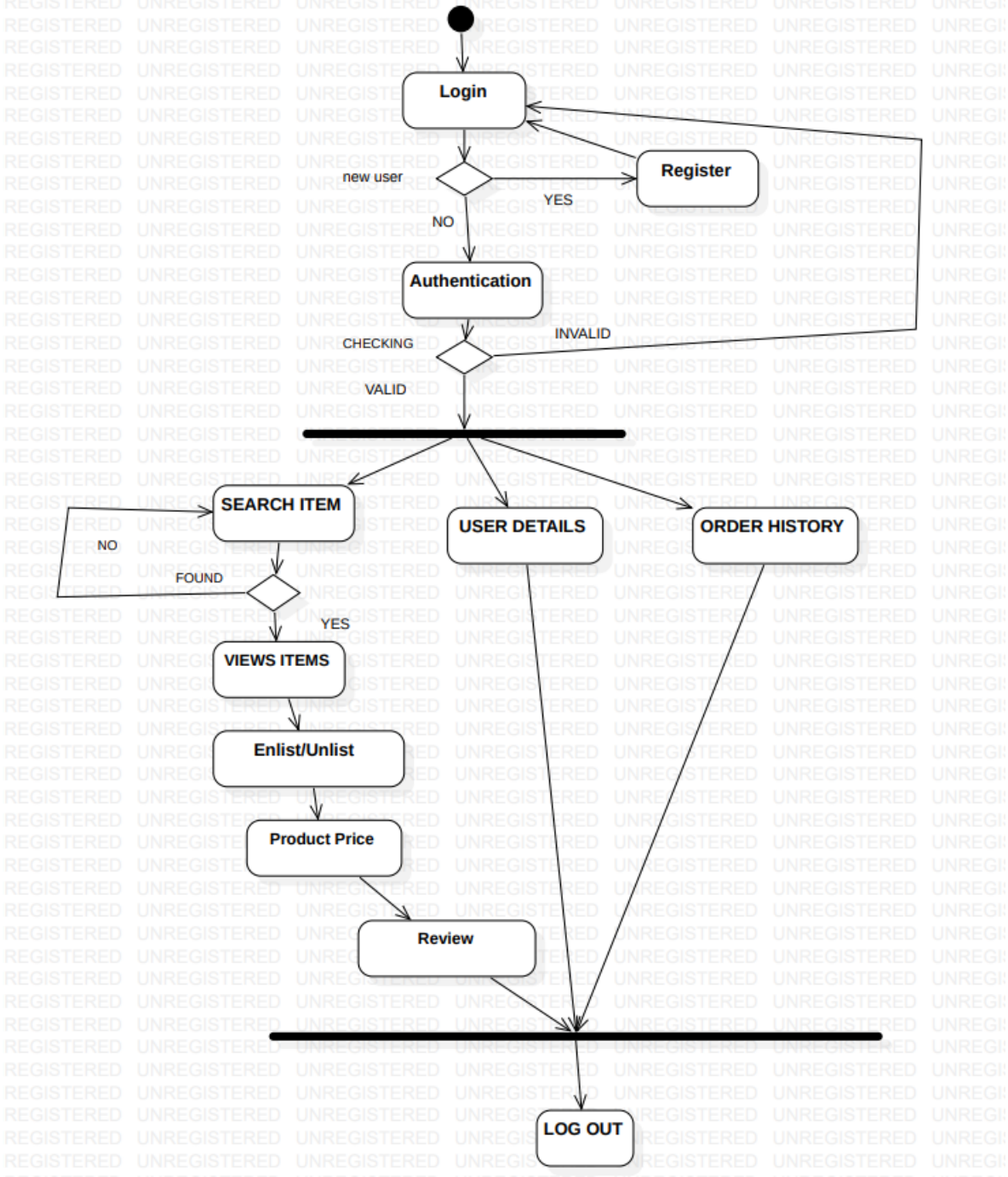

Figure 4: Data Flow Diagram (Customer).

The data flow diagram shows how a customer's data, or the flow of data proceed as he moves into the web portal to do some browsing or buying any product.

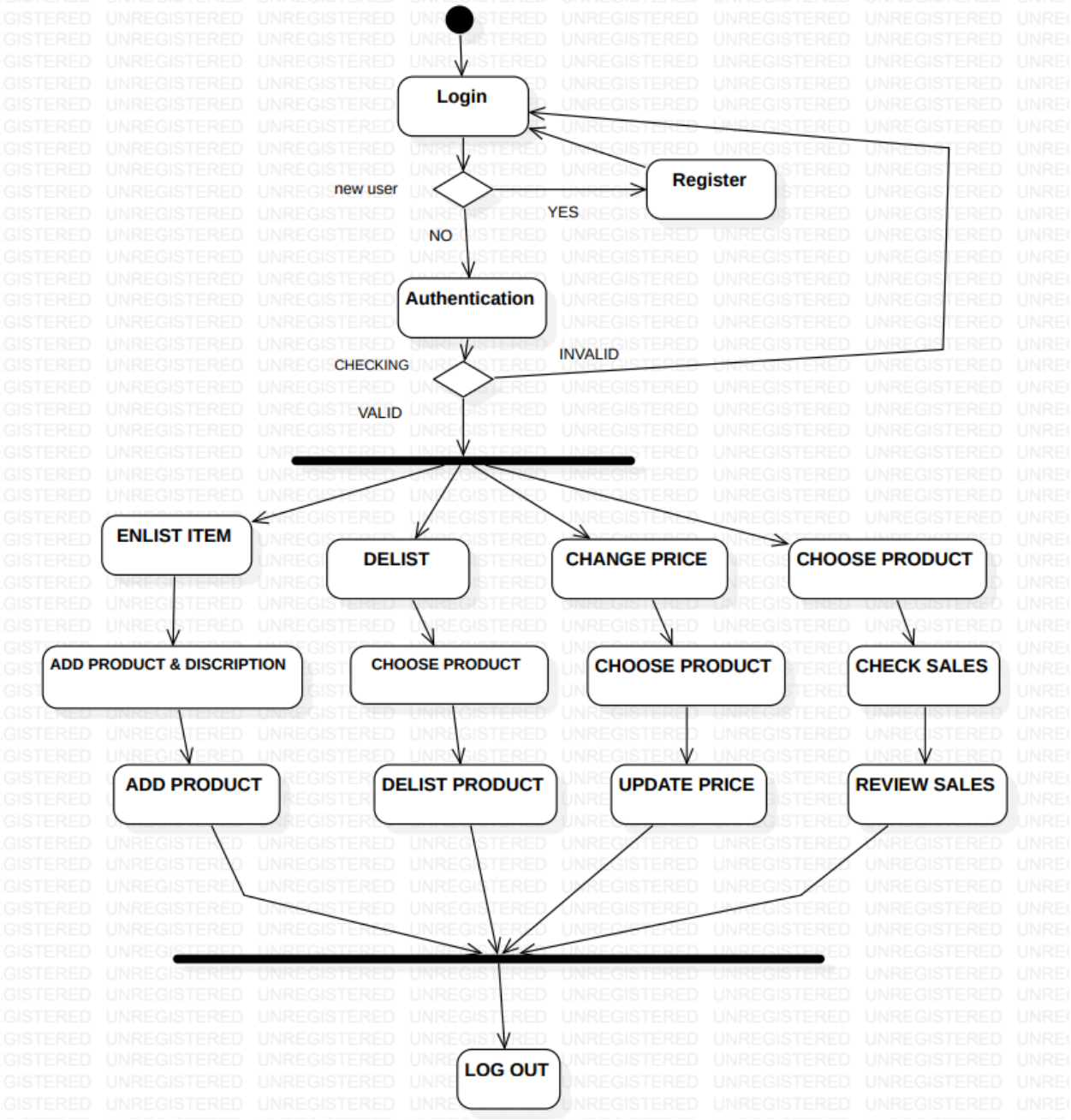

Figure 4: Data Flow Diagram (Merchant).

The data flow diagram shows how a merchant's data, or the flow of data proceed as he moves into the web portal to enlist, delist, change price or check his/her sales.

Database Diagram

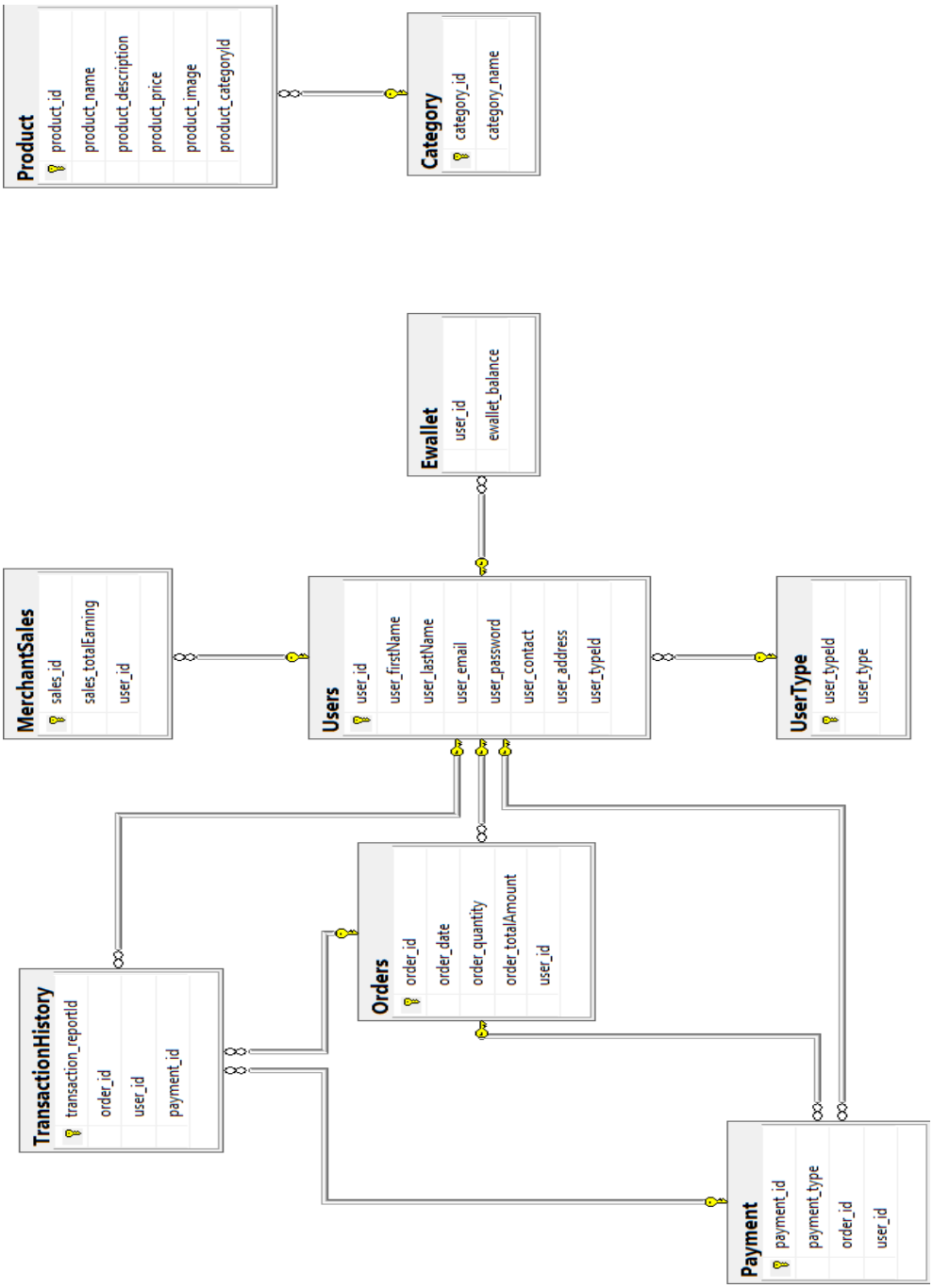

Figure – 6 : Database Design

5.0 Solution Steps

Introduction

The Website is designed to be lucrative, minimalistic, and easy to eye with a simplistic design which make it easy for both merchant and customer to sell and buy product without much effort respectively. With some of the current e-commerce websites, it makes very complex for any of the above actors to navigate freely. Here are some solution steps to different modules :-

Registration (Customer/Merchant).

i) User will need to enter his/her personal details such as firstName, lastName, contactNumber, emailAddress and choose raido button as his preference of actor.
ii) Call reaches API gateway.
iii) API gateway does the routing and forward the request to designated handler.
iv) A validation check will take place for any error registered in exception handling.
    (1) If successful, it will store the details in the database and move generate a HTTP success code.
    (2) If fails, it will give a error code and error description with status code.
v) It sends a response body with HTTP Success response.
vi) The designated handler will return a response.

Login (Customer/Merchant).

i) User will need to enter his/her username, password, select radio button for the choice of the actor and press submit.
ii) Call reaches API Gateway.
iii) API gateway does the routing and forward the request to designated handler.
iv) A validation check will take place for any error registered in exception handling.
    (1) If successful, it will store the details in the database and move generate a HTTP success code.
    (2) If fails, it will give a error code and error description with status code.
v) It sends a response body with HTTP Success response.
vi) The user will be redirected to his respective dashboard.

Delisting of product.

i) After a merchant login, He / She will see an option to delist his choice of product from the portal.
ii) After clicking on the option and choosing the product which needs to be delisted it will call the API Gateway.
iii) The details will be then deleted from database and product will no longer be available.

Enlisting of product.

i) After a merchant login, He / She will see an option to enlist his choice of product from the portal.
ii) He/ She have to enter nameOfProduct, category, price and description of product and submit the details.
iii) These details will be then stored in the database and API gateway will call the designated handler to enlist the product on portal.
iv) If successful, the product will be listed.

Review Sales:

i) After a merchant login, He / She will see an option to review the sales the merchant made by selling products.

ii) After clicking on the Review Sales section, it will call the provided API Gateway.

iii) The Merchant will then be able to view the earnings he/she made from the sales of the products.

6.0 Classes/ Functions

Operations of Merchant:

1	**enlistProduct**	**It contains the core business logic to help the merchant enlist the product in E Shopping Zone. The merchant will be able to display the product along with its description, price, category and other necessary details. The product will be successfully entered in the database.**
2	unlistProduct	It contains the core business logic to help the merchant unlist the product anytime from E Shopping Zone. The merchant will be able to remove the product and its details as he deems fit. The product will be successfully deleted from the database.
3	priceUpdation	It contains the core business logic to update the price of the product by the merchant. The merchant can rise/drop price of a certain product to alter his earnings. The changes made in the prices of products by the merchant will be reflected in the database.
4	reviewSales	It contains the core business logic to review the total sales of the merchant. This sales is the merchant's total earning which is stored in the database. the merchant can view the sales anytime.

Operations of Customers

1	browseByCategory	It contains the core logic of browsing the products based on its category. It enables to view a product enlisted by merchant under a specific category which is what the customer want.
2	browseByName	It contains the logic of browsing the products as per the name provided by the merchant.
3	addProductToCart	It contains the business logic to add the product of customer's choice into the cart to proceed for the checkout.
4	removeProductFromCart	It contains the business logic to remove a product from cart if needed.
5	checkout	It contains the business logic to proceed to checkout and provide the details to complete the order.
6	methodOf Payment	It contains the business logic to select the two methods of payment provided to the customer, i.e, Cash on delivery and eWallet.

8.0 Database Models

T_User

User ID[Auto], Name, E-mail, Password, Contact, Address, user type id

PK	user_id	INT
	user_firstname	VARCHAR (15)
	user_lastname	VARCHAR (15)
	user_email	VARCHAR (25)
	user_password	VARCHAR (25)
	user_contact	LONG INT
	user_address	VARCHAR (90)
FK	user_type_id	INT

T_User Type

User Type ID, User Type

PK	user_type_id	INT
	user_type	VARCHAR (10)

T_Payment

Payment ID[Auto], Type, OrderId, Customer ID.

PK	payment_id	INT
	payment_type	VARCHAR (15)
FK	order_id	INT
FK	user_id	INT

T_Order

Order ID[Auto], Date, Quantity, Total Amount, Customer ID.

PK	order_id	INT
	order_date	DATE
	order_quantity	INT
	order_totalamount	FLOAT
FK	user_id	INT

T_Product

Product ID[Auto], Name, Description, Price, Image, Category.

PK	product_id	INT
	product_name	VARHCAR (20)
	product_description	VARCHAR (MAX)
	product_price	FLOAT
	product_image	VARBINARY (MAX)
FK	category_id	INT

T_Category

Category ID, Name.

PK	category_id	INT
	category_name	VARCHAR (30)

T_Ewallet

Ewallet Balance

FK	user_id	INT
	ewallet_balance	FLOAT

T_Transaction_History

Transaction Report ID[Auto] , Order ID, Customer ID, Payment ID.

PK	transaction_reportid	INT
FK	order_id	INT
FK	user_id	INT
FK	payment_id	INT

T_Merchant_Sales

Sales ID, Total Earning, Merchant ID.

PK	sales_id	INT
	sales_totalearning	FLOAT
FK	user_id	INT