PROJECT PROPOSAL

Shūchaku Anime Store

Abstract

The Shūchaku Anime store is one of the retail stores in a regional area, who's owner has a desire to develop his small business into a large competing business. This decision tends the owner to contract a Project Manager to develop an information system for $100,000.

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FURPS+ FRAMEWORK

To establish the functional and non-functional prerequisites for the upcoming Shuchaku Anime web-based store system, we rely on the FURPS+ model. The functional requirements are compartmentalized into a series of subsystems, while the non-functional demands are categorized based on their distinctive features. We have made necessary adjustments to ensure that there are no errors in spelling, grammar, or punctuation

a. Functional Requirements

The Shuchaku Anime Store has recently introduced a new system that comprises of several subsystems, with each one having a distinct set of tasks to accomplish. These subsystems operate independently, but with a perfect harmony that avoids any duplication of functions. The table below outlines the specific functional requirements of each subsystem. These requirements are the necessary tasks that the system must perform to enable users to carry out their work smoothly.

Functional Requirements		
Subsystem	***Function***	***Description***
User Management Subsystem	Create User/Customer Account	Customer must be able to register a customer account using their own email address as the user login ID, and generate their own login password.
	Login/Update Account	Customer must be able to login after account is created. Upon successfully login, customer must be able to update their personal information, including name, contact number, delivery/ billing address , and billing
	'REQUEST' Password Reset	Customer must be able to send password reset request and have the password successfully reset.
	Delete Account	Customer must be able to delete account after logging into the system and relevant information should be deleted meanwhile
	Order History	Customer must be able to review order details, including order history and order status.
	Store User/Customer Details	System must store all customers information collected from customers.
	Modify and Review Account details	Staff must be able to view and modify all the customers information stored in the system, along with ability to create, update, delete for each set of data
Product Management Subsystem	Product creation	The organisation creates a product or purchased a product from wholesale, whose identity is created within the system with its details and specifications to be sold further.
	Defination of a Product	System must contain the information related to each and every product of the products sold by the organisation which to be inserted by staff members, including product's name, size, quality, quantity and it's description.
	Product Presentation	The system must display the information of a product whenever its being searched either by a staff member or user/customer.
	Product Categorization/ Tagged Product	System must be able to categorize different products under different headings, And it should also allow customers to tag-save a product in their wishlist for later purchases.
	Update Product Details and Inventory	The system must be able to display the changes after a change in informatiuon of a product by a staff member(eg: change of prices, change of stock of a particular product) .
	Mechanism to create bundles of products	The system must allow customers to form a bundles of a product (eg: purchasing multiple products at a same time), allows customer to have a little discount or some other perks.

Search Engine Subsystem	Query Parsing/ Auto Suggest	System must be able to interpret queries/ serach performed by the staff or the customer with the help Previous search wth a similar word or by AI generated keywords, to find products.
	Ranking	System must determine the relevance of search results using algorithms like PageRank, product popularity or item ranks related to high prices.
	Sorting	Allow users to sort search results by different criteria (e.g., relevance, date, popularity).
	Spell-Check	Offer spelling corrections for mistyped queries/ search product name.
	Snippet Generation	System must be able to create snippets that highlight the context of the search term within the product informations and specifications.
	Pagination	Split search results into pages for easier navigation by the staff member or a particular customer/user.
Customer Support System	Creation of communication channels	System must be able to create a required channels for communicationfor an organisation with the required customer/user for any kind of support, either related to website or a default in a purchased product.
	Store, Displays and provide Communication Channels	System must display the stored Communication channels of the organisation(For eg: emails, customer care number, chatbots, live chat) through which customer can contact the organisation representatives any time for any queries.
	Return/ Exchange policies	System allows a user/ customer to file a return of a product if the purchased product is wrong or defaulty. System, also allows the customer/ user to file a complaint for exchange if the purchased product is no longer their requirements or product turns out to be destroyed prior to packing.
Point Subsystem	Earn Shūchaku points	System must allow customer sto earn Shūchaku Points whenever they purchase any product from the website or store, which will help the customers to get discounts and rewards in future while using them.
	Expiry of Shūchaku Points	Customer will only be able to use those earned Shūchaku Points in a same financial year in which they earned, after the completion of the financial yar those Shūchaku Points will expire and will be removed from users/ customers account.
Product Suggest Subsystem	Product suggestion according to history	System must be able to suggest products to the customers according to their search and purchase history.
	Highlights new and sale products	System must be able to suggest new released or popular products to the customer on the top to grab their attention.

Order and Payment subsystem	Order Tracking	System must allow the customers to track their purchased order and allow them to know till what date and time their order will be delivered t their doorstep.
	Store order history	System must be able to store a particular users/ customers order history which will help the organisation to track the sales and help the customers what all they have purchased.
	Order as a gift	System must allow customer/ user to purchase a product and can send it as a gift to another address (eg; gift an item to your friend on their birthday) .
Limited edition lottery subsystem	Participate and purchase limited edition product	System allows users/ Customers to participate in a lottery competition by spending 50 Shūchaku Points and the top three winners can buy the limited edition product(eg: luffy clothing, Goku animefigure, one eye patch mask, etc...) .
Review and rating Subsystem	Chat review and rating	System must allow customers to comment about a particular to help the organisation to make some improvements in it .
	Star review and rating	System must allow customers to rate a product from 1 to 5 stars, which will either increase or decrease the suggestion and popularity of a product.

Summary and Reporting Subsystem	Generate reports	System must be able to consolidate the data collected from sales orders, and reporting among all sales must be feasible. Reports can be generated on daily, weekly, biweekly or monthly basis. Access to the reports is restricted to the shop owner/manager
	Generate Statistics	System must be able to consolidate the data collected from customer, inventory and class booking and generate monthly report for analytical proposals. Access to the reports is restricted to the shop owner/manager.
	Store and display user attraction to the system	System must be able to store user/customer's attraction towards the website and records th number of transactions made , which can analyse by staff members and can also be seen by customers on their user account.
Content Management subsystem	cration and management of content	Staff memebers of the organisation manages the social media channels where they post new releases of products or released discounts.
Inventory Management subsystem	track and live update of warehouse	System must allow the staff memebers to know the live stock of the inventory in the warehouse and instore and allows the staff members to update the stock by increasing or decreasing it's quantity.
Notification subsystem	Notifying Alerts	System must be able to send an alert notification to the customer related to offers(eg: Big Anime sale ending in 1 hour or your favourite product is almost out of stock) .
	New releases, order shipment	System must be able to send a notification to the customer regarding new releases of products or about order confirmation and order status.

Table 1: Functional requirement

b. Non-Functional Requirements

Non-functional requirements are an indispensable aspect of a system's features that do not impact its core functionality. Precisely defined using the URPS+ framework, these requirements comprise Usability, Reliability, Performance, Security, and other categories. Below is a comprehensive table that offers a detailed insight into these vital requirements.

Usability	• It is important for user interfaces to have a visually appealing design, with high-quality graphics and proper colour schemes. • The website should provide clear information and be easy to navigate and understand. • The website must have easily accessible links from any page. • User interfaces should be optimized for fast response time across various mobile devices and browsers. • The website is designed to facilitate a multilingual interface. • Include interaction options such as a chatroom or contact information for customer inquiries.

Reliability	• The expected system up-time is 99%. • It is considered acceptable for a system to experience failures caused by hardware breakdowns. • Some examples of common hardware issues include bad sectors on the disk and errors in memory. • System failures should not occur more than once per 3-hour or 5-hour interval. • Recovery time must be within 1 hours. • It is essential for the system to have a daily backup routine and an efficient rollback plan in place. Any errors or issues can be remedied swiftly and accurately with these measures.

Performance	• The system's response time should be less than 0.5 second. • The system can handle up to 500+ users simultaneously while maintaining the same response time for each user. • System is capable of processing over 2,500 transactions per day without any technical shutdown

Security	• It is essential to ensure that the website interface uses the HTTPS protocol. HTTPS provides a more secure and encrypted connection between the website and the user, which helps protect sensitive data from potential attackers. • It is recommended to implement multi-factor authentication for customers' login to ensure maximum security. Any errors in spelling, grammar, and punctuation have been corrected. • Retail staff may access product and class data, but not personal information. • To secure your data, it is recommended to activate encryption by utilizing Transport Layer Security (TLS) and Secure Sockets Layer (SSL) protocols.

+Implementation	• The code for the website interface is built using WordPress. • Programming version control and tracking using CVS. • Adobe Photoshop, Adobe Illustrator, and FIGMA are used to design website graphics and logos.
+Interface	• The system needs to establish a connection with the banking network to process online payments. • The retail store is connected to an EFTPOS system which enables customers to make payments using their credit or debit cards.
+Supportability	• The contractor is responsible for all system development, upgrades, and maintenance as it has been outsourced to them. • Developers will build and deploy the system, including monthly patches. • IT technical support will be available 24/7 to handle maintenance tasks.

Table 2: Non-Functional Requirements

STAKEHOLDERS

The Shũchaku Anime Store's new online system has multiple stakeholders, who can be categorized into four groups - internal, external, operational, and executive. Each group's participation, impact, and interest level in the system may differ. Below, you can find a table that lists the stakeholders for the new system.

BASIS	Operational	Executive
Internal	*The Retail Staff, The Administrative Staff, The Accountant*	*The Store Owner, The Store Manager*
External	*Customers, The Development Team, The Maintenance Team*	*The Product Suppliers, THe potential new Customers, The Investors, The Bank, The Tax Department*

Internal Operational stakeholders:

- ***The Retail staff:*** The employees who have access to the system which enables them to check the details of products and badminton classes. Additionally, they are responsible for picking and packing the products in accordance with the online system's order. The order is then passed on to the external delivery staff for further processing.
- ***The administrative staff:*** Employees with administrative privileges can access, manage, and update inventory, customers, and badminton class records.
- ***The accountant:*** An employee who analyses financial performance based on sales data and compiles reports for the manager.

Internal Executive stakeholders:

- ***The store owner****:* The store owner is the person who is the founder and the creator of the Shũchaku Anime store, reviews sales and interest reports but does not interact directly with the system directly.
- ***The store manager:*** The store manager is the person who is responsible for overseeing the retail and administrative staff, analysing sales data, and modifying business strategies based on financial reports.

External Operational stakeholders:

- ***Customers:*** Customers are those who directly interact with the system and can register or log in, edit their personal information, view product and class information, and make purchases on the online store website.
- ***The development team***: the team and their member which is responsible for building and designing the system and database.
- ***The maintenance team:*** The maintenance technicians are responsible for keeping the system updated and functional post-implementation.

External Executive stakeholders:

- ***The suppliers:*** Suppliers provide inventory to the store and receive stock level information to maintain supply.
- ***The new potential customers:*** Potential new customers may search the internet to locate the online store if they only know the physical store.
- ***The Investors:*** Shareholders are investors who provide funding to organizations and benefit financially from store profits, without direct interaction with the system.
- ***The Banks:*** Banks are the most reliable and secure financial organizations that provide exceptional payment services for online transactions. They do not interact with the system directly, ensuring maximum safety for all parties involved. Moreover, the store only needs to pay a nominal service fee for these top-notch services.
- ***The Taxation Department:*** The taxation department assesses organizations and imposes a tax.

QUESTIONNAIRE

This questionnaire is intended for all retail staff members who interact with customers and process product and transaction records daily. Your opinions are valuable and will have an impact on the system's operations.

Shūchaku Anime Store is in the process of implementing a new online system and we would appreciate your feedback and opinion about this change. The purpose of this questionnaire is to gather basic information and comments on the current process to aid in the development of a comprehensive and satisfying new system. If you have any further questions or opinions, please do not hesitate to contact your manager. Thank you for taking the time to participate.

Part I. Please answer the following questions based on a typical 8-hour workday.

1. How many phone calls do you handle per day? _____
2. How many emails and social media enquiries do you receive per day? _____
3. How long does it take you every day to answer phone calls and enquiries? _____
4. How long does it take to upload the detail of each product on social media? _____
5. How many transaction do you settle each day? _____
6. How often do you promote the badminton coach/class? _____
7. Do you feel that recording customer information is complicated and time consuming? _____

Part II. Please give your comments and opinions

8. Identify the problems or difficulties with the current processing system:
_____

9. Do you have any concerns about the implementation of the new online system?
_____

10. What are your expectations for the new system?
_____

12. Do you require any assistance or resources to transition to a new system environment?If yes, please specify them.
_____

Part III. Please rate below statements or questions below by circling a number from 1 to 10.

Listed Questions	***Disagree***									***Agree***
13. How effective and efficient the current procedure is?	1	2	3	4	5	6	7	8	9	10
14. Is the current products and their categorization are well organised?	1	2	3	4	5	6	7	8	9	10
15. Reduction of workload after introducing new system?	1	2	3	4	5	6	7	8	9	10
16. Allow you to understand and clarify customer queries in much preferable way?	1	2	3	4	5	6	7	8	9	10
17. The amount of confidence on your technical abilities	1	2	3	4	5	6	7	8	9	10

Brief Use Case Descriptions

Below is a Brief Use Case Description with concise overview of use case descriptions for the Order and Payment Subsystem. It provides a brief functional requisite for each use case of the subsystem. Each use case follows a verb-noun format and is accompanied by a succinct purpose statement. This user approach should ensure that the system provides good experiences for customers throughout the ordering product and payment processes, and overall make the website more user-friendly.

Brief Use Case Description: Order and Payment Subsystem		
Use case	Actor	Description
Placing order	Customer	Customer selecting products, adding them to the cart, providing shipping and payment information, and confirming the order for purchase
Guest checkout	Customer	Customer who does not have an account on the e-commerce website, proceeds with a one-time purchase by adding products to the cart, entering shipping and payment details, and completing the purchase without the need to create an account.
Tracking order	Customer	Customer logs into their account and accesses the order tracking feature to view the real-time status and progress of their orders (processing, packaging, shipping, or delivery)
View shipment status	Customer	Customers can view the current shipment status of their orders, including tracking numbers, estimated delivery dates.
View order history	Customer	Customers can access their order history to review a comprehensive list of their past orders. By clicking on specific orders, they can view detailed information, such as the products purchased, order dates, and statuses.
Transact payment	Customer	The customer makes payment transactions using the e-commerce website. The system ensures the safety of sensitive payment information.
Purchase gift	Customer	The customer can mark an order as a gift during the checkout process. They can provide a gift message and specify a different shipping address for the recipient to facilitate gift purchases.
Packaging order	Staff	Warehouse staff members use the packaging function to efficiently prepare orders for shipment.
Cancel order	Customer	The customer can manage their saved payment methods in their account settings. They can add new credit cards, update expiration dates, or remove old cards, providing flexibility in payment options
Manage payment method	Customer	The user can manage their saved payment methods in their account settings. They can add new credit cards,

		update expiration dates, or remove old cards as needed.
Sent payment confirmation emails	System	The system automatically generates and sends payment confirmation emails to customers after a payment transaction.

Table 3: Order and Payment Subsystem Brief Use Case Description

Use Case Diagram

Below is the use case diagram for the Order and Payment Subsystem. It is the virtual presents of the interactions between the actor and the Order and Payment Subsystem. As discussed in the 4th section, customers as primary actors for most of the use case of this subsystem, the system should fulfill tasks such as order placement, order tracking, and payment transactions. Furthermore, it should be able to provide the order packaging function for the warehouse staff. This diagram acts as a vital tool for enhancing project understanding and facilitating effective communication. It should define the subsystem's scope and functional requirements.

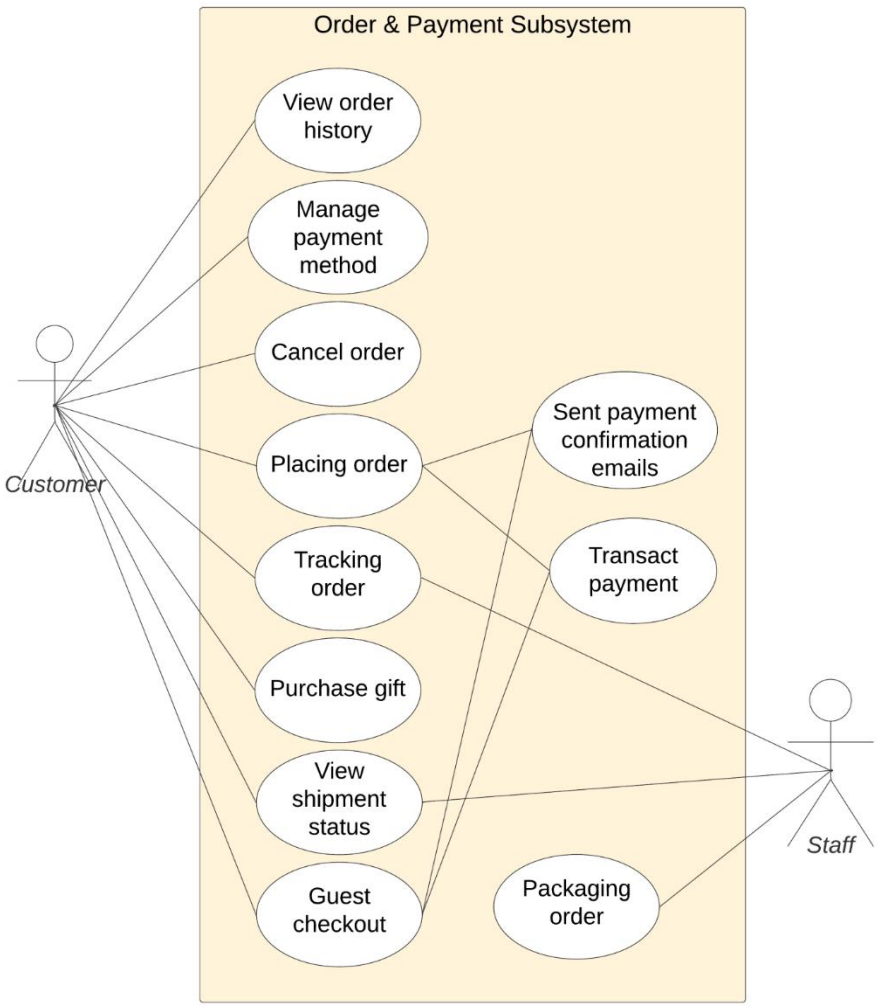

Figure 1: Order and Payment Subsystem Use Case Diagram

Domain Model Class Diagram

Below is the Domain Model Class diagram illustrating the new system for Shũchaku Anime store, showing the classes that are related to a corresponding information system, and defining multiplicities between classes.

- Payment: This class is composed of an Order.
- Order: Represents an Order, used to manage Order and Payment.
- Customer: Represents a customer and has two sub-classes:
  - Member: Denotes registered members.
  - Guest: Represents non-registered or guest customers.
- Staff: Represents the store's staff and has two sub-classes:
  - WarehouseStaff: Staff members responsible for warehouse operations.
  - OtherStaff: Includes in-store staff, managers, and other roles within the retail business.
- Product: There are two types of products:
  - Normal: Regular products available in the store.
  - Limited: Denotes limited edition or special products.
- Warehouse: Represents the physical storage for products.
- Account: Customer accounts, used for managing customer information and transactions.
- Lottery: Represents the lottery event for purchase limited product.
- LotteryTicket: An association class that connects Lottery and Account, indicating the association between customer accounts and lottery event. Customers use these tickets to participate in lotteries.
-

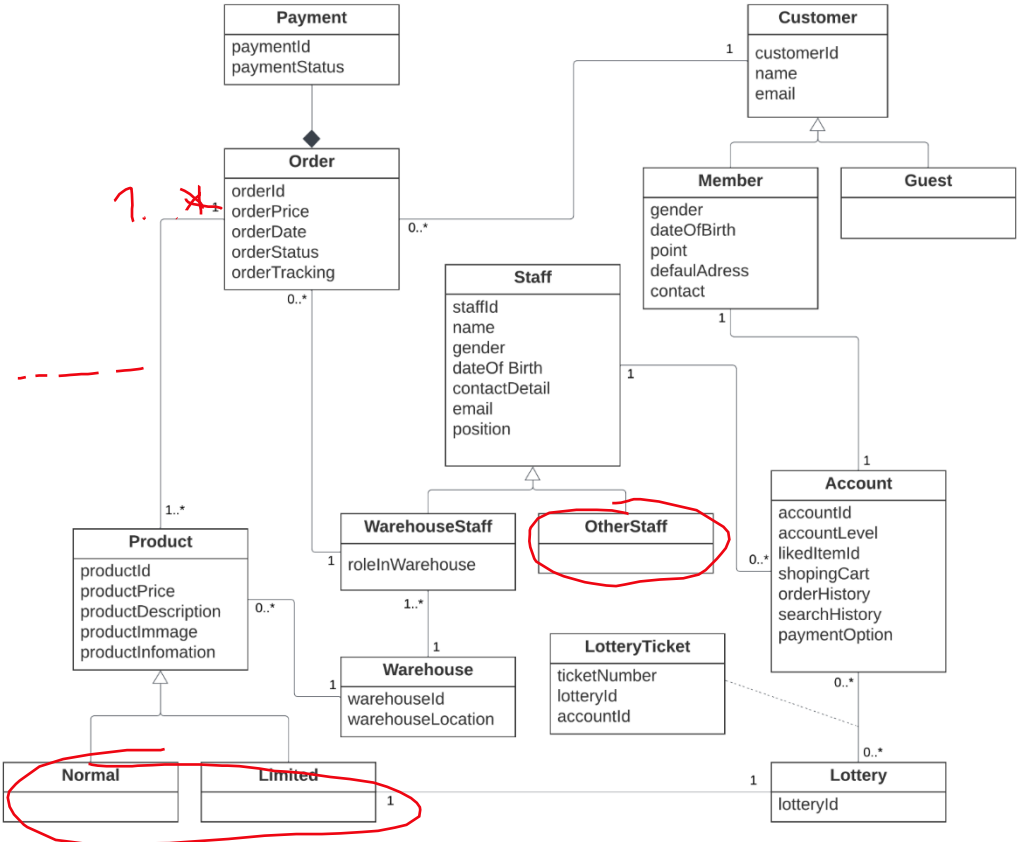

Figure 2: Domain Model Class Diagram

Fully Developed Use Case Description

The "Placing order" use case is a vital component of the Order and Payment subsystem, enabling customers to make purchases on a website. This process involves multiple steps, including product selection, entering shipping and payment information, and confirming the order. Below is the Fully Developed Use Case Description for "Placing order" that outlines its scenario, triggered event, description, actors involved, relative use cases, and stakeholders. Preconditions detail the prerequisites necessary to initiate the process, while postconditions describe the expected outcomes upon successful completion. The flow of activities delineates the sequence in which users and actors execute actions for a smooth workflow. Lastly, exception conditions specify potential issues that may arise and the corresponding error-handling procedures.

Fully Developed Use Case Description		
Use case name	Placing Order	
Scenario	A customer wants to purchase one or more products from the website.	
Triggered event	A customer logs in to the website and wants to purchase one or more products.	
Brief description	The process of a customer placing an order on the website. It includes selecting products, providing shipping and payment information, and confirming the order.	
Actor	Customer	
Related use cases	Order tracking Guest checkout Secure payment transactions Order cancellation and refund View shipment status Gift purchases	
Stakeholder	Customer Warehouse staff Business holder	
Precondition	The user is registered and logged into their account. Products are available for purchase and are added to the user's shopping cart.	
Postcondition	The order is successfully placed. Payment is processed securely. The order is recorded on the system with an order ID. Order confirmation and receipt are sent to the user via email.	
Flow of Activities	Customer	System
	1.Browsing for product 1.2 Add or remove item in shopping cart	1.1 Display information relate to user product search 1.3 Update the total price of items in cart 1.4 Display the cost on user browsing screen

	2. Check out	2.1 Ask the user to provide shipping information, including the delivery address and preferred shipping method.
	3. Provide shipping details.	3.1 Calculates the order total, including shipping costs, taxes and estimate arrival time.
	4. Selects a payment method (e.g., credit card, digital wallet) and enters the required payment information.	4.1 Securely processes the payment, verifying the transaction's success.
		5. Create order id 5.1 Sent order detail to warehouse staff 5.2 Sent order confirmation email to customer
Exception Conditions	2. Any of the selected products become unavailable before completing the order. 2. There are technical issues or system errors during the order placement process. 4. The payment transaction fails (e.g., due to insufficient funds or an invalid card) 4. The user abandons the checkout process at any point. 5. There are technical issues or system errors during the order id generation process.	

Table 4: Fully Developed Use Case Description

Activity Diagram

The provided diagram displays the activity flow for the fully developed "Placing Order" use case within the Order and Payment subsystem. It illustrates the interactions between users/actors and the logical sequence of activities involved in this process. Each column represents an actor and their associated tasks within the use case. The activities are connected to creating a well-structured and chronologically ordered workflow.

The diagram could be summed up in three phases, the "Browsing and Shopping Phase," where customers explore products, manage their shopping cart, the system should be able to display real-time updates of the cart's total price. The "Checkout Phase," during which users input shipping and payment information by the end of this phase user should have inform about all the cost include taxes and shipping fee while the system gathers essential transaction data. Finally, the "Post Payment Phase" will be initiated after a successful transaction, where the system generates an order ID, alerts warehouse staff to prepare the order, and sends a detailed order summary to the customer.

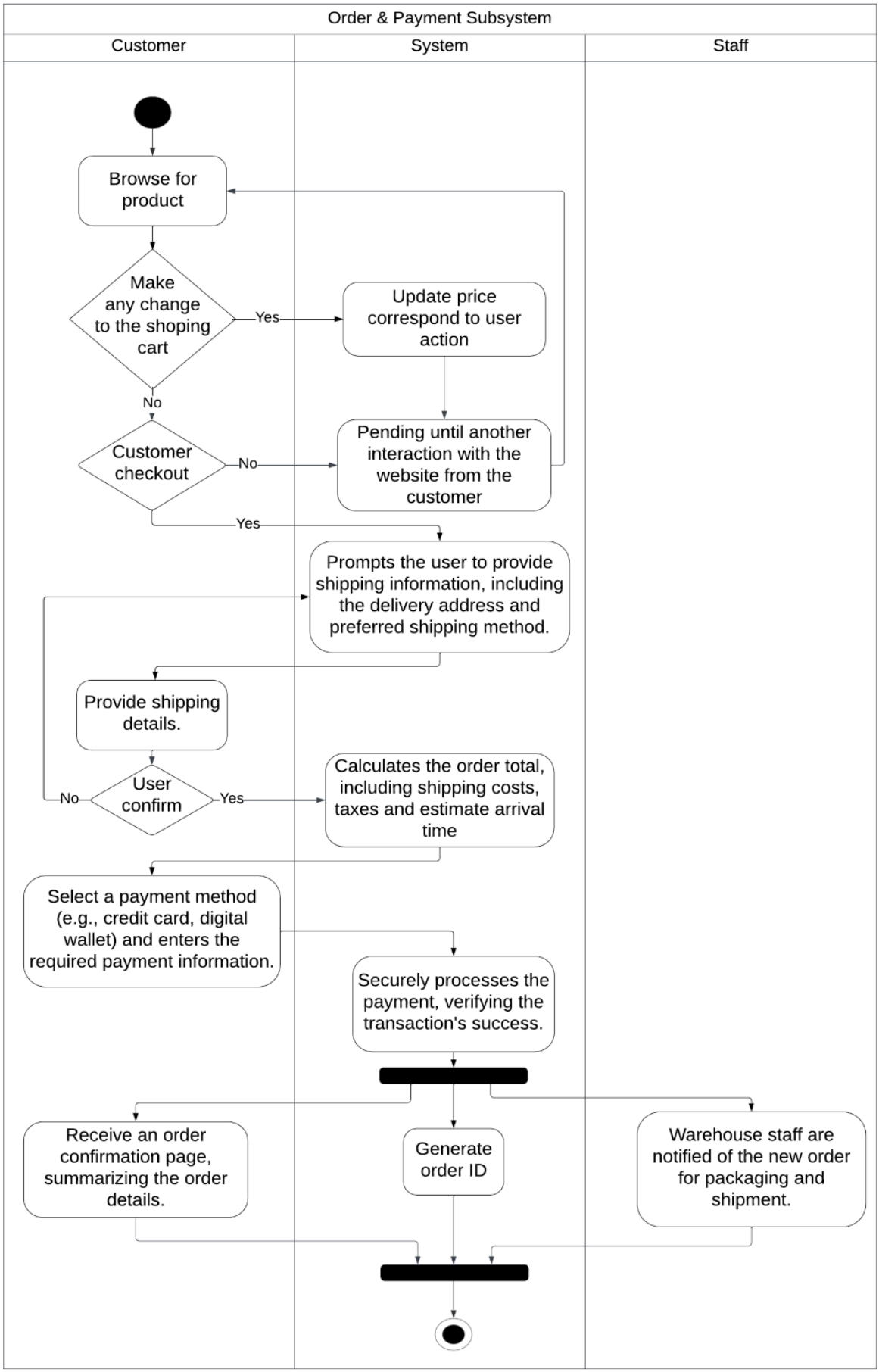

Figure 3: Activity Diagram

System Sequence Diagram

The provided diagram presents the system sequence for the fully developed "Placing Order" use case. This diagram effectively showcases the interaction between the customer and the system using a message like interactions. It is constructed using UML notation and is derived from the detailed use case descriptions and the activity diagram presented.

In this diagram we have the customer as an actor having back and forth message with the system with the sequence represented by the object lifetime. In this specific use case, we have the loop and an opt (act as an if-statement) frame to help represent the browsing phase in this use case. During the "Check out" phase, the customer submits shipping information, leading to the system calculating the total cost. As the customer provides payment information and completes the transaction, the system automatically generates an order ID, sends notice to warehouse staff for order preparation, and forwards a summarized order detail to the customer.

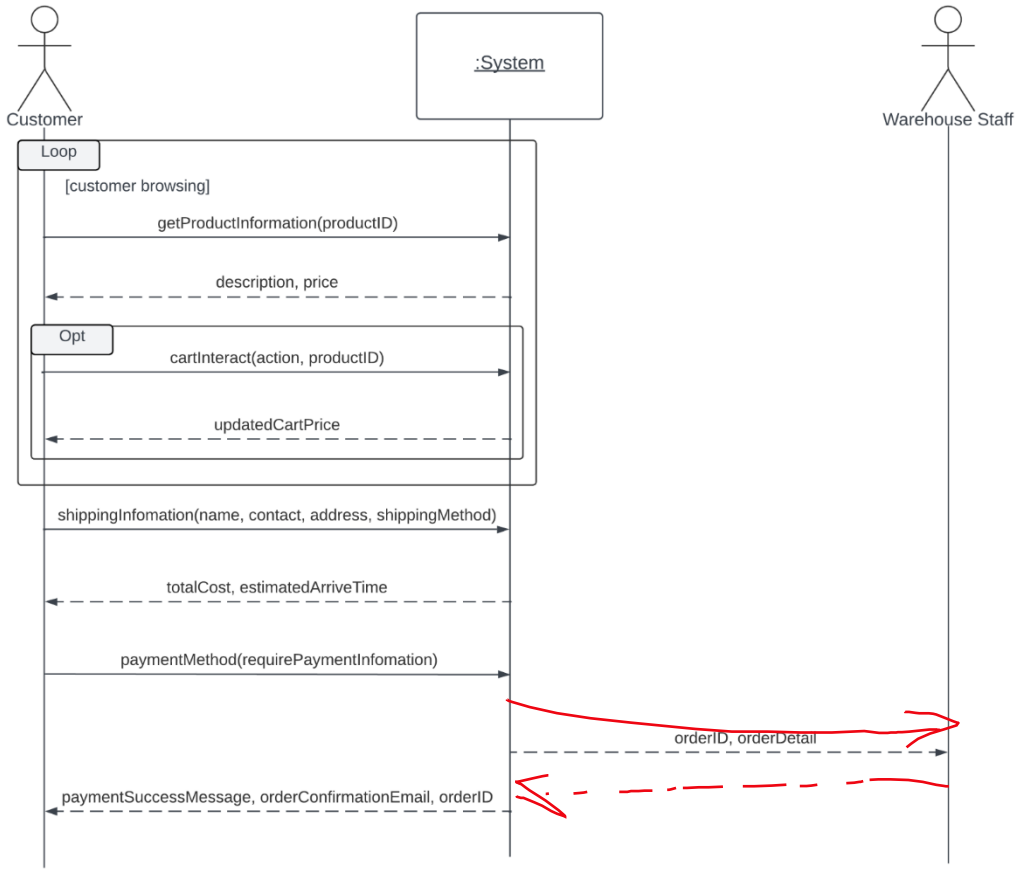

Figure 4: System Sequence Diagram