

# PREMIER UNIVERSITY, CHATTOGRAM

Department of Computer Science & Engineering



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**Remarks**

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## **E-Commerce Platform**

### **Project Title:**

E-Commerce Platform

### **Objectives:**

E-commerce platforms typically have several key objectives. Here are some common objectives:

**\*Enhance Customer Experience:** Improving the overall shopping experience for customers by providing intuitive navigation, personalized recommendations, seamless checkout processes, and responsive customer support.

**\*Expand Market Reach:** Reach new customers and expand the business's market reach by leveraging online channels and digital marketing strategies to attract a wider audience.

**\*Build Brand Awareness:** Utilize the e-commerce platform as a tool for building brand awareness and establishing a strong online presence through branding, content marketing, and social media engagement.

**\*Increase Customer Retention:** Foster customer loyalty and encourage repeat purchases by offering loyalty programs, personalized discounts, and excellent post-purchase support.

**\*Security and Trust:** Implement robust security measures to protect customer data and ensure secure transactions, thereby building trust and credibility among customers.

**\*Scalability and Flexibility:** Build a platform that can scale with the business's growth and adapt to changing market trends and technological advancements.

### **Outcomes:**

ID	Contribution
1603110201179	Worked with Dashboard of E-Commerce Website, where Product and Categories are added, login and sign up are arranged, Worked with Admin Side of E-Commerce Website, Worked with Sales option to view Sales, Users option Worked on, where manage all existing users worked on, admin worked on signup and login.

1703310201436	Worked with Admin Side of E-Commerce Website, where an option named Products is kept, Product List and Category are added in it, add, view, edit and delete products and categories, worked with these, logout in admin page worked with.
1903710202055	Worked with Customer Side of E-Commerce Website, where Worked with Order List, Worked with Add to Cart, Worked with Payment Method.
2104010202330	Worked with Customer Side of E-Commerce Website, where Product and Categories are added, customer login and sign up is worked on. Worked with logout in customer page.

### **Introduction:**

E-Commerce Website is an online platform developed for online transactions of goods and services. The transactions was completed through online using mobile phones, tablets, computers etc. that are connected to the internet. This Website platform is a big help for people who do not have time to shop at the mall or other stores to buy goods, instead, they can purchase online transactions to buy goods with no hassle and easy to order online.

### **i) Motivation:**

E-commerce has transformed the shopping experience by easing lots of friction for the customers. Some key factors such as convenience, price, fast service, etc. have motivated the customers to buy from online sites.

**\*Opportunity to win new and potential Customers:** The right course of action ensures brand marketing is heading in the right direction. For attracting the quality traffic, we can always optimize website to make sure the search engine optimization is helping in fetching the right user traffic for site that improving the conversion rate. Often user tends to use web search to look for the relevant information and the right site ranking will improve chance of getting the limelight. For ranking in search engines, i need to have a website that is rightly optimized and has the quality information and relevant keywords and for that, i need to invest in an E-Commerce website first.

**\*Make It Convenient for Customers:** The prime reason behind establishing E-Commerce website should be adding comfort to buyers life by making it a little easier for them to learn more about services and how they can reach out to with the least effort or hassle. A custom designed website will have the specific features and functionalities that will not just help the

site to stand out but also add great user experience and that factor is essential for improving sale boost.

\*Expanding Brand Reach: This generation of click and share has the potential to skyrocket any business sale overnight by sharing and talking about it over the internet. Sharing on social media and attractive web presence are some of the ways to improve business reach and increase the clientele.

## **ii) Description:**

E-Commerce website allows people to buy products through online.

E-Commerce Platform has a user side where he/she can view product details, category and add products to a shopping cart, and proceed for checkout whereas from the administration side, he/she can view sales, number of products, users, daily sales report, add product and categories. E-Commerce Platform contains all the required essential features. In this E-Commerce Platform, the user can also leave comments on each product if he/she wants. In this E-Commerce Platform, all the main functions are performed from the Admin side.

Admin has full control of the system, he/she can view daily/monthly sales reports for each year, manage all existing users, and add, view, edit, and delete products and categories.

Customers to choose and buy a product and services they want from any supplier around the world through online transactions.

## **System Requirements:**

### **i) Hardware Specification:**

#### **Operating system:**

Windows

#### **Processor:**

Processor Brand: Intel

Processor Model: Core i3-1115G4

Generation: 11th Gen

Processor Frequency: 3.0 GHz up to 4.10 GHz

Processor Core: 2

Processor Thread: 4

CPU Cache: 6 MB

**Memory:**

RAM: 4 GB

RAM Type: DDR4

Removable: Yes

Bus Speed: 2666MHz

Total RAM Slot: 2

Max RAM Capacity: 16GB

**Storage:**

Storage Type: SATA Hard Drive

Storage Capacity: 1TB

HDD RPM: 5400RPM

Extra M.2 Slot: Yes

Supported SSD Type: NVMe PCIe

**ii) Software Specification:**

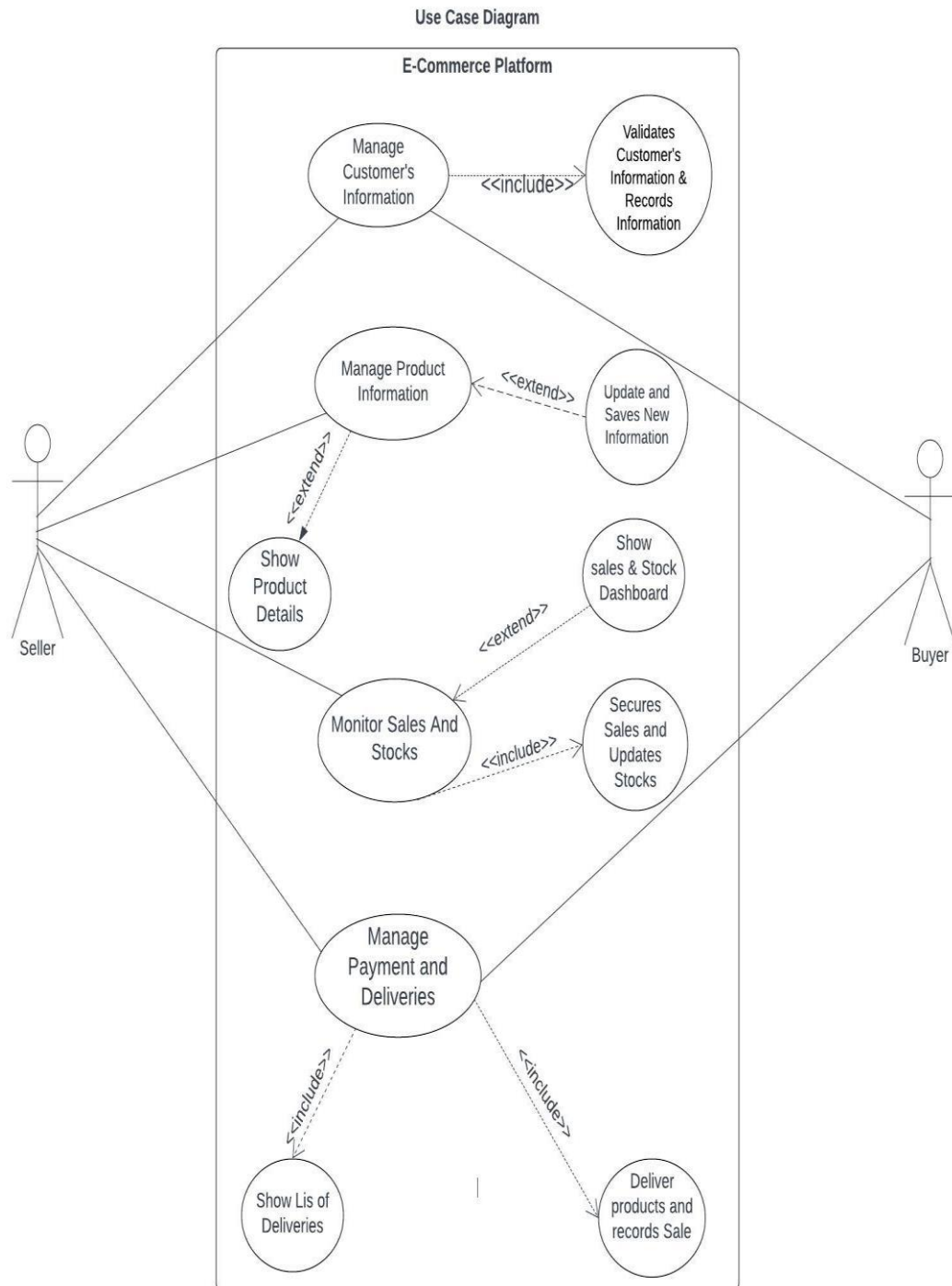
■ XAMPP

■ Git Bash Terminal

■ MySQL server

■ Visual Studio Code

**Implementation:**

**Use case Diagram:**

**Figure-1:** E-Commerce Platform Use Case Diagram.

An E-commerce platform use case diagram illustrates the various interactions and functionalities of users and systems within an online shopping environment. Here's a simplified description:

Actors:

Seller: Represents users responsible for managing product listings, monitoring sales, and updating stock.

Buyer: Represents users who browse products, make purchases, and manage their orders.

System: Represents the E-commerce platform itself.

Use Cases:

1.Manage Customer Information: Seller and admin can validate, record, and update customer information.

2.Manage Product Information: Seller and admin can add, update, or delete product listings.

3.Show Product Details: Buyer can view detailed information about products.

4.Show Sales and Stock Dashboard: Seller and admin can monitor sales and stock levels through a dashboard.

5.Secure Sales and Update Stocks: Seller and admin can securely process sales and update stock levels accordingly.

6.Manage Payment and Delivery: Admin manages payment processing and delivery logistics.

7.Show List of Deliveries: Seller and admin can view a list of pending and completed deliveries.

8.Delivery Product and Record Sale: Seller and admin can arrange and confirm product delivery, updating sales records accordingly.

Relationships:

Include: The "Manage Customer Information" and "Manage Product Information" use cases include actions like validation, recording, and updating.



Extend: Optional actions like "Show Sales and Stock Dashboard" and "Show List of Deliveries" can be extended to include additional functionalities.

Generalization: Admin is a specialized type of user with additional privileges compared to regular sellers.

This use case diagram illustrates the various interactions and functionalities of sellers, buyers, and the system within an E-commerce platform, facilitating effective management of customer information, product listings, sales, and deliveries.

## Sequence Diagram:



**Figure-2:** E-Commerce Platform Sequence Diagram.

The designed sequence diagram shows the series of events that occurs in E-Commerce Website. The actors are represented by a stick man and the transactions or classes are represented by objects. This gives you clear explanation E-Commerce Website behavior in terms of processing the flow of instructions. This designed sequence diagram is able to show programmers and readers about the sequence of messages between the actor and the objects.

### 1. Scenario: Buyer Makes a Purchase

- Actor: Buyer
- System Components: Buyer Interface, Product Database, Payment Gateway, Delivery System
- Sequence of Events:
  1. Buyer selects product and initiates purchase.
  2. System retrieves product details from the database and displays them to the buyer.
  3. Buyer confirms purchase and proceeds to checkout.
  4. System validates buyer's information and initiates payment processing.
  5. Payment gateway authorizes payment and notifies the system.
  6. System updates stock levels, records the sale, and arranges product delivery.
  7. Delivery system confirms delivery completion.

### 2. Scenario: Seller Updates Product Information

- Actor: Seller
- System Components: Seller Interface, Product Database
- Sequence of Events:
  1. Seller accesses the seller interface and selects the product management option.
  2. System retrieves the list of products from the database and displays them to the seller.
  3. Seller selects the product to update and provides new information.
  4. System validates and saves the new product information to the database.

### 3. Scenario: Admin Manages Customer Information

- Actor: Admin

- System Components: Admin Interface, Customer Database

- Sequence of Events:

1. Admin accesses the admin interface and selects the customer management option.
2. System retrieves the list of customers from the database and displays them to the admin.
3. Admin selects a customer to manage and validates their information.
4. System records any updates or changes made by the admin.

#### 4. Scenario: Seller Monitors Sales and Stock

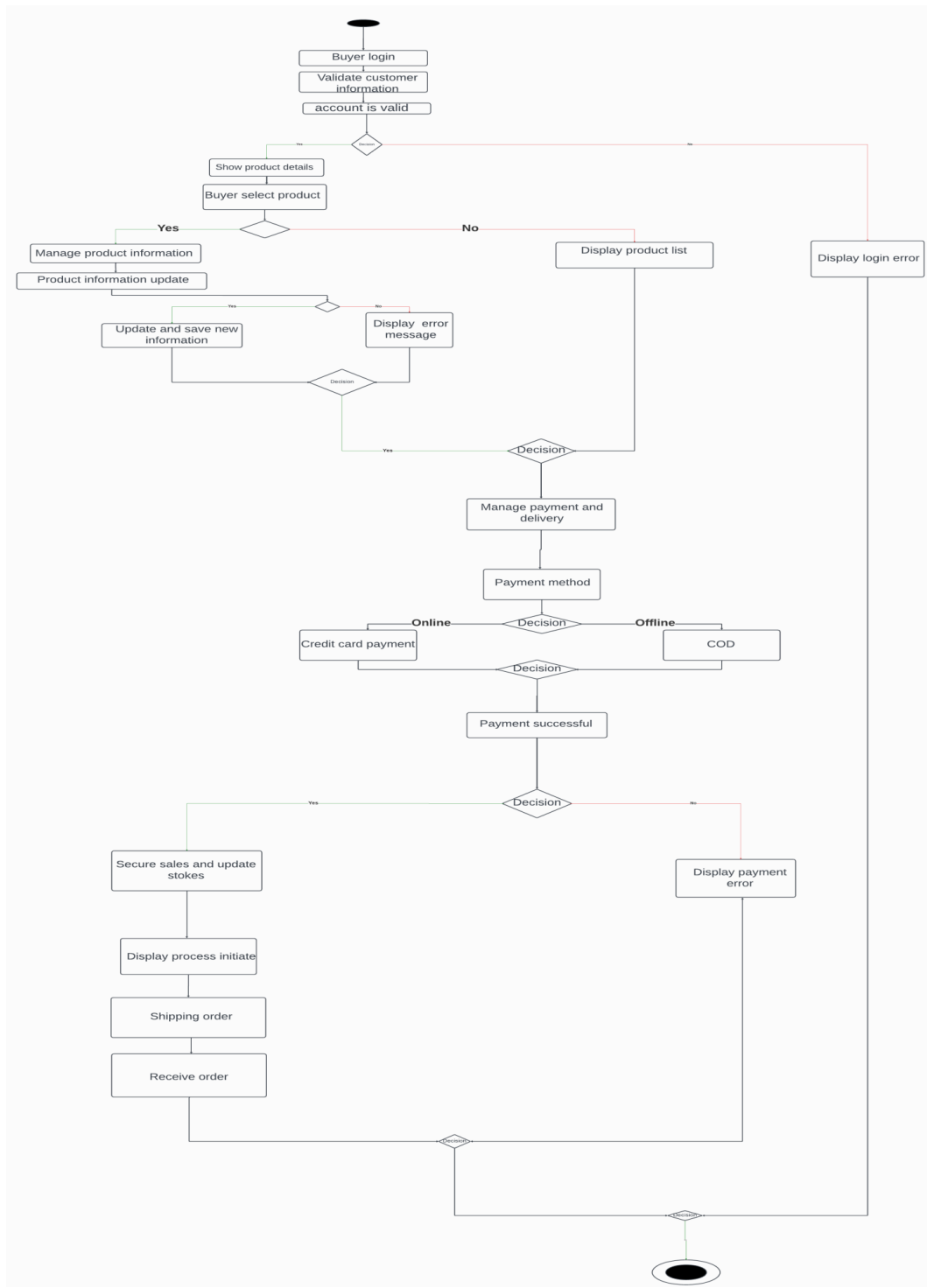
- Actor: Seller

- System Components: Seller Interface, Sales Dashboard, Stock Database

- Sequence of Events:

1. Seller accesses the seller interface and selects the sales and stock monitoring option.
2. System retrieves sales and stock data from the database and displays it on the dashboard.
3. Seller monitors current sales and stock levels.

These sequence diagrams illustrate the interactions between actors and system components in various scenarios within an E-commerce platform, including buyer purchases, seller updates, admin management, and sales monitoring.

**Activity diagram:****Figure-3: E-Commerce Platform Activity Diagram.**

The UML Activity Diagram is used to show the interaction between the user and E-Commerce Website. This activity diagram outlines the general flow of actions a user takes on an e-commerce website from browsing products to completing a purchase. This is a simplified activity diagram focusing on the main interactions between the user and the e-commerce system.

#### 1. Activity: Buyer Makes a Purchase

- Actors: Buyer, System
- Activities:
  1. Buyer selects product.
  2. System validates product availability.
  3. Buyer adds product to cart.
  4. System calculates total amount.
  5. Buyer proceeds to checkout.
  6. System validates buyer's information.
  7. Buyer completes payment.
  8. System updates stock and records sale.
  9. System arranges delivery.

#### 2. Activity: Seller Updates Product Information

- Actors: Seller, System
- Activities:
  1. Seller accesses product management.
  2. System retrieves product list.
  3. Seller selects product to update.
  4. Seller provides new information.
  5. System validates and saves information.

### 3. Activity: Admin Manages Customer Information

- Actors: Admin, System

- Activities:

1. Admin accesses customer management.
2. System retrieves customer list.
3. Admin selects customer to manage.
4. Admin validates and records information.

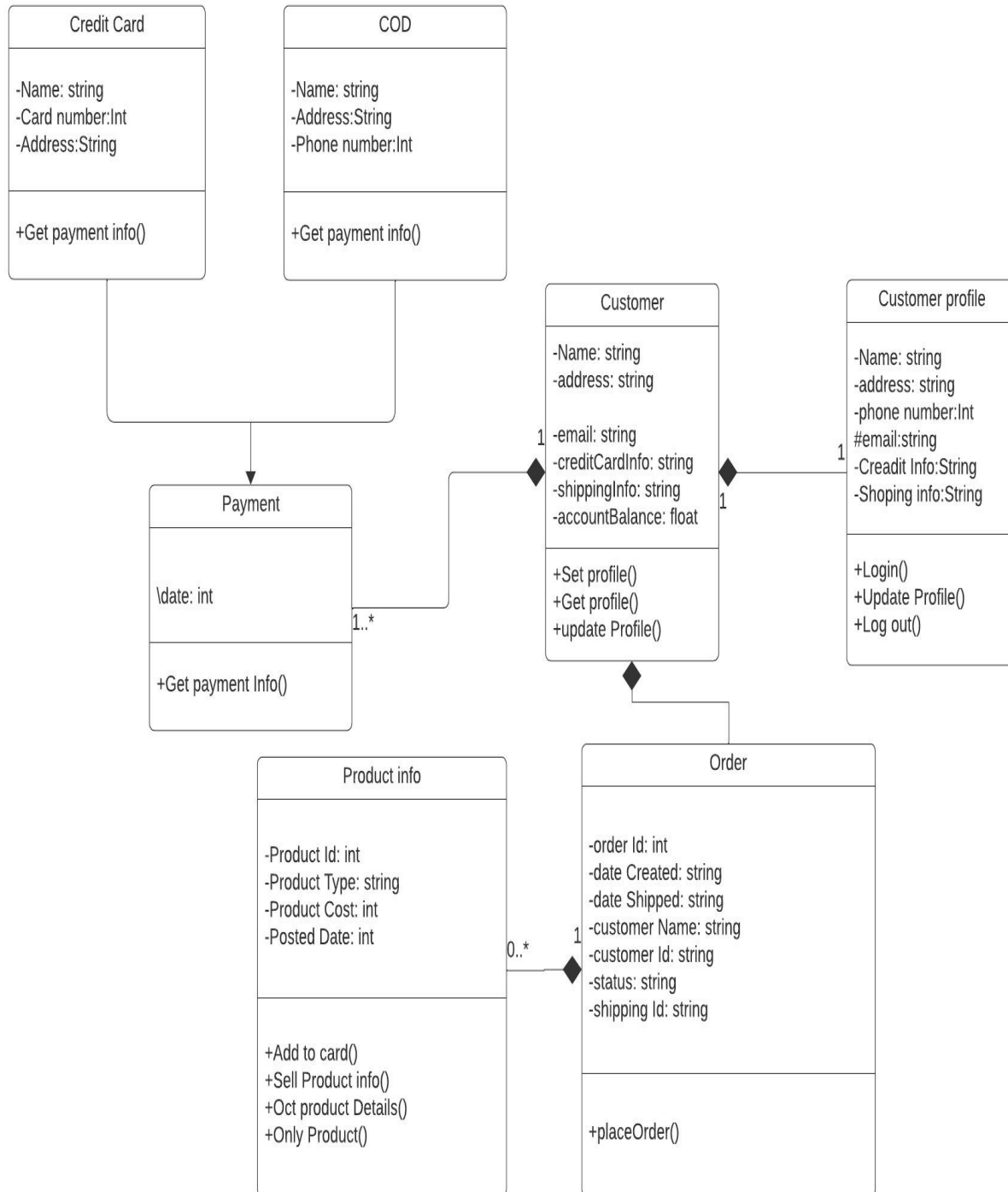
### 4. Activity: Seller Monitors Sales and Stock

- Actors: Seller, System

- Activities:

1. Seller accesses sales and stock monitoring.
2. System retrieves sales and stock data.
3. Seller monitors current sales and stock levels.

This activity diagram illustrates the sequence of activities performed by different actors (buyer, seller, admin) and the system within an E-commerce platform. Each activity contributes to the overall functionality of the platform, including product management, customer management, sales monitoring, and order processing.

**Class Diagram:****Figure-4: E-Commerce Platform Class Diagram.**



The Class diagram for E-Commerce Website shows the structures data that will be handled in the website. These data or information will be represented by classes. Each of the classes will have their attributes in accord to the methods they will use. The UML Class diagram was illustrated by a box with 3 partitions. The upper part was the name of the class, the middles are the attributes and the bottom is for the methods. The arrows on them represents their relationships in each other.

Classes:

1. Seller:

- Attributes: sellerID, username, password
- Methods: manageProductInformation(), updateStock(), monitorSales()

2. Buyer:

- Attributes: buyerID, username, password
- Methods: makePurchase(), viewProductDetails(), viewDeliveryList()

3. Admin:

- Attributes: adminID, username, password
- Methods: manageCustomerInformation(), monitorSalesAndStocks()

4. Customer:

- Attributes: customerID, name, email
- Methods: validateInformation(), recordInformation()

5. Product:

- Attributes: productID, name, price, quantity
- Methods: showDetails(), updateInformation()

6. Sales Dashboard:

- Attributes: salesID, date, totalSales
- Methods: showSalesDashboard(), monitorSales()

### 7. Stock Dashboard:

- Attributes: stockID, productName, quantityAvailable
- Methods: showStockDashboard(), monitorStocks()

### 8. Payment And Delivery:

- Attributes: paymentID, deliveryID, status
- Methods: managePayment(), manageDelivery(), recordSale()

### Relationships:

#### - Seller-Buyer Relationship:

- Represents the interaction between sellers and buyers during product purchases.

#### - Admin-Customer Relationship:

- Indicates the role of the admin in managing customer information.

#### - Seller-Product Relationship:

- Represents the association between sellers and the products they manage.

#### - Product-Sales Dashboard Relationship:

- Shows the connection between products and the sales dashboard for monitoring sales.

#### - Product-Stock Dashboard Relationship:

- Indicates the association between products and the stock dashboard for monitoring stock levels.

#### - Payment And Delivery-Sale Relationship:

- Represents the link between payment and delivery information and recorded sales.

This class diagram illustrates the various classes and their attributes and methods within an E-commerce platform. It depicts the relationships between different entities, facilitating effective management of customer information, product listings, sales monitoring, and order processing.

### User Interfaces:

## Admin Side:

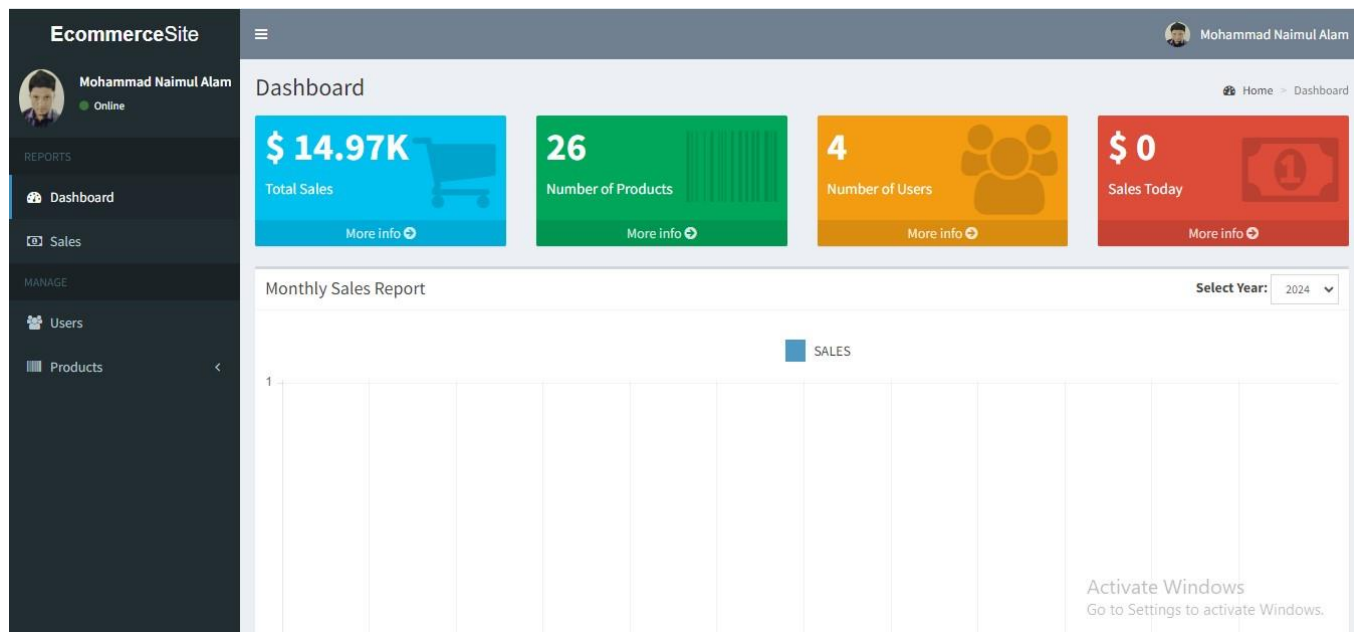


Figure-5: Admin Side for E-Commerce Website.

Worked with Admin Side of E-Commerce Website, Worked with Sales option to view Sales, Users option Worked on, where manage all existing users worked on, admin worked on signup and login. Worked with Admin Side of E-Commerce Website, where an option named Products is kept, Product List and Category are added in it, add, view, edit and delete products and categories, worked with these, logout in admin page worked with.

## Dashboard:



Figure-6: E-Commerce Dashboard.

Worked with Dashboard of E-Commerce Website, where Product and Categories are added, login and sign up are arranged. Categories name Laptop, PC, Tablets, Smart Phones. Here, Home, About us, Contact us option added. Creating an e-commerce website dashboard involves several key components to provide a comprehensive overview of various aspects of online business.

## Customer Side:

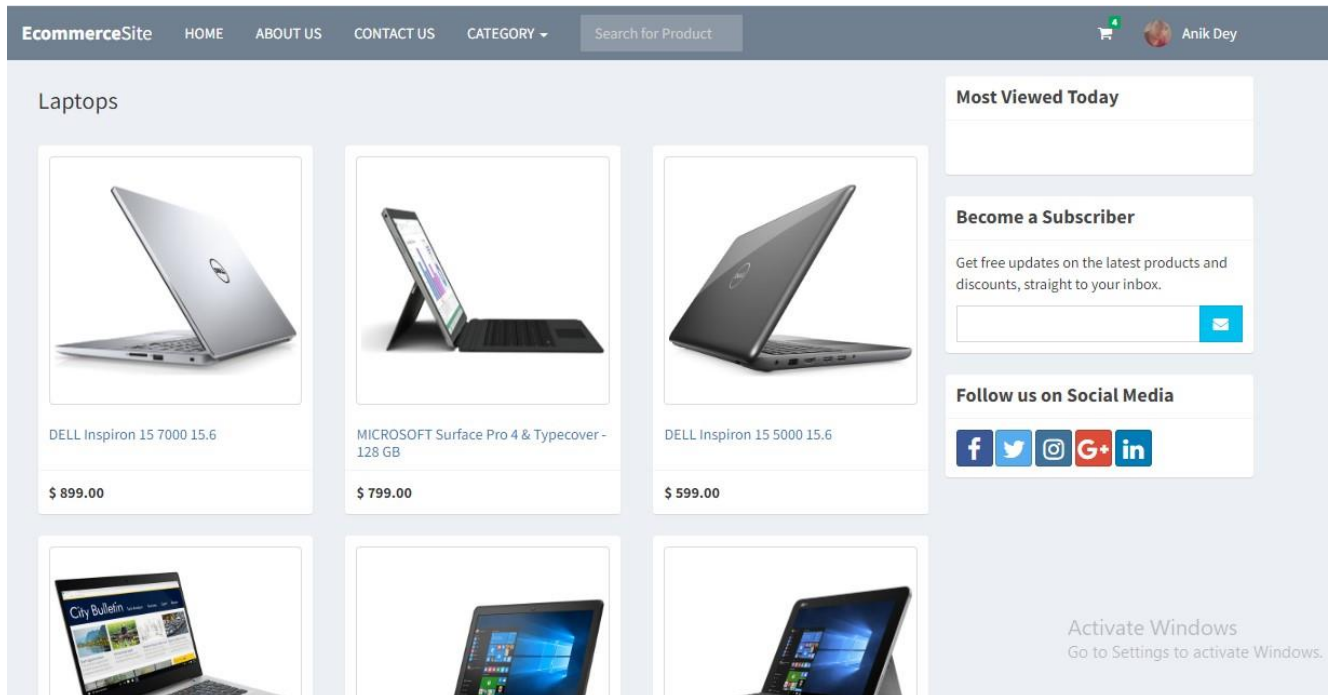


Figure-7: E-Commerce Website List of Products.



Figure-8: E-Commerce Order Details.

Worked with Customer Side of E-Commerce Website, where Product and Categories are added, customer login and sign up is worked on. Worked with logout in customer page. Worked with Customer Side of E-Commerce Website, where Worked with Order List, Worked with Add to Cart, Worked with Payment Method.

## **Limitations and Future Scope:**

### **i. Limitations:**

Security: The security risk in ecommerce can be

- client / server risk
- data transfer and transaction risk
- virus risk

High start-up cost: The various components of cost involved with ecommerce are:-

- connection:- connection cost to the internet.
- hardware/software:- this includes cost of sophisticated computer, routers etc.
- maintenance:- this include cost involve in training of employees and maintenance of web-pages.

Legal issues: These issues arises when the customer data is fall in the hands of strangers.

Lack of skilled personnel: There is difficulty in finding skilled www developers and knowledgeable professionals to manage and a maintain customer on line.

Loss of contact with customers: Sometimes customers feels that they does not have received sufficient personal attention.

Uncertainty and lack of information: Most of the companies has never used any electronic means of communication with its customers as the internet is an unknown mode for them.

Some business process may never be available to ecommerce: Some items such as foods, high cost items such as jewellery may be impossible to be available on the internet.

### **ii. Future Scope:**

Global ecommerce is growing rapidly: In 2021, over 2.14 billion people worldwide were estimated to shop online, up from 1.66 billion global digital buyers in 2016. Chinese ecommerce platform, Taobao, is the largest online marketplace with a gross market value (GMV) of \$711 billion. For context, Tmall and Amazon ranked second and third with \$672 billion and \$390

billion GMV in annual third-party global market value respectively. With so many ecommerce platforms, marketplaces and digital solutions available, there are practically no limits for merchants looking to sell online, which makes it easier than ever for businesses to go global.

Expanding internet services: As the internet is penetrating some of the most remote places the internet population is also growing most of the people of those places will soon be using online shopping. Places, where physical stores are unavailable E-commerce, will turn out to be a blessing to them. This new wave of people will bring an opportunity to the business where they can be converted into long-term trusted customers.

Customers shop differently: Ecommerce is revolutionizing the way modern consumers shop. Today, we know that there are at least 2.14 billion digital buyers, which is 27.6% of the 7.74 billion people in the world. And by 2025, Statista projects there will be 291.2 million online buyers in the U.S. alone.

More mobile users: Mobile commerce is also expected to grow as more consumers use smartphones and tablets to shop online. Retailers must optimize their websites and apps for mobile devices to meet this demand.

Payment modes: Instead of using Cash people are using Paypal and another scan to play apps. In the near future, cryptocurrency can become another mode of payment.

### **Conclusion:**

E-commerce still represents one of the business methods that take advantage if done the right way, even if the stock market and commodities fell, but E-Commerce still able to survive and receive high transaction.

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