**HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**School of Information and Communication Technology**

Software Requirement Specification – SRS

# AIMS SOFTWARE
# Course: ITSS Software Development

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# 1. Introduction.

## 1.1. Objective.

This document serves as a comprehensive Software Requirements Specification (SRS) for the AIMS Project, a desktop-based e-commerce application. It provides an in-depth description of the software's required functionalities, performance characteristics, and reliability standards. The primary purpose of this SRS is to serve as a reference guide for stakeholders, technical leaders, development teams, and quality assurance personnel involved in the project.

## 1.2. Scope.

The software product, named AIMS, is a desktop e-commerce application. The AIMS Project seeks to transform the e-commerce landscape by offering a dependable and user-friendly platform accessible 24/7. It promises increased convenience for users and enhanced efficiency in online transactions. The main goals include delivering a smooth shopping experience, upholding high performance and reliability standards. AIMS will support up to 1000 concurrent users without notable performance degradation, operate continuously for 300 hours without failure, and resume normal functioning within an hour after any incident. It will maintain a maximum response time of 2 seconds in standard conditions and 5 seconds during peak usage periods.

## 1.3. Glossary

| *No* | *Term* | *Explanation* | *Example* | *Note* |
|---|---|---|---|---|
| **1** | Order | A specific description of the customer's request to purchase certain items and details about the customer, products, payment information, status, and total price. | | |
| **2** | Shopping cart | Temporary container to hold selected products to purchase. | | |
| **3** | Transaction | An exchange of monetary value between the customer and the AIMS software or other third party that handle the exchange of money. | | |
| **4** | Checkout | A process of making transactions by providing necessary information to process the transaction and receive related information. | | |
| **5** | Rush order | Special type of order that enables faster and customary delivery time. | | |

| | | | | |
|---|---|---|---|---|
| **6** | Payment Gateway Service. | A technology that facilitates online transactions by securely authorizing payments between customers and merchants. | VNPay | |
| **7** | CRUD | Short for Create, Read, Update, Delete operations performed on an object. | | |

1.4. References.

AIMS Project Description.

# 2. Overall description

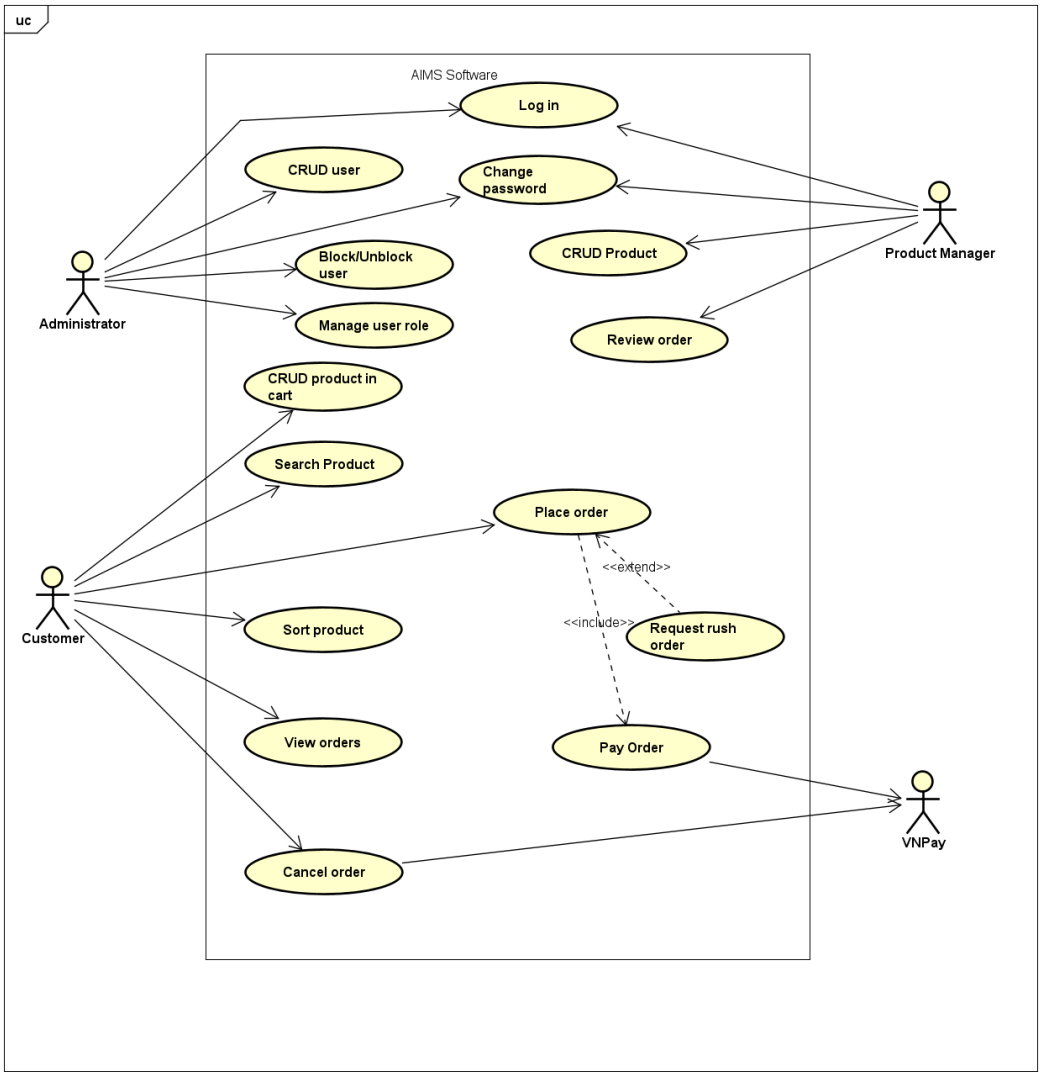
## 2.1. Survey.

*The AIMS Project involves four main actors interacting with the system:*

1. Customer: The customer represents those who are interested in media products and desires to make purchases via the internet. Customers interact with the system to search for, and choose media products which they want to purchase, edit their cart in order to request for placing an order. After that, customers must pay for the order to successfully receive the purchased items. They are also able to cancel the order at any time during the payment process.
2. Product Manager: Product managers are responsible for managing the product and verifying customers' pending orders. Their activities include creating and managing products in inventory, viewing lists of orders, and choosing to approve or reject them. Product managers must log in to be able to utilize those features, and eventually they can also change their password.
3. VNPAY system: It plays a critical role in executing transactions between customers and the AIMS system. Whenever a customer places an order, the VNPAY system will support the payment process by carefully guiding customers to make a successful payment.
4. Administrator: Admins are responsible for managing users' information, which includes managing users' roles (Product Manager, Customer), blocking or unblocking users. Admins also must log in to make use of those features, and consequently, they are able to change their password.

## 2.2. Overall requirements.

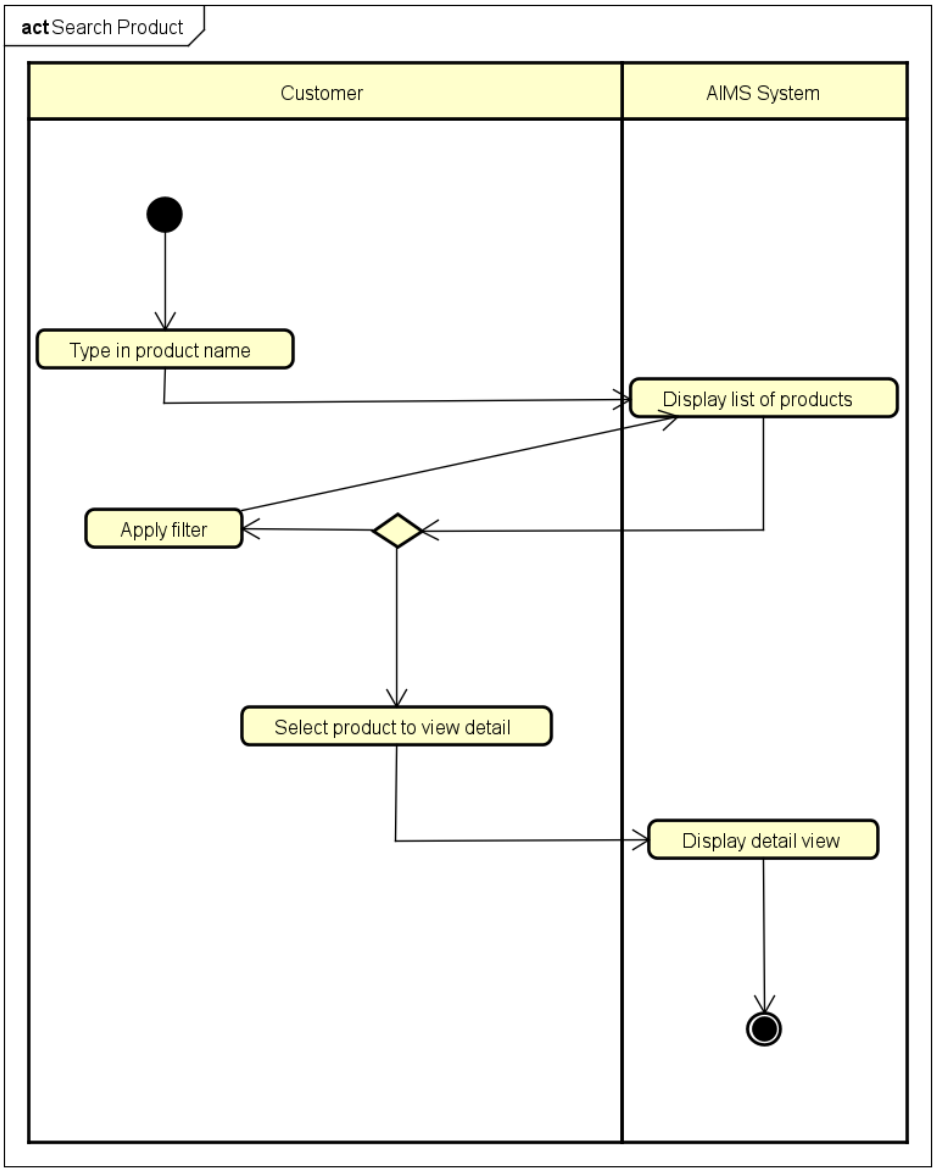
*Use case diagram represents the interactions between actors and use cases and shows the functional requirements of the system.*




## 2.3. Business processes

### 2.3.1. Search product.

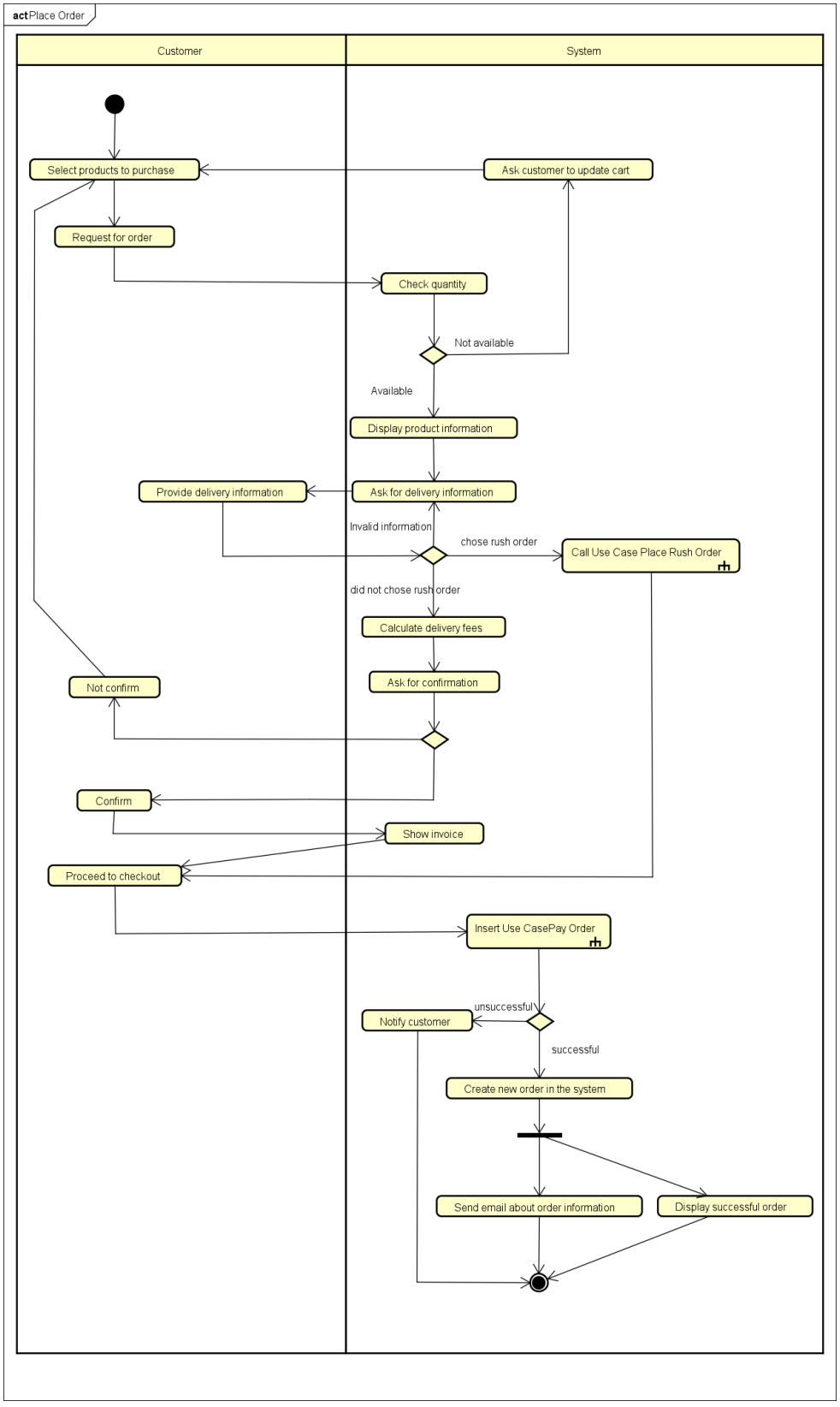
Customer types in product name in the search bar. The system displays a list of matching products. Customer may apply any filter for more matching products. Customer chooses the product for a detailed view and the AIMS System displays the product's detail.




### 2.3.2. Place order.

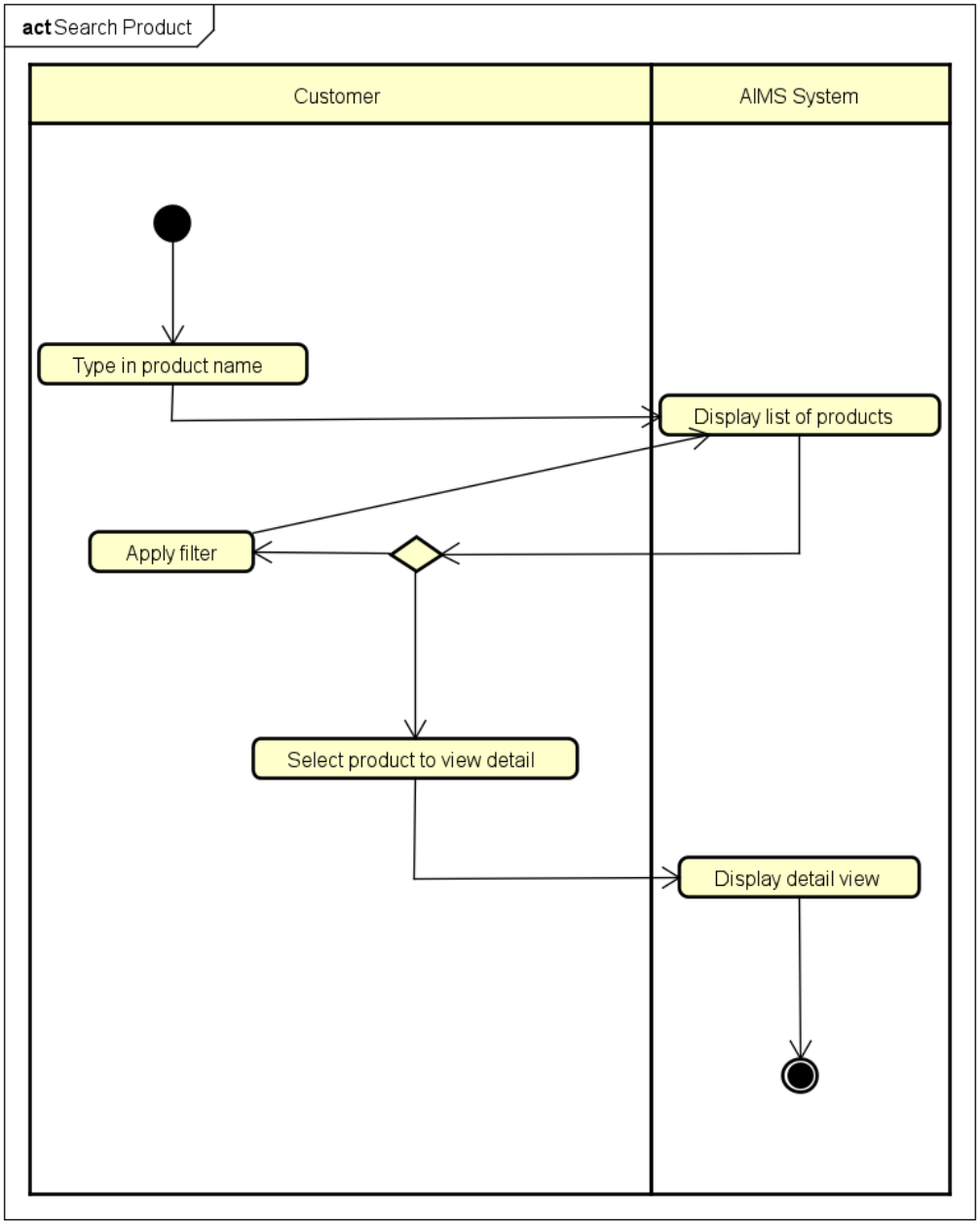
The process begins when Customer selects the products the wish to purchase in the cart. AIMS software then checks the products' availability in the inventory. If sufficient, it prompts the customer to input delivery information, displaying the order details for any necessary adjustments. If not, it will ask the Customer to update the cart. Once the Customer fills in the required information, AIMS Software calculates fees and price of the products and display invoice for customer. After that, it asks customer for confirmation to checkout and take advantage of VNPay for handing online transaction with customer. Finally, it displays order and transaction details to customer and send

email about the order's information.



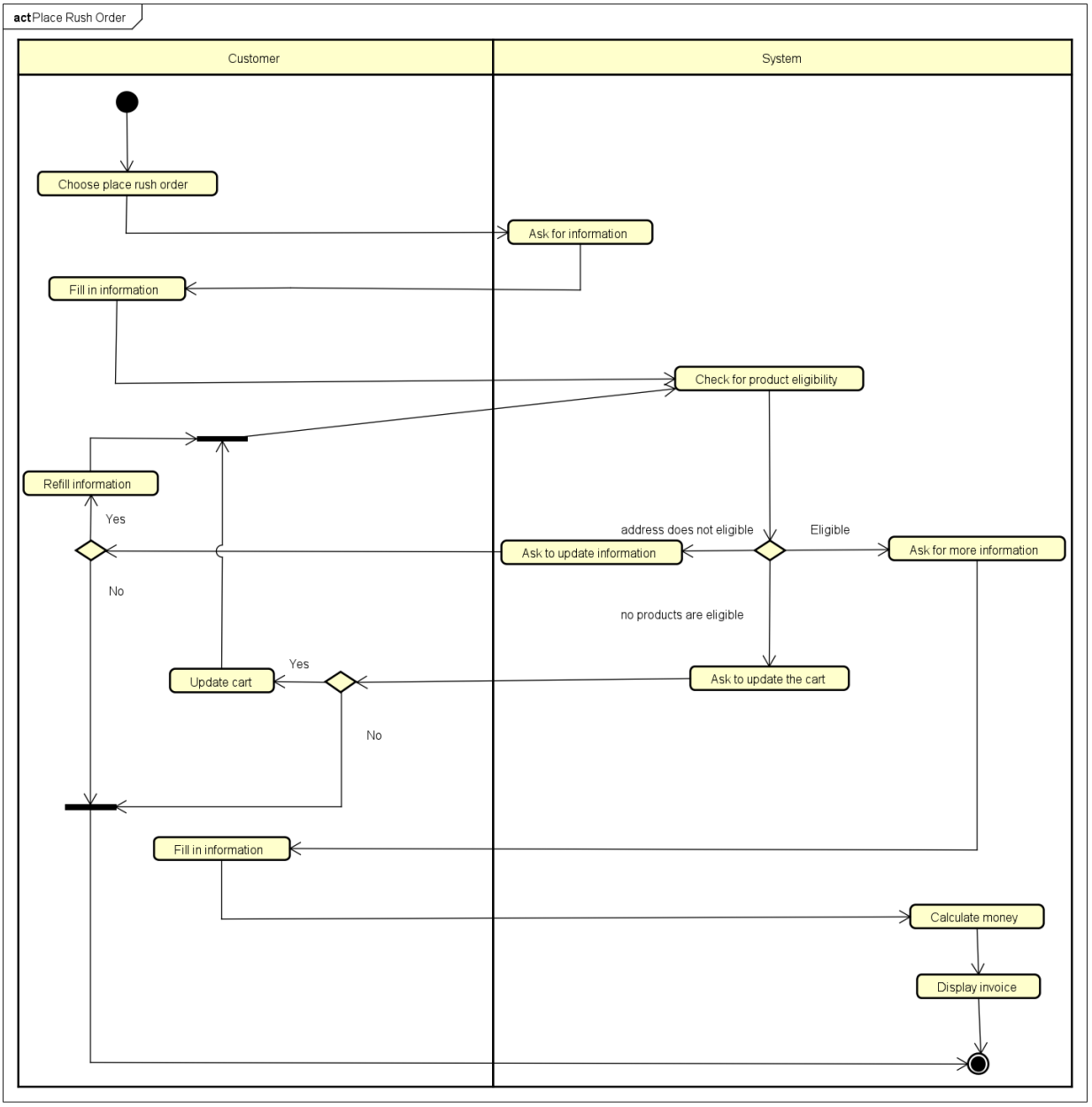
### 2.3.3. Pay order.

The Customer selects pay by VNPay to proceed the payment process. The AIMS system will request VNPay for handling the transaction. VNPay will ask customer necessary information about the payment. Customer will provide the required information to VNPay. After processing the transaction, VNPay will send the transaction details to AIMS and AIMS displays the details to customer.



### 2.3.4. Place Rush Order.

After selecting to place rush order, the AIMS system will ask for necessary information related to the order. Then, customer will provide the required information, AIMS will check the eligibility of the information and products. If the information does not satisfy rush delivery, it will ask customer to update information or end the process. Then it will calculate the price and fees of the order and display order information to customer.



# 3. Detail Requirements

## 3.1. Use case “Place order” – UC001.

1. **Use case code.**

   UC001

2. **Brief description.**
   This use case describes the interaction between Customer and AIMS System when Customer wishes to place an order with the selected items.
3. **Actors**
   - Primary actor: Customer
   - Secondary actor: VNPay
4. **Preconditions.**

Customer is in Cart view and wishes to place an order.

5. **Basic Flow of Events**

   Step 1: Customer selects the products they wish to purchase (See table 1)

   Step 2: Customer request for order

   Step 3: AIMS checks for quantity and temporarily keep the selected products in stock and displays to customer

   Step 4: The AIMS software asks for delivery information with order information

   Step 5: Customer fill in delivery information. (see Table 2)

   Step 6: The AIMS software calculates delivery fees and shows the invoice (see Table 3)

   Step 7: The AIMS software asks customer for confirmation to pay for the order.

   Step 8: Customer proceeds to pay for order (Use Case Pay Order)

   Step 9: AIMS software creates a new order in its system

   Step 10: AIMS software sends email about the order information

   Step 11: AIMS displays successful order and transaction information. (see Table 4)

6. **Alternate flows**

| No | Location | Condition | Action | Resume location |
|---|---|---|---|---|
| 1. | At step 3 | If the product quantity is not sufficient | 1. AIMS Software notify the customer | Resume at step 1. |

| | | | | |
|---|---|---|---|---|
| | | | 2. AIMS Software update the customer's cart. | |
| 2. | At step 4 | The customer request rush order | Call Use Case "Request Rush Order" | Resume at Step 7 |
| 3. | At step 6 | The customer wishes to adjust delivery methods | AIMS software redirects the customer to Step 4 | Resume at Step 4 |
| 4. | At step 6 | The customer wans to adjust products and quantity to purchase | AIMS software redirects the customer to Step 1 | Resume at Step 1 |
| 5. | At step 5 | The customer fill in invalid details or does not fill in required fields | AIMS software notify the customer. | Resume at Step 5 |

## 7. Input data

**Table 1: Input data of selected products for placing order**

| No | Data fields | Description | Mandatory | Valid condition | Example |
|---|---|---|---|---|---|
| 1. | Product name | Choose from cart | Yes | | Taylor Swift – Album "evermore" |
| 2. | Quantity | Use "+" or "-" symbol | Yes | Number greater than zero | 3 |
| 3. | Product type | Choose from a list | Yes | | Vinyl |

**Table 2: Input data of delivery information**

| No | Data fields | Description | Mandatory | Valid condition | Example |
|---|---|---|---|---|---|
| 1. | Receiver name | | Yes | | Phạm Tuấn Tài |
| 2. | Phone number | | Yes | 10 digits, number | 0123456789 |
| 3. | Province | Choose from a list | Yes | | Hanoi |
| 4. | District | Choose from a list | Yes | | Quận Đống Đa |
| 5. | Address | | Yes | | 1 Đại Cồ Việt |
| 6. | Instructions | | No | | Giao vào giờ hành chính |

## 8. Output data

**Table 3: Output data of fee information and invoice**

| No | Data fields | Description | Display format | Example |
|---|---|---|---|---|
| 1. | Product title | Title of the media product | | Taylor Swift Album "evermore" |
| 2. | Unit Price | Price of the each product in the list | In Vietnam Dong, separated by comma for thousand | 600,000đ |
| 3. | Type | The type of corresponding product | | Vinyl |
| 4. | Quantity | Quantity of corresponding product | Positive integer | 3 |
| 5. | Subtotal | Total price for the corresponding product. | | 1,800,000đ |
| 6. | Shipping fee | | Positive integer | 30,000đ |
| 7. | Total | Total price of all products and shipping fee | In Vietnam Dong, separated by comma for thousand | 2,650,000đ |

**Table 4: Output data of order information and transaction**

| No | Data fields | Description | Display format | Example |
|---|---|---|---|---|
| 1. | Customer name | | | Phạm Tuấn Tài |
| 2. | Phone number | | 10 number digits, greater than 0 | 0123456789 |
| 3. | Province | | | Hanoi |
| 4. | District | | | Quận Hai Bà Trưng |
| 5. | Address | Detailed address of customer (building, house number, ...) | | Số 1, Đại Cồ Việt |
| 6. | Total amount | Total amout of products in the order and shipping fee | Positive integer, in Vietnam Dong, separated by | 1,830,000đ |

| | | | | |
|---|---|---|---|---|
| | | | comma for thousands. | |
| 7. | Transaction ID | According to VNPay | | |
| 8. | Transaction content | According to VNPay | | |
| 9. | Transaction date | | Dd/mm/yy | 05/10/2023 |

## 9. Postcondition.

- A new order is created for processing in the AIMS system.
- The customer receives email about order information & transaction details.
- The customer sees the displayed information regarding transaction & order information.

## 3.2. Use case UC002 – Pay Order

1. **Use case code.**
   UC003
2. **Brief description.**
   This use case describes the interaction between Customer, AIMS System and VNPay when Customer wishes to pay for an order.
3. **Actors.**
   - Primary actor: Customer
   - Secondary actor: VNPay
4. **Preconditions.**
   Customer has requested for an order and AIMS software have checked the order's availability and displayed the invoice the the Customer.
5. **Basic flows of event.**
   Step 1. Customer select payment method as VNPay
   Step 2. The AIMS software requests VNPay for handling the transaction
   Step 3. Customer proceed with VNPay to make transaction
   Step 4. VNPay processes the transaction sends details to the software
   Step 5: The AIMS software displays transaction details. (See Table 1)
   Step 6. Customer proceeds to Step 9 – Use Case Place Order
6. **Alternate flows of event.**

| No | Location | Condition | Action | Resume location |
|---|---|---|---|---|
| 1. | Step 4 | If the transaction processed by VNPay is failed | AIMS Software notifies the customer | Resume at Step 6 – Use Case "Place Order" |
| 2. | Step 3 | If the customer exit the payment process | AIMS Software redirects Customer to Step 6 – Use Case "Place Order" | Resume at Step 6 – Use Case "Place Order" |

7. **Input data.**

   According to VNPay's requirements.

8. **Output data**

**Table 1: Output data of transaction details.**

| No | Data fields | Description | Display format | Example |
|---|---|---|---|---|
| 1. | Transaction Status | Status of the transaction processed by VNPay | Text | Successful |

| | | | | |
|---|---|---|---|---|
| 2. | Transaction date | The date of the transaction received from VNPay | Dd/mm/yy | 13/03/2024 |

9. **Postconditions.**
    - Customer receives information about transaction status
    - Customer proceed to Step 9 – Use Case “Place Order”

## 3.3. Use case UC003 – Place Rush Order.

1. **Use case code**
   UC003
2. **Brief discription.**
   This use case describes the interaction between Customer and AIMS System when Customer wishes to place an rush order with the confirmed items.
3. **Actors.**
   - Primary actor: Customer
   - Secondary actor: None
4. **Preconditions.**
   - Customer has selected all the products that need to be purchased
   - Customer has proceed to request for order and the AIMS has checked the availability of products.
   - Customer has filled in and submit delivery information
5. **Basic flow of events.**

   Step 1: Customer chooses rush order.

   Step 2: The AIMS software checks for address and product eligibility

   Step 3: The AIMS software asks for more information for rush delivery (See Table 1)

   Step 4: Customer fills in the form

   Step 5: The AIMS software calculate the money for rush delivery and displays invoice and delivery information. (See Table 2)

   Step 6: The customer proceed to Step 7 – Use Case "Place Order"

6. **Alternate flows.**

| No | Location | Condition | Action | Resume location |
|---|---|---|---|---|
| 1. | At step 2 | If no products are eligible for rush delivery | The AIMS software asks customer to update the cart. | Resume at step 1 – Use case "Place Order" |
| 2. | At step 2 | If the address does not suports rush delivery | The AIMS software asks customer to update delivery information. | Resume at Step 5 – Use case "Place Order" |

7. **Input Data**

Table 1: Input data of further information for rush delivery.

| No | Data fields | Description | Mandatory | Valid condition | Example |
|---|---|---|---|---|---|
| 1. | Delivery Date | Choose from the displayed calendar | Yes | Delivery date no smaller than current date | March 12th 2024 |
| 2. | Delivery Time | Time for delivery in format hh:mm (24-hour form) | Yes | -hh must be in range (06, 22)<br>-mm must be in range (00, 59)<br>-No smaller than current time | 15:30 |
| 3. | Delivery instruction | Text | No | | Call 15 minutes in advance |

## 8. Output data

Table 2: Output data of fee information and invoice

| No | Data fields | Description | Display format | Example |
|---|---|---|---|---|
| 1. | Product Title | Title of the media product | | Taylor Swift Album "evermore" |
| 2. | Unit Price | Price of the each product in the list | In Vietnam Dong, separated by comma for thousand | 600,000đ |
| 3. | Type | The type of corresponding product | | Vinyl |
| 4. | Quantity | Quantity of corresponding product | Positive integer | 3 |
| 5. | Subtotal | Total price for the corresponding product. | | 1,800,000đ |
| 6. | Eligibility for rush delivery | Corresponding checkbox for each product. | Green "V" for "Eligible" and red "X" for "Not eligible". | X |
| 7. | Total fee for non-eligible products | Delivery fee for products that can not be rush delivery. | Positive integer, in Vietnam Dong, separated by comma for thousands. | 30,000đ |

| | | | | |
|---|---|---|---|---|
| 8. | Total fee for eligible products. | Delivery fee for products that can be rush delivery. | Positive integer, in Vietnam Dong, separated by comma for thousands. | 60,000đ |
| 9. | Total delivery fee | | Positive integer, in Vietnam Dong, separated by comma for thousands. | 90,000đ |
| 10. | Total | Total price of all products and shipping fee | In Vietnam Dong, separated by comma for thousand | 2,650,000đ |

## 9. Postcondition

- Customer receives information about rush delivery order
- Continue to Step 7 – Use Case “Place Order”

# 4. Supplementary requirements.

## 4.1. Usability

### 4.1.1. Appropriateness recognizability.

All-access functions must be visible from the initial page, and facilitate the process of selecting and viewing products of the customer. Primordial functions must be highlighted.

### 4.1.2. Learnability.

Names of the functions must conform to the Glossary and processes of selecting, and purchasing products in order for new customers can easily familiarize themselves with AIMS System.

### 4.1.3. Operability.

The use of the system must be clear to novice users: there must not be the need for supplementary help or explanation.

### 4.1.4. User error protection.

The application must prevent the user from entering inconsistent information. Any mistakes concerning the experience of the customer with AIMS system should be addressed and redirect user to the appropriate steps.

## 4.2. Reliability.

### 4.2.1. Availability.

The system must operate – 24 hours a day, 7 days a week.

### 4.2.2. Fault tolerance.

The system must remain available in normal working conditions. In case of externally provoked abnormalities, AIMS system is maintainable. Mean Time Between Failure (MTBF) shall exceed 300 hours. Mean Time To Repair (MTTR) is maximum at 1 hour from the incident.

### 4.2.3. Security.

Data about sales and customers are only accessible by the customer herself, the sales manager, and workers authorized by the sales manager. Different levels of authority is applied.

### 4.2.4. Recoverability.

In the case of energy, communication, or data failure, the system must become operational again within 1 hour of the incident.

## 4.3. Performance.

### 4.3.1. Time behaviour.

The maximum response time of the software is 2 seconds under normal conditions and 5 seconds during peak hours.

#### 4.3.2. Capacity.

AIMS System can serve up to 1000 customers simultaneously without reducing performance.

## 4.4. Supportability.

Customer are enabled to have easy access to any new version of the AIMS software.